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Pedagogical concerns and market demands in VET

Proceedings of the 3rd Crossing Boundaries in VET conference

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Table of contents

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Editorial

In an attempt to establish a VETNET publication series of conference proceedings, the 3rd Crossing Boundaries builds upon the tradition started in Bremen 2015 <https://vetnetsite.files.wordpress.com/2015/10/crossing_boundaries_2015.pdf> and continued in Rostock 2017 < https://www.ibp.uni-rostock.de/fileadmin/uni-rostock/Alle_PHF/IBP/Aktuelles/VET-Conference_2017/Proceeding_onlineversion_final_01.pdf> and joins the collection initiated by Nägele and Stalder (2018) < https://zenodo.org/record/1319718#.XLDEpy0ryfU> by publishing the collection of contributions in an edited book of proceedings, based upon open access publication policies and available online.

This might contribute to make it easier to follow-up upon on-going research produced by the VETNET community and to facilitate discussion and academic cooperation among the members of this community, both in terms of objects of research, theoretical foundations as well as methodological strategies and research methods.

There are 65 contributions in this volume, produced by more than 100 scholars, ranging from well-known and well-established professors to those at the beginning of their academic careers, still under way to their PhDs. They come mainly from Europe, but also from all other continents but Australia, and research produced in 17 countries is presented here. Significantly, there are a few contributions from South America in this edition of the Crossing Boundaries conference, pretty much focused on the conference theme: pedagogical concerns and market demands.

When we launched the call for this conference, we invited contributors to focus on pedagogical ideas, approaches and proposals helpful to contribute to the education of workers and citizens. We are convinced that Vocational Education and Training has to be able to comply with the changing demands set by the productive system in a growing precarization context. The notion of work and working relations are not what they used to be during the 20th century, and these changes pose new challenges on VET policies and practices.

The papers presented and discussed at the conference offer a good amount of research results and interpretations on issues like careers and vocations nowadays and how they are addressed by VET providers and experienced by VET students, apprentices and teachers and trainers. Another issue strongly present in the conference is that of the reshaping of dual VET in those countries where it was well established in the last century and also in those trying to implement it nowadays. VET teachers and trainers is the third clear axis of contributions to this conference. Of course, there are other issues addressed like systems and agents in VET; assessment, evaluation and quality; VET and social inclusion or Continuing VET.

We want to thank the financial support for the conference provided by the *Facultad de Filosofía y Ciencias de la Educación*, the *Departamento de Didáctica y Organización Escolar*; the generous contribution of members of the research group *Transicions* (GIUV2013-093) all three from the *Universitat de València*, as well the funding and support provided by *Fundación Bankia por la Formación Dual*.

We want to also acknowledge the support provided in the organization of the conference and in the preparation of the proceedings by Susann Krugmann and Franz Kaiser from the University of Rostock, Michael Gessler from the University of Bremen, Christof Nägele from University of Applied Sciences and Arts Northwestern Switzerland and Barbara Stalder from Pädagogische Hochschule Bern.

We also want to thank Pilar Cambronero for her work, without which these proceedings would not have been ready before the conference. Of course, authors and co-authors are the most important contributors to this volume and therefore those to be thanked for their effort. Here I would like to point to the work by young colleagues, particularly women, in several universities in Spain, who are building up the VETNET Spanish community and most of whom are determined to continue researching on VET, which has often been left aside of the attention of educational research in this country, with a few exceptions. Having them participating in the conference in Valencia is a joy.

Prof. Dr. Fernando Marhuenda Fluixá, Valencia, 12th April 2019

Götzl, M., Geiser, P., Jahn, R. W., Teyke, T. & Frind, H.(2019). The Academic Institutionalisation of VET as a Science in the German-speaking Area – A Collective Biographical and Network Analytical Study of Discipline Formation in the 20th Century. In F. Marhuenda & M.J. Chisvert-Tarazona (Eds.), *Pedagogical concerns and market demands in VET. Proceedings of the 3rd Crossing Boundaries in VET conference, Vocational Education and Training Network (VETNET)* (pp.1-9) https://doi.org/10.5281/zenodo.2641693

The Academic Institutionalisation of VET as a Science in the German-speaking Area – A Collective Biographical and Network Analytical Study of Discipline Formation in the 20th Century

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Abstract

The contribution focuses on the internal process of the academic formation and establishment of vocational and business education (VET) as a science or as partial disciplines of educational science in the 20th century. Starting with theories of science (e.g. Stichweh, 2013; Clark 1972) in consideration of the establishment thesis of Reinisch (2009; 2010) and the generation thesis of Zabeck (2006) the study would like to contribute to a deeper understanding of the formation and establishment of VET as a science in the German-speaking area. For this purpose the VET professors of the German-speaking area in the 20th Century, as well as their generational relations (in this contribution initially employment and qualification relations) are considered. The methodological access is achieved through a collective biographical quantitative approach based on a separate SQL database by means of network analysis and visualisations via Gephi.

Keywords

history of VET; establishment of VET (as a science); collective biographical; network analysis

1. Introduction

Reinisch (2009) states in a socio-scientific analysis of vocational and business education (resp. 'Berufs- und Wirtschaftspädagogik' or VET as a science in the German-speaking area) that this has decades ago reached the status of an 'established science' (Clark, 1972; 1974) and is presently hold a status as 'normal science' (Kuhn, 1962; 2014). In this respect, he concludes, it is also part of normal science that the members of the corresponding discipline repeatedly ascertain their own foundations. In this respect, Reinisch sees a considerable need for research (Reinisch, 2009; 2010).

The differentiation process (Stichweh, 2013) of vocational and business education or VET as educational science (partial) disciplines[1] is traditionally described in the corresponding contributions of historical business and vocational education research against the background of the establishment of teacher training programmes for commercial and vocational schools (e.g. Pleiß, 1973; Czycholl, 1974; Zabeck, 2009a; Reinisch, 2010). Accordingly, their non-simultaneous constitution and development (e.g. Zabeck, 2009a; Büchter, Klusmeyer, & Kipp, 2009; Lisop, 2009) is presented primarily as being exogenously induced. Endogenous or inner-scientific differentiation processes (Stichweh, 2013), which focus on the formation of internal scientific systems and are equally important for comprehensive reconstruction, were largely ignored - apart from a few noteworthy approaches (Kipp, & Miller-Kipp, 1994; Klusmeyer, 2001; Reinisch, 2009; 2010). As a result, the relationship between internal and external differentiation of business and vocational education and neighbouring academic (partial and/or sub-) disciplines - such as social pedagogy (e.g. Ostendorf, 2009), nursing pedagogy (e.g. Reiber, & Remme, 2009) or economic education - has so far hardly become the subject of systematic considerations.

Our initial focus is on vocational and business education or VET and its internal differentiation as a communication community of scientists. In a long-term perspective, we are aiming at questions about the development and the internal and external constitution of vocational and business education as well as its relations and demarcation lines to neighbouring (partial and/or sub-) disciplines by the quantitative and qualitative analysis of scientific communication relations. In this respect, our (future) studies should lead to a deeper understanding of the development and shaping of vocational and business education or VET as (partial) discipline(s) and its relevance within educational science.

However, before such wide-ranging analyses or even partial analyses of communicative system formation processes of vocational und business education (and neighbouring partial and/or sub-) disciplines seem possible, a suitable basis, more specifically a population of the units or potentially relevant subjects involved in the communication is required. We want to outline this in a first attempt in the form of a collective-biographical and network-analytical approach. In this contribution, therefore we examine the process of the (academic) development and establishment of the VET as a science or educational science (partial) discipline in the 20th century on the basis of a (partial) theory of scientific research. In this respect, we follow on from the above-mentioned establishment thesis of Reinisch (2009) and sketch the emergence and establishment of the VET against the background of Zabeck's (2006) generational classification along the stage model of the institutionalisation process of scientific disciplines of Clark (1972; 1974) (cf. chapter 2). The central question is whether the VET - as Reinisch states - is an established educational science partial discipline or science in the sense of Clark and whether an establishment period can be narrowed down. The methodological research access (cf. chapter 3) is carried out by a collective-biographical-quantitative data collection (Schröder, 2011) of the employment and qualification relations of the professors[2] of the business and vocational education. Gephi is used to carry out the network analysis of

[1] If we use the term partial discipline in the following, we assume that this is an established scientific discipline in the sense of Clark (1972, 1974) (cf. chapter 2). The term subdiscipline, on the other hand, is used when this stage does not yet appear to have been reached.

[2] The data corpus does not currently contain junior professors (W1) and senior lecturs. As a first step, we have placed them on an equal footing with habilitants. In the future, however, the data corpus is to be extended to all habilitated scientists (of vocational and business education) with teaching authority (venia legendi) and with independence in research and teaching (without habilitation) and thus includes private and senior lecturers as well as junior professors.

the relevant data of the collective-biographical data corpus. The paper concludes with a short presentation of our first preliminary[3] results with the focus on business education[4] as a part of VET (cf. chapter 4).

2. Theory

In the centre of this contribution we focus on the stages of scientific institutionalisation from Clark (1972; 1974). According to this model, every new discipline's development process begins with the stages of the 'solitary scientist' and of 'amateur science'. This development - which we do not consider here - already took place for the business education in the 19th or at the transition into the 20th century and for vocational education in the 20th century. For an empirical analysis of this period, plenty of data on the actors involved and the emerging institutions are missing, so this process remains a research gap.

The third stage, 'emerging academic science', begins with the establishment of chairs at universities. If the holders of these first chairs succeed, among other things, in establishing a training programme in the form of a university-based course of study, ensuring stable self-recruitment from their own young scientists and subsequently promoting a quantitative expansion of academic discipline, then the fourth stage of 'established science' has been reached and this is exactly what we are focusing in our current contribution (see figure 1).

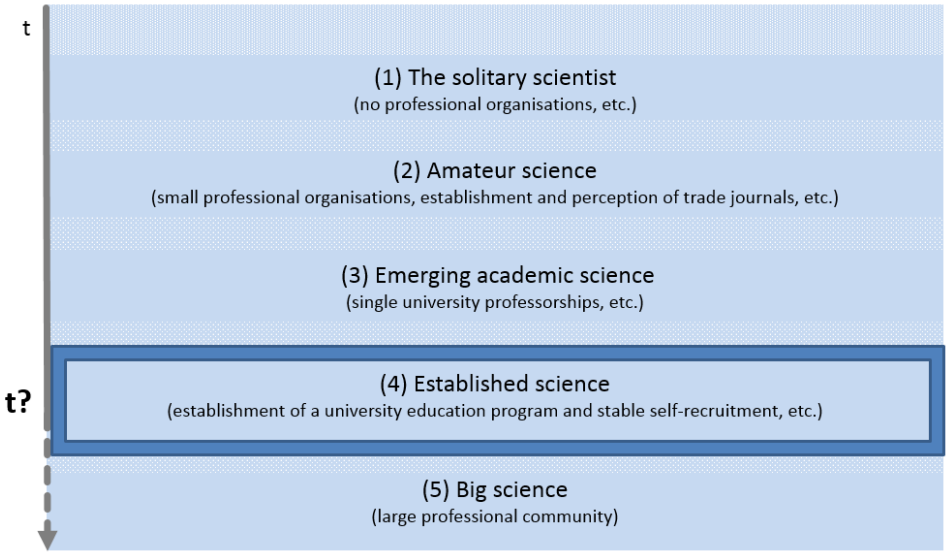

Figure 1 Clark's stage model of the institutionalisation process of scientific disciplines and our focus on the established science, Source: Own presentation based on Clark (1972)

As already quoted at the beginning, Reinisch (2009) explicates in his scientific sociological analysis of the vocational and business education that it has achieved the status of an established science decades ago. But an empirical examination of Reinisch's determination of

[3] In view of the continuation and completion of the data collection and against the background of an empirical foundation of generation classification or another grouping or periodisation that is still outstanding, our findings are to be regarded as preliminary.

[4] The restriction to business education is to be legitimized on the one hand by an interim research pragmatic limitation and our work progress and on the other hand by the non-simultaneity of the academic constitution and the development of business and vocational education (cf. chapter 1).

the degree of institutionalisation of the vocational and business education or establishment thesis of the VET is pending.

In his remarks, he not only assigns the VET the status of an established science, but also marks a period of time in which the transition has taken place. With the term 'decades', which he has chosen but not specified in more detail, he focuses in our understanding on a period 30-40 years ago, ca. 1970 to 1980. The basis on which he makes this assessment remains open and implicitly raises the question of whether the VET is actually an established science or scientific (partial) discipline because Reinisch can only prove this to a limited extent. In addition, the question arises from which period of time onwards we can consider the focused VET as an established science or an established educational science (partial) discipline.

Nevertheless, Reinisch was not the only one in the VET who dealt with the development of his own field. Another well-known representative was Zabeck (2006), who dealt with the question of generation classification within the VET and distinguished between three generations. A first generation, whose initial appointment took place before 1955/60; a second generation from about 1955/60 and a third generation since 1985/90 (Zabeck, 2009a; 2009b).

Against the background of Zabeck's generational classification, we have based our analyses on a (preliminary) generational span of 30 years[5], starting from the first chair for 'Handelsschulpädagogik und betriebswirtschaftliche Nachbargebiete' (transl. 'commercial school education and commercial science neighbouring areas') at the 'Handelshochschule Leipzig' (transl. 'Higher education institution of commerce Leipzig') and the first professor Karl von der Aa (1876 - 1937) in 1923, according to prevailing doctrine (e.g. Reinisch 2009). This makes it possible to carry out the following analyses within the first three generations:

- Generation 1: Initial appointment 1923-1953
- Generation 2: Initial appointment 1954-1984
- Generation 3: Initial appointment 1985-2015
- *(Generation 4: Initial appointment after 2016)*

In this respect, the research question, we are looking at here, can be concretized as follows:

(F1) From which generation onwards can VET (resp. business and/or vocational education) be described as an established science or partial discipline(s) of educational science (in the sense of Clark, 1972; 1974)?

3. Methods

In order to answer the research question (F1), a collective-biographical data corpus (Schröder, 2011) was created, in which e.g. data on the academic qualifications and employment relationships as well as on professional scientific employment (including appointments and de-

[5] This classification is to be regarded as an attempt in creating meaningful grouping, periodisation or processualisation, which is not only debatable from the perspective of social science research, but also from the historian's point of view, as he stands methodically on clay feet like all process-contemplating interpretations of history and must first prove to be able to reach a consensus through further investigations (Schulze, 2002). Nevertheless, it offers the advantage of systematisation. We also regard the generation classification as provisional, since the development of a suitable network-analytical method for the empirical foundation of the generation classification or grouping is still pending.

nominations) are included. The following data collection strategy (see figure 2) was used to establish the data set. It is characterised by a complete analysis of easily accessible fundamental VET sources with extensive biographical information on professors of the discipline. Finally, missing were determined and complemented by a complementary analysis as far as possible.

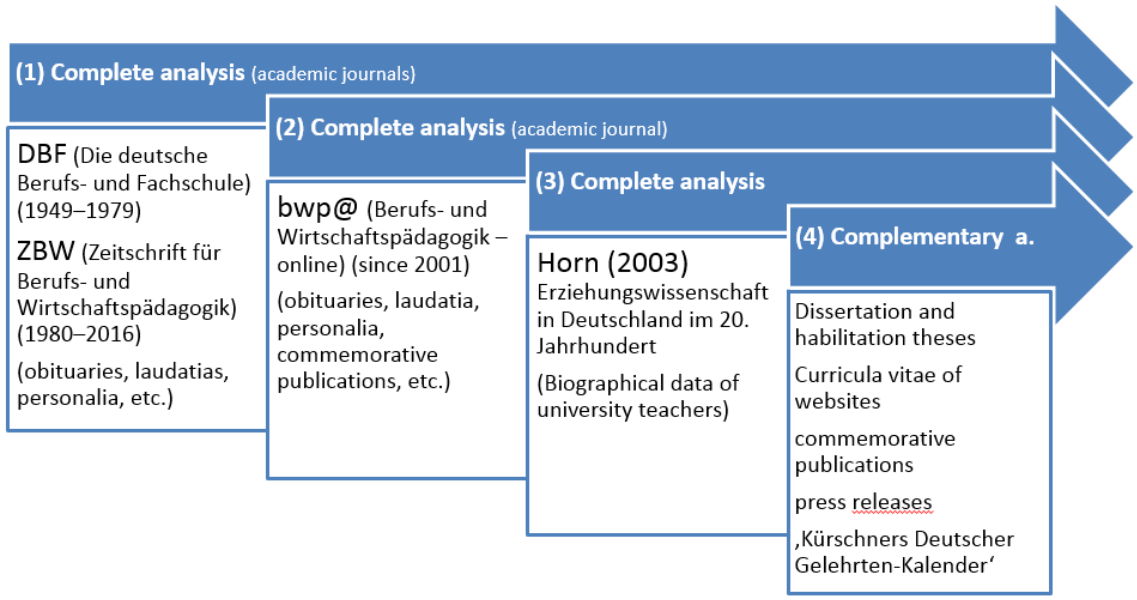

Figure 2 Data collection strategy, Source: Own presentation

Based on this collective-biographical data set, we created a network by the visualisation and exploration software Gephi (see figure 3). It covers the qualification and employment relationships of the professors of the VET in the German-speaking area.

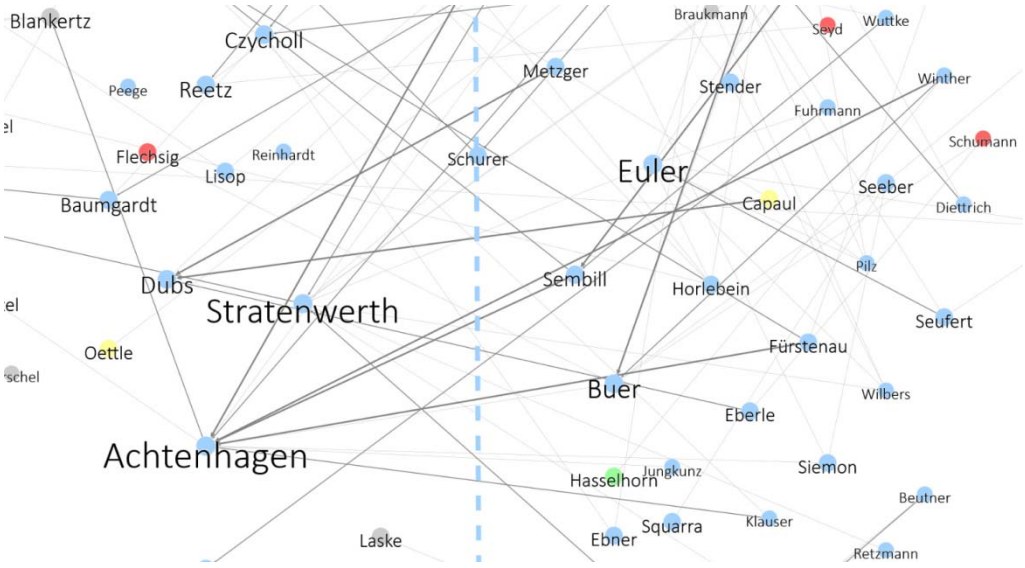

Figure 3 Enlarged detail of a first test plot of the network of VET professors, Source: Own presentation based on the collective-biographical data set (status: Dec. 2018)

For the visualisation we used the Event Graph Layout (Spekkink, 2016). This enabled us to arrange the network on the x-axis according to the year of initial appointment and on the y-axis according to the ForceAtlas2 algorithm (Jacomy et al., 2014) for spatial representation. The classification of the professors according to disciplines is based on the classification by 'Kürschners Deutscher Gelehrtenkalender' (2018). Each network node represents a professor

and each arrow or pointed edge represents a relation or some relationships to an academic teacher. The size of the labels of the nodes represents the indegree. So the larger the label of the node, the more connections due to employment and/or qualification relations of subsequent professors are present at this node. The same applies to the arrows. So the larger the arrow, the more employment and qualification relationships between the professors and their academic teacher are presented. The dividing dotted vertical line marks the transition from the second to the third generation (cf. chapter 2).

4. Preliminary results for business education as a part of VET

Clark's model (cf. chapter 2) focuses on the quantitative development of a discipline, its social network and the ability to self-recruit. Based on the research question (F1) and against the background of the Clark stage model, the following four hypotheses[6] can be derived for business education (N=93) as a part of VET (see chapter 1 and footnote 4), which are then to be examined over the generations G1, G2 and G3.

On the basis of the hypothesis test (H1-H4) over the three generations (G1, G2 and G3) of the business education, the period during which the business education is established as a science or (partial-) discipline of VET and educational science can be delimited as follows (see table 1).

Table 1 Limitation of the establishment period of the business education (over generations), Source: Collective-biographical data set (status: Sept. 2017)

Hypotheses	G1 (1923-1953)	G2 (1954-1984)	G3 (1985-2015)
(**H1**) In the progressing establishment process, the number of the business education professors increases.	X	✓	✓
(**H2**) In the progressing establishment process, the initial appointment age of the business education professors decreases.	X	✓	(✓) rel. stable
(**H3**) In the progressing establishment process, the number of qualification and/or employment relationships between the business education professors increases.	X	✓	(✓) expectable
(**H4**) In the progressing establishment process, the relative share of non-discipline professors who are in qualification and/or employment relationships with professors of the business education decreases.	X	X	✓

Starting from table 1, the establishment of the business education can be located at the transition from G2 to G3 - i.e. around 1985. In G3, the business education can therefore be described as an established science or educational science (partial-) discipline within the frame of the Clark model. This largely corresponds to Reinisch's assessment (cf. chapter 2). However, it should be noted critically that this first limitation of the establishment period of the business education or the partial answering of F1 should be regarded as provisional in

[6] For a detailed description of the hypothesis test, see Götzl, Geiser, & Jahn, 2018.

view of the underlying generational classification, missing and/or incomplete data (in particular for vocational education) and more comprehensive studies (e.g. in conjunction with publication analyses). In this respect, we are only at the beginning of our research work and may have to revise or specify this finding in the future.

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Biographical notes

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history of VET; establishment of VET (as a science); collective biographical; network analysis

1. Introduction

Reinisch (2009) states in a socio-scientific analysis of vocational and business education (resp. ‘Berufs- und Wirtschaftspädagogik’ or VET as a science in the German-speaking area) that this has decades ago reached the status of an ‘established science’ (Clark, 1972; 1974) and is presently hold a status as ‘normal science’ (Kuhn, 1962; 2014). In this respect, he concludes, it is also part of normal science that the members of the corresponding discipline repeatedly ascertain their own foundations. In this respect, Reinisch sees a considerable need for research (Reinisch, 2009; 2010).

The differentiation process (Stichweh, 2013) of vocational and business education or VET as educational science (partial) disciplines[1] is traditionally described in the corresponding contributions of historical business and vocational education research against the background of the establishment of teacher training programmes for commercial and vocational schools (e.g. Pleiß, 1973; Czycholl, 1974; Zabeck, 2009a; Reinisch, 2010). Accordingly, their non-simultaneous constitution and development (e.g. Zabeck, 2009a; Büchter, Klusmeyer, & Kipp, 2009; Lisop, 2009) is presented primarily as being exogenously induced. Endogenous or inner-scientific differentiation processes (Stichweh, 2013), which focus on the formation of internal scientific systems and are equally important for comprehensive reconstruction, were largely ignored - apart from a few noteworthy approaches (Kipp, & Miller-Kipp, 1994; Klusmeyer, 2001; Reinisch, 2009; 2010). As a result, the relationship between internal and external differentiation of business and vocational education and neighbouring academic (partial and/or sub-) disciplines - such as social pedagogy (e.g. Ostendorf, 2009), nursing pedagogy (e.g. Reiber, & Remme, 2009) or economic education - has so far hardly become the subject of systematic considerations.

Our initial focus is on vocational and business education or VET and its internal differentiation as a communication community of scientists. In a long-term perspective, we are aiming at questions about the development and the internal and external constitution of vocational and business education as well as its relations and demarcation lines to neighbouring (partial and/or sub-) disciplines by the quantitative and qualitative analysis of scientific communication relations. In this respect, our (future) studies should lead to a deeper understanding of the development and shaping of vocational and business education or VET as (partial) discipline(s) and its relevance within educational science.

However, before such wide-ranging analyses or even partial analyses of communicative system formation processes of vocational und business education (and neighbouring partial and/or sub-) disciplines seem possible, a suitable basis, more specifically a population of the units or potentially relevant subjects involved in the communication is required. We want to outline this in a first attempt in the form of a collective-biographical and network-analytical approach. In this contribution, therefore we examine the process of the (academic) development and establishment of the VET as a science or educational science (partial) discipline in the 20th century on the basis of a (partial) theory of scientific research. In this respect, we follow on from the above-mentioned establishment thesis of Reinisch (2009) and sketch the emergence and establishment of the VET against the background of Zabeck's (2006) generational classification along the stage model of the institutionalisation process of scientific disciplines of Clark (1972; 1974) (cf. chapter 2). The central question is whether the VET - as Reinisch states - is an established educational science partial discipline or science in the sense of Clark and whether an establishment period can be narrowed down. The methodological research access (cf. chapter 3) is carried out by a collective-biographical-quantitative data collection (Schröder, 2011) of the employment and qualification relations of the professors[2] of the business and vocational education. Gephi is used to carry out the network analysis of

[1] If we use the term partial discipline in the following, we assume that this is an established scientific discipline in the sense of Clark (1972, 1974) (cf. chapter 2). The term subdiscipline, on the other hand, is used when this stage does not yet appear to have been reached.

[2] The data corpus does not currently contain junior professors (W1) and senior lecturs. As a first step, we have placed them on an equal footing with habilitants. In the future, however, the data corpus is to be extended to all habilitated scientists (of vocational and business education) with teaching authority (venia legendi) and with independence in research and teaching (without habilitation) and thus includes private and senior lecturers as well as junior professors.

the relevant data of the collective-biographical data corpus. The paper concludes with a short presentation of our first preliminary[3] results with the focus on business education[4] as a part of VET (cf. chapter 4).

2. Theory

In the centre of this contribution we focus on the stages of scientific institutionalisation from Clark (1972; 1974). According to this model, every new discipline's development process begins with the stages of the 'solitary scientist' and of 'amateur science'. This development - which we do not consider here - already took place for the business education in the 19th or at the transition into the 20th century and for vocational education in the 20th century. For an empirical analysis of this period, plenty of data on the actors involved and the emerging institutions are missing, so this process remains a research gap.

The third stage, 'emerging academic science', begins with the establishment of chairs at universities. If the holders of these first chairs succeed, among other things, in establishing a training programme in the form of a university-based course of study, ensuring stable self-recruitment from their own young scientists and subsequently promoting a quantitative expansion of academic discipline, then the fourth stage of 'established science' has been reached and this is exactly what we are focusing in our current contribution (see figure 1).

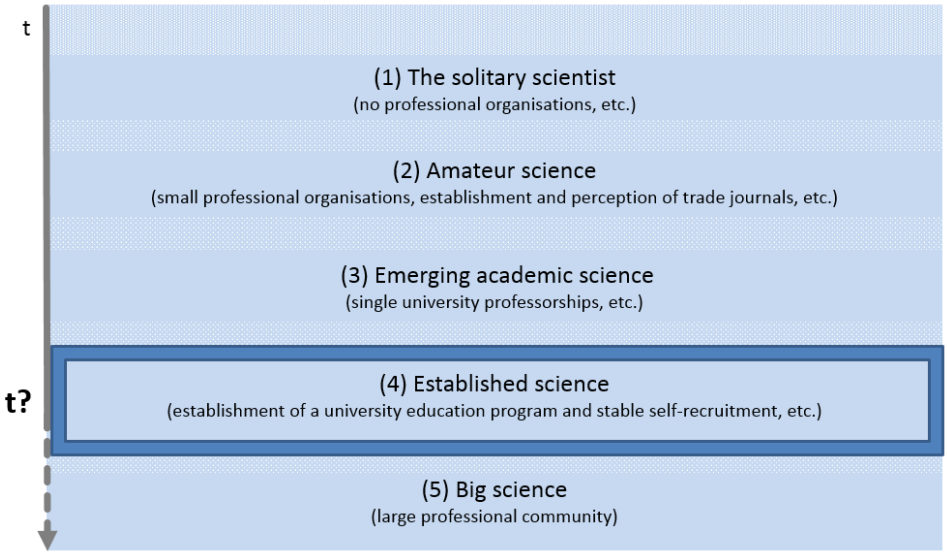

Figure 1 Clark's stage model of the institutionalisation process of scientific disciplines and our focus on the established science, Source: Own presentation based on Clark (1972)

As already quoted at the beginning, Reinisch (2009) explicates in his scientific sociological analysis of the vocational and business education that it has achieved the status of an established science decades ago. But an empirical examination of Reinisch's determination of

[3] In view of the continuation and completion of the data collection and against the background of an empirical foundation of generation classification or another grouping or periodisation that is still outstanding, our findings are to be regarded as preliminary.

[4] The restriction to business education is to be legitimized on the one hand by an interim research pragmatic limitation and our work progress and on the other hand by the non-simultaneity of the academic constitution and the development of business and vocational education (cf. chapter 1).

the degree of institutionalisation of the vocational and business education or establishment thesis of the VET is pending.

In his remarks, he not only assigns the VET the status of an established science, but also marks a period of time in which the transition has taken place. With the term 'decades', which he has chosen but not specified in more detail, he focuses in our understanding on a period 30-40 years ago, ca. 1970 to 1980. The basis on which he makes this assessment remains open and implicitly raises the question of whether the VET is actually an established science or scientific (partial) discipline because Reinisch can only prove this to a limited extent. In addition, the question arises from which period of time onwards we can consider the focused VET as an established science or an established educational science (partial) discipline.

Nevertheless, Reinisch was not the only one in the VET who dealt with the development of his own field. Another well-known representative was Zabeck (2006), who dealt with the question of generation classification within the VET and distinguished between three generations. A first generation, whose initial appointment took place before 1955/60; a second generation from about 1955/60 and a third generation since 1985/90 (Zabeck, 2009a; 2009b).

Against the background of Zabeck's generational classification, we have based our analyses on a (preliminary) generational span of 30 years[5], starting from the first chair for 'Handelsschulpädagogik und betriebswirtschaftliche Nachbargebiete' (transl. 'commercial school education and commercial science neighbouring areas') at the 'Handelshochschule Leipzig' (transl. 'Higher education institution of commerce Leipzig') and the first professor Karl von der Aa (1876 - 1937) in 1923, according to prevailing doctrine (e.g. Reinisch 2009). This makes it possible to carry out the following analyses within the first three generations:

- Generation 1: Initial appointment 1923-1953
- Generation 2: Initial appointment 1954-1984
- Generation 3: Initial appointment 1985-2015
- *(Generation 4: Initial appointment after 2016)*

In this respect, the research question, we are looking at here, can be concretized as follows:

(F1) From which generation onwards can VET (resp. business and/or vocational education) be described as an established science or partial discipline(s) of educational science (in the sense of Clark, 1972; 1974)?

3. Methods

In order to answer the research question (F1), a collective-biographical data corpus (Schröder, 2011) was created, in which e.g. data on the academic qualifications and employment relationships as well as on professional scientific employment (including appointments and de-

[5] This classification is to be regarded as an attempt in creating meaningful grouping, periodisation or processualisation, which is not only debatable from the perspective of social science research, but also from the historian's point of view, as he stands methodically on clay feet like all process-contemplating interpretations of history and must first prove to be able to reach a consensus through further investigations (Schulze, 2002). Nevertheless, it offers the advantage of systematisation. We also regard the generation classification as provisional, since the development of a suitable network-analytical method for the empirical foundation of the generation classification or grouping is still pending.

nominations) are included. The following data collection strategy (see figure 2) was used to establish the data set. It is characterised by a complete analysis of easily accessible fundamental VET sources with extensive biographical information on professors of the discipline. Finally, missing were determined and complemented by a complementary analysis as far as possible.

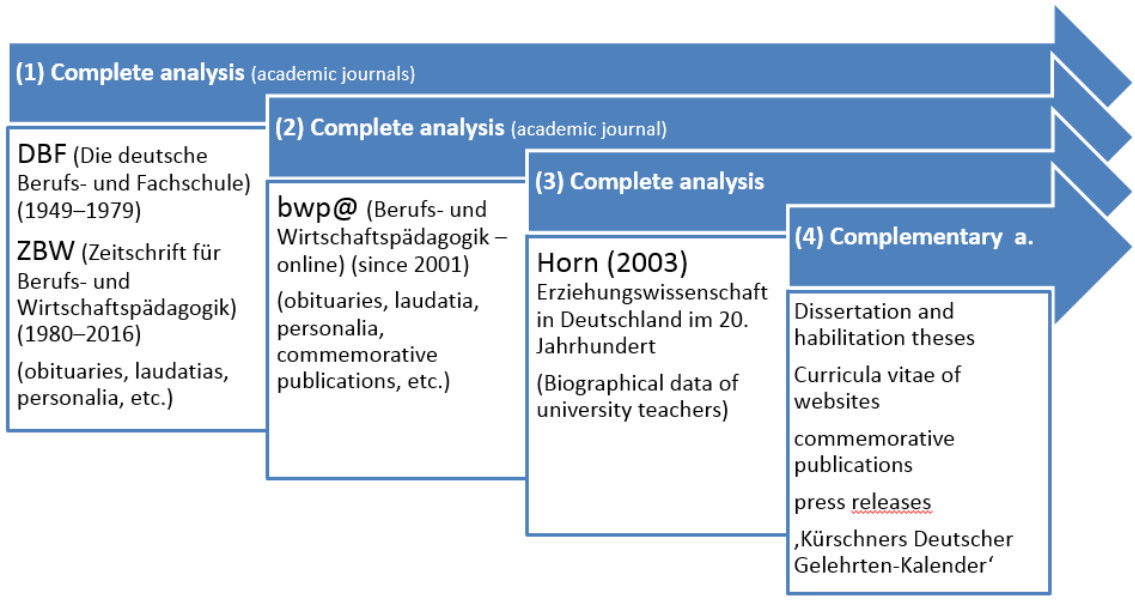

Figure 2 Data collection strategy, Source: Own presentation

Based on this collective-biographical data set, we created a network by the visualisation and exploration software Gephi (see figure 3). It covers the qualification and employment relationships of the professors of the VET in the German-speaking area.

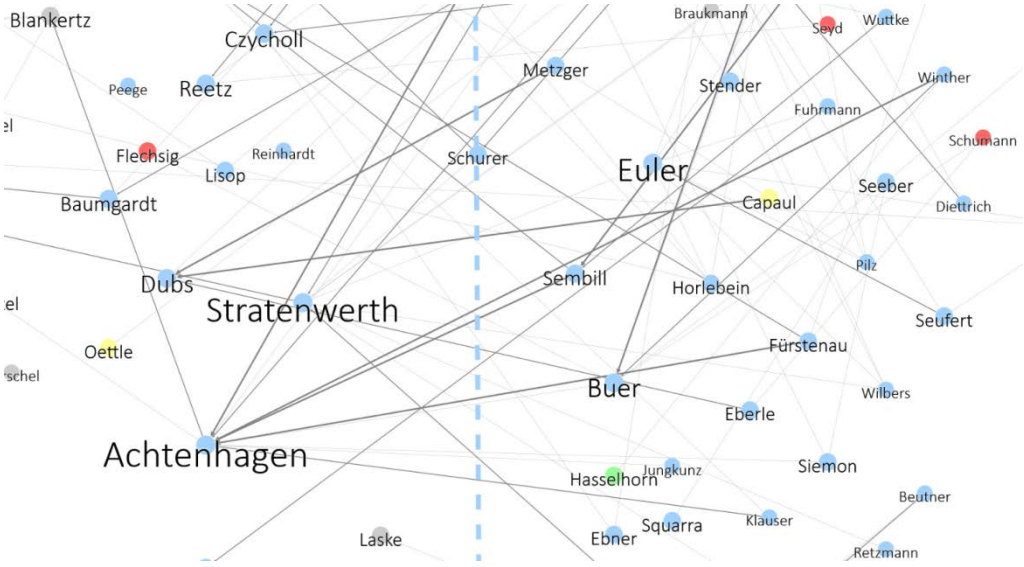

Figure 3 Enlarged detail of a first test plot of the network of VET professors, Source: Own presentation based on the collective-biographical data set (status: Dec. 2018)

For the visualisation we used the Event Graph Layout (Spekkink, 2016). This enabled us to arrange the network on the x-axis according to the year of initial appointment and on the y-axis according to the ForceAtlas2 algorithm (Jacomy et al., 2014) for spatial representation. The classification of the professors according to disciplines is based on the classification by 'Kürschners Deutscher Gelehrtenkalender' (2018). Each network node represents a professor

and each arrow or pointed edge represents a relation or some relationships to an academic teacher. The size of the labels of the nodes represents the indegree. So the larger the label of the node, the more connections due to employment and/or qualification relations of subsequent professors are present at this node. The same applies to the arrows. So the larger the arrow, the more employment and qualification relationships between the professors and their academic teacher are presented. The dividing dotted vertical line marks the transition from the second to the third generation (cf. chapter 2).

4. Preliminary results for business education as a part of VET

Clark's model (cf. chapter 2) focuses on the quantitative development of a discipline, its social network and the ability to self-recruit. Based on the research question (F1) and against the background of the Clark stage model, the following four hypotheses[6] can be derived for business education (N=93) as a part of VET (see chapter 1 and footnote 4), which are then to be examined over the generations G1, G2 and G3.

On the basis of the hypothesis test (H1-H4) over the three generations (G1, G2 and G3) of the business education, the period during which the business education is established as a science or (partial-) discipline of VET and educational science can be delimited as follows (see table 1).

Table 1 Limitation of the establishment period of the business education (over generations), Source: Collective-biographical data set (status: Sept. 2017)

Hypotheses	G1 (1923-1953)	G2 (1954-1984)	G3 (1985-2015)
(**H1**) In the progressing establishment process, the number of the business education professors increases.	X	✓	✓
(**H2**) In the progressing establishment process, the initial appointment age of the business education professors decreases.	X	✓	(✓) rel. stable
(**H3**) In the progressing establishment process, the number of qualification and/or employment relationships between the business education professors increases.	X	✓	(✓) expectable
(**H4**) In the progressing establishment process, the relative share of non-discipline professors who are in qualification and/or employment relationships with professors of the business education decreases.	X	X	✓

Starting from table 1, the establishment of the business education can be located at the transition from G2 to G3 - i.e. around 1985. In G3, the business education can therefore be described as an established science or educational science (partial-) discipline within the frame of the Clark model. This largely corresponds to Reinisch's assessment (cf. chapter 2). However, it should be noted critically that this first limitation of the establishment period of the business education or the partial answering of F1 should be regarded as provisional in

[6] For a detailed description of the hypothesis test, see Götzl, Geiser, & Jahn, 2018.

view of the underlying generational classification, missing and/or incomplete data (in particular for vocational education) and more comprehensive studies (e.g. in conjunction with publication analyses). In this respect, we are only at the beginning of our research work and may have to revise or specify this finding in the future.

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"If I had wanted to become an educator, I would have studied it."[1] Career changers into VET teaching and the implications for the VET teaching profession in Germany

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Abstract

In Berlin, many career changers teach in VET schools. This article highlights some of the results of an explorative interview study with career changers. Three types of career changers can be distinguished. All types of career changers tend to devaluate pedagogy and share an economistic understanding of VET schools.

Keywords

VET teacher; career changers; teaching profession

1. Introduction

There is a huge lack of teachers in Germany, that also concerns VET schools (Frommberger & Lange, 2018). To meet this shortage many academics from other fields are being encouraged to start a new career as a teacher.

In general people studying to become a teacher do a bachelor and a master that includes their two subjects, teaching methodology and educational sciences at university before starting their internship that takes 18 months and that is accompanied by the senate administration for education. In the end they complete with a state examination. In subjects that lack teachers, graduates of that subject can directly start with their internship. During their internship they already teach 19 lessons per week – without any preparation2. Almost all VET subjects lack teachers at the moment.

In the school year 2017/2018 22.3% of the new teachers at VET schools were career changers (Senatsverwaltung, 2018). Although this is a considerable number there is very little knowledge about the situation and the different backgrounds of these teachers who did not attend university's teacher training. To put it in the words of Tenberg: They are the "stepchildren" of VET teaching (Tenberg, 2015).

In this small explorative study, we wanted to know how career changers at VET schools in Berlin perceive their situation. What is their understanding of professional teaching and does this have implications for the professionalisation of VET teachers in general? Is there a danger to undermine the classic path towards VET teaching which seems to be cause for concern especially for representatives of the university teacher training (Frommberger & Lange,

[1] Wenn ich Pädagogin hätte werden wollen, hätte ich das studiert." Quotation from an interview

[2] The senate administration for education, youth and family recently introduced a 7 day course to prepare career changers for teaching.

2018; Tenberg, 2015)? On the other hand, we wanted to know; Who are these career changers? As there is an ongoing lack of teachers it might be helpful to know something about them in terms of educational aspects of recruitment.

2. Methodical Approach

Although there are many career changers in German VET schools, there is surprisingly little research. There are few studies on school management (Faßhauer & Jersak, 2013; Tenberg, 2015) but as far as we know, there are no studies focussing on the career changers themselves.

In the present study, we interviewed nine career changers. They all have degrees in a technical discipline and work now as teachers at a VET school in Berlin. They were about to start their internship or have successfully completed it in the past. Access to them was realised through the school managements. The interviews were analysed by the team of our department, Prof. Dr. Kirsten Lehmkuhl, Dr. Marcus Eckelt and me, based on Grounded Theory (Glaser & Strauss, 2005 [1967]; Strauss & Corbin, 1996). To validate our results, we did an expert interview with a director of the internship.

3. Results

3.1. Types of career changers into VET Teaching

In our analysis we found three different types of career changers that differ in their professional biography but also in other dimensions.

3.1.1. Younger Beginner

This type is not only younger than the others but has also done a vocational training in the field where they now work as a teacher. They have studied at a university for applied sciences before becoming a teacher.

The internship with its seminars, the pedagogical culture and the academic habitus seem to be a challenge for this type. However, they highlight the proximity and familiarity with the pupils. In terms of social class relations, this type clearly experienced social advancement. As a teacher there is a relatively high and secure income plus a comparatively high prestige. On the other hand that type does not have to change the own manners and can still be around the pupils that mainly represent working class. So, one could say that type manages to arrange the advantages of both social classes.

3.1.2. Older Changer

After the studying engineering this type has worked a while in private enterprises. Often, they started a business. They were suffering from precarious situations and hence decided to change. This type is especially looking for financial security and planning capability that an employment as teacher offers.

The older changer emphasises their experiences in the labour market and entrepreneurial spirit and considers this as the advantage for teaching in VET schools.

Talking about students, this type tends to take a parental perspective.

This type was quite multifarious in our analysis. In future studies it might be worth considering subcategories.

3.1.3. Academic Dropout

This type of career changers did their doctorate and did research and teaching at university. Due to the unattractive working conditions for non-professorial teaching staff at university, which only offer temporary employment, the academic dropout is also looking for planning

capability. This type feels familiar with the contents and the habitus of the internship and also talks about good relations to the school management.

The VET system and the students are a terra incognita to them. They tend to be actively distanced from their students.

In the academic hierarchy, a person with a PhD is above a Master of Education. Therefore this type accepts a social decline in exchange for financial security and planning capability.

3.2. Two thesis on the implications for VET schools in Berlin

Although the career changers differ in several aspects, there are some topics running through all the interviews.

3.2.1. Career Changers tend to devalue pedagogy

With a background in engineering/natural sciences and experiences in enterprises, career changers often refer to their knowledge as more significant than a solid teacher training. They do not recognise pedagogy as an actual academic discipline. In this perspective, professionalism is not based on being aware of the antinomies in teaching practises and reflecting them (Helsper, 2004). The quotation in the title „If I had wanted to become an educator, I would have studied it." reflects a self-conception as VET teacher, that does not include pedagogy as an important component.

There are also some indicators that the career changers have not a precise concept of what teaching methodology is. Amongst career changers, the request for recipes and clear guidelines seems to be high.

3.2.2. Career Changers abet an economistic understanding of VET schools

Career changers talk about schools in economic terms. They describe schools as enterprises with a reform bottleneck. And they present themselves as high performance employees in contrast to their colleagues who think, discuss and reflect too much and therefore cannot achieve as much as they do. Furthermore students are often referred to as clients.

The comprehension of market economy as the standard of comparison for schools conflicts with the ethos of the pedagogical profession (Radtke, 2006). Humanist ideals like empowering the less privileged or enhance social justice cannot be found in the interviews.

This understanding of professionalism coincides with the concept of New Professionalism. In this model of teaching professionalism, the emphasises lies on customer orientation, efficiency, quality management and competition. Research in Great Britain has also shown that this concept is quite popular among career changers (Terhart, 2011).

4. Concluding remarks

The question arises how the quantitatively large presence of career changers has a long-term effect on VET schools. For this purpose, further investigations are required in order to examine the here presented types in more detail.

In this explorative study we found career changers who report about satisfaction in their new career. As Berlin is recruiting an increasing number of career changers, this is one important finding: Engineers and natural scientists can become pleased VET teachers.

We found different three types of career changers. A better knowledge of them and their perspective is necessary to adapt the internship adequately and reflect these differences. How can the distance between career changers and their pupils on one hand and the distance between career changers and their colleagues and school management on the other hand be reduced?

In terms of recruitment it might be of interest, that financial security and planning capability are the main motives for a career change. Although we know, that initial career satisfaction correlates with altruistic motivations (Watt, 2012), these pragmatic motivations dominated our interviews.

Considering the implications for the VET teaching profession we can observe some challenges.

Because of the enormous lack of VET teachers, the way for career changers is getting easier - sometimes even easier than the classic way of becoming a VET teacher. What will be the long-term consequences?

In the end, career changers bring up the question: What are VET schools there for? Is it only about knowledge transfer and prepare students for the labour market? Or is there an educational mission that reaches beyond that?

Since there is no end to the shortage of VET teachers, the training of career changers should be made evidence-based, so as not to forego pedagogical professionalism in favour of a quick compensation for the lack of teachers.

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Opportunities for Learning and Career Development after IVET: A latent profile analysis

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Abstract

Drawing from research on formal, informal and nonformal learning this paper studies opportunities for learning and career development after initial VET of 762 employees in Switzerland. It is explored, a) whether typical career profiles exist that are characterised by different potentials for learning and career development; b) whether profile membership can be predicted by development-oriented work values and individual resources; and c) how employees in different profiles evaluate their career. Results from latent profile analyses suggested four profiles which differ regarding the opportunities to learn in work, to engage in further training and to advance in the organisation. Individual resources and especially the level of formal education predicted profile membership only weakly. Employees in high potential profiles were more satisfied with their job and career than employees in low potential profiles. The results advance a more integrated view about learning and development opportunities in the early professional career.

Keywords

learning opportunities; career development; further training; advancement

1. Introduction

For organisations and individuals, it has become crucial that employees learn continuously throughout their career (London, 2011). Engagement in higher education and continuous training and learning contributes to their productivity, enhances their employability, and prepares them for future jobs and positions (Noe, Clarke, & Klein, 2014). It is instrumental for positive career development and a core characteristic of a meaningful and sustainable career (De Vos, Van der Heijden, & Akkermans, 2018).

Organisations can promote and facilitate their staff's learning and development in a number a ways. First, they can support current employees to take up higher or further vocational or academic education in formal settings. Second, they can foster non-formal learning by offering short-term training courses, which aim at developing employees' job-specific vocational competencies. Third, they can promote learning in work, on-the-job and informally, through assigning their employees challenging tasks and high job autonomy. Finally, they can motivate employees to engage in formal, informal and non-formal learning by offering opportunities for advancement in the firm. In today's rapidly changing world, organisations need to invest more in non-formal, informal, and self-directed learning to remain competitive and to attract and retain talented employees (Allen, Bryant, & Vardaman, 2010; Sessa & London, 2006). Opportunities for learning and career development, and participation in learning activities vary considerably between organisations, occupations and workplaces (Billett, 2001). Kyndt and Baert (2013) showed, e.g., that employees participated more often in formal and informal learning if they worked in demanding jobs and bigger firms with established learning cultures and career support systems.

Whether a person can build a learning- and development-oriented career also depends on his or her individual resources and work values (Nägele & Stalder, 2019). Individuals with a high motivation to learn, higher levels of formal education, higher career aspirations, higher self-efficacy beliefs and a self-need for improvement and competence development are more likely to identify, create and use opportunities for learning at the workplace or outside (Kyndt & Baert, 2013; Nägele & Stalder, 2019). Learning corresponds to a basic need of individuals (Ryan & Deci, 2000), and it has been shown that employees are more satisfied, if their jobs and careers match their interests, aspirations and life situations (Spurk, Hirschi, & Dries, 2018).

Research has investigated typical career patterns including periods in education, employment, and unemployment (Kovalenko & Mortelmans, 2014), how socio-demographic variables predict career types (Biemann, Zacher, & Feldman, 2012), and how career types influence objective and subjective career outcomes (Schellenberg, Krauss, Hättich, & Häfeli, 2016). Most of these studies have focused on formal education while neglecting other types of learning opportunities. Other researchers have explored how learning opportunities in the workplace influence the attainment of higher professional and academic degrees (Nägele, Neuenschwander, & Rodcharoen, 2018), or how engagement in formal and non-formal education and training is related to career achievement and advancement (Ng, Eby, Sorensen, & Feldman, 2005). Most of these studies have been variable-oriented. Following Eye and Bogat (2006) I argue that it is necessary to use a person-oriented approach to advance a more integrated view about patterns of learning and career opportunities after IVET.

Using data of former IVET-learners, this paper explores, whether:

1. Typical career profiles are found that are characterised by different potentials for learning and career development;
2. Development-oriented work values and individual resources can predict profile membership;
3. Employees with specific career profiles differ in their career evaluation.

2. Method

Data. The analyses are based on a subsample of 742 employees (male 46.4%), who had finished an initial VET programme until 2005 and had participated in the written survey of the youth survey TREE[1] in 2014 and at least two out of the panel waves in 2005, 2007 and 2010 (Stalder, Meyer, & Hupka-Brunner, 2011).

Measures. Career profiles were built using three indicators that measured learning opportunities in the workplace, possibilities for further training, and opportunities for advancement to higher positions in 2007, 2010 and 2014 (Stalder et al., 2011). Development-oriented work values (e.g., to find it important to have a job with many opportunities to learn) and individual resources (self-efficacy, self-esteem, persistence, occupational commitment, educational level) were measured at the end of the apprenticeship (2003/2004) and in the first years of skilled work (2005/2006). The educational level was assessed by the cognitive requirements

[1] The Swiss panel study TREE (Transitions from Education to Employment) is a social science data infrastructure mainly funded by the Swiss National Science Foundation (SNF) and located at the University of Berne.

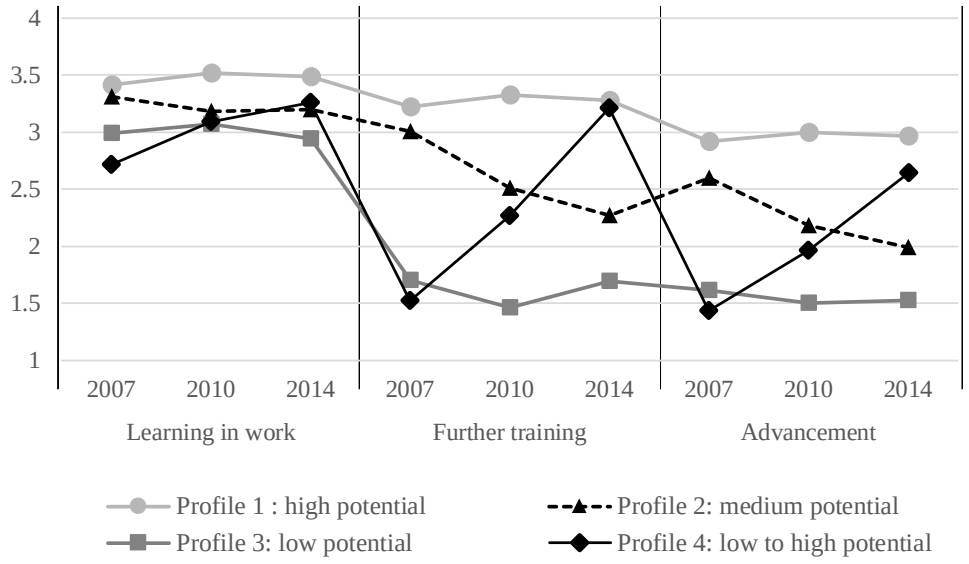
of the IVET diploma (Stalder, 2011) and the enrolment in higher professional or academic education.

Analyses. First, to group careers into an optimal number of profiles, latent profile analyses were run. Second, using logistic regressions, it was tested whether development-oriented work values and individual resources at the end of the IVET-programme (step 1) and in the first years of skilled work (step 2) predict profile membership. Gender was introduced as a control variable. Third, a multivariate general linear model was run to test whether profiles differ regarding job and career attitudes in 2014.

3. Results

3.1 Career profiles

Solutions with two to five profiles were compared. Based on the sample-sized adjusted Bayesian information criterion, the parametric bootstrapped likelihood ratio test, and the Vuong-Lo-Mendell-Rubin likelihood ratio test, the four-profile solution was chosen



Note. $N_{P\,1}$=342, $N_{P\,2}$=203, $N_{P\,3}$=84, $N_{P\,4}$=113; response scale: 1 (low) to 4 (high)

Figure 1 Career profiles with different potentials for learning and development

The profiles vary considerably regarding the learning opportunities in the workplace, and strongly in terms of possibilities of further training and advancement offered by the employer (Figure 1). Profile 1 ("high potential", 46.1% of the workers) is marked by a high potential for learning and career development. Former IVET-learners worked in jobs and firms that offered many opportunities for learning in work, further training and advancement to higher positions. Profile 2 ("medium potential", 27.4%) is characterised by similarly high learning opportunities in work but decreasing possibilities for further training and advancement between 2007 and 2014. Profile 3 ("low potential", 11.3%) describes careers with very limited opportunities for further training and advancement in the company. Profile 4 ("low to high potential", 15.2%) shows a low potential for learning and career development in 2007, with a substantial improvement in the years 2010 and 2014.

Many of the employees had taken up a job in another occupation (38%) or firm (79%) between 2007 and 2014. Workers in profile 4 had changed the occupation more often (59%)

than those with other profiles (P1: 38%, P2: 31%, P3: 28%), and nearly all of them (96%) had moved to another employer (P1, P2, P3: 76%). Until 2014, workers in profiles 1 (40%) and 2 (31%) had obtained more often a higher professional or academic degree than those in profile 3 (14%) or 4 (16%). High potential career profiles were more common for males (P1, 54%; females: 39%) while females had more often a low potential career (15%; male: 8%) or a low to high profile (18%; male: 12%).

3.2 Prediction of profile membership

Individual resources at the end of the apprenticeship (step 1) could only weakly predict profile membership. When adding predictors from the first years in job (step 2), membership in profile 1 could be predicted by development-oriented work values, occupational commitment, self-efficacy and self-esteem. Workers were more likely to have a high-potential career, if they found it more important to have a job with many learning and advancement opportunities, were more committed, and reported higher levels of self-efficacy and self-esteem. Membership in profile 2 (medium potential) was only predicted by lower levels of self-efficacy, membership in profile 3 by a lower level of education (no tertiary education). Membership in profile 4 (low to high potential) was predicted by a lower occupational commitment at the end of the apprenticeship and lower development-oriented work values.

3.3 Evaluation of career

Workers in the profiles differed strongly regarding their job- and career-related attitudes in 2014. Employees that had been in jobs with a high potential for learning and career development (profile1) were more satisfied with their job and their career, and more committed towards their occupation and their organisation than those of the other profiles. Employees in low potential jobs (profile 3) were least committed and satisfied. Workers who had changed to a more favourable situation (profile 4) evaluated their career more positively than workers in profiles with an overall medium potential (profile 3).

4. Conclusion

In today's complex and fast-changing world non-formal and informal learning has become vital for an individuals' positive career development (Sessa, 2006). Organisations need to support, facilitate and foster continuous learning and development of their staff; individuals need to recognise and seize opportunities for learning. This paper aimed at broadening the picture of career patterns in the early professional career of former IVET learners. The results show that most of them managed to secure a career with good learning opportunities in the workplace, while opportunities for non-formal learning and advancement seem to be limited. This might be typical for the careers of former IVET learners or the Swiss labour market (Schellenberg et al., 2016). Development-oriented work values and individual resources at the transition from IVET to the first years in job predicted later careers only moderately. This could indicate that careers can only be planned to a limited extent in advance and that career interests change greatly depending on the given opportunities (Billett, 2001). Further research might investigate, how changes in work values, individual resources and opportunities for learning and career development are interlinked, and how they jointly contribute to positive career outcomes.

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Challenges in the transition from School to career in Germany: Teachers as career choice mentors?

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Abstract

Vocational orientation is a task that is part of the educational mission of general education schools in Germany. The implementation of this task continues to prove difficult. There are various reasons for that. For example, the cross-sectional task has yet to be anchored in many federal states in the curriculum. Also, many teachers face this task sceptical, partly because they do not understand its scope and significance yet and partly because they do not feel prepared sufficiently for it. This article takes up a research desideratum in which the teachers' perspective on the school field of "Vocational Orientation" (VO) is represented. Subjective assumptions and theories of teachers regarding this area of action are considered. Additionally, besides a positioning in the scientific discourse, the results of a qualitative interview study will be shown.

Keywords

career choice decision; career and higher education guidance; career guidance teachers; beliefs of teachers

1. Introduction

Embarking on vocational training or higher education is usually preceded by a long process of choosing a career in which the individual balances his or her personal interests, aptitudes, talents, values (which are generally determined by his or her family) and plans for life against the requirements and demands of the world of work (Bußhoff 1992). In the light of high dropout levels from vocational training and higher education and a high number of young people in what is known as the "transition system" [between school and vocational training], demands for general-education schools to support and mentor young people in the career choice process have been being raised in Germany for years.

Vocational orientation has been more or less explicitly anchored as a task of school in the school laws of the individual federal states. This task has been concretised in administrative regulations and decrees specific to them, but in many places there is still no binding curricular anchoring of this cross-sectional task.

The theoretical and/or empirical concepts for the design and implementation of school-based vocational and study orientation that have emerged in recent years from career choice and career orientation research (cf. Butz 2008; Schudy 2008; Driesel-Lange et al. 2011; Kayser 2013) have not been taken up by education policy yet. Only a few federal states have created binding standards with regard to the objectives and contents of "vocational orientation" for years 5-10 and 7-12.

A recent recommendation by Germany's Standing Conference of Ministers of Education and Cultural Affairs proposes that, regardless of school type and the type of programme being pursued, careers education should be part of the curriculum at ISCED levels 2 and 3 in every school (KMK 2017).

2. Teachers as Career Mentors?

In academic discourse, teachers are ascribed a central role in the implementation and the design of school-based vocational and study orientation (Kayser 2013, p. 9; Dreer 2013, p. 150 ff.; Nentwig 2018, p. 79 ff.). On the one hand they have direct contact with young people because of their work. They experience and accompany them over many teaching hours, months and years. There also exist (more or less intensive) contacts to the parental homes. On the other hand, teachers are the "Makers" (Dreer, Driesel-Lange & Schindler 2011, p. 7) of school and vocational orientation, i. e. they shape school and teaching primarily responsibly and independently. That means: If teachers are aware of the task of "vocational orientation" and also pursue it, they can set appropriate priorities. Ideally, teachers - in the course of imparting specialist knowledge and technical skills - continuously encourage pupils to think about themselves and their life plans and to deal with topics that are relevant for life after school (cf. Deeken & Butz 2010). Furthermore, they provide insights into the world of work and occupation within the framework of a wide variety of vocational and study orientation measures, and provide impetus for individual school career planning and for the selection of follow-up options[1].

Overall, little is known about which attitudes teachers have with regard to the task of designing and implementing school-based vocational and study orientation or which beliefs they have concerning this matter.

3. Beliefs of Teachers in the Area of Action of "Vocational Orientation"

Teachers act on the basis of a complex structure of convictions, values and motivations on the one hand and knowledge and skills on the other (cf. Nentwig 2018, pp. 120 & 133). The latter are the result of a multitude of formal, non-formal and informal educational processes. Beliefs are complex, quite permanent, mental structures that comprise a person's knowledge of a specific object or domain and are stored in long-term memory. These structures incorporate findings from training and further education as well as individual everyday experiences in equal measure. Beliefs fulfil similar functions as scientific theories - they serve, for example, to explain certain facts or forecast developments. In contrast to scientific theories, they do neither necessarily exist explicitly and are not intersubjectively valid, nor are they subject to any quality criteria. They can be changed by experience (cf. Dann 1983, p. 80; Groeben, Wahl, Schlee & Scheele 1988, p. 17 ff.). It is of enormous importance that beliefs guide and control action. This means that teachers act in schools and lessons on the basis of more or less conscious beliefs.

The subjective theories teachers have about the school field of action of "vocational orientation" have so far hardly been investigated. Here, there is an obvious desideratum of re-

[1] "Kein Abschluss ohne Anschluss" [No degree without a connection] is a very popular statement which expresses that the school objective of leading pupils to a (good) school leaving certificate, which has often been the case up to now, falls short of the mark. Rather, it is a matter of sounding out individual connection options and pursuing them.

search which - against the background of the importance of subjective theories for the implementation of the school task - is unsatisfactory.

The following remarks represent a first approximation to this field of research. The findings have been generated within the framework of the project Selbsterkundung und Förderung individueller Entscheidungen (SELFIE) [Encouraging Self-Exploration and Individual Decision-Making among Pupils]. Within the project duration (2017-2019), teaching materials for vocational orientation in grades 7, 8 and 9 for schools in Mecklenburg-Western Pomerania (Germany) were and are being developed. In order to ensure the implementation and use of these materials, the accompanying research aims in particular at the current practice of school-based vocational and study orientation. In the first year of the project, qualitative, guided expert interviews were conducted with responsible teachers and school management. Figure 1 provides an overview of the focal points and structure of the scientific accompanying research. For this article, the data from the first interview survey (July 2017) are used.

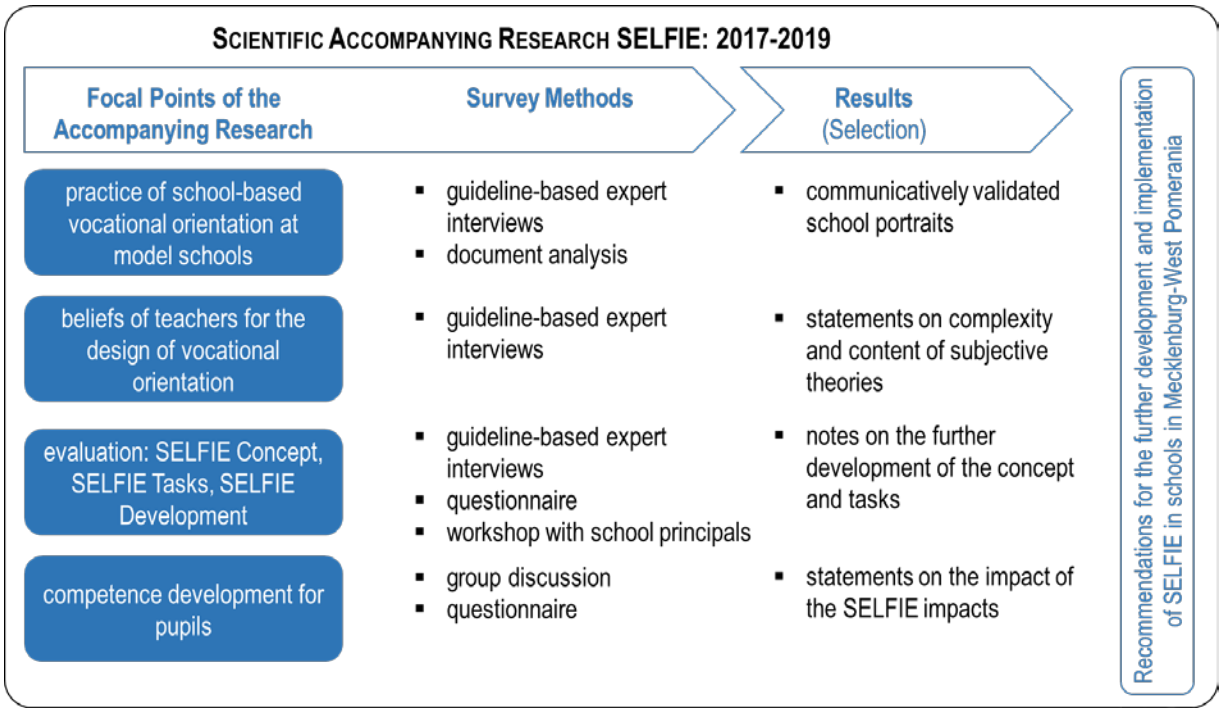

Fig. 1 Overview of scientific accompanying research in the SELFIE project

At the beginning of the project, the focus of the accompanying research was on the question of how the practice of school-based vocational orientation presents itself at the schools participating in the project (n=12) and which framework conditions for the development and implementation of the SELFIE materials have to be considered. In this context, the beliefs of teachers regarding the design of school-based vocational orientation were also of interest.

Research questions were, for example:[2]

[2] Due to the limited scope of the text, only selected results can be presented in the context of this article. For a comprehensive assessment of the interview materials, please refer to the project documentation, which will be published at the end of 2019.

- What are the backgrounds of experience and knowledge on which teachers argue when they talk about the design of vocational orientation at their school?
- What objectives should school-based vocational orientation pursue from their point of view?
- What challenges and limits do they see in the design and implementation of vocational orientation?

In the summer of 2017, 12 qualitative, guided expert interviews were conducted with school principals and teachers. Figure 2 shows the interview survey in greater detail.

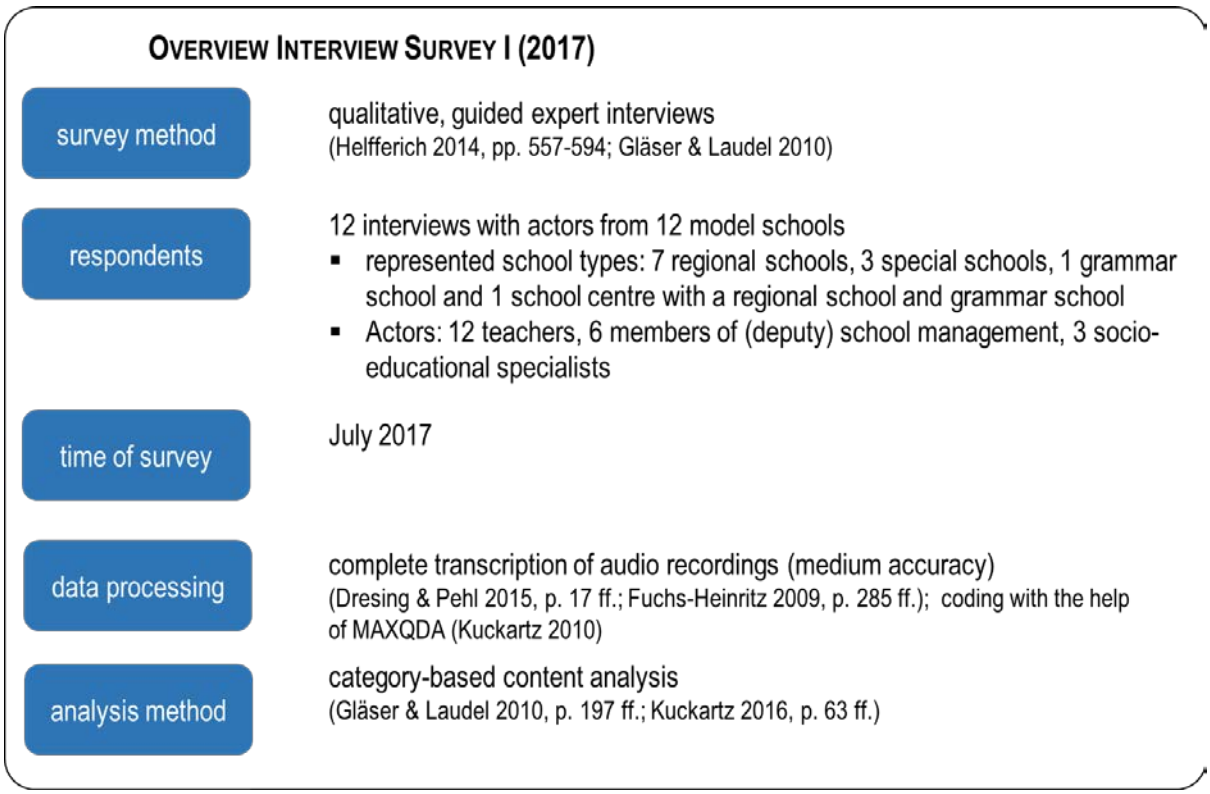

Fig. 2 Overview of the interview survey

The interviewed teachers are those we work within the SELFIE project, i.e. with whom we develop and test the SELFIE concept and the set of exercises. The teachers are employed at 12 schools spread across the federal state of Mecklenburg-Western Pomerania. Seven regional schools, three special schools, a grammar school and a school centre with grammar and regional school sections are represented. The interviewees differ regarding their functions and tasks at the respective schools. Among the respondents (n=18) there are six persons who belong to the school management. Eight teachers teach the subject of Arbeit-Wirtschaft-Technik [Work-Economy-Technology] and the same number are subject teachers for other disciplines. Ten of the persons state "vocational orientation" as an explicit additional task of their vocational activity. At the date of the survey 14 of these persons were members of the SELFIE work group, which is actively involved in the development and implementation of SELFIE.

3.1 Relevant Experience Backgrounds and Proficiency of Teachers for Vocational Orientation

Beliefs develop from different experiences and insights. So the question is: Which experiences do the teachers have for vocational-orientation work at school?

In the interviews, four persons explicitly refer to VO-related ranges of experience deriving from their own vocational training or professional practice preceding the teacher occupation. One person reported the completion of a teacher internship. Especially the insights into the world of work apart from school and university can be regarded as important resources for the realization of VO-activities.

The main reference for designing vocational orientation, however, is the interviewees' current school-based activity: They refer to the implementation of the framework curriculum for the subject Arbeit-Wirtschaft-Technik [Work-Economy-Technology], their activity as a VO-contact teacher, the preparation and follow-up of the students' internships, the organization and implementation of other VO-measures. In other words: The teachers apparently acquire their knowledge within the framework of their present tasks, thus "learning by doing". Regarding further education, the teachers, if at all, participated in specific VO-trainings or -offers (e.g. for the portfolio "Berufswahlpass" or the program "Lions-Quest"). Only one person received further training in the field of vocational orientation during their teacher training by attending a relevant certified course – albeit with premature exit. The teachers do not have any relevant and comprehensive education and training to prepare them for these activities. Nor do they mention the consultation of specialized literature or the like in the interviews. This does not necessarily mean that the teachers have not used these forms of gaining knowledge yet. It seems, however, that these forms of dealing with the subject were not perceived as sufficiently significant.

3.2. Objectives of School-Based Vocational Orientation

Teachers were asked to name the objectives that should underlie the design of school-based career guidance. It can be anticipated that the teachers do not explicitly refer to (current) findings in career choice or career orientation research, but rather carry out their individual thoughts and assumptions. The following objectives were named:

- To motivate pupils to deal with their own career choices,
- To foster the pupils' development of personality and to strengthen their self-concept,
- To enable pupils to make informed and realistic career choices, including plan B and plan C,
- To lead the pupils to a successful school-leaving certificate and to prepare the transition to the next stage of life.

This catalogue of objectives reflects essential goals and contents that are being discussed in the current discourse. However, a differentiated analysis shows that not all teachers have a comprehensive understanding of school-based vocational orientation work, but rather refer to individual aspects. A detailed presentation of the results is unfortunately not possible in this contribution due to the text limitation.

3.3. Challenges and Limits of School-Based Vocational Orientation

The original plan was to ask teachers about the concrete implementation of school-based vocational orientation, to record their expertise and to reconstruct the subjective theories underlying expert knowledge. However, the interviews revealed that the teachers used a compara-

tively high proportion of the interview time to identify the manifold, subjectively significant challenges and limits of school-based vocational orientation. This was initially a surprising finding for us: Instead of answers from practice, we received questions from practice. The following questions turned out to be particularly urgent:

- What do teachers need to know and be able to do? This question was posed by the teachers both with regard to the different contents of vocational orientation (knowledge of occupations, labour markets, etc.) and with regard to the heterogeneous body of pupils (support of pupils who lack communicative or social skills or pupils who are physically or psychologically impaired).
- What is the task of teachers in the career choice process, what are the tasks of other actors (career counsellors of the Federal Employment Agency, parents, school social workers, etc.)?
- How can cooperation with heterogeneous parental homes be successful?
- How can vocational orientation be integrated into school when there is no (additional) time for it?

In view of the extremely complex and demanding task of professionally accompanying young people in their choice of career, these questions are not surprising. However, it is clear that there is an enormous need for support and guidance on the teachers' part.

4. Summary and Outlook

The investigation and analysis of the subjective theories of teachers in the field of vocational orientation is an important field of research. The beliefs of the interviewed teachers prove to be variously complex and differentiated. While some teachers have an elaborated set of knowledge and can build up a nuanced argumentation on VO-specific questions, other teachers seem insecure. According to their own statements, they lack the knowledge and know-how to shape school-based vocational orientation. There is a clear need for special support, which must be met by education policy and the responsible Ministry of Education, among others.

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Students' profile engaged in vet programmes in the catalan context

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Abstract

Vocational education and training (VET) is considered a strategic pathway for tackling early leaving, improving young people's educational level and their opportunities for gaining access to the job market. This work contributes to VET research line through the description of the personal and academic profile of all those students who are involved in itineraries of secondary VET according to the multidimensional construct of student engagement. Focused on a sample of 761 young people who, during 2014-2015 academic year, were involved in Catalan VET programmes of level 2 (named CFGM) of Barcelona city and its surrounding area, results show a young people's 'non-controversial' personal and academic profile. This first approach to these youngsters' profile contribute to a better knowledge and understanding of why they have decided to enrol in VET pathways, and if they want to continue or leave them.

Keywords

student engagement; VET pathways; early leaving; young people

1. Introduction

The rate of Spanish early leavers is characterized for being one of the higher rates in the European context (MECD, 2015, 2017). VET is being considered a strategic pathway for tackling early leaving, improving the educational level of young people and their opportunities for gaining access to the job market (CEDEFOP, 2016a, European Commission/Eacea/Eurydice/Cedefop, 2014, OECD, 2014). In this respect, development of studies and researches on VET becomes strategic.

This work, which is the initial phase of a longitudinal research on VET that is working, wants to contribute to VET research line through the description of the profile of all those students who are engaged in VET programmes of level 2 (named CFGM) in the Catalan context.

The aim is to achieve a better knowledge and understanding of the profile of all those students who are involved in these itineraries of secondary VET, focusing on their features (personal variables, sociodemographic characteristics, economic situation, health state, etc.), motivations for choosing the VET track, their educational and professional expectations, to name a few. Likewise, the analysis of these students' profile has to be done also from the perspective of policies on tackling early school leaving (Abiétar-López, Marhuenda-Fluixá, & Navas-Saurin, 2017; Cedefop, 2016b).

As we can see hereinafter, results show a young people's profile in Catalan VET programmes characterized by a 'non-controversial' personal and academic profile. Nevertheless, despite this 'positive' profile, it is highlighting the presence of variables that could be 'critical' such as health perception, economic situation, or factors that determine their possible intention of leaving VET studies.

This first analysis and description of these youngsters' profile contributes to a better understanding of the reasons because most of these young people decide to enrol in these VET pathways and because they want to continue or leave them.

2. VET in the Spanish education system

Understanding better VET in the Spanish education system leads us to show here the main characteristics of the education system in Spain.

Since the 2014-2015 academic year, LOMCE (2013) is the Educational Act that regulates Education in Spain. This Educational Act regulates all the educational system that is characterized for having compulsory and non-compulsory educational stages.

Compulsory education is offered from primary schooling (compulsory education of 6 years addressed to learners aged 6 to 12) till the end of lower compulsory secondary educational (ESO in Spanish) –this is the last stage of compulsory education comprising four academic years from 12 to 16 years old−.

Non-compulsory education is offered in different educational stages. We could talk about two non-compulsory phases. The first one is childhood (for children aged 0 to 6 years). The second one is high school (Baccalaureate) and/or VET studies (basic –FPB in Spanish and PFI in Catalan−, intermediate –CFGM in Spanish− and higher VET programmes –CFGS in Spanish−).

The access to this second non-compulsory phase is after graduation in ESO. When learners end ESO, they receive the lower secondary education certificate (ESO diploma) which gives access to high school, intermediate VET or the labour market.

Intermediate VET (CFGM) in Spain is formed by 26 vocational families and run in a 1-year or 2-year programme (depends on the programme) between 1,400 and 2,000 hours of training. This training period is also divided between the formative centre and the workplace.

It is worth saying that traditionally, VET pathway in the Spanish context has been a second chance in front of the academic one (Baccalaureate and University). However, in the last years the number of students' enrolment in VET itinerary has increased, due to the fact of the improvement of VET attractiveness, although despite this growth in VET enrolment, the number of students who opt for academic pathway is still higher than the number of students who opt for VET (Sancha & Gutiérrez, 2016). This data lead us to conclude that although the improvement is evident, it is needed to continue working on the visibility and attractive of VET.

3. Method

Data came from the application of a questionnaire that was designed based on the multidimensional construct of student engagement. Its design takes into account other instruments such as SEI −Student Engagement Instrument− (Appleton, 2012), TEDP −Trousse d'évaluation des of décrocheurs potentiels− (Janosz et al., 2007), Social Support Scale (Landeta & Calvete 2002), MSPSS questionnaire (Zimmet, Dahlem, Zimet y Farley 1988), FMC-Q −Questionnaire of family motivation− (Alonso, Simón & Asensio, 2013), studies of VET leaving in France (Lannegrand, Cosnefroy & Lecigne, 2012), Denmark (Tangaard, 2013) and Australia (Callan, 2005), and study of social support for school engagement (Wan & Eccles, 2012).

The instrument has four dimensions although this work is focused only on personal and academic one. This dimension is integrated by personal, social, demographic, family and economic variables –see age, gender, immigrant condition, family situation, health, economic and work situation, etc.–, and by academic variables linked to current studies, itineraries, and school biography –see repetition rates, previous school situation, access paths to VET studies, reasons for the choice of studies, intention and reasons for abandonment, etc.–.

The questionnaire was submitted to an external validation –14 external experts validated the instrument– and an internal validation –internal consistency was measured with reliability analysis–, and was authorized by the ethic committee of research from University of Illes Balears.

After this previous validation, the questionnaire was applied to a sample of 761 young people who, during 2015-2016 academic year, were involved in Catalan VET programmes (CFGM) of Barcelona city and its surrounding area (Badalona, Sant Adria, Hospitalet and Sta. Coloma). The application of the questionnaire had the authorization and consent of educational centres and family and/or tutors of all those young people under aged.

Data were subjected to descriptive statistical exploitation –frequencies of the analysis dimension– through the statistical package for the social sciences SPSS (17.0 version).

4. Results

Results show a sample of young people in CFGM programmes where males (66.3%) are more representative than women (33.7%). Likewise, 65.4% of these young people are domestic youths (65.4% were born in Catalonia), being 30.7% of them foreign youngsters who were born in other countries of European Union (69.3%) and Central and South America (20%). 80% of the sample are young people aged less than 20 years and 91.6% of them live with their parents. Likewise, 87.5 of these young people say not to be working.

Regarding their parents' profile, about 60% were born in Catalonia, 45% have compulsory studies, 25% non-compulsory secondary studies, and 72% are working.

About their economic situation, 60% of these young people say not to have or only have some economic difficulty. Despite this percentage, it is worth noting that 23.4% recognise medium economic difficulties and 17.7% recognise lots economic difficulties.

In regards with their health perception, 87.3% of these young people have a good health perception although it is highlighting identify some group of youths with diseases like depression, anorexia, bulimia, etc. (18.4%) or some addictions like alcohol, drugs, game, etc. (13.1%).

Focusing the attention on their academic variables, 74.1% of the sample have secondary compulsory studies ended and this has been their access pathway to the CFGM programme.

Taking into consideration some previous academic variables such as repetition rates or expulsion from school, it is worthwhile noting that 47.8% repeated ESO and 13.2% repeated primary studies, and that 26.7% were expulsed from school, being 90.1% of these expulsions temporary.

Regarding the current VET studies, young people of this sample are involved in CFGM programmes, which most representative professional families are administration (10.4%), commerce and marketing (10.2%), IT (18%), health (13.4%) and hospitality sector (9.5%). About their reasons for accessing to these studies, 61.1% argue they like these studies. Likewise, 50.7% say someone recommended these studies to them. The main recommendation sources are families (50.3%), friends (35.8 %), teachers (27.1%) and counsellors (18%).

To conclude, it is worth noting young people's intention of dropout their current VET studies. 74.2% of them say not to have any intention of leaving their studies although 25.8% say that yes. The main reasons for leaving these studies are personal reasons (30.7%) and learning difficulties (39.1%). In addition to these reasons, they also point out others such as *'I*

don't like it' (16.7%), *'It is difficult'* (19.3%) and *'Family reasons'* (10.4%) ─usually related to their family's economic situation─.

5. Conclusions

Overall, results show a young people's profile in Catalan VET programmes characterized by a 'non-controversial' personal and academic profile. As we saw before, 66.2% are domestic students, 91.6% are living with their parents and 97.3% do not have children, 81.6% have a good health perception, 30.8% identify an economic situation without difficulties, 61.1% identify 'because I like it' as the main reason for their VET study selection, and 74.2% say do not want to leave the selected VET studies.

Despite these 'positive' responses, it is interesting focus the attention on other ones that could be turn into 'critical' variables such as the risk of 12.7% of young people who do not have a good health perception, the economic difficulties that 69.3% of students say to have, or the intention of leaving VET studies of 25.8% of youngsters who argue reasons linked to personal factors or learning difficulties, to give some examples.

In an initial stage, to know young people's backgrounds, interests, motivations, future prospects, academic and labour expectations, etc. in VET programmes is crucial to understanding why they have decided to enrol in these VET pathways and if they want to continue or leave them. Then, according to this, to promote initiatives for working with them on their success. That is, make to emerge VET as an alternative for tackling early leaving and improving young people's opportunities for their social, educational and labour inclusion.

To conclude, as we said in the introduction section, this work wants to contribute to the aim of minimizing early school leaving rates, increasing education levels and improving young people's access to the job market through VET pathways. To this end, we therefore believe that results presented here are the first step for its achievement because show the analysis of variables which, when combined, play a decisive role in describing and understanding why young people have the opportunity, or take the decision, to succeed as well as the risk of failure within these VET pathways.

This work, as the initial phase of a longitudinal research that is working, give us clues for stepping us research into these Pathways leading to success in, or dropout from, vocational training in the education system at levels 1 and 2.

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Gomery, D. (2019). University technical colleges: Pedagogy meets market demands. In F. Marhuenda & M.J. Chisvert-Tarazona (Eds.), *Pedagogical concerns and market demands in VET. Proceedings of the 3rd Crossing Boundaries in VET conference, Vocational Education and Training Network (VETNET)* (pp.34-44) https://doi.org/10.5281/zenodo.2641685

University Technical Colleges: Pedagogy Meets Market Demands

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Abstract

There is growing global interest in how countries help prepare young people for participation in the world of work. In seeking to understand the relationship between schooling and 'readiness' for work this paper examines University Technical College (UTC) leaders' perceptions when operating in a 'demand-led' quasi-market system in England. Key findings highlight the complexity and interrelatedness of the perceived competitive environment, populated by a range of pressures, tensions, and challenges. Despite working in a 'messy' culture and environment, these leaders continued to believe in the technical education on offer, and its value in meeting students' needs. Many students across the research sample had broadly similar profiles, leading to suggestions that some UTCs may operate, inadvertently, as a form of social segregation. A salient finding was the effectiveness of the quasi-market to generate perceptions of competition between providers, irrespective of a UTC's 'niche' technical education offer, the valued knowledge exchange between sponsors and students, the state of the art buildings and industry standard equipment, and employer demand for a skilled workforce.

Keywords

university technical colleges; quasi-market; pedagogical concerns; leaders' belief in technical education; social segregation

1. Introduction

This paper contributes to the growing interest in young people's transition between school and work, and vocational education and training (VET) in non-work settings that has echoes of international research findings (Ball, Junemann, & Santori, 2017; Billett, 2018; Henning Loeb & Lorenz, 2018; Obaid Al-Mujaini, 2018). In parallel, the study also contributes to debates regarding VET and the market system of "spontaneous order" (Foreman-Peck, 2004) that operates in England as an ostensibly efficient mechanism to determine supply and demand (Institute for Government, 2012). Throughout the paper two terms are adopted - 'technical education', and 'leaders'. Following the Wolf Review (2011) of vocational qualifications, the term technical education has become more widely adopted to refer to a programme of academic and vocational study that prepares students for progression into the world of work or study, and 'leader' refers to a principal (Head Teacher) or deputy principal.

The study examines UTCs as new technical education institutions through three lenses: firstly, by considering how leaders manage their pedagogical concerns when operating within a demand-led system; secondly, through leaders' perceptions and responses to the demands that emanate from the quasi-market and central Government; and thirdly, by leaders' perceptions of themselves as being empowered, in practice, to fulfil the aim to establish a technical education route with a curriculum that meaningfully meets the needs of students.

The initial concept of a university sponsored technical education college for students age 14-18years was championed by the late Sir Ron Dearing (1930-2009) and Lord Kenneth Baker, following the demise of Tomlinson's (2004) proposals for wider education reform.

Together Baker and Dearing set up the Baker Dearing Educational Trust (BDT) in 2009 to promote the establishment of UTCs, and in the same year Baker became both Chair of "BDT, UK", and Chair of the independent charity "Edge Foundation, UK" (2009 to present day). BDT asserts that UTCs were developed by the Trust in response to:

> The repeated demands from employers for an increased number of well-educated, high status technicians and engineers. They [UTCs] are demand-led, and have strong support from all three main political parties (BDT, 2014, p. 1).

Employer participation was therefore not only pivotal to the intended success of UTCs but also to broader efforts to boost the UK economy by ensuring an increased and improved supply of technicians and highly skilled vocationally qualified people (Baker, 2013). Established in England from 2010 UTCs are all-ability, mixed gender, state-funded secondary schools that operate independently of local authority government control, with a typical capacity of 500 to 800 students. Students 'self-select' to attend a UTC after completing either 3 years (at age 14) or 5 years of secondary education (at age 16) at a school sited across a sub-regional admissions area. There were 49 UTCs open in April 2018, 8 had closed since 2010, and one was due to close (2019). Each of the 49 open UTCs were sponsored by one or more 'sponsor stakeholders' (universities and local or national employers) with strengths in the UTC's STEM (Science, Technology, Engineering and Mathematics) and technical education subjects, that required access to industry-standard equipment.

In the early development phase of UTCs (2010-14), sponsor stakeholders included further education (FE) and higher education (HE) institutions, and employers. Collectively these sponsor stakeholders worked in partnership to devise the UTC's strategic direction, ethos and vision, input into the curriculum; and, importantly, they were to also contribute to teaching and learning. Employer sponsor stakeholders were to provide students with a range of support including industry-devised projects and work experience opportunities intended to enable them to make well informed 'life-course transitions' either into the world of work or on to further study. Thus, a new 'community' was formed around the UTC model as a 'hybrid' institution that crossed the boundaries of the existing and complex series of systems and organisational structures, governance models, programmes of study, qualifications, and skills matrices of the different agencies and actors involved (Edward et al, 2007; Evans, 2014; Keep, 2015; Lave & Wenger, 1991; UKCES, Group, & Gazelle Colleges, 2013).

University sponsorship of UTCs was, however, significant, for it offered a potential alignment of the curriculum to university progression pathways. As such, university sponsors were viewed by leaders as 'enablers' that crossed the traditional institutional boundaries and therefore worked to legitimise UTCs within education, and promoted, to a degree, the value of 'technical education' as an equally valid route to university. Encouraged by BDT's vision for UTCs, leaders had perceived that their collective work could help change the "deep cultural attitudes and assumptions that cannot be rectified through tinkering with frameworks of provision or qualification, nor even through well-choreographed exhortation" (Lucas, Claxton, & Webster, 2010, p. 1). Employer sponsor stakeholder engagement was also central to the UTC model as a means of facilitating the acquisition of high level competencies and transferable skills, such as learner autonomy (Ravitz, 2008) and collaborative teamwork that are increasingly in demand by employers and international governments (Warmington & Leadbetter, 2010). Employer sponsors were instrumental in engaging UTC students in "the kinds of authentic problems individuals are likely to face on the job" (Duke, 2014, p. 83).

The expansion of UTC numbers was driven by BDT and, significantly, by the Trust's Chair, Lord Baker, the former Secretary of State for Education and Science (1986-89) under the Conservative Government (1979-90). BDT's vision was for UTCs to create "a

performance and development culture based on setting high expectations in which students can succeed" (Gurr et al, 2014, p. 87), and one that would be attractive to parents and students. A defining characteristic of the UTC model was its responsiveness to the knowledge and skills their sponsor stakeholders prioritised and valued (BDT, 2012; Baker, 2013) to create practical learning contexts where typically "there is a fusion of intellectual and physical activities" (Gazeley & Pring, 2013, p. 72). To help the formation of UTCs the Department for Education has, since 2011, allocated "almost £330m of capital spending" (Dominguez-Reig & Robinson, 2018, p. 6). Recent research has proposed that UTC closures are the outcome of a range of "inherent problems" (Kettlewell et al, 2017) that include the number of students recruited, the curriculum offer, students' performance in national examinations, national inspection grades, the quality of marketing and brand identity, and the range of sponsors.

In parallel, changes to the global labour market since 2010 have generated a trend in England for employment to become increasingly precarious and less secure, for pay levels to remain low and pay increases suppressed, and for reduced employer investment in 'on the job' training (Standing, 2016). The disappearance of large sectors of the economy that formerly operated as transition hubs between school and work are becoming ever more fragile and tenuous or may no longer exist. Thus, an increasing percentage of students are attempting to manage the shift in social, political and technological change, whilst continuing to attend school or training. For some students schools, however, may now operate outside of what they perceive as schools' "legitimating purpose", that is, schools no longer act as a direct stepping stone to future employment (Kress, 2008, p. 259) nor sufficiently prepare students to consider their transition 'options' into work. An outcome of this shift is the high percentage of young people, and in particular boys, who are alienated from school and from what school has to offer. While Kress identified these shifts in 2008 as major problems for countries of the 'West', current research would suggest these problems continue to exist across many countries (Avis, 2017; Billett, 2018; Henning Loeb & Lorenz, 2018). As the authority of the State increasingly shifts to "the all-pervasive power of the market" (Kress, 2008, p. 259), and responsibilities increasingly fall to the 'young' themselves to 'own' their future, irrespective of the levels of information, advice and guidance (IAG) that may be available, it is reasonable to anticipate further shifts. The independent panel report on technical education (Sainsbury et al, 2016) emphasised the need to have two distinct pathways at post-16; the 'academic', and the 'technical' pathway with new Tech Level qualifications (2020) to aid progression into work and further study. The success of these developments may signal the trajectory of future shifts.

2. Method

Qualitative research was undertaken (spring 2017) with 10 UTC leaders (existing principals and former principals of open and closed UTCs) of 9 UTCs sited across differing geographical contexts in England (see Table 1). The research design drew upon Jabbar's (2015) conceptual framework that conceived of competition and competitive practices between schools in the US, which was devised on the understanding that school leaders' perceptions inform their activities and their responses. Thus, the conceptualisation comprised of four conceptual insights: competitive pressure, mediating factors, range of strategies adopted, and outcomes.

Qualitative data from participants, and document data from publically available government documents and websites were captured to conceive of the complexities of competition and competitive practices as perceived by UTC leaders. Participants (4 female, 6 male) were UTC principals (6 including one deputy principal) or former principals (4) with a range of prior senior leadership experience (3 to 34 years) who were in post between the academic years 2010-17.

Table 1 UTCs (2010-18) Regional Context and Sponsors

UTCs	n=9
Closed	2
Open	7
Lived Market Context	
Urban	3
City and Rural	1
City and Very Rural	3
Town and Rural	2
Sponsor	
Employers 1 or more	9
University 1 or more	9
Further Education College	4
Other	4

In-depth semi-structured interviews were conducted in either a face-to-face meeting in the empirical setting (6), face-to-face at a designated location (2), or online (2), and all were audio recorded. Audio interview data were fully transcribed, coded to the conceptual framework, were subsequently analysed and interpreted using NVivo11 software, and axial coding was employed to establish patterns and themes across the data.

3. Findings

Successive governments education reforms that liberalised the supply of provision in England, particularly from 2010, enabled Baker, Dearing and the Trust they established to try to harness supply-side reforms for the purposes of technical education, and thereby address the problem of skill shortages of highly trained technicians. To convince government, the public and consumers, Baker and BDT presented the UTC concept and its curriculum as "innovative", "stimulating and relevant", informed by employers and supported by universities. Baker's vision for UTCs was that they would operate as "agents of social mobility" that "gave to many the second chance opportunity that the grammar school had provided forty or fifty years ago" (Baker, 2013, pp. 29–30). UTCs were intended as harbours for the disinterested and disengaged and it was claimed that by closely linking learning to the workplace, students would become interested and involved. Baker had pledged that UTCs would help reduce truancy and disruptive behaviour.

In practice the findings of this research suggests leaders have struggled to balance their pedagogical concerns for 'learning by doing' with central government's emphasis upon national averages of academic performance across all schools, particularly throughout Key Stage 4 (KS4) [when students are aged between 14 and 16years]. Despite the trend to shift the responsibility for students' transition into work from the State to the 'Individual', students have not 'self-selected' to attend a UTC. It is also possible that mainstream secondary providers may be actively squeezing 'niche' provision, such as UTCs, out of the market by limiting their capacity to compete in the market, and thereby enhancing its own.

3.1 Managing Pedagogical Concerns

There was a broad consensus of support among research participants that UTCs' strength was the celebration of technical pathways, which were not 'second class' and held the equivalent value as any other [academic] pathway, and could lead on to university. By 'second class'

participant 5 referred to the general perception, including among many parents, students, school providers and some teaching staff, of technical education having lower status and being secondary to that of academic study. Baker's technical education model with its emphasis upon 'learning by doing' through industry projects, and a governance model that included sponsors, was argued by BDT to have the potential to remedy what Gove described as the government's "Failure to provide young people with a proper [a term undefined by Gove] technical and practical education of a kind that other nations can boast" (Gove, 2010, p. 1 para 4.).

The concept of straddling two competing imperatives the 'theoretical' [technical] and the 'practical' or 'learning by doing' was embedded in BDT's original vision (2010) for the UTC curriculum. To ensure balance within the curriculum it was divided at KS4 between Core Academic (60%) and Technical Specialism (40%), and at Key Stage 5 (KS5) between ages 16 to 18years the emphasis upon technical education increased providing 60% of curriculum time on the Technical Specialism and 40% on Core Academic. Students in KS5 typically followed a curriculum that was, invariably, a mix of two 'A Levels' (academic or applied qualifications) and a large 'vocational' qualification. The Baker Dearing Trust envisioned UTCs as 'niche' technical education institutions that were open and attractive to all students with an aptitude for and interest in STEM subjects, and encouraged students to 'self-select' to attend the UTC.

The composition of student intake, across the research sample (Table 2), indicated that admissions were well below capacity, and suggests that this intake was out of line with the national average for the percentage of boys attending, the number of students who claimed free school meals (FSM), and those students who were eligible for Special Educational Needs (SEN) support.

Table 2 Composition of Student Intake (January 2017)

National Average				50.80%	14%	14.40%
UTC	n=9	Total Capacity	Actual Students on Roll (Jan 2017)	Average % Boys	Average % FSM Students	Average % Eligible SEN Support
Total	9	5310	1560	81.4%	9.6%	15.7%

In response leaders most often changed the curriculum and in some cases reduced the number of employer sponsored projects to, ostensibly, meet the needs of students who leaders' perceived as having low prior attainment at the end of Key Stage 2 (KS2) at age 11 years, and/or a disrupted Key Stage 3 (KS3) between the age of 11 and 14 years or on entry to the UTC at age 14. The curriculum was also changed to help students and the UTC perform well against the national accountability measures in England (Attainment 8 and Progress 8 introduced 2016) and when measured against the academic performance of all local providers.

Table 3 Student Absences and Persistent Absences (2016-17)

National Average		5.40%	13.50%
UTC	n=9	Pupil Absence	Pupil Persistent Absence
No data	1		
2016-17 Data	8		
Average		8.6%	24.6%

The profile of average percentage of student absences (8.6%) and persistent absences (24.6%) across the sample were also significantly well above the national average (Table 3). This data reflected, to a degree, the aims of the trust in that these students were potentially the 'disengaged' students to whom Baker had referred. However, the absence data would suggest that UTCs as 'harbours for the disengaged' may have some way to go to re-engage these students and increase attendance (Table 3). The data may also indicated that other factors were possibly at play that could explain the high concentration of predominantly male students, who were eligible for SEN support and were regularly and persistently absent.

In general, leaders were under a great deal of pressure, particularly throughout KS4, to quickly plug any perceived gaps in students' prior achievement and learning, and this had resulted in some UTCs reducing the percentage of curriculum time available for sponsor projects and for students to 'learn by doing' [participant 9]. Addressing the social and behavioural needs of students and absenteeism rates were common concerns across the data, as was leaders' perception that some schools were recommending certain students with additional needs apply to attend the UTC (taking students off-roll). In doing so those schools may have improved their overall performance in national examinations, attendance and behaviour, at the expense of the UTC.

Six of the 9 UTCs that reported on a total of 369 KS4 students had Progress 8 (2016-17) scores (a national performance progress measure between KS2 at age 11 and KS4 at age 16) that were all 'below average', and 4 were 'well below average'. At KS5 the majority of the total 561 students had been entered for academic 'A levels' (209) with a lower number (196) achieving technical qualifications. It must be noted that the larger Technical Baccalaureate qualification was achieved by less than 40 of the 561 students. This data would appear to be at odds with participant 8's assertion that students had a preference for "learning through doing" and had a desire to "benefit from the latest technology, working in an environment that feels more like being at work than school" for students were entered for a high number of academic or applied 'A Level' qualifications.

Leaders were very aware that they had a number of partners, including sponsors and the government, whose organisational structures, performance indicators and drivers were different from each other. Leaders were mindful that their employer sponsors were responding to changes in the apprenticeship programme and their increased role in determining skills and standards and worked hard to explain to employers the importance of UTCs performing well within the school system. At the same time leaders were managing the considerable impact of the government's; reform of qualifications (2015-20), national inspection of schools, and reporting of student performance and progress.

3.2 Demands of the Quasi-Market

The underlying hypothesis for the introduction of the quasi-market into schooling was that markets were efficient mechanisms, and that schools would become more effective when they supported the rights of individual consumers (parents and students) to choose their school, whilst schools remained under the indirect control of central government (Chubb & Moe, 1991; Le Grand, 2011). Market proponents (Croft, 2015; Sahlgren, 2013) support the concept of the market as a 'spontaneous' and efficient mechanism that enables services to remain viable, is responsive to changes in market forces, such as parent demand, and, ostensibly, is able to drive up standards through competition. Critics (Ball, 2008; Ball, Bowe, & Gewirtz, 1994; Gorard, 2016) suggest this notion of competition to remain viable is based on the false premise that school improvement and raising educational standards will be the outcome of allowing 'good' schools to compete for student admissions and thus thrive, while it allows for 'poor' schools to struggle and close (Johnson & Mansell, 2014, p. 3).

A defining characteristic of the UTC model was its responsiveness to the knowledge and skills that sponsors prioritised and valued, and working in partnership with sponsors to devise the ethos and vision, curriculum content and input into teaching and learning (BDT, 2012; Baker, 2013). Involving employer and university partner organisations as stakeholders in enacting education reform is not new in England, for stakeholders (employers) supported the formation of City Technology Colleges in the late 1980s, and their participation was integral to the 2004 Diploma developments for whole scale system reform. The input of a range of 'other providers' into the skills agenda, including employers, was also a focus of the Leitch Review of Skills (2006). Leitch envisaged collective responsibility would increase action, and provide greater investment in the development of a world-class, skilled workforce, and had therefore recommended that those likely to gain the greatest private return on that investment [employers] contribute the most.

Under the Coalition Government (2010-15) the skills agenda was subsequently populated with a number of policy reviews and initiatives. These included, among others: the introduction (2010) of Local Enterprise Partnerships (LEPs); the launch of UTCs (2010); a Work Programme (2011); the publication of the Wolf Review of Vocational Qualifications (2011); the Employer Ownership of Skills (announced 2011) and the Education Act (2011); City Deals were announced and "New Challenges, New Chances" were launched in 2012; followed by the publishing of the Richard Review (2012) and its implementation plan (2013). In 2013 more initiatives followed that included the Commission for Adult Vocational Training and Learning (CAVTL) report 'Its about Work', 'Rigour and Responsiveness in Skills' was also published; the 'Education & Training Foundation' was established; Study Programmes and Traineeships and Phase 1 (Apprenticeship) Trailblazers (employer groups charged with identifying the new apprenticeship standards for their sector) were announced. The pace of change continued throughout 2014 with: funding for Study Programmes that was conditional on continued study of English and maths; Applied General and Technical Level qualifications were introduced; and Careers Company was announced.

The role of 'sponsors', in particular employers, in these reforms and plans for technical education and training may be indicative of a changing relationship between the State, education and employers (Carberry et al., 2015; Keep, 2014). This changing relationship may also be indicative of a neo-liberal approach that supports a demand-led education system, intended to be responsive to market need and trends (Gleeson & Keep, 2004). The drive for a demand-led system with the lead involvement of employers and businesses is predicted to increase, and this could put relationships between providers of education and employers even more centre stage (Carberry et al., 2015), and give employers direct powers over strategy, funding, delivery, and future developments (Carr, 2015).

Partnership working between employers and education establishments is increasingly viewed as a policy solution formed between government and those employers prepared to share the responsibility to address young people's transition into work. These partnerships, largely unregulated, can be difficult to sustain and are consistent with new public management approaches that emphasise the formation of alliances and shared responsibility.

3.3 Leaders' Empowerment

Leaders' commitment to the UTC model and belief in its concept featured strongly across the sample with leaders setting up a professional business environment so that students, as soon they walked through the door, felt that they were entering a building as young adults and were no longer students. Leaders' believed that this perception came not just from the building, but also from the people [students, leaders and sponsors] who worked in the building [participant 7]. Considerable concern for students was voiced by all leaders, as was a strong desire to do the very best for them because as [participant 3] articulated: "if you care, and you want to do a

good job, and you care about the kids and the results they get, you're completely torn". Here 'torn' makes reference to the tensions leaders experienced between helping students perform academically well in national examinations, and doing what staff believed was 'right and best' for those students. This tension had resulted in some leaders making pragmatic decisions based on what they believed would help the UTC 'survive'. Leaders, generally, were under significant pressure that frustrated them in particular government reform believing: "The government – the same set of goal posts, they've moved and parked them somewhere else, 20 minutes later – parked them somewhere else…I've had enough of you moving the goal posts" [participant 3]. As such, leaders perceived that government had insufficiently considered how the concept of a sub-regional recruitment area would work in practice [participant 10], which created additional pressure, and another form of dissonance, between the concept and delivering the technical education offer in practice. For those UTC leaders in their first year of headship (2), and for whom the option to be 'assertive' with government agencies was not deemed an option at that time, the financial viability of their organisation was particularly difficult.

Leaders in general were highly sensitised to the need to recruit students and low student admission numbers was an on-going concern, as were the small teaching groups, which were costly to deliver both in terms of staffing and per student costs. The resulting variance between predicted and actual student numbers had applied additional financial and competitive pressures (Gomery, 2018). Leaders' perceptions were best summarised by participant 5's assertion that "schools don't want to lose money, and they don't want to be seen that their kids went to the UTC, because we're a competitor". In general, leaders unanimously questioned central government support, and the level of competition that a student's 'unit value', in terms of financial resource, was able to generate between providers. The need to 'attract, retain, or lose' students, and the funding implications unleashed as an outcome, were factors affecting all school leaders. Participant 10, who had previously been a secondary school Head Teacher in a number of schools, commented that the competitive nature of secondary schools meant that if the UTC took 10 students from one school then "that will be a teacher that will need to be made redundant". Participant 10 understood that, as former Head Teacher of a secondary school, he "would not want that to happen". Equating students as a source of 'financial worth' and a 'unit-value' was echoed by leaders and was evident throughout the data.

Overall, leaders valued employers' optimism, their willingness to support projects, student workplace opportunities, and support for student transitions between the UTC and particular occupations that had created its own community of practice with knowledge sharing between the expert and the novice at its core (Felstead, Fuller, & Jewson, 2007; Lave & Wenger, 1991). Similarly, leaders were frustrated by the lack of empowerment they were afforded regarding admission arrangements, and by the national reporting and school inspection regime that did not, in their opinion value, understand, nor support the valuable and meaningful work that they believed was taking place.

4. Conclusion

An education model that purports to meet the differing needs of students and stakeholders through an increased supply of diverse provision may be generating, through competition, 'winners and losers' in the parental choice game (Exley, 2012). It is also possible that the increase of diverse supply of provision may be contributing to a 'virtual' form of school improvement as schools compete for high-performing students, and 'off-roll' students with predicted low academic performance, behavioural or other special needs, to provision that, ostensibly, better meets their needs.

This study would suggest that UTCs' "inherent problems" are less easily identified, and remain hidden within successive governments' belief in and its support for the market (since the late 1980s) as an efficient mechanism to achieve its education reforms. These findings highlight the interdependency, inter-relatedness, and complexity of different agencies working together to create a meaningful technical education offer for young people age 14 to 18years. The urgent call for more research "into pedagogies that are effective at developing wider skills, in the context of both academic and vocational learning" (Lucas et al., 2010, p. 30) remains as pressing today as it was in 2010. The introduction of UTCs as a niche technical education offer, however, has done little to change deeply held preconceived ideas about technical education at a national, regional, parental and student level. This research suggests that a meaningful form of technical education, that has a project-based teaching and 'learning by doing' pedagogy, is important. Indeed, too important to allow the responsibility for the skills agenda to; further slip from the State to the market, responsibility for students' future work to shift further from the State to the individual, and for all providers to improve through the laissez-faire mechanisms of the quasi-market.

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Professional formation and youth insertion on Labor Market in Brazil

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Abstract

Considering that youth insertion on labor Market is a great challenge for the present Society, we are giving continuity with the research in professional and youth insertion on labor Market. On this text, we will present some results of two pieces of research accomplished by doctoral candidates in the Postgraduate Program on Education of Philosophy and Sciences College, Universidade Estadual Paulista, which had as an aim to analyse the process of professional formation of the youth in the state of Ceará, in Brazil, the Project e-Youth and the National Program of Acess to Technical Teaching and employment PRONATEC, besides confirming the impact of the courses on the youth insertion on Labor Market after the achievement of the course.

Keywords

education; professional formation; youth and labor in brazil

1. Introduction

Youth insertion on Labor Market is a great challenge for present Society. According to Labor International Organization (VOIT), the world is living one of the worst crisis of youth employment. Between 2007 and 2011, labor and Employment ministry points to that Juvenile unemployment shows its particularities and even in economical growth contexts, remains higher in relation to adult unemployment, at the end of 2017, Labor International Organization (OIT) presents data showing that practically 30% of Brazilian youth would be unemployed, the highest rate since 1991.

Market crisis affects in an uneven way diferent social groups and regions of Brazil. The unemployment rate is higher for women, youth and low-educated people (IBGE,2017). In front of the social inequalities that permeate Brazilian Society, labor – as na activity strongly articulation to the formation and transformation of the identities of the subjects – shows itself as a problem especially in youth life who live in situation of social vulnerability, for it they do not have access and on it they depend to change their life condition. Through labor, they see the possibility of minimizing the diferences and discrimination suffered since birth, in a rights" deprivation story.

Through the aforementioned problems, which became harder nowadays, we are giving continuity to the research on youth insertion on labor Market, following as well the ways of the professional formation in the country, after changing the government. Here we will present some results of two pieces of research of doctorate, under our orientation, which had the aim to analyse the process of professional formation of youth in the state of Ceará , in Brazil, the prject e-youth (e-jovem) and the national Program of Access to Technical Teaching and Employment (Pronatec), besides confirming the impact of these courses on youth insertion on labor Market after the achievment of the course.

1.1. Project e-youth (e-Jovem)

According to Calou (2016), Project e-youth is a public policy implemented with aim to collaborate with the insertion of the youth on the formal professional labor world.

The research was accomplished in capital of the State, Fortaleza and in some towns in the hinterland, where the Project worked since 2007 involving students in an Informatics course. The universe of research comprehended eight groups in towns of hinterland of State; Barro, Crato, Eusébio, Itapoca, Juazeiro do Norte, Granjeiro; one group in the metropolitan area and two groups in Capital – Fortaleza, summing up a total of eight groups and 61 participants.

The specific objectives of the research were to analyse the oficial documents of the Project and the Pedagogical Practices in the eyes of the students and teachers the used methodology for the collect, treatment and data analysis, was the quantitative-qualitative research of documental and bilbiographical nature with a descriptve approach.

According to the Labor Development Institute (IDT), youth between 15 to 24 years old in the state of Ceará are more penalized by unemployment and face more difficulties of insertion on Labor Market for diverse reasons: lack of experience, inadequate qualification or inexistent qualification, low schooling lack of information on the new models of information, it is the lack of knowledge, in fact, which leaves the youth without alternative of insertion on the world of labor (CALOU, 2016). It was what motivated students to enter the course of Project e-youth 61 answering, 40 (65,6%) answered for “learn informatics”, 17 (27,9%). Seventeen students, 27,9% answered that enrolled in the course to have a profession. Theree students, 4,9% looked for the course to be unemployed and just one student stated that wished to do the course to “find a job”.

2. Results concerning to the formation to the world of labor and concerning to the insertion on labor Market

Students stated, in their majority that the course promoted changes, they stated feeling ‘able and in condition to work or set up their own business’. It was the statement of 52 (85,2%) students, just nine (14,8%) tated not feeling prepared.

Corroboration with what the research affirms, after the conclusion of the course, according to Calou (2016) 51 (83,6%) students were working witout working register just 9 (14,8%) students were working formally, reaffirming the labor precariousness of youth. Of these students 26 (42,6%) were working in the field of their formation, in Informatics, however, stated that if wasn’t formal work and some worked as self-employed. Eight students (13,1%) are working in other field and 27 (44,3%) did not answer the question of the sixty-one students that took part in the research, 39 (63,9%) were unemployed and nineteen (31,1%) inserted on labor market, in the field of study.

As it was easy to affirm, by the colected data about students families, many are from very low social economical origin. They had few perspectives of any change in their state of life in country cities, however, with the arrivel of the Project their hopes were renewed and this provocated many expectations for a professional formation.

The Project was developed with pedagogical practices involving new Technologies, building the upknowledge with computer tools besides promoting a colective work, where they socialized their ideas, it solved the group difficulties, clearing doubtts and simulating practical solutions in the net. The first objective of the Project is to make them acquire technical formation, then colaborate to reach a job opportunitiy, that would represent the access to a professional career. For these reasons, 78,7% of students have affirmed that participating in the Project was very importante for their formation, however, as data show, few got this inserttion in the labor Market in their área of study.

3. National program of access to technical teaching and employment (PRONATEC)

According to Silva (2016) the National Program Access to Technical Teaching and Employment (Pronatec) created in 2011, has as an aim to enable great number of people through the program in order to solve the déficit of qualified professionals to answer labor Market, through free courses in partnership with several institutions that already offered vocational teaching.

It objectives, also, to increase the number of vacances in professional and technological education, by means of programs, projects and financial and technical assistance actions. With these objectives, the Program offers technical professional courses fo médium level with average duration of one year and a half to two years with workload between 800 a 1200 hours, being able to be coursed in its forms concomitantly, integrated ou subsenquently to the High School in public schools.The courses offered by Program are free in public institutions, as Federal Network of Professional Education State, districtal and municipal networks of professional education. From 2013 on, private institutions of higher education and technical professional education of high school started to take part in the Program.

The universe of the research was made up by students and participant managers of Pronatec in the courses offered by IFCE – Federal Institute of Education, Science and Technology of Ceará, in the industrial field, at the campi of Fortaleza and Marcanaú (CE). The general purpose was to analyse governamental policy concerning the social-economical-educational, from the eyes of diferent subjects attained by the Program the specific objectives were; to know the motivations of students who entered the courses in industrial field offered by IFCE at the campi of Fortaleza and Maracanaú; to identify the different perceptions of students and managers during the achievement of these courses; to investigate whether there were significative in a socio-economical level in the life of these youth attained by Pronatec and, too, whether they were inserted on the labor Market after the achievment of this course.

The Methodological procedures the qualitative approach, they were a quis, interviews and documental analisys. The epistemological current used for the data analysis, collected in the research, was the dialectical materiais for according to Gil (2012, p.14) according to this method created by Marx and Engels from Hegel's grounds, social facts cannot be analysed separately from political, economical and cultural influences.

The field of study was the Federal Institute of Science and Technology of Ceará – IFCE at Fortaleza and Maracanaú Campi, with courses in the field of industry. The choice of these campi was due to its geographical location for being in towns where the greatest industrial poles of the state, therefore, there is a bigger professional demand. The technical courses offered by Pronatec are in the field of industry, at Fortaleza campus were: Electrotechnology, Mechanics, Cooling, Workpace Safety. At the Maracanaú Campus the only technical course was industrial automation. Among the participant students 43 students were selected randomly.

4. Results – Youth life after joining a technical course and academical situation after accomplishment of the course.

The majority of students surveyed 96,7%(n=42) related significant changes in their lives after joining a vocational technical course such as Pronatec. The testimonials showed that almost half of the surveyed 47,62% (n=20) considered that the increase of their knowledge and skills in the technological area from Pronatec in the IFCE was a factor that influenced their lives..

The increase of interest of studies represented 19,05% (n=8) of the students surveyed like "student 27" of the automation course "[...] I am more attentive to work that I am going to exercise, I read more articles, magazines and books, and my motivation is each time bigger along with my vision of the future. Some necessary habits not only for being good

professional but for life. The improvement in the personal of Family relationship was pointed by three students as something that changed their lives after joining Pronatec, as highlighted “student 42”.

According to the majority of the answers 72,09% (n=31) there was an intention to work in the field when they finished the course.. Then never stop studying always looking for knowledge. When finished my technical course I want to continue my studies at the college (student 10) “I intend to follow my career in the near factories and later try a higher education: have a better life, for me, my parents and siblings” (student 12).

This perspective to give continuity to studies, is placed by 41,86% (n=18) of the students to show a wish to study in a higher institution to be able to enlarge the range of knowledge in the field..

Concerning the situation of former students, after two years of conclusion of the technical course, we affirmed that 13 (35%) were not working, 15 (37,5%) worked in the field of the course and 11 (12,5%) in another field data that are above data of Brazil in general, given by IBGE. Some of the students complained of the lack of opportunity of employment after the course .

The need to get a job to supply the basic needs, place many youth who have finished the technical course to look for a job also in another field, as we can notice in the speech of the following former students: I have looked for a job for 2 years and the things became hard and then I took what came, it was a job at a gas station (student 7, of the workplace safety course).

We have realized that the education received by these youth of Public Teaching, complemented by professional education, did not make possible in fact a solid formation to enter a place in the Public Higher Education. Concerning insertion on labor Market, also happened that the majority did not get a job, and went to a precarious job. Due to the social-economical reality of some of these youth, there are not many options unless being employed according to their focus on their life reality, as Kuenzer (1992, p.100). It was affirmed what Loponte (2010) said: that the professional education offered to youth, still is very attached to the ideology imposed by capitalism, even in public institutions, as well as in federal institutes, which could offer along with education for work a human formation for citizenship.

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Reform perspectives for the Ukrainian VET system – a critical analysis

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Abstract

The contribution focuses on current reforms of the Ukrainian VET system, mainly on decentralization and the "import" of a dual system, as well as on the hindrances for successful implementation of these reforms. The context hereby is neoliberalism, which has influenced Ukraine generally, including the development of vocational education, and modernisation theory, which explains the involvement of international organisations in the VET reforms and liberal attempts of the Ukrainian government. The theoretical findings suggests that although Ukraine has a potential to improve its skill formation system, activities so far seem fragmentary and isolated, and they apparently do not take into account the complex environment in which they are meant to function.

Keywords

reforms; vet; ukraine; decentralisation; dual system.

1 Introduction

According to globalization theory, educational systems are undergoing revolutionary changes (Green, 1999). Against this background, VET, apart from its traditional function to develop skills for a particular occupation or a particular enterprise (Cedefop, 2017, p. 7), is expected to promote employability among secondary education graduates in order to enable them to shape socio-economic development as well as to cope with ecological issues (Wallenborn, 2010, p. 181). For Ukraine, this implies a change in the direction of the current development of its VET system, which is characterized by stagnation, low competitiveness and obsoleteness (Korzh, 2013). Even more, its weakness to compete with academic qualifications and meritocracy deeply rooted in Eastern European societies seems to be a major factor.

Reforms in VET are prompted by three factors, namely 'concerns, within or outside the training system, about the relevance of training being provided in the country; concerns about the effectiveness and the efficiency of the national training system; and concerns about paying for training and being able to sustain the necessary effort over time' (Fluitman, 1999, p. 57). All three preconditions are present in Ukraine and some reforms have already been initiated, such as the internal reshaping of the system in 1996, the introduction of the 'Law on Vocational Education' in 1998, as well as the beginning of decentralisation of VET in 2016 (European Training Foundation, 2002; European Training Foundation, 2017a). Moreover, the country has taken a strategy for an introduction of a kind of dual system in 2015 (Ministry of Education and Science of Ukraine, 2018). However, the envisaged success of these reforms raises some doubts. Against this background, the questions discussed in this paper are (i) whether the Ukrainian VET system really possesses the potential to undergo reforms that could really change the direction of its current development, (ii) how the state could manage and imple-

ment such reforms, and (iii) whether there are factors which still are strong enough to impede reforms in Ukraine and therefore might lead to potential failure.

2 State-administered VET and the Transition Economy

Since vocational education is embedded within the respective national economy, industrial relations and status systems (Bosch & Charest, 2008; Deissinger, 2008), the theoretical reference we use to describe these problems and challenges in the case of Ukraine is neoliberalism.

Neoliberalism broadly means the agenda of economic and social transformation under free market conditions (Connell, 2013; Harvey, 2005). However, the shift to neoliberalism for the countries with liberal economies was an expected stage of their evolution. For the countries of the former USSR, it was a plunge into the unknown. Neoliberalism so far has had a drastic impact on the Ukrainian educational system, causing commercialization and expansion of higher education, and with it the decay of vocational education (Korzh, 2013, p. 52).

Historically, Ukraine has a school-based VET system, which it inherited from the USSR. Such a system functioned effectively as part of the administrative economy and centralised management (Nychkalo, 2004), but under free market conditions it failed in quickly reacting to needs of employers and with respect to demanded skills and competences of school-leavers. The liberalisation of the economy, which started in 1991, created imbalances in the social sphere, devaluating norms as ‘work’ and ‘profession’. Vocational schools remained under state control and gradually declined in numbers (Nychkalo, 2008). Also, the deterioration of the economic situation undermined the ability of the state to provide VET with sufficient financial resources which led to bad and insufficient equipment in vocational schools. VET was no longer capable to correspond to the work reality in industry. Moreover, the remuneration of vocational teachers, trainers and instructors now is one of the lowest among professional categories (European Training Foundation, 2017b). Reforms that were initiated by the government, such as the internal reshaping of the system in 1996 and the introduction of the ‘Law on Vocational Education’ in 1998, were designed to align the VET system to the expectations of the employment sector. However, these steps did not stop the negative tendencies in the VET system.

Rostow's modernization theory rests on the liberal expectation of gain spillover from the economic elites to the whole society due to the expansion of the market economy (Ish-Shalom, 2006). This idea corresponded to the liberal intentions of the government to introduce free market principles within the VET system in Ukraine. Since 2016, decentralisation tendencies in Ukraine influenced all spheres, including the VET system. The developed countries attempted to make their contribution to the development of VET in Ukraine by providing modernisation assistance. The European Training Foundation worked out a Green Paper to lead discussions on reforms and capacities needed for an attractive high-quality VET system in Ukraine (European Training Foundation, 2017a). The recommendations also include public-private partnerships. So far, this idea exists only on paper. One of the consequences of decentralisation was the adoption of a new law ruling the budgeting of vocational education and aiming at its liberalisation. Financing vocational schools has been shifted to the regional level and also includes other stakeholders, e.g. companies. However, for vocational schools such measures have turned out to be a shock therapy. Although the intention was to make VET more liberal and to match qualifications with the needs of a particular region, schools appeared not to be ready for such radical measures and many were on the edge of extinction (European Training Foundation, 2017a). The government had to urgently subsidise VET in order to save it and to avoid massive protests (Pokidina, 2016).

3 Importing the Dual System in Ukraine

Ukraine, experiencing economic challenges and increasing unemployment since 2008 (Ministry of Finance, 2018), searched for the best practice to combat these problems. The government of Ukraine came to the conclusion that 'the world leader of skilled workforce training is the European Union due to its dual system of education and training' (Ministry of Education and Science of Ukraine, 2018). Although this is a too generalistic perception, it resulted in the decision to implement dual vocational training in Ukraine. Since 2015, the government of Ukraine started to pilot the implementation of 'the dual system of vocational education' in 3 vocational schools and as of 2018, 52 vocational schools out of 758 launched the implementation of elements of dual training with respect to 52 qualifications (Ministry of Education and Science of Ukraine, 2018).

The results of this experiment encouraged the government to approve the concept of dual training. The problems, which are to be solved according to the concept, are low readiness of VET graduates to work according to their qualifications, low satisfaction of the labour market with the quality of education, ineffective usage of students' learning time regarding the acquisition of competences. The steps taken for the implementation of the dual system were accompanied and supported by international and German organizations, such as Friedrich Ebert Stiftung in Ukraine, Deutsch-Ukrainischer Agrarpolitischer Dialog, Eastern Partnership (Cabinet of Ministries of Ukraine, 2018).

Although in Germany and Ukraine the term 'dual training' is used, it is obvious that Ukrainian officials who pushed the realization of this reform, and German scholars who do research on the dual system, educational transfer and policy borrowing, have different understandings. Duality of vocational training in German-speaking countries is characterized not only by bringing theory and practice or learning venues together, namely the vocational part-time school and the company, but also on the responsibility of various stakeholders and a specific understanding of "occupations" (Deissinger & Gonon, 2016). This important fact seems to be non-existent in Ukraine as such stakeholders in the dual system, traditionally represented by chambers, employer organizations and trade unions, either do not exist or have different goals. For example, trade unions hardly play a substantial role in the economic and social life of the country and are considered as undeveloped elements of the labour market in Ukraine (Doronina, 2013; Kolot, 2000). Chambers perform mainly supportive functions such as searching business partners, issuing product quality certificates, assessing property and other actions connected with the economic activity, but are not part of the VET system as such (Ostroumova, 2015). Therefore, the notion of a dual system in Ukraine has so far been reduced to the issue of learning locations.

It is considered a specific feature of the German vocational training system that at the target level three dimensions are connected with each other: individual, social and economic expectations. The interactions between these three dimensions normally lead to a consensus between institutions and stakeholders responsible for education policy on the level of the federal states and on the level of the central state (Euler, 2013). In the Ukrainian case hitherto, two dimensions out of three have not demonstrated sufficient potential to transform the current vocational education system into a dual one.

Pilz has worked out an instrument for VET transfer (Pilz, 2017). The '6 P Strategy for VET export' comprises six core factors to be taken into consideration in any transfer project. These factors are priorities, which should be based on training needs and perspectives of those involved; power, which implies resources needed for qualitative and quantitative training needs; people, which means qualified trainers/instructors and adequate pay for them; poaching avoidance, which implies loyalty to companies involved, progression, which stands for progression routes for VET graduates to higher education; and privileges for adequate working conditions and pay for skilled employees (Pilz, 2017). The implementation of a dual sys-

tem in Ukraine was driven by the needs of both employers and trainees. As a matter of fact, in the Ukrainian concept of dual training, it is mentioned that the equipment in vocational schools is outdated and worn out up to 100 %, so there is hope among those working on the operative level in the VET system that the situation might improve due to the implementation of a dual system by the government.

However, still there are no clear regulations for the qualifications of trainers and vocational teachers. Universities which offer vocational teacher training programs experience a constant shortage of students because of low social attractiveness of and bad financial perspectives in this profession. Although companies articulate an interest in a qualified labour force, the absence of a clear legal base which would outline their rights and obligations make them reluctant to participate in the state initiatives. Now graduates of VET can progress to higher education, because they can attend secondary education at vocational schools and receive a respective certificate (Verkhovna Rada Ukrainy, 1998). How the situation will change with a dual system in which it is expected that theoretical learning will just amount to around 30 % of the learning time is difficult to predict at this early stage of its implementation. Higher education attainment is still strongly associated with better salaries, working conditions and social status in Ukrainian society (Del Carpio, Kupets, Muller, & Olefir, 2017; Korzh, 2013). Looking at criteria such as those by Pilz makes clear that the challenges with respect to a dual system approach are more than just demanding.

4 Conclusions

The problems that have so far blocked reforms in vocational education in Ukraine from being successful lie in three areas: policy definition, setting (the right) objectives, and implementation (Fluitman, 1999). The reforms initiated have been in line with the policy of establishing a modern democratic and prosperous country. The assumption referring to the deficiencies of these first reform steps is that they were aimed solely on vocational education as such, leaving aside economic, social and cultural realities of the country. In order to make VET transfer successful, the experiences of different countries ought to be compared and, if necessary, those elements ought to be picked up and adapted which harmonize best with the national goals, structures and cultures (Euler, 2013). Against this background, the term “policy learning” might be more adequate than the term “transfer” of “policy borrowing” (Deissinger, 2015; Raffe & Spours, 2007).

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Biographical notes

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Using digital devices for learning vocational expertise in high- and low-technology contexts – Case studies in Finnish and & Cuban contexts

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Abstract

Digital competence is an important ability for humanity in the 21st century. The use of technological tools in VET schools has expanded in recent years. Digital technologies cover a wide variety of tools such as computers, robots, learning environments, digital media like blogs, wikis and social media. The aim of the paper is to present for discussion uses of technological tools such as simulations in both high-technology context like Finland and in low-technology context like Cuba. Technologies can act as a means for inclusion and exclusion to communities in multiple levels: in classrooms, organizations, work places as well as countries. The paper reflects on how the use of technological tools promotes learning vocations and what kinds of challenges do exist with digitalization. Furthermore, we discuss how the use of technological tools changes practices of VET.

Keywords

simulations; digital technology; technology for learning

1. Introduction

The use of technological tools in schools has expanded in recent years; even though such tools have existed already decades. Digital technologies cover a wide variety of tools such as computers, robots, learning environments, digital media like blogs, wikis and social media. In this paper, we will focus on uses of simulations in learning vocations. The aim of the paper is to discuss and reflect on uses of these technological tools in both high-technology contexts like Finland and in low-technology context like Cuba. Digital technologies can act as a means for inclusion and exclusion to communities in multiple levels: in classrooms, organizations, work places as well as countries. Digital divide is the concept that describes inequalities in access to digital technologies and Internet as well as inequalities in skills and how it is used (cf. Rogers, 2016).

The paper reflects on how the use of technological tools promotes learning vocations and what kinds of challenges do exist with digitalization. In the paper we investigate across national and technological boundaries to discuss the challenges that emerge in accordance to stage of technology development. Likewise, challenges for teachers and organization of the learning process are examined and discussed.

Hakkarainen (2009) pointed out how use of technology-mediated learning changes also knowledge-practices. He concluded that technology enhances learning through transformed social practices. In other words, not the use of technological tools as such, but how techno-

logical tools are integrated as part of teachers' and students' social practices. In VET, also how technological tools are part of vocational and professional practices.

The Finnish case explores simulations in the health care field. Gaba (2011) has outlined that simulations are perceived as attempts to replicate a clinical situation to amplify or replace actual experience. Simulations are divided into three categories—live, virtual, and constructive simulations—involving live people, simulators, and simulated systems, such as gaming with avatars (Sokolowski, 2011). Challenges in health care area are, as Poikela and Teräs (2015) pointed out in their review, that pedagogical knowledge was often thin.

The Cuban case has a special challenge in how to deal with scarcity of resources and develop alternatives ways that permit access to advantages of digital technologies. Here initiatives and creativity in using learning environments becomes essential.

The VET system in Cuba is expected to meet work market's needs, and at the same time, VET is given an important role in social inclusion. A main challenge for the VET system, in particular since 1990s and up to day, is how to meet technological development internationally given the graduate access to knowledge of these technologies, and at the same time, satisfying local needs that are often not related to highly developed devises.

The paper concerns the following three research questions:

- What are the challenges and benefits of simulations experienced by teachers and students in health care in Finland?
- What are the main features of the use technologies for learning in cuba´s VET system as depicted in research?
- What are the challenges and benefits of using technologies for learning in low-teach and high-tech contexts?

2. The Finnish case: Challenges and benefits of simulations

Simulation training is historically rooted in aviation and military education, areas that have also been studied for ideas by health care practitioners and educators, which are the main focus of this research (Gaba, 2012). An international expert meeting (Issenberg, Ringsted, Ostergaard, & Dieckmann, 2011) identified three areas in which new knowledge concerning health care simulations was urgently needed: instructional design, outcomes measurement, and translational research. This research addresses the first area by asking what kinds of pedagogical challenges are faced in simulations.

Simulation training is frequently divided into three phases: briefing of the situation, the simulation event itself (called a scenario), and debriefing of the simulation event (Dieckmann, 2009). These phases are used to organise training in practice. Problems may arise if learning is conceived as this linear process model suggests, because learning is a dynamic process and is part of all phases. Furthermore, we know that, for example, motivation, perception and learning environment have effect on learning.

Sokolowski's (2011) three modes of simulations are found in different vocational domains: live, simulators, and computer-based modes. However, in the health care domain, traditional tools, such as anatomical models, are merged into new technologies to form high-fidelity patient simulators that are frequently used to learn nursing practices, such as resuscitation after a heart attack.

2.1 The study

Simulations are used to learn and develop high-level skills and knowledge needed in specific domains, like caring for a trauma patient (Rosqvist & Lauritsalo, 2013). They are found to be beneficial in learning nursing practices, especially clinical skills and bridging classroom and clinical learning (Darcy Mahoney et al., 2013) and so called non-technical skills such as communication, decision-making, leadership and team work (Jankouskas et al., 2007). Cant and Cooper (2010) reviewed 12 studies and found out that six had demonstrated positive effects on learning (e.g., gaining knowledge and self-confidence and learning critical thinking) whereas six studies did not show effects. There are also challenges identified in simulation literature such and economic and personnel resources required in implementing simulations. Berragan (2011) further pointed out concerns about what are real capacities of simulations to translate to practices and how quick development of technology might take a leading role in learning nursing practices. Furthermore, Langemeyer (2012) aptly pointed out that students can also learn stereotypical professional and gender roles in simulations.

Previous research focusing on simulations in health care has employed different theories as a springboard to explain learning. Studies have employed constructivism, behaviourism, or a combination of both (Parker & Myrick, 2009), experiential learning, expert learning (Nehring & Lashley, 2009), problem-based learning (Poikela, 2012), and social practices (Dieckmann, 2009). Poikela and Teräs (2015) found in their scoping review 13 different conceptualizations of learning in nursing simulations and five different pedagogical models. Furthermore, researchers had employed both educational theories and theories from other disciplines such as critical feminist theory or social sciences.

In the Finnish context, simulations have been studied in educational areas, especially military medicine and mass casualty situations (Jokela, 2010) and forest machine training (Salakari, 2007); health care areas (Poikela, 2012); in the philosophy of science and technology work (Mattila, 2006); and construction industry work (Kerosuo et al., 2012).

2.2 Method and analysis

The study is part of the larger research called “Developing and learning expertise via simulations”. [1] The aim of the study was to examine how students and teachers perceived simulation training. Participants were 16 nursing students and 9 teachers. The teachers (out of 13) answered a qualitative electronic questionnaire involving 12 open-ended questions. 16 students (out of 19) answered similar type of questionnaire from students’ perspective. The participants studied and worked in the Finnish Universities of Applied Sciences. Data were collected in 2013-2014. The focus of this presentation is on the qualitative questionnaire data.

Before the study started, research permits were applied from the Institutes and the consent was asked from the participants. The questions for teachers involved background information such as teaching subjects, years in teaching the profession, work life experiences and five questions about simulations: How does simulation method differ from other teaching methods, what kinds of issues promote learning in simulations, what kinds of issues hinder learning in simulations, what kinds of issues are beneficial to teach in simulations, and what kinds of issues are not beneficial to teach in simulations? The questions for the students involved three background questions such as the starting year of the studies and if they had participated in simulations, and four questions about simulations: How do simulations differ from other studying methods, what kinds of issues promote studying in simulations, what

[1] Previously the Finnish case was presetend in Wordl TVET Conference in Malaysia 2015

kinds of issues hinder studying in simulations, and what kinds of issues are beneficial to study in simulations?

Analysis followed a qualitative thematic analysis and its six phases: familiarizing with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes and producing the report (Braun & Clarke, 2006). Analysis was conducted with Atlas.ti the software program. Answers to questions were short sentences involving one or more issues the participants wanted to bring forward about teaching, studying and learning in simulations.

Initially 20 different codes were identified in students' responses such as simulating authentic work situation and practical skills. In teachers' responses 34 different codes were identified such as working practices, teachers' competence and inspiring experiences. Thus, teachers identified more issues than students about the strengths and challenges of simulations. However, when searching for themes four themes were identified in the responses of both groups: 1) differences 2) usefulness 3) conduciveness, and 4) challenges. Theme usefulness and conduciveness were categorized as strengths and theme challenge and differences were reported as such. I will next give the examples of the themes according to research questions: How do simulations differ from other teaching and studying methods? What kinds of strengths and challenges do teachers and students identify in simulations?

2.3 Results

15 students had started their studies in 2012 and one in 2010. All were nursing students and they had participated in simulations during their training. Six teachers taught nursing and three management and services. Seven teachers had taught in simulations and two had not. Differences

Both students and teachers recognized differences. They both compared it with reading a book and thought that it was a "better way to study than reading a book" (S8[2]) as one of the students put it. In addition teachers thought that simulation method was intensive and comprehensive and that "one needs to throw oneself in a different way, one can really experiment and also fail" (T7).

2.4 Strengths

Both students and teachers thought that usefulness of simulations was especially in "learning working practices" (T1). One of the students responded that simulations are useful in "especially practicing such situations, which are rare in real nursing work" (S5). Both identified that simulations are good at linking theory to practice, learning group work and collaboration and learning from mistakes.

The students highlighted authenticity that simulations "help to prepare oneself for real patient situation" (S3) as well as learning practical skills such as "nursing procedures" (S11). Furthermore, students wrote that "practicing demanding procedures before internships gives self-confidence" (S6), and simulations are useful when one can see her/his own performance. Students also favored that "you learn more when you are doing things" (S2).

The teachers brought out that simulations are also useful in professional development and that it can be used all kinds of teaching as one of the teachers put it: "Simulation is flexible and it can be used for many kinds of teaching, one can apply it to all." (T9).

[2] S=student, T=teacher, numbers refer to individual participants.

Both students and teachers responded to that better organization of simulations can promote learning: ”Simulation days are long, often between 8-16, towards the end one gets too tired and focus loosens. Also one has to always wait for one’s own turn.” (S8). The teacher also thought about integration: ”Even more exact integration into the curriculum and different learning objectives.” (T8). The students wished for more simulations and smaller groups, and the teachers more resources and support from the management. In addition teachers recognized that they needed more competence about teaching in simulations: ”Developing staff’s competence.”(T4).

2.5 Challenges

When considering the challenges, the respondents’ answers differed. The students brought out six issues and the teachers five. The students highlighted the artificiality of simulations: ”I see simulation situations unnatural from time to time.”(S4), and feeling of tension: ”For a worrier it can be painful.” (S10). They also presented that follow-up was inconvenient: It would promote learning “if they would not be videotaped” (S14), as well as lack of instruments. One student thought that the whole activity was in vain: ”I think that studying in simulations is stupid and therefore it should be stopped.” (S13).

The teachers highlighted as a challenge “lack of competence.” (T4) and problems with implementation: ”Too difficult cases, technology is not working.” (T9). They also identified personnel and economic resources as challenges. Furthermore, they brought out the size of a student group and knowing working life: “Lack of clinical skills.” (T5).

The teachers presented six situations in which they would not use simulations as a teaching method: ”Teaching theoretical issues.” (T1), processing student’s personal life, recognizing previous competence, teaching issues related to death, research work, and ”those issues that can be learned later in working life, and are low risk tasks if one fails”(T4).

3. The Cuban case: Challenges and benefits of using technology to support learning

The use of technology in the classroom has an important impact and to great extend shapes educational practices (Cuban, Kirpatrick & Peck, 2001). Cuban educational system, including VET, performs better that most countries of the region regardless of limitations (Fleites, 2013). The use of technology to support learning has been much in focus in the Cuban VET system, a system that has largely been schools based despite strong connection with work place secured by a very centralised governance of education (Gasperini, 2000).

3.1 Research material

This study is driven by an interest in investigating how technology to support learning has been used in the context of a low technology developed country (Cuba) that shows considerable success in educating work forces. The study is limited in scope. It essentially aims to provide initial grounds for deeper and broader analysis of the use of technology for learning within the VET system in Cuba.

In a literature search, including review of data bases in Cuba, it was noticeable that research in this area is scarce if not largely missing. There is however a valuable piece of research that arguably sets grounds for further studies about the use of educational technology in Cuban VET system. Najia Sabir and Anne Ottenbreit-Leftwich (2014) from Indiana University, studied empirically how VET institutions, or polytechnic high schools as termed in their study, prepare students for labour marked using technological tools. The empirical part of their study is largely refereed in this article.

Focusing on the Cuban educational system Sabir and Ottenbreit-Leftwich (2014, p. 250) refer to earlier research to argue that educational guidelines and trends illuminate how school-

ing mechanisms have been shaped to accommodate economic, political and social needs. Additionally, they argue, that it is important to evaluate the perspectives of teachers as they relate to leveraging technology in instruction. Without a clear understanding of teacher values and perspectives, interventions will not be as successful. From this, a clear understanding of context is invaluable.

The post-revolution Cuban educational systems is primarily a state-controlled, centralized system that is responsible for the development of society and educator perspectives. According to Sabir and Ottenbreit-Leftwich (2014, p. 250) these educational policies and top-down approaches have impacted teacher perceptions on how to prepare Cuban citizens. Over time, school-level administrators and teachers have adopted this centralized vision of educating students, in an effort to better meet productivity goals. The study suggest the relevance to first understand their value systems of teachers.

3.2 Results

Using Erikson's data analysis techniques Sabir and Ottenbreit-Leftwich (2014, p. 258) developed assertions of how Cuban polytechnic teachers perceived and used educational technology. Based on the questionnaires and interviews, teachers reported highly valuing their technical pedagogical training, indicating that the growing spaces were an integral part of their technology based instruction. According to this study limited resources was the greatest barrier to the implementation of educational technology. The following assertions emerged in the study. The teachers perceived that educational technology met a wide variety of teaching and learning purposes; technology allowed them to extend the classroom; more resources would enhance their teaching; and polytechnic education was reported as a valuable experience for students. Likewise the study found that teacher perspectives in this school were greatly shaped by the lack of advanced technology available.

The four main finding of the study (Sabir & Ottenbreit-Leftwich, 2014, pp. 258-261) are presented in the following.

First, educational technology is viewed as inclusive of any technological devices that prepare students for their future careers, even in labor.

During the observation and on-site interviews done by Sabir and Ottenbreit-Leftwich (2014, p. 258), when teachers described educational technology, they mentioned a wide range of devices that would help prepare students for their future careers. For example, when asked about educational technology during an onsite interview, one teacher discussed the importance of greenhouses and how this particular technology enabled students educational experiences of differentiating between vegetation and knowing how to care for the variety of foliage. Although greenhouses would not typically fall under traditional definitions of educational technology focusing heavily on digital technologies, teachers here seemed to express broader definitions of educational technology devices and tools that could benefit their students.

Sabir and Ottenbreit-Leftwich (2014, p. 258) report that during the interview and site observations, teachers explained that the wide fields and greenhouses were representative of learning spaces. The principal explained plants were grown, labelled, and tended for by the students, in short, some greenhouses were "complete student initiatives." During the teacher interviews, the greenhouses and other outdoor learning spaces were referenced as instructional tools that teach students the crucial skills of: identifying different types of plants; their uses and how to care for them.

Second, technology is used to extend the classroom from traditional spaces into the outdoors to accomplish meaningful student learning.

During the site observation Sabir and Ottenbreit-Leftwich (2014, p. 259) found out that the teachers pointed out aspects of different types of technology the school incorporates in

their lessons and classrooms. They report that during one of these exchanges, a teacher humorously points to two oxen tied to short coconut trees near a classroom door, claiming the pair as education and assistive tools. While meant as a humorous comment, the principal was quick to jump in the conversation to point out the importance of the animals to the school and the students' learning, referring to them as "tools."

This introduction of ICT tools is important in establishing the definition of educational technologies for the purpose of expanding traditional learning spaces into the outdoors. Sabir and Ottenbreit-Leftwich (2014, p. 259) reports that while touring additional greenhouses and outdoor spaces a teacher refers to these as "important classrooms," where students learn to tend to animals and vegetation. For example during the interviews, the teachers comment that students must not only learn how to distinguish between the types of plants, determining their properties and value, but be able to care for them appropriately, everything from planting a seed to caring for a full grown tree.

Typically, a black tarp-like canopy encompasses the plots of land creating a roof-like structure, and cascading down slightly on all four sides. Teachers, during the observation, describe this as an important 'technological' aspect. In that the 'canopy' provides more than shade and the students learn how to create structures and appropriately alter the amount of sunlight the plants receive. Students must learn the functions of many of their outside classrooms. Sabir and Ottenbreit-Leftwich (2014, p. 259) describe that the teacher was quick to call this structure as technology of the classroom that facilitated student learning. Furthermore this was seen an extension of the classroom from the physical bounds of the brick-and-mortar classrooms. This type of learning takes the students outdoors into a real-world context where they have to master appropriate skills.

The study by Sabir and Ottenbreit-Leftwich (2014, p. 259) describes that several black tarped greenhouses introduced as learning spaces, where students learn through practice. For example, one unique feature pointed out is a water trench that students need to walk through to get into the learning space. A teacher explains how the students have to ensure sanitation and healthy plants. The teacher describes how the students need to learn how to naturally keep away pests and bugs that would harm their cultivations. The teacher says that the students 'have to clean their shoes' before and after coming out of the greenhouse, she is careful to place emphasis on the students' learning throughout the process of entering this particular classroom.

During the on-site interview conducted by Sabir and Ottenbreit-Leftwich (2014, p. 259), principal displayed a wildlife area of the school explaining that the school is a 'polytechnic agricultural school' that teaches more than how to 'grow plants'. The students also learn how to 'care for livestock' at this school. For example, during the site observation, a teacher highlights an elevated livestock facility pointing out a very large pig housed in a pen, situated next to the large animal is a litter of piglets. The teacher describes how the students learn to take care of the animal, they learn how to 'breed, feed and tend' for it. The principal highlights the pig pen, in an interview: the pen houses very large pig surrounded by several of its smaller piglets. The large pig is isolated between steel bars. The principal describes how the mother pig would roll over her babies and claimed this was an issue for the school. In response to this need the school imported, from Japan, this bit of teaching technology, which was considered a 'new advancement'. The purpose of integrating this tool was to 'teach the students how to care for livestock' in an appropriate and humane manner. Furthermore, the authors report that the principal referred to the technology of the pen as key in the teaching process. Additional learning spaces, including chicken coops, fodder houses, and other livestock holding areas were also toured as learning spaces.

Third, the teachers believed that their instruction could be enhanced with better access to technological teaching materials and their training was vital to their development.

During the interviews conducted by Sabir and Ottenbreit-Leftwich (2014, p. 260) with university faculty the aspect of equal resource distribution and teacher preparation was a key focus. Due to national policies all traditional classrooms had equal and standard allocations of resources. With the national requirement for teacher preparation, 80% of the teachers reported being 'well prepared' to use educational technology in their classroom, 10% felt 'somewhat prepared,' and the other 10% felt 'very well prepared'. Most of the teachers surveyed had been teaching for at least 6 years, with only a handful having taught less than 3 years. Additionally, several teachers mentioned courses, in recycling for example (n=5/9), that shaped their use of educational technologies.

When asked in the study (Sabir and Ottenbreit-Leftwich, 2014, p. 260) about their comfort level in terms of using technology in their classrooms in the questionnaire, there were four options: very comfortable, comfortable, somewhat comfortable, and not comfortable. While 80% percent of the teachers said that they felt 'comfortable using technology' in their classroom, only 5% said that they were 'not very comfortable.' In the questionnaire, when teachers were asked about how often they used technology, 55% of teachers reported that they used technology between 5-10 times a week, while 30% of the teachers said that they used technology at least 11-15 times a week. Teachers defined these activities as instructional material integration, lesson planning, classroom activities, classroom management, or communication with colleagues. Half of the 22 teachers assigned homework that required a computer once or twice a week, while four teachers reported assigning more computer-based homework more than three times a week. However, none of the teachers noted using technology for administrative purposes, such as attendance, or analyzing student performance, such as identifying student performance trends through a grade book. Only one respondent reported using technology to communicate with peers or students. While only 15% claimed to actively use electronic resources, it is important to note that their definitions of educational technology resources tended to include greenhouses and other technologies that were not electronically based.

Sabir and Ottenbreit-Leftwich (2014, p. 260) report also the very limited access to the Internet; specifically, teachers did have access to an Intranet which contained CD-based information. While this point was brought up during several teacher interviews, the university faculty and even translators confirmed the limited access to the World Wide Web. In the interviews the university faculty explained the concept of the intranet. The intranet housed resources, such as instructional videos, simulations, and digital lesson plans, which were distributed to all the regions. These recourses were normally delivered directly to the school site and housed on-site.

Fourth, polytechnic education is viewed as valuable in creating productive and technical students, as defined by teachers and faculty.

According the outcomes of the questionnaire used by the authors of the study (Sabir and Ottenbreit-Leftwich, 2014, p. 260) a majority, 85% of respondents, mentioned that they used technological tools to facilitate high order thinking in their classrooms. During the observation, teachers described their high-order thinking activities as teachers expanding the classroom outdoors and had students solve problems in real-world contexts. 95% of the teachers use technology for personal productivity, using word processors to create worksheets and tests in their school computer labs. Lastly all of the teachers reported using technology to present information and to facilitate specific learning concepts.

Sabir and Ottenbreit-Leftwich (2014, p. 261) report that another important practice-based teaching experience is the use of cigar presses as instructional technology. During the study, one of the classrooms observed is purposed specifically for the teaching of this process. The classroom is filled with tiny wooden desks, at first glance it seems difficult that high school students would even be able to sit at these desks, let alone two students to a table. In the cor-

ner of the room were large sticks, and piles of leaves covered with fabric. A teacher explains that this is the 'drying room' where students learn to cultivate, harvest and produce tobacco. The students bring the leaves into this room to study and press and roll them into cigars. The desks actually hold single presses, cigar pressers for the tobacco leaves. As the teacher describes how the classroom is actually used and the mechanisms by which the students use the press technology, she describes this with such pride claiming this classroom as an important aspect of helping Cuba become a global contender by increasing its exports. According to the study the students in this school are one of the region's largest cigar producers, as identified by the principal. When the teacher describes the students using the technology of the cigar press she discusses this in the context of her students helping the entire nation from an economic developmental perspective.

4. Summary and conclusions

This paper presented two different studies focusing on use of digital devices to learn vocations. The Finnish case examined one specific case: use of simulations to learn nursing practices, and the Cuban case was an overview of using technology in education. The first study was conducted in a high-technology context and the second one in low-technology context. Both studies show that use of digital devices has increased in both contexts to learn vocations, which poses both opportunities and challenges for the students and teachers in VET.

The results of the study, in the Finnish case, showed that the students and teachers agreed that learning in simulations was beneficial. They thought that simulations were useful especially learning practical skills needed at workplaces such as nursing procedures. Both acknowledged that simulations are good at linking theory to practice, learning group work and collaboration. Both also thought that better organization, implementation and integration would promote learning in nursing simulations. These results are in congruence with previous studies done in nursing simulations (cf. Cant & Cooper, 2010).

The participants' perceptions differed on challenges. The students identified as the biggest challenges that simulation was an unnatural situation and that some students felt tension when participating into simulations. Whereas the teachers recognized as the biggest challenges lack of competence and resources simulation demanded, both human and economic resources. This result shows that both groups approached challenges from their individual and situational points of view. In relation to challenges both students and teachers were on their zone of uncomfortable.

From practical points of view, the results provoke four issues. First, what can be done in relations to promoting the authenticity of simulations, the situational factor, and second, how to relieve students' tension. Third, how to develop teachers' competences for teaching in simulations, and fourth, how to ensure sufficient resources.

Responding to the first and second issues, two measures can be suggested. These are both intertwined to the third one, a competent teacher who knows working life as well as pedagogical principles can both create authentic simulations and relieve students' tension. The fourth one is a question for the management of institutes. If the management supports using the simulation method, sufficient resources need to be allocated.

The simulation method has become popular in health care training. The results of this study showed that it has both strengths and challenges. Each institute that uses the method, needs to solve these challenges according to their local circumstances and listening to their students and teachers.

As for the Cuban case, according to the findings in the study by Sabir and Ottenbreit-Leftwich (2014, p.261), which are supported by other studies (c.f. Wang & Woo, 2007; Cuban, Kirkpatrick & Peck, 2001), while differing from traditional definition of technology, the teachers expanded their notion of technological education tools. The traditional definition of

ICT, explained as it is simply a "tool" in the education context is much contested by the findings of the study. This leaves then then space for a more comprehensive definition of educational technology as the creation, use and management of appropriate technological processes and resources. The teachers in this case study expanded their definition of educational technologies to include for example greenhouses and outdoor learning spaces. According to the study teachers viewed the construct of technology to be: inclusive of all technological resources available for instructional purpose, and a useful tool in moving learning from physical classrooms into real-world spaces. Teachers integrated tools they believed were relevant to their instructional context and governed by the Cuban educational system's values.

Both studies showed that using technology changes practices of VET, which means that digital competences are needed. This article is just an initial step for intended comparative of contrasting contexts that is considered of paramount relevance for research in VET.

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Improving 4-C skills for senior secondary vocational school graduates

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Abstract

Senior Secondary Vocational School (SSVS) is designed to prepare graduates to become middle-level workers. This study aims to find learning models that are effective in increasing critical thinking, creativity, communication and collaboration, which are very important in the era of Industry 4.0.

Critical thinking and creativity are two complementary thinking skills especially for solving complex problems. To develop the skills students have to practice solving problems familiar with everyday life. Communication and collaboration skills are two very important abilities in social life. To develop these skills, students should practice group work in a social interaction. Thus collaborative project based learning (CPjBL) is considered to be an appropriate instructional model to develop four skills simultaneously.

This study applied the 4-D model, then the learning model was empirically tested through control group pretest posttest design. t test and effect size test was used to check the effectiveness of the instructional model. The analysis result showed that CPjBL was effective in developing critical thinking, creativity, communication and collaboration skills for SSVS students.

Keywords

critical thinking; creativity; communication; collaboration; collaborative project based learning

1 Introduction

In Indonesia, Senior Secondary Vocational School (SSVS/SMK) is designed to prepare graduates to become middle-level workers in certain fields (Law No. 20/2003: Article 15-explanation). However, data shows that SSVE graduates are the biggest contributors to unemployment (Tempo.Co: Nov 15, 2017; Jawa Pos: Nov 17, 2017). Often SSVS graduates fail to compete in the selection to enter the workforce (Samani. Cholik, Buditjahjana, 2016). Similarly, the study of Newhouse and Suryadarma (2009) conclude that public appreciation of

SSVS is not high. Therefore the Government of Indonesia issue Presidential Instruction No. 9/2016 on SSVS revitalization.

Industrial era 4.0 has recently entered into many countries, including Indonesia. The World Economic Forum (WEF) (2016) study reports that industry 4.0 has brought a change of work patterns which is driven by mobile internet and cloud technology, power and big data processing, new energy supplies and technologies, and the internet of things. The four core-work related skills that are needed now are complex problem skills, social skills, process skills, system skills (WEF, 2016: 22). Similar to those findings, the Economist-Intellegence Unit study (2015: 8) found five skills needed in the future, they are problem solving, team working, communication, critical thinking and creativity.

When examined more deeply, the skills found by WEF and The Economist will lead to 4 core skills namely critical thinking, creativity, communication and collaboration (4-C) which are called the learning and innovation skills by Trilling and Fadel (2009: 49-60) and super skills by Kivunja (2015: 224), because they are the most important skills in the 21st century. This study aims to find a learning model that is able to develop critical thinking, creativity, communication and collaboration skills for SSVS students, so that they are able to join the employment field in industrial era 4.0.

2 Theoretical Framework

1.1.Critical Thinking and Creativity

Critical thinking and creativity are two complementary thinking skills for solving complex problems (Paul and Elder, 2008). Associated with Bloom taxonomy, critical thinking includes two levels of thinking, namely analyze and evaluation, while creativity is a level above them (Wilson, 2016). While Marrapodi (2003) mentions critical thinking is the stage of evaluating an information or idea, while creativity is the stage of its expansion. Thus, although complementary critical thinking and creativity are two separate capabilities.

Ruggiero (in Murawski, 2014: 25) says critical thinking is the art of thinking about thinking, so that it seems to be the peak of thinking ability. People who think critically do not directly accept someone's opinion but will look for other information as a comparison (Karakoc, 2016: 28; Murawski, 2014: 26). Thus, people who think critically apply deductive and inductive thinking simultaneously. Critical thinking is a high order thinking skills that have six aspects, namely interpretation, analysis, evaluation, inference, explanation and self regulation (Facione, 2013: 5; Koeswiyah, 2012).

How to develop critical thinking? Snyder and Snyeder (2008: 93-94) mention that to foster critical thinking skills, learning must involve students actively, focus more on processes and not results, and apply challenging evaluation patterns. Similarly, Murawski (2014: 27) mentions challenging tasks or questions will encourage students to develop their critical thinking. To help students more easily develop critical thinking skills, tasks or questions must be related to their daily lives (Samani and Palupi, 2013).

Creativity can take the form of process (creative thinking) and results (creative products) (Cropley, 2011). Creative products are produced by creative thinking but creative thinking does not necessarily produce creative products. Meanwhile, Runco and Jaeger (2012: 92) states that creativity requires two aspects, namely originality and effectiveness. In line with that, Amabile (in Gino and Ariely, 2012: 445) defines creativity as the ability to produce new ideas that are useful for the needs. Original but ineffective means unuseful ideas, on the contrary effective or useful but not original ideas does not mean something new.

Associated with work, creativity is the first step towards innovation (Baer, 2012: 1102). Creativity refers to ideas, while innovation designates the implementation of these ideas in solving a problem. The Santa Fe Institute Working Group (2015: 17) states that creativity is

influenced by abilities in memory, divergent thinking, convergent thinking, and flow. While Filsaime in Nurlaela and Ismayati (2015: 24), and Liu and Schoenwetter (2004: 802) states that creativity has four aspects of fluency, flexibility, originality and elaboration.

Through a series of studies, Boyd and Goldenberg (2013) proved that creativity can be developed through systematic inventive thinking (SIT), while Tan, Lee, Ponnisamy, Koh and Tan (2016) mention creativity can grow well if learning provides opportunities for students to apply their ideas. Thus providing opportunities for trial and error is the key in fostering the ability to think creatively. In the context of automotive technicians, trouble shooting training is an effective way to foster students' critical thinking skills and creativity.

1.2.Communication and Collaboration

Communication and collaboration skills are two very important abilities in social life. Both are complementary in social interaction (Nazaro & Stazzabosco, 2009). Research conducted by The Economist Intelligence Unit (2015: 3) concludes that both are also very useful in future work. For automotive technicians, the type of communication that is needed is interpersonal communication that has five aspects, namely emotional intelligence, body language, posture, sensitivity to the audience through appropriate behavior, and active listening (Koehler and Wesson, 2014: 2). In line with that, Hutagalung (2017: 3) mentions five aspects namely clear voice, good grammar, nice expression, viewing others, easy to understand. Meanwhile, Kapur (2013) mentions obstacles that often occur in communication, namely environmental and physical barriers, semantic barriers, cultural barriers, psychological barriers, perception of reality.

Collaboration is mutual engagement between two or more people to achieve agreed goals (Lai, 2011: 2). Unlike cooperation that emphasizes the division of labor, collaboration is more flexible (Child and Shaw, 2018: 18). Katzenbach and Smith (in Reeves, Xyrichis and Zwarenstein, 2018: 1) mention collaboration can take the form of working groups, pseudo teams, potential teams, real teams, and high performance teams. The difference between the five depends on the solidity of the team concerned. In the context of automotive technicians the collaboration pattern tends to be loose because the work is simple, so it can be categorized as a working group, which according to McMaster University (2016) has five aspects: sharing information and experiences, responsibility and accountability, cooperation, support for innovation, and mutual trust and respect.

In collaboration the quality of communication is one of the determining factors (Hidayanto and Setyadi, 2014: 96). Job mistakes often occur due to misunderstandings in communication between members of the work team. In interpersonal communication, miscommunication is often caused by cultural factors. What the speaker means is understood differently by the listener (Koehler and Wesson, 2014), therefore mutual understanding of culture between members of working groups is very necessary (Schadewitz, 2009: 37). Besides that, the obstacles that occur in collaboration are lack of collaborative skills, free-riding, competence status, and friendship (Le, Janssen and Wubbels, 2018: 109-110).

The similarity of goals and understanding of the work handled also greatly influences the effectiveness of collaboration (Reeves, Xyrichis and Zwarenstein, 2018: 2), so that brief discussions before starting work are very important in the working group (Samani, Suparji, Rahmadian, 2017: 200). In trouble shooting on the automotive field, idea differences for resolving damage often occur, so members of the working group must convey each other's ideas to avoid mistakes in work steps. The culture of collaboration is more easily developed through team of culture, community culture, and network culture (Callahan, Schenk and White, 2008: 7).

Collaboration and communication, especially interpersonal communication is very important in the world of work, but unfortunately it is rarely taught in schools (Callahan,

Schenk and White, 2008: 1), because schools more emphasize on the individual abilities of student. In contrast, in the technological era almost all jobs are carried out in groups (Economist Intelligence Unit, 2007). As a result, many SSVS graduates fail in job selection not because they are less skilled, but because they do not have the ability to communicate and collaborate (Samani, 2014).

Communication and collaboration are not sufficiently theorized but must be in the form of daily behavior, so the development of these two abilities must be carried out through practical work training (Hole, 2015: 1973-1974). In other words students learn in work groups so that productive social interactions occur. Therefore collaborative project based learning (CPjBL) is considered to be an appropriate instructional model to develop those skills simultaneously.

1.3.Collaborative Project Based Learning

Project-Based Learning (PjBL) is a student-driven, teacher-facilitated approach to learning (Bell, 2010: 39). In Collaborative Project Based Learning (CPjBL) students work in groups that are tailored to the competencies that students must master and are associated with the context of their lives (Chen, Hernandez, Dong, 2015: 28). Meanwhile Donnelly and Fitzmaurice (2003) mention that CPjBL applies a multidisciplinary project approach that is tailored to the student environment with more emphasis on student activities. The five main characteristics of CPjBL are learning by doing, real world problems, interdisciplinary, collaborative group work, the role of tutors as a “guide on the side”, and end product oriented (Harmer and Stokes, 2014: 4-6).

Implementation of the CPjBL requires adequate preparation, for both students and teachers. In the learning process, students construct new knowledge based on prior knowledge. Because the CPJBL applies the principle of learning by doing and the teacher/instructor acts as a mentor from the side, students must have sufficient knowledge about the project carried out and have sufficient experience in collaboration (Bell, 2014: 42). Teachers must also understand how to implement the principle of "to guide from the side" and how to evaluate the competencies achieved by each student. Designing projects that fit the competencies students have to achieve and corresponds to their environment and how to apply the above five principles is a challenge for teachers (Jamal, Essawi1 & Tilchin, 2014)

CPjBL has been proven to be successfully applied in universities (Donnelly and Fitzmaurice, 2003; Zhang, Peng and Hung, 2009; Chen, Hernandez, Dong, 2015). Students at the universities certainly have maturity in thinking and behaving, so the principle of learning by doing and learning independently can work well. However, there has not been many researches on the application of CPjBL at the high school level, especially in vocational schools and associated with the development of 4-C skills.

In this study, the project undertaken by students is trouble shooting a motorcycle brake system which is one of the competencies that must be mastered by SSVS students. CPjBL application on the topic of trouble shooting will encourage students to think critically to find problems occurred, think creatively to find solutions, communicate and collaborate because the project is done in groups. This ability will be integratively built when students work and students will be motivated to work because they have the freedom to do what they think (Halmer and Stokes, 2014: 15).

3 Methods

This study applied the 4-D model (define, design, develop and disseminate) (Thiagarajan, Semmel and Semmel, 1994), but only to the stage of development. The learning model was empirically tested through control group pre-test post test design (Krathwohl: 1998: 510-511).

The study was conducted at Department of Automotive Technology “SMK-X” on even semester, academic year 2017/2018. Topics used was brake system that includes both theory and practice activities and has medium-level of difficulty. The experimental group applied CPjBL while the control group applied a learning model that had been used so far, namely direct instruction followed by assignments.

To measure critical thinking, creativity, communication and collaboration skills observation sheets used. Expert judgment by 3 experts was applied to check the content validity and construct validity of the instrument. Reliability of the instrument was tested by inter rater (Borich, 1994), with results 97.96% for critical thinking, 93.76% for creativity, 92.07% for communication and 92.06% for collaboration skills. Thus, the four observation sheets are reliable.

To ensure the equality between the experimental group and the control group, a pretest was carried out and the results were tested by t test. After the learning process completed, post test was carried out and the results were tested by t test, followed by the effect size test (Cohen's d) which was done using a scientific calculator.

4 Findings

Table 1 shows the pre-test and post-test scores, both for experimental and control group. *t* test analysis against the pre-test score between the two groups shows the result: *p* for critical thinking = 0.63, *p* for creativity = 0.65, *p* for communication = 0.9, *p* for collaboration = 0.78. It means that the two groups are not significantly different.

Table 1 Students’ Skills of Experimental and Control Group

		Critical thinking	Creativity	Commu-nication	Collabo-ration
Experimental group	Pre test	38.54	35.32	44.23	48.67
	Post test	83.15	83.02	85.68	85.82
Control group	Pre test	37.61	34.63	44.51	48.88
	Post test	78.69	78.38	79.58	81.45

The data in Table 1 also shows the posttest score of the control group is also quite good (critical thinking = 78.69, creativity = 78.38, communication = 79.58, collaboration = 81.45). "SMK X" is a good SSVS and generally students are smart young people, so it is natural that with the direct instruction model they also get a good score. However, the t test shows a significant difference between the experimental group and the control group, so it can be concluded that CPjBL is more effective than the learning model that has been used so far.

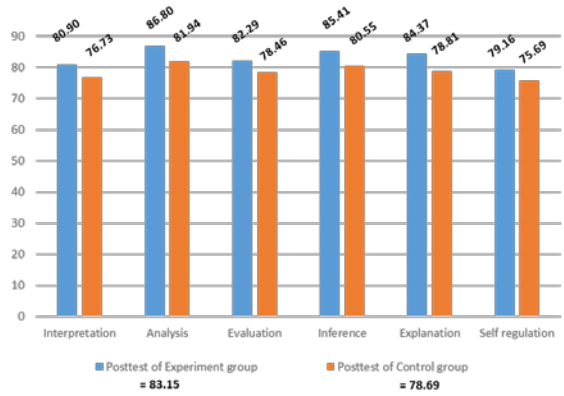

Fig. 1. Score of Critical Thinking

Table. 2. Result of *t* test on Critical Thinking

		t-test for Equality of Means		
		t	df	Sig. (2-tailed)
Critical Thinking	Equal variances assumed	2.023	70	.027
	Equal variances not assumed	2.023	69.825	.027

Figure 1 shows the score for each indicator of critical thinking, both experimental group and control group. The mean score of experimental group is 83.15, while control group is 78.69. Table 2 shows the results of t test with p = 0.027, so that it can be concluded that they differ significantly. Calculation of effect size found d = 0.50. It means that CPjBL applied to the experimental group was able to improve students' critical thinking skills better.

When examined carefully, self-regulation is the aspect of critical thinking that gets the lowest score, both experimental group (79.16) and control group (75.69). Open interviews with teachers at the school and also with students were found that students were not used to do check and recheck for what had been done. Maybe students also master the project they are working on, so they are sure of the results of the analysis of the problems they face. This result was very similar to the results of research by Snyeder and Snyder (2008) and Samani, Cholik, and Buditjahjana (2016). It may also be that the limited time to complete the project makes it impossible for students to do “check and recheck”.

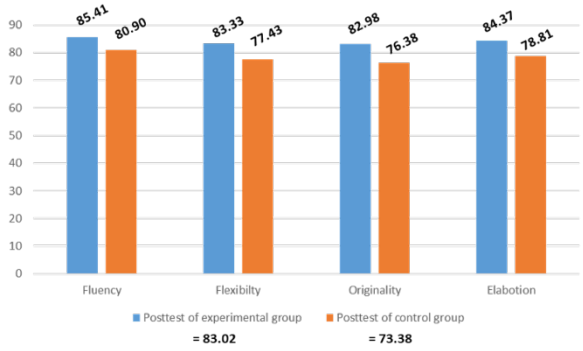

Fig. 2. Score of Creativity

Table. 3. Result of *t* test on Creativity

		t-test for Equality of Means		
		t	df	Sig. (2-tailed)
Creative Thinking	Equal variances assumed	1.831	70	.031
	Equal variances not assumed	1.831	64.615	.032

Figure 2 shows the scores obtained by students in each aspect of creativity, both experimental group and control group. The mean score of experimental group is 83.02 while control group is 73.38. Table 3 shows the results of t test with p = 0.03 so it illustrated that they differ significantly. The effect size calculation found d = 0.70, so it can be concluded that CPjBL is more effective for enhancing creativity.

Of the four aspects of creativity, the originality aspect scored was the lowest, both for the experimental group (82.98) and the control group (76.38). Accor ding to the teacher in the learning phase, students are not allowed to make breakthrough that can be harmful. It is very possible that the rules make students not dare to do new things that are not in accordance with the SOP or teacher's instructions. The manual held by students also seemed to make students not dare to make a breakthrough outside the SOP. Particularly before the lesson begins, the

teacher emphasized the importance of work safety, which includes the need to take the SOP. This finding is in accordance with the result of study carried out by Tan, Lee, Ponnisamy, Koh and Tan (2016).

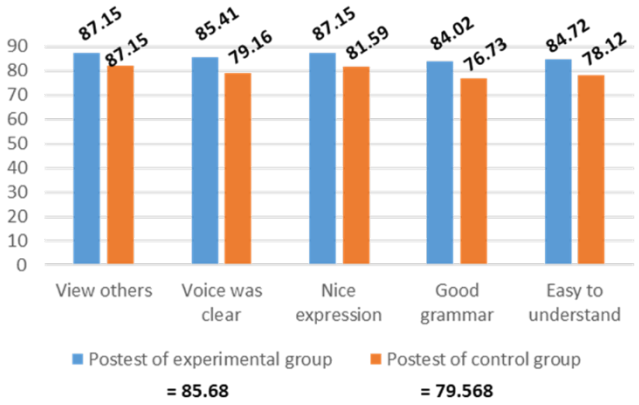

Fig. 3. Score of Communication

Table. 4. Result of *t* test on Communication

		t-test for Equality of Means		
		t	df	Sig. (2-tailed)
Communication Skill	Equal variances assumed	2.215	70	.030
	Equal variances not assumed	2.215	58.463	.031

Figure 3 shows the scores obtained by students in each aspect of communication, both experimental group and control group. The experimental mean score of the group is 85.68, while the control group is 79.56. Table 4 shows the results of *t* test with $p = 0.03$ so that it can be concluded that they differ significantly. Calculation of effect size found $d = 0.76$, so it illustrates that the CPjBL is more effective for improving the communication skills of SSVS students.

The communication aspect that got the lowest score was grammar, both experimental group = 84.02 and control group = 76.63. Observations during the learning process revealed that communication among SSVS students tended to use local language with slang and jargon, neglecting the formal language they should use in class. The use of such language also occurred when they had to make a report for their activities. It is very likely that the use of such languages is influenced by local customs.

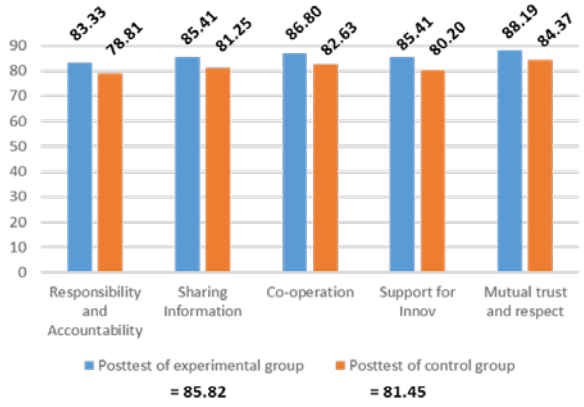

Fig. 4. Score of Collaboration

Table. 5. Result of *t* test on Collaboration

		t-test for Equality of Means		
		t	df	Sig. (2-tailed)
Collaboration Skill	Equal variances assumed	3.481	70	.008
	Equal variances not assumed	3.481	57.230	.009

Figure 4 shows the scores obtained by students in each aspect of students' ability to collaborate, both experimental group and control group. The mean score of the experimental group is 85.82 while the control group is 81.45. Table 5 shows the results of t test with p = 0.08 so that it can be concluded that they differ significantly. The calculation of effect size found d = 0.70, so it can be concluded that the CPjBL is more effective to improve the collaboration skills of SSVS students.

Among the five aspects of collaboration, aspects of responsibility and accountability are the weakest. Experimental group got a score of 85.33 while the control group received a score of 78.81. This result is similar to the study of vocation teacher candidates at the State University of Surabaya (Samani, Suparji, Rahmadian, 2017). How the students used the tools and material was observed and it resulted that their responsibility and accountability were not good. They were neither economical in using materials nor disciplined in using and storing equipment after they are used.

5 Conclusion

Based on the finding described, it can be concluded that CPjBL is effective in developing SSVS students' skills in critical thinking, creativity, communication and collaboration. However, this research has limitations. Firstly, the number of sample was very limited, 36 students for experimental group and 36 students for control group. Secondly, sample mostly are smart young people. Further research is needed with a larger sample originating from schools with diverse student abilities to prove whether the CPJBL is effective in increasing these four skills.

In further research, it is necessary to improve learning materials in order to improve students' abilities in the aspects of self-regulation in critical thinking, originality aspects in creativity, grammar aspects in communication and responsibility and accountability aspects in collaboration skills.

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The construction of competent professional identities from the experience of the Topi hospitality school

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Abstract

TOPI School of Hospitality (TOPI SH) offers no formal vocational training in the fields of culinary and hospitality services addressed to youngsters between 16 and 25 years. Most of these students have lived educational exclusion processes before to access to training program and after that, most of the former students are recognized as professionals characterized by their competence and creativity in the hospitality industry. Based on a case study and after a brief review of the theoretical framework, this paper identify some relational and subjective elements which play a key role in educational exclusion and inclusion process, focus on those which enable students to move forward and favour the construction of competent professional identities among these youngsters from their own perspective.

Keywords

initial vocational qualification programmes; educational exclusion; local education policy; professional identities.

1 Different pathways to the same Vocational Education and Training´s promise

CEDEFOP defines Vocational Education and Training (VET) as "education and training which aims to equip people with knowledge, know-how, skills and/or competences required in particular occupations or more broadly on the labour market" (CEDEFOP, 2014, p.292). Despite such simple definition, the process of industrialization in Europe didn´t produce one uniform vocational training model. On the contrary, a myriad of VET patterns were set up to replace the predecessor roughly homogeneous craft-trade-based vocational training methods (CEDEFOP, 2004). These processes have been increased recently across a wide range of countries and as result, distinctive forms of post-secondary education have been set up for those who do not follow well-worn academic routes from school to university (Bathmaker, 2017).

Exists international consensus about the important role that VET can play in order to promote pathways to social inclusion. This is not new, as far this assumption about the benefits of VET have been made repeatedly since the late nineteenth century, remarking positive effects regarding to economic growth as well as to social inclusion (Nilsson, 2010). Indeed, VET is pointed as one of the most effective mechanisms to promote social equity through equipping citizens to participate in continuously changing labour market that characterise our contemporary society (UNESCO, 2015). However, empirical evidences show how the role of VET is dependent on the social and political contexts in which it operates and, particularly,

depends on how institutions as well as the two sides of industry (employers and trade unions, chambers of commerce, federations of industrialists, etc.) are involved (Nilsson, 2010).

VET has been specially considered suitable for youngsters who have lived some kind of educational exclusion process, as early school leavers (ESL) or those who are not in education, employment or training (OECD, 2012). Observations and data from many European countries have revealed the particular relevance of the local level to provide pertinent attention to these of youngsters from an inclusive VET perspective (European Agency, 2013). In addition, part of the modern VET models were developed in response to social needs by political or citizenship movements and based on education experiences (Tiana, 2016).

Educational exclusion is often interpreted as the direct and mechanical consequence of socio-economic conditions occurring outside of the formal educational borders (Sayed 2003) but there are many more factors involved and it´s a process tremendously complex which entails a denial of the right to education (Escudero, 2016). So educational exclusion is generated not only by the dynamics of social exclusion, as it is also produced within and by education and training institutions through their actors, their relations, their practices and their effects on the construction of individual subjectivities among students (Tarabini, 2018a; Tarabini 2018b). Some of these relational and subjective factors can play a key role also in the inclusion process as well as in the processes of formation of identity and the meaning of work (Zacarés, 2006), in reference to the construction of competent professional identities.

Taking in account this framework and based on case study, we describe the TOPI School of Hospitality experience, as part of one of those local programs emerged in response to social needs by synergetic interaction between Local Administration (without any responsibilities in the field of education) and the commitment of organized citizens. An initiative aimed to youngsters who lived educational exclusion processes and who were interested in vocational and labour market training courses that could offered a rapid incorporation to the labour market. In many cases, this rapid incorporation to the labour market related to professional profiles of low qualification. Nevertheless, the TOPI School of Hospitality experience is significant because its former students have become, time over, in outstanding professionals who are well recognised by hospitality industry in Aragón and Spain.

1.1 Zaragoza City Council´s Socio-occupational Centres Network: VET from a local level commitment

Zaragoza City Council´s Socio-occupational Centres Network it´s integrated by 12 training centres, commonly called “CSL Network”. CSL Network is a key component of the local VET policy, which is developed in coordination with the Government of Aragón and its Department of Education, the regional education authority.

As other local facilities that emerged at the end of the 1980s from the sphere of social intervention (Merino, 2013), this local network arose in the eighties resulting from the synergetic interaction of the Zaragoza City Council and neighborhood associations (Gimeno, 2018). In that moment, efforts converged seeking alternatives against social exclusion lived by a significant part of the youth population, particularly youngsters who lived in neighborhoods which concentrated social disadvantages and a socially responsible and committed citizens. CSL Network focused on young people who dropped out from schools and set up training alternatives for them, increasing -over time- the pre-existing official training offer (García Goncet, 2018). As result, different actors (associations, foundations, NGOs… and the City Council) took responsibility for ensuring the right to education for youngsters.

Nowadays, CSL Network provide formal and non-formal educational services and social support to youngsters who -in most cases- either are externalized from secondary schools before finishing their Compulsory Education, or have finished it without a certificate. On average, every year, 500 students follow different courses offered by CSL Network. Although

these non-formal actors (City Council and associations, foundations…) are mostly oriented to encourage the incorporation to the labor market by offering VET addressed to professional profiles of low qualification (Termes, 2012), some training programs which are provided by CSL Network are also highly prestigious in their productive sectors.

2 The TOPI School of Hospitality

The TOPI School of Hospitality (TOPI SH) offers vocational training in the fields of culinary and hospitality services addressed to youngsters between 16 and 25 years. It was established in 1989 by Picarral Foundation, a grassroots organization located in Zaragoza (Spain), as citizen initiative to seek out further opportunities to youngsters who were dropped out of school and were in risk of social exclusion. Nowadays, TOPI SH still running by Picarral Foundation and keeping the aim to work for those who have to face difficult and unfair situations. Besides, TOPI SH is part of the Zaragoza City Council´s Socio-occupational Centres Network.

TOPI SH offers a training program consisted of two academic years, from September to June. It is free of charge and easily accessible because no certificate or official diploma is required to access to TOPI SH. During this time, youngsters can choose between achieve a professional waiter diploma or professional cookery diploma, both of them recognised and accredited as Level 2 by the Spanish National System for Qualifications and Vocational Training (SNCFP in Spanish). About 55 students follow the training program each academic year. They are formally organized in four groups, according to their respective areas of specialisation and grade (first or second grade). Each group has maximum 15 members and it´s assisted by supervising professor or guide.

2.1 Key data from TOPI SH

TOPI SH is located in Picarral neighborhood. Its main structure is comprised by a 1,500-square-meter building, which is full equip, joining adequate resources as training center and as an workplace of the hospitality industry. Nevertheless, part of this building (common services as computer lab) are shared with others training programs. Furthermore, its structure is compromised by a large team of professionals: 2 bar and restaurant service teachers, 2 cookery teachers, 1 pastry teacher and the support of the Counseling and Guidance Department (social worked, psychologist and pedagogue, staff shared with others training programs and activities). Therefore, TOPI SH has adequate physical facilities and equipment, small classes and a very low teacher-student ratio. In addition, the methodology focus on practice and it´s lead by “learning by doing”, imitating work centers (restaurants) as organizational model. As result, students can find new spaces that are far away from traditional schools and put them close to a real work situation. Moreover, all this implies real opportunities for encounter and mutual knowledge among all person involved in the training program.

Throughout this time, TOPI SH has achieved significant outcomes, becoming in a benchmark for success and its former students are recognized as professionals characterized by their competence in the hospitality industry. It reflects this reality the huge number of youngsters who apply for admission every year, sometimes all most ten times the places available. It points in the same direction two indicators: outcome of satisfaction surveys of the students and the rate of professional insertion among them who finish their training program.

Based on available information from the Quality Management Systems[1], it´s possible to gather data in a diachronic perspective. Over time, results of satisfaction surveys show high satisfaction (above 80%) in two key aspects: overall satisfaction and training program satisfaction. Students' responses express a sustained high level of satisfaction with their learning experience.

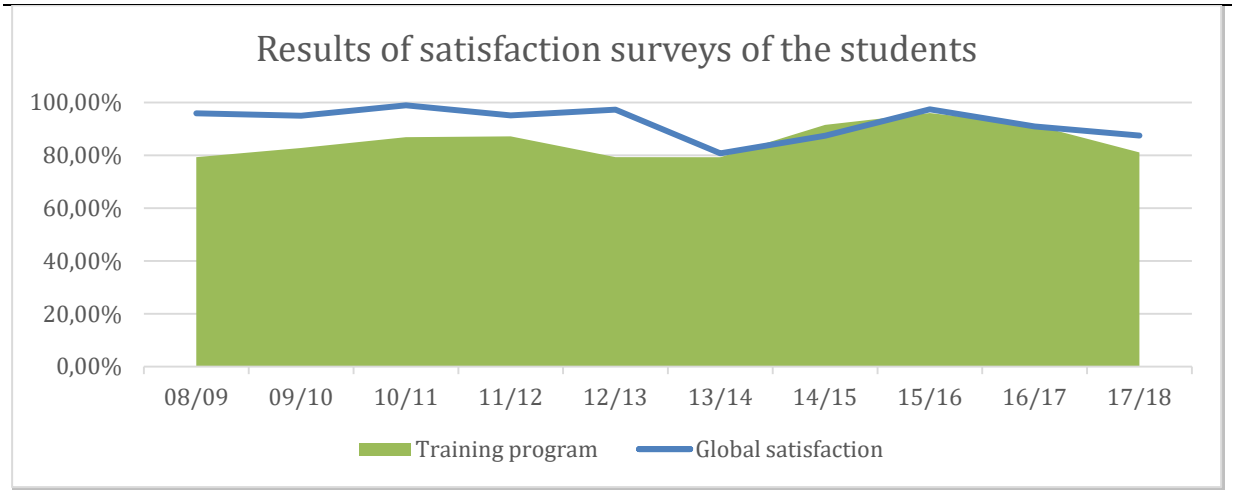

Figure 1 Results of satisfaction surveys of the students from 2008/2009 to 2017/2018.

Another relevant data about the results and impact of the training program is derived from the rate of professional insertion. This indicator can provide information about how the hospitality industry considered the training program and, moreover, how this productive sector estimate professional and personal competences with which are equipped TOPI SH´s students. In this regard, the available information indicates that youngsters who have been trained in the TOPI SH have no many difficulties to find a job directly linked to their profession. Without considering different situations and diverse interests of students at the end of their training period, during the last ten years, at least 50% of them could find a job. While in the last five years, on overage, almost the 95% of them found an easy transition to work.

[1] TOPI School of Hospitality´s Quality Management System (QMS) is certificaed following quality standards as ISO9001 and SGE21 quality regulations, following the EFQM model for excellence. This QMS provides firm information about processes, results and impact associated with the training program.

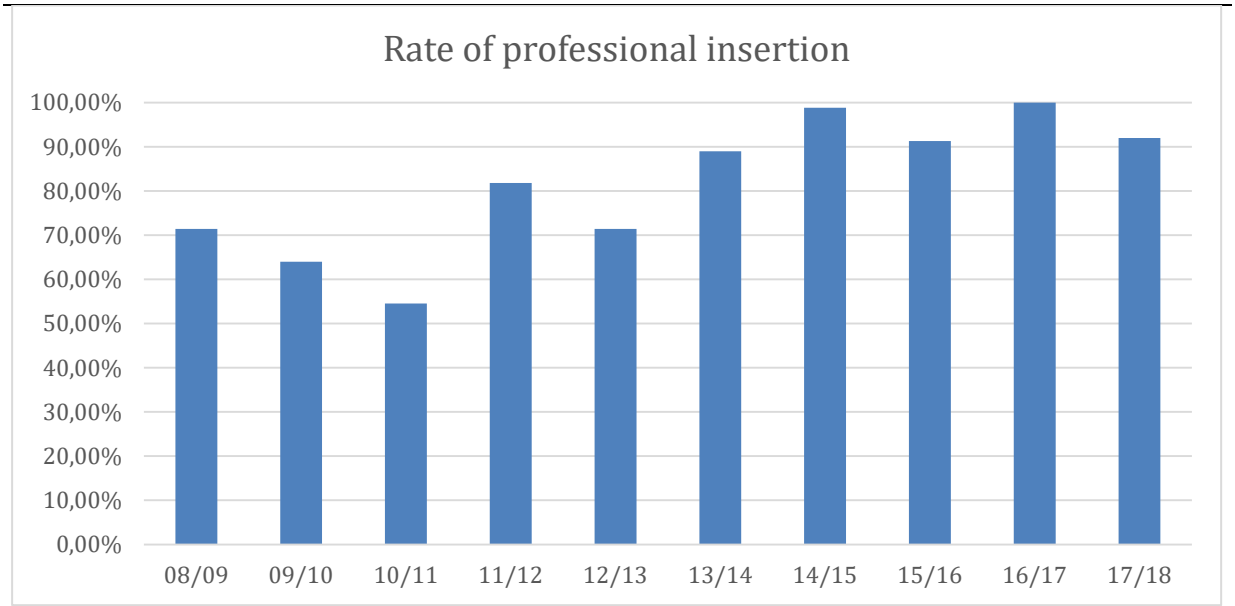

Figure 2 Rate of professional insertion among students who finished their training program from 2008/2009 to 2017/2018.

2.2. The voice of the students.

During the development of the applied research implemented since 2016 to 2018 by the project "Innovation and educational success in the Zaragoza City Council´s Socio-occupational Centers Network" (#innovaCSL), four former students of the TOPI SH were interviewed as part of the mentioned research. Interviews focus on topics related with their own experience as learners across all educational stages; self-assessment as learners; relationship with their education and training centers, relationship with their teachers and other students; support measures to achieve educational and training objectives; transition from training to work; and professional prospects for the future. Information collected by this process were ordered as life stories (Bertaux, 2005) and the results indicated that students appreciated expressly the following aspects of their experience as TOPI SH´s students:

- Direct connection between training program and real life ("*In my transition to work I didn´t find anything that I didn´t know. The entire basic knowledge we can learn it from our teachers in the TOPI SH and from there, you can still learning until become in an outstanding professional*.).
- Relationship established with teachers and rest of students ("*In the high school I was just a number. They didn´t know me and I did not really know them. There it´s different and now I can say that my teachers are, in same way, my friends*").
- "Learning by doing" teaching method as real active learning ("*I´m good learning if I can see what I have to do and I´m a good learner if I can practice. Here you spend most of the time practicing and finally you learn and manage every task*").
- Positive experiences where they can be recognised as a professional ("*You can participate in international exchanges and show-cooking in different contexts. It´s not easy and I used to feel stressed out but, after that, you feel that you have something important to show and you learn a lot of*").
- Sense of work and professional linked to arts and as a way of personal development ("*Teachers transmit their love for their profession. I never had a hobby or something like*

that. Now, I find something that it´s my job and my hobby at the same time. I really like what I do, I like my profession.").

3 Conclusions.

Following to Helms Jørgensen (2013), we can confirm that:

"educational institutions and labour organizations are the framework of the daily social and cultural life of people, their personal interaction and the formation of their identities (...) Social institutions must also be seen as subjectively significant and culturally valuable for the people who make them up and actively contribute to maintaining and changing them" (Helms Jørgensen, 2013).

TOPI SH fulfil a series of characteristic that have proven their effectiveness to build competent professional identities among youngsters who have lived educational exclusion processes. More research is needed to identify details involved in these processes but by the moment, we could collect information that support this affirmation. Furthermore, the TOPI SH´s experience testifies to the important role that educational and training centres can play in order to promote inclusion and transformation processes for youngsters. In this case study research, existing information indicates the capital impact of an adequate structure that care for professional and personal dimension as well as the special attention paid to develop contexts, relationships and culture that encourage the construction of competent professional identities among youngsters.

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The attitudinal dimension of the professional competence: old workplace demands, (re-)new educational challenges

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Abstract

In this article, we delve into school-based and work-based supervisors ideas about students' attitudes development as part of their professional competence. We draw on a second analysis of a set of interviews conducted to study school-company's collaboration. The participants are 16 school-based supervisors and 5 work-based supervisors affiliated to Health, Industry, Social Services and, Administration. Data were collected through individual semi-structure interviews, transcript and analysed using procedures of applied thematic analysis. Three main categories emerged: 1) the importance of attitudes, 2) attitudes acquisition process, and 3) attitudes impact on assessment. Our data reveal some supervisors' ideas about how attitudes are developed.

Keywords

attitudes; workplace-based learning; professional competence; school-based learning

1 Introduction

Despite the importance of dispositional behaviours being a long-standing issue (Perkins, Tishman, Ritchhart, Donis, & Andrade, 2000), it is now attracting renewed interest. On June 2016, the European Commission adopted a new and comprehensive Skill Agenda for Europe. Under this new framework, competences are defined as a combination of knowledge, skills and attitudes. The novelty is the inclusion of attitudes in the definition of each key competence. At the same time, attitudes are defined as the 'disposition and mind-sets to act or react to ideas, persons or situations' (European Commission, 2018). Following Perkins's et al., (2000) seminal work, a disposition concerns not only what people can do but how they tend to invest their capabilities and what they are disposed to do. Some of these traits are for example open-mindedness, reasonableness, curiosity, critical thinking, and readiness.

In the vocational educational field, research has highlighted the need to develop more comprehensive competences that go beyond knowledge-specific domain, such as communication (Kyndt et al., 2014), entrepreneurship (Rocha, 2014) or generic competences (Renta Davids, Van den Bossche, Gijbels, & Fandos Garrido, 2017). While knowledge-specific domain competences are important, research show that generic competences are highly valued among employers (Kyndt et al., 2014) and that social skills are increasingly rewarded by the labour market (Deming, 2015). This poses great challenges to vocational education institutions as attitudes or dispositions are very difficult to teach and assess in pre-defined learning environments.

2 Methodology

Based on this framework, our paper aims to report on partial results of a research about how school- and work-based supervisors can strengthen cooperation between schools and companies. However, in this paper, we delve into the issue of students' attitudes as a dimension of the professional competence. The research did not intend to address this issue as a main goal, but it emerged from the data itself as we analysed it.

A qualitative methodology was employed to investigate the scope and nature of school- and work-based supervisors' roles. The study draws on semi-structured individual interviews conducted with sixteen school-based supervisors and five work-based supervisors engaged in the traditional scheme of VET programmes in Spain (see *Table* 1). Following qualitative methodological guidelines (Creswell 2014), we selected a convenient sample. In addition to the professional fields considered and to the two different roles of the participants, our sample is heterogeneous with respect to gender (11 female and 10 males), age (M=45 years old, SD=8 years old) and job tenure (M=15 years, SD=10 years).

Table 1 Distribution of the participants by role and vocational field.

Professional Family	**School-Based Supervisor**	**Work-based Supervisor**	**Total**
Health	5	2	7
Social Services	4	1	5
Administration	1	1	2
Industry	6	1	7
Total	16	5	21

The interview questions were intended to stimulate narrative and argumentative discourse to allow the participants to express their experiences and views on the object of the study. We defined the same questions to both groups of interviewees (school- and work-based supervisors), adapting them to each participant's profile. The interviews lasted between 50 and 70 minutes. All of the interviews were audio-recorded and transcribed verbatim.

We applied an exploratory approach to the data analysis (Guest et al. 2012). Following this approach, the researchers carefully read the transcripts while identifying keywords, trends, themes, and ideas to help outline the analysis. It involved the following steps: 1) read verbatim transcripts, 2) identify potential themes, 3) compare and contrast themes, identifying structures between them, and 4) build a model while continually validating it against the data (Guest et al. 2012).

3 Results

We coded a total of 29 fragments from our second analysis of the interviews on the topic about supervisors' ideas on students' attitudes. Three main categories emerged from our analysis: 1) acknowledgement of the importance of attitudes, 2) process of attitudes acquisition, and 3) attitudes in the assessment process.

Table 2 shows the categorical scheme applied. Following, we describe the categories and sub-categories and provide excerpts of each one as examples. We selected these illustrative excerpts on the following criteria: they convey a general meaning of the category or show a particular nuance of it.

Table 2 Categories and subcategories.

Categories	Subcategory	Number of coded excerpts
Acknowledgement of the importance of attitudes		15
Attitudes acquisition process		
	Attitudes are acquired through maturing	5
	The workplace as a space to acquired attitudes	3
	Attitudes are foster at the school	3
	Hopelessness	1
Attitudes in the assessment process		2
Total		**29**

3.1 Acknowledgment of the importance attitudes

In this category we include fragments where school- and work-based supervisors explicitly acknowledge the importance of having positive attitudes as part of the professional competence.

"*Some companies are more demanding. There are some that they do not care the type of students but their attitudes*" (School-based supervisor, Health)

"*Students in the middle degree [Segundo Ciclo de Grado Medio] are good enough, technically. But in general they have a problem with attitudes. […] Students sometimes have problems at the enterprises. They have attitudes problems. Punctuality. Behaviour. […] In the technical dimension, in the professional dimension, most students […] have a certain capacities, and as they have been selected by the company, they can do it right. What happens sometimes is that they fail in the attitudinal dimension.*" (School-based supervisor, Industry)

"*In this specific professional domain, it is very specific, but they have enough specific knowledge, this is in the general training, but, communicative skills? Neither University not the Professional studies teach those… You acquired those on you own, improving… when you encounter yourself with a patient… Sometimes, they [students] do not know how to speak with patients*" (Work-based supervisor, Health)

3.2 Attitudes acquisition process

In this category we include fragments where school- and work-based supervisors express how they think attitudes are acquired.

3.2.1 Attitudes are acquired through maturing

Attitude acquisition is a matter of maturing. Students start they studies very young, and as time goes by, students mature and they acquire the correct or the expected set of attitudes.

"*Their knowledge is fine and they get adapted well. […] The truth is that it is a very delicate space* [Paediatrics] *and sometimes they are very young. And sometimes it depends on the maturity of the students, sometimes they lack maturity*." (Work-based supervisor, Health)

3.2.2 The workplace as a space to acquire attitudes

Attitudes are acquired in the workplace. When students start their practice, they are face with real work, so they must cope with it by acquiring a set of expected attitudes as workers.

"*In the school, we try to offer variety, but after in the company, they are trained by the work itself. And they [students] acquired a discipline. Students are very young, and in some cases, very immature. They should accept they have a schedule, they have a boss, they are subject to accountability, and in the end, this is very positive. I value this very positively*" (School-based supervisor, Administration)

3.2.3 Attitudes are foster at the school

Teachers can foster and transmit the correct attitudes the future professional should have by teaching them explicitly about those attitudes.

"*In Childhood Education, [students] acquire competences in the personal level and in the professional level. Above all, we at the school, the most important, what we try to transmit, above all, are attitudes, values, and norms […] those are the professional competences that they should develop, but in general, it helps a lot in their personal and professional development the practice module and the job itself*." (School-based supervisor, Social Services)

3.2.4 Hopelessness

Sometimes there is hopelessness. Some students cannot change their attitudes or it is so much about their personality that they cannot change or development the expected attitudes.

"*Some students change. Some other do not change. Some students are complete wrong with the studies they have chosen. That is, there are some students who are too shy, too introverted. In a face-to-public job, companies chose the best ones who can sale things. And that is what matters. I have students of whom I think, 'you want be able to work ever here'*" (School-supervisor, Heath)

3.3 Attitudes in the assessment process

In this category we include those fragment in which participants explain how students' attitudes have an impact on assessment.

"*I have failed students because they show lack of interest, lack of motivation, because they did not get involved, because they arrived whenever they want. They do not get seriously […] they failed their practice and we stop*." (Work-based supervisor, Health)

4 Conclusion

Our data shows a great concern among supervisors about students' attitudinal behaviours in their professional practice and highlights the need to find strategies to teach and assess the attitudinal dimension of the professional competence. This attitudinal dimension of the competences emerge today as key to allow people to develop good-quality jobs and fulfil their potential as active citizens (European Commission, 2018). But how can these new aspects to competences be described and acquired?

We observed that all supervisors have a certain concern on the need to work on attitudinal competence, and that although students show good knowledge-specific competences, supervisors argue that sometimes they lack good and positive attitudinal behaviour. Most commonly

demanded attitudinal behaviours are communication with others, taking initiative, collaboration, and professional-related ethical issues.

Our data reveal some supervisors ideas about how attitudes are developed. For some of them, gaining the expected attitudes is a matter of maturing. Others believe that by doing the practice module and being involved into a workplace, students would be prompt to develop the expected attitudinal outcomes. Some other school-based supervisors put emphasis on transmitting positive attitudes during the students' training at the school. It called our attention that for one supervisor, some students would not be able to acquire the right professional attitudes due to personality traits. Finally, we observed that showing the wrong attitudes may have a negative impact on the evaluation process, but we did not observe the reverse.

This analysis is not without limitations. First, investigating on attitudes was not the main goal of the research, thought it emerged with great strength among research participants. Second, our sample is rather small. Third, further studies are needed to deepen on what pedagogical strategies supervisors can use to foster positive attitudes.

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Can Service Learning foster a Civic Responsibility by VET-students? – Empirical results of a explorative, process-oriented pilot study

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Abstract

One aim in Vocational Education and Training (VET) is to foster students' competencies for future working fields as well as a personal development regarding their future role in the society. With this in mind, service learning represents a suitable way to reach these aims in VET. In service learning, students participate in a service activity that meets a community need, while reflection on this activity in turn fosters a deeper understanding of the academic content and develops students' values and attitudes towards civic responsibility. Nevertheless, the effects of service learning in VET-schools have not been examined in research so far. Therefore, the following study presents empirical results of an explorative, process-oriented pilot study on what situations in service learning stimulate VET students to think about civic responsibility. In result, three situation types are revealed: 'getting insights into volunteering activities', 'working on the service project' and 'awareness about civic engagement'.

Keywords

service learning; VET-system; civic responsibility; process-oriented data

1 Introduction: service learning and VET

One aim in Vocational Education and Training (VET) is to foster students' competencies for future working fields as well as a personal development regarding their future role in society (e.g. Gerholz & Brahm 2014). From an instructional perspective, the approach of service learning represents a suitable way to reach these aims in VET. In service learning, students participate in a service activity that meets a community need, whilereflection on this activity in turn fosters a deeper understanding of the academic content and develops students' values and attitudes towards civic responsibility (Bringle & Clayton 2012). Thus, service learning combines academic knowledge acquisition with civic engagement and is based on the assumption of problem-based learning (Gerholz et al. 2017, Dewey 1966). In the last decades, a growing number of higher education institutions have implemented service learning as an educational approach (Kenworthy-U'ren 2008), however, in the VET-system and vocational schools respectively service learning is not common. Therefore, the effects of service learning in VET have not been examined in research so far. This is surprising since the service learning approach aligns with the aims of VET. The following paper aims to present results of an explorative, process-oriented pilot study on how civic responsibility can be fostered during service learning by VET students.

2 Theoretical grounding

Fostering of a civic responsibility is one main intention of service learning (Deeley 2015). However, from a theoretical point of view, there is no uniform understanding of this construct

in the service learning discourse. Deeley points out that during service learning, the sense of citizenship should be increased. Sense of citizenship comprises "civic virtues of civility, trust, public spiritedness, active participation and engagement" (Deeley 2015, 24). It is obvious that the understanding of Deeley includes an improved civic engagement and a more socio-political activity. This is similar to Toncar et al. (2006), who describe it as social responsibility. In contrast, Prentice & Robinson (2010) distinguish between citizenship and civic responsibility. Citizenship includes tolerance for and interaction with different cultures. Civic responsibility means an active contribution to the community or civil society respectively, as well as believing in a positive impact on social challenges (Prentice & Robinson 2010, 5).

A varying understanding can also be found in the existing empirical studies. Meta-Analyses revealed positive effects of service learning to foster civic responsibility. For instance, Yorio & Ye showed in a meta-analysis a positive effect of understanding social issues (eta = .34), Conway et al. (2009) revealed a positive effect (d = .27) for citizenship understanding and Celio et al. (2011) found a positive effect (d = .17) for civic engagement. Celio et al. (2011, 170) used the term 'civic engagement', which includes altruism, responsibility and voting behavior. Conway et al. (2009, 235) speaks of 'citizenship understanding' that comprises personal-responsible, participatory and justice-oriented citizenship. In contrast, Yorio & Ye (2012, 11) used the term 'understanding social issues' that comprises things like cultural awareness, perception of the homeless, ethical and moral values and decision making. The existing meta-analyses show positive effects of service learning to foster civic responsibility, although the studies follow different understandings and models of this construct. However, single studies revealed no such effects (Reinders 2010, Prentice & Robinson 2010).

All in all, two limitations can be described. One the one hand, a uniform understanding of civic responsibility cannot be found. But the understanding in the studies of civic responsibility is quite similar, referings to attitudes towards the civil society, the social and personal responsibility of an individual as well as the willingness to be engaged (Gerholz et al. 2018, 66). Therefore, it seems relevant to take a look into the situations experienced by students during a service learning arrangement. A second limitation in these studies is the retrospective measurement of changes regarding civic responsibility. A process-oriented approach can reduce distortions and help to gain indications on design parameters that are relevant for the sensitization for civic matters (Rausch 2014, Gerholz et al. 2018). Therefore, the following study in VET-system examines the research question:

- What effects does a service learning arrangement have on VET students' development regarding civic attitudes?
- What are the key situations in a service learning arrangement which stimulate VET students to think about civic responsibility?

3 Method

The study is based on a case study of a full-time vocational school (school of commerce) in the VET-System in Germany. In this school, a service learning arrangement according to a problem-based learning approach was implemented. The service project for the students (n = 55) was the implementation of a marketing event for a charitable organization. The students worked in groups and this was linked to in-class education.

To examine the effect of the Service Learning course on students' development regarding civic attitudes a pretest-posttest group design with a questionnaire was used. The questionnaire included among others the 'Civic Attitude Scale (CAS)' (Mabry, 1998; five items; example: "Individuals have a responsibility to help solve our social problems."). Each of these

variables was assessed on a six-point Likert scale from 1 (strongly disagree) to 6 (strongly agree) ($\alpha t1 = .62$, $\alpha t2 = 0.86$).

To describe the key situations which stimulate VET students to think about civic responsibility, a weekly journal was developed. This journal was based on the diary method (Rausch 2014, Gerholz et al. 2018). In the weekly journal, students were requested to record their experiences that led them to think about civic responsibility. Each journal entry comprised six items containing qualitative data (description of the experience and reasons for the thinking) and quantitative data (intensity of the experience, number of persons involved, time and characterization of the experience). The data were analyzed according to a qualitative content analysis (Schreier 2012) in an inductive way to categorize the key situations regarding civic responsibility during the service learning arrangement.

4 First results

Table 1 displays the descriptive statistics of the civic attitudes scale. There is a decline in the means from t1 to t2, however, a t-Test showed no significant results ($t(28) = 1.10$, $p = .281$). The standard deviations show a higher spectrum in t2 to t1. Thus, a positive or negative effect could not be found. From a descriptive point of view, there is a decline in the civic attitudes, but there is a higher spectrum in the answers in t2. This could indicate that the students reflect more deeply about their civic attitudes through the service learning arrangement.

Table 1 Quantitative data of Civic attitudes in t1 and t2

	N	Minimum	Maximum	Mean	Std. Deviation
Civic attitudes t1	29	2.80	5.60	4.56	0.81
Civic attitudes t2	29	1.80	6.00	4.23	1.25

Regarding the weekly journals, in total, 385 journal entries (55 students x 7 weeks) were possible and 289 were completed. 143 journals contained a description of an experience for data analysis. The qualitative content analysis indicates that these situations can be classified into five different types. Situation type 1 means ‘insights into volunteering activities’ (e.g. *“we’ve got to know different volunteering activities and were informed about the reasons for volunteering”* 03042002; w1). Type 2 refers to situations where the students develop an awareness for civic responsibility (e.g. *“by helping and supporting others there is a feeling that I also help to make a better world”* 18032004; w1). Situation type 3 comprises situations where ‘interaction with peers’ was the trigger to think about civic engagement (e.g. *“I thought and read about the activities with my friends”* 02082004; w7). Situation type 4 were situations in which the students work on the service project (e.g. *“We thought about the design of the stage during the marketing event”* 03042002; w3). Situation type 5 means situations where the students interact or talk with the community partner (e.g. *“We have talked with Mr. (.) about volunteering in the charity organization”* 29052004, w4).

Table 2 Types of key situations and distribution

	Amount of situations
Insights into volunteering activities	40
Development of awareness for civic responsibility	27
Interaction with peers	12
Working on the service project	76
Interaction with the community partner	4

In Table 2 the distribution of the identified types of situations is presented. To sum up, the results show that situations ‘working on the service project’ and ‘insights into volunteering activities’ influences thinking about civic engagement. The third most frequent situations are situations where the students develop an awareness for civic responsibility. Above all, this situation type seems more relevant to foster a civic responsibility during service learning.

5 Conclusion

The intention of the papers was to present initial results of a process-oriented pilot study on how civic responsibility can be fostered during service learning by VET students. The quantitative data shows no significant effects; however, a descriptive decline between the beginning and the end of the service learning arrangement can be shown. Regarding the key situations, it seems that ‘working on the service project’ and getting ‘insights into volunteering activities’ are the most important triggers, in which the students thought about civic matters. In light of the key situations, it is surprising that there is a decline of civic attitudes in the quantitative data. An explanation could be that during the service learning arrangements the students think deeper about civic matters and their positions to civic engagement. An indication for this explanation is also the higher standard deviation in t2. Furthermore, it has to be taken into account that only one third of all possible descriptions of an experience with civic engagement are documented in the weekly journals.

The analysis of the data is still ongoing. In addition, interviews were conducted at the end of the service learning arrangement in regards to the perceptions and appraisals of the students. Here, more information about the reasons for the situation types can be surveyed. All in all, the weekly journals are an appropriate instruments to make the experienced situations during a service learning arrangement more visible. For future research a broader database for the key situations seems relevant.

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On the way to higher education: Reflections on the importance of work-place conditions and the team to promote educational pathways

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Abstract

Vocational education and training helps young people to quickly and effectively enter the labour market. To advance their careers and to develop their professional expertise, even more, they must then further their education through higher vocational or higher academic education. In a recent study, we found distinct predictors for those engaged in higher academic education than for those engaged in higher vocational education. Whereas higher academic education is predicted by high social status, no migration background and a high value of further education, engagement in higher vocational education is predicted by high learning opportunities at work, low social support and a high value of further education. In reflecting these findings, it is discussed what factors help to turn a workplace into a learning place: can a reflection on factors that What makes a workplace a learning place: organisational norms and values, workplace conditions and the team / the colleagues.

Keywords

workplace learning; learning culture; higher vocational education; job design; team

1 Introduction

Vocational education and training (VET) helps young people to quickly and effectively enter the labour market if knowledge and skills acquired are in line with the demands of the companies and industries. In VET, students follow a job-specific, specialised training and specialise earlier than students in academic education. This early specialisation gets the students more easily into jobs as it raises their employability, but it can also lead to reduced adaptability to changing occupational environments later (Hampf & Woessmann, 2016). Further education after initial VET is therefore important, as this helps an individual not only to advance his or her career but also to sustain and develop the knowledge and skills needed for innovation and sustainability in a changing and competitive labour market.

Engagement in further education during a person's early professional career depends on a multitude of factors and not all individuals pursue further education after having graduated from initial VET. The literature on workplace learning sees structures, norms, values and practices in the workplace as key factors to motivate and engage employees in learning activities (Billett, 2014). As most learning at the workplace is informal and incidental, individual and social factors also become important, as there is a constant need to identify learning-situations and to make use of them (Nägele & Stalder, 2019). Learning at work is often very similar to a problem-solving process as the learner needs to frame the context, react to situational triggers, produce alternative solutions, assess intended and unintended consequences, and he or she needs to evaluate what has been done and learnt in accordance with the co-workers (Watkins & Marsick, 1992).

In this paper, results from an empirical study are summarised in which we looked at the pathways to higher education in a sample of young adults after having finished their initial education and training (Nägele, Neuenschwander, & Rodcharoen, 2018). The result if this study urges us to reflect on the role of work and relations at work to advance individual educational careers. If learning opportunities at work are an essential factor for becoming engaged in higher professional education, then we need to talk about measures to foster incidental and informal learning and the role of non-formal learning at the workplace as means to advance educational careers (Nägele & Stalder, 2019).

2 Becoming engaged in higher education1

An individual's desire to move towards higher education develops on the one hand out of learning activities at work. On the other hand, social status factors can trigger an individuals engagement towards higher education. Learning opportunities, social support and sociodemographic factors are often discussed in the literature as primary drivers of becoming engaged in higher education. Furthermore, an individual will only invest in further education if it attributes some value to the further education (Nägele et al., 2018).

Perception of learning opportunities. Work offers incidental, informal, non-formal, or formal learning opportunities as interacting modes of learning (La Belle, 1982). An individual's perception of learning opportunities at work is a prerequisite to develop the knowledge, skills and attitudes needed and to develop future perspectives concerning their competence development and educational plans (Janssens, Smet, Onghena, & Kyndt, 2017; Kraiger, Ford, & Salas, 1993).

Social support. Social support, on the one hand, helps individuals to achieve self-imposed career goals and can foster career aspirations and development (Hofmann, Stalder, Tschan, & Häfeli, 2014). On the other hand, teams can develop internal performance norms or an unwillingness to change the composition and role distribution, imposing pressure on a team member that wants to change the team structure by, e.g. attending further education. Thus, social support can either be a valuable resource that helps individuals to cope with workplace affordances or a team can also hinder learning and development by imposing internal group norms on an individual.

Sociodemographic factors. The social origin of an individual, as represented by the family's socioeconomic status, was found to be one of the significant explanatory variables of educational pathways (Becker, 2016; Lamamra, 2017). Social origin affects the transition from school to education as well as the transition to higher education (Swiss Coordination Centre for Research in Education [SKBF CSRE], 2014). For individuals with migrant backgrounds, it is harder to access higher education. A significant effect of migration status is found in the transition to upper-secondary education and in the transition to tertiary education (Hupka-Brunner, Sacchi, & Stalder, 2010; Picot & Hou, 2013). *Gender* stereotypes and gendered career expectations result in very persistent gender differences and inequalities in the Swiss labour market (Hadjar & Aeschlimann, 2014).

Value of further education. Motivational theories on career choices and planning propose that educational values (attainment, interest, utility) and expectations predict educational

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[1] Based on: Nägele, C., Neuenschwander, M. P., & Rodcharoen, P. (2018). Higher education in Switzerland: Predictors of becoming engaged in higher vocational or academic education – the role of workplace factors. *International Journal for Research in Vocational Education and Training, 5*(4), 264–284. https://doi.org/10.13152/IJRVET.5.4.2

choices (Wigfield, Rosenzweig, & Eccles, 2017). Values represent the relative importance given to a specific educational choice, and if a person does not attribute high value to higher education, little chance exists that this option will be chosen (Brown & Crace, 1996).

2.1 Higher education in Switzerland

The study was run in the Switzerland where tertiary education features a two-tier structure with higher vocational education (also called *professional education*) and higher academic education (*university-based education*). On the upper secondary level, most young people follow the vocational track (78% in 2016 according to figures of the Federal Statistical Office). After having finished initial VET, graduates can mainly follow three pathways: 1) They can work, 2) they can attend higher vocational education, or 3) they can attend higher academic education on the condition of having baccalaureate degrees (Stalder & Nägele, 2011). Higher vocational and higher academic education are both seen as equal in value on the same ISCED level.

2.2 Sample

Data stem from a multi-cohort longitudinal questionnaire-based survey study with three waves on educational decisions and educational pathways (BEN), running from 2012 to 2016 in the German part of Switzerland (Neuenschwander & Düggeli, 2013). Individuals were selected for the analyses in this paper only if they had not acquired diplomas in higher vocational or higher academic education before 2014. The final sample consisted of 601 individuals. Multinomial regression models were run, using SPSS 25 (IBM Corp., 2017).

2.3 Results

The results revealed two distinct sets of predictor variables for higher vocational education and higher academic education. High opportunities to learn at the workplace and low social support predicted engagement in higher vocational education, whereas social origin and nationality predicted engagement in higher academic education. Gender had no effect at all. The value attributed to further higher education was predictive for both higher vocational education and higher academic education. This study shows not only two distinct patterns for the engagement in higher vocational or higher academic education, but it also adds further evidence that workplace factors play a crucial role in the development of knowledge, skills and attitudes and the engagement in further education (Nägele et al., 2018).

3 Reflections on the importance of workplace conditions and the team to promote educational pathways[2]

In the study presented above, a critical variable that triggers higher vocational education is the perception of the workplace as a learning place. The question is: What makes a workplace a learning place? The short answer is: organisational norms and values, workplace conditions and the team / the colleagues.

Learning in the workplace is contextualised learning, embedded in the work process. Learning can be informal and incidental or non-formal (learning events organised by an or-

[2] For an in-depth discussion see Nägele, C., & Stalder, B. E. (2019). Motivation and engagement of learners in organizations. In S. McGrath, M. Mulder, J. Papier, & R. Suart (Eds.), Handbook of vocational education and training: Developments in the changing world of work. Springer.

ganisation). Informal learning situations can occur at any time during work, for example when a problem arises, when reflecting individually or in the group about how to do the job or a specific task, before, during or after having finished the task. It is then a decision of the individual and the team to switch from a "production-mode" to a "learning mode". Factors that facilitate this mode-switching lay in organisational social structures and norms, the job design, the work team including the opportunities to network and interact with more experienced colleagues, tutors, supervisors, and mentors (Kyndt, Govaerts, Smet, & Dochy, 2018). Organisational structures, norms, values and more specifically the organisational learning culture are communicated through organisational socialisation processes. These processes are essential as they inform an individual the expectations regarding the development of knowledge, skills and attitudes (Saks & Gruman, 2012). Job design which is about how work is structured, organised, experienced, and enacted (Grant, Fried, Parker, & Frese, 2010) is a critical factor in enabling learning at work. A job design favourable for learning incorporates factors as for example the possibility to cooperate, to evaluate the own work and to get and give feedback, have opportunities to reflect individually or in the team, to gather and share information, to give and receive guidance, and to have appropriate job demands and job control (Janssens et al., 2017). The core job dimensions most often discussed are skill variety, task identity, task significance, autonomy, and feedback (Oldham & Hackman, 2010). The task must be complex and demanding with respect to knowledge and skills as well as information processing needs, as boredom and underuse of skills does not motivate at all to invest in job-related learning. A well-designed job allows an individual to select own goals, to self-regulate its learning, and shape its learning pathway (Kanfer, Frese, & Johnson, 2017). Supervisors and teams are crucial by making it possible to learn, explore ideas and processes, to discuss differences, and resolve these differences with the aim to co-construct a new and shared understanding of the situation (Lehmann-Willenbrock, 2017). The availability and willingness of trainers, co-workers, and supervisors to share information and provide precise, constructive, and helpful feedback and to offer adequate guidance and support are therefore essential for learning (Kyndt, Vermeire, & Cabus, 2016). The development of teams, learning in teams and team learning are complex processes shaped by social and temporal processes (Lehmann-Willenbrock, 2017). But still, not all processes are understood. But generally, a positive team learning culture relying on shared perceptions usually foster learning in teams (Gil & Mataveli, 2017). Indeed, individual factors such as personality, attitudes towards learning, proactivity, self-efficacy and self-awareness about the situation will influence the perception of a workplace as a learning place. But we need to be aware, that these factors are shaped by workplace factors (Schallberger, Häfeli, & Kraft, 1984).

To foster the perception of a workplace as a learning place and to support informal learning, it is best to start by reflecting and transmitting organisational norms through organisational socialisation, to optimise the job design and to have a closer look at the team processes. This will help an individual to perceive a workplace as a learning place.

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Challenges of pre-vocational education and training and vocational orientation

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Abstract

The paper presents concepts for vocational orientation in the general education system and for vocational preparation in vocational schools, which have been tested in several research and development projects. At the core of all projects is the attempt to stimulate self-activity of adolescents that goes beyond mere information and matching processes. Above all, the paper presents theoretical foundations of a didactic conception, with the help of which young people are supported in the development of 'vocational biography design competence' in the career entry phase, so that they can (better) master status passages and risk situations during their professional life.

Keywords

vocational orientation; occupational guidance; matching approach; vocational biography design competence

1 Transition problems of young adolescents

In most European countries it is a problem for young people to enter an apprenticeship or a study program which directly leads to a desired occupation. Even in Germany, where the youth unemployment rate is comparably low, 200.000 – 300.000 young people find themselves every year in the so-called transition system (BMBF 2016, p. 56), where it is not possible to obtain a qualification for a formally recognized occupation. Therefore, in Germany and in many other European countries programs for vocational orientation (organized within general education) and pre-vocational education and training (organized by vocational schools or labour market institutions) are being established in order to offer occupational guidance.

Mostly, this occupational guidance is explicitly or implicitly driven by a matching approach. The question is posed: Which occupation fits you most? And if this question is answered, e.g. with the help of vocational aptitude tests, people are put into boxes, based on typologies like those of Holland (1985): You are the technical type, you are the entrepreneurial type, etc.

Although on one hand it seems to be necessary trying to help young people into their first apprenticeship or study program it is on the other hand not sufficient. Today's (working) life is characterized by upheavals and changes (e. g. high drop-out rates in apprenticeships and study programs (BMBF 2016, 2017), precarious working conditions): Lifelong learning instead of a lifelong occupation. With the erosion of the "normal work biography" not only the first career choice, but also the handling of these changes in the further professional and private life becomes more and more important. This was the starting point of several of our research and development projects for the development of didactic concepts of extended career orientation. The current vocational orientation should be extended beyond one-time

decisions on vocational choices to the direction of active and continuous shaping of one's professional biography.

2 Didactical concepts for strengthening biographical work of young people

Many of our learning-/teaching-arrangements are based on an adaption of so-called developmental tasks after Havighurst (1948) and are oriented towards the concept of vocational biography design (Hendrich 2003). Developmental tasks are tasks which everybody has to accomplish in different phases of her/his life (e. g. separation from parents, finding a job, develop partnership, find a political orientation etc.), but can be interpreted and realized differently by the individual. Those developmental tasks are used within learning-/teaching-arrangements and are interlinked with aspirations and decisions towards one's professional biography.

2.1 Analysing and testing professional work

In a current research and development project "Strengthening self-management and self-learning competence in the transition from school to work and training", funded by the state of Baden-Württemberg, students of the transition system are to determine an in-company learning task for themselves in an obligatory company internship, carry it out and reflect on the experience gained.

The project focuses on the importance of internships for career choice decisions (cf. e. g. Bergzog 2011, p. 8). However, the work tasks assigned to the interns are often randomly selected, so that the interns sometimes have little job-typical work to do (making coffee, copying, cleaning the workshop, etc.). Couldn't we pay more attention to occupation-specific work activities being carried out in the internship and which (more active) role the young people themselves can take on?

This question is taken up by the research and development project outlined here and gives the young people a joint responsibility to pay attention to the type of work tasks they carry out in the internship. This is relatively demanding for students in the transition system and they are prepared accordingly. For this purpose, the so-called BAG analysis (Analysis of Occupational Tasks, see Reinhold et al. 2003, Fischer 2014) has been adapted for students in the transition system: The young people are instructed to select and then carry out an in-company learning task that is typical of the occupation, open to different solutions and corresponds to a complete action of work (planning, acting, evaluating).

Interim results are encouraging: Young people in the transition system learn to pay better attention to whether and how work tasks in specific occupations correspond to their interests and what skills are required to carry out these tasks.

2.2 Developing an understanding of technology and shaping technology

Since 1991 until today (cf. KMK 2015, p. 2), the framework agreement on vocational schools of the German Conference of Ministers of Education and Cultural Affairs has emphasised the students' competences "to shape the world of work and society in social and ecological responsibility" as a guiding principle for vocational training (based on an original idea of Rauner (1985)).

In the project "MediaArt@Edu", funded by the German Ministry of Education and Research (BMBF), this guiding idea in vocational preparation was revived. Here the didactical concept is related to media design processes in order to open up new concrete possibilities for action and spaces of experience for young people. Young people in the vocational preparation phase used open tasks to design, construct and program project ideas with different media technologies (Robotics, Light Design, GamesLab, Sound Designing,

Smart Textile), visualize them in a personal portfolio, reflect on them, explain them in an "explanatory video" and present them (Reimann & Bekk 2016).

As was shown in the project evaluation (round table reflection and interviews), young people are by no means automatically aware of their own abilities. What was learned in the workshops was usually not recognised or not linked to a professional benefit ("I want to become a cook, I don't need to learn to build a robot for that"). Therefore, it was necessary to initiate reflection processes in order to gain awareness about what they had learned and its usability for professional purposes. The portfolio method could be used as a stimulus for this.

2.3 Develop a vision of one's own future

When discussing the question of how to didactically promote the development of vocational biographical design competence, the idea arose of confronting students with situations in which they could playfully try out this "balancing" between the characteristics and interests of the learner on the one hand and the respective social possibility and requirement structures on the other hand. A board game ("My way!") was developed in which the students deal with life situations and information that are relevant in the 15-30 age range (Fischer et al. 2015). Some of the life situations themselves were taken from the longitudinal study "Status Passages and Risk Passages in the Life Course" (Heinz et al. 2004). As part of the data evaluation of this longitudinal study, the BARB model of self-socialisation was also developed. It represents one of the theoretical bases for the development of the board game "My Way!" Based on the question of how the actors deal with the (external and internal) limitations and possibilities of their (occupational) life course design, the use of a person's scope for interpretation and action is divided into four steps: 1) To **b**alance (where do I stand?), 2) to develop **a**spirations (where do I want to go?), 3) to **r**ealise them (how can I do that?) and 4) to **b**alance the result again (what has that brought me?). We regard it as an essential content of vocational biographical design competence to be able to consciously undertake these four steps and thus gain subjective potential for action.

Following on from the development tasks in adolescence, life-important areas were defined for young people in the vocational orientation phase, which are discussed by the players in the game "My Way!" In the areas of "occupation", "school", "friendship", "family", "partnership" and "my well-being", the groups work together on tasks that are important for vocational orientation or reorientation. The aim of the board game is to sensitise people to the upheavals that may occur in their lives.

The playful coping with (imagined) life situations is linked with information about occupations: Information on up to 80 occupations is contained. The game also addresses the topic of migration (protagonists in the life situations depicted are often people with a migration background) and gender issues (e. g. through the topic "Men in women's occupations"). The response in the tests to date with about 100 students has been positive, but a comprehensive evaluation of the effects of this form of vocational orientation (the game has been distributed to all schools in Baden-Württemberg except the gymnasium) is still lacking.

2.4 Working on one's own biography

In the European project "A European concept to visualize and reflect the vocational biography using digital media", curricular modules and scenarios for a European course on the visualization of vocational biographical design competence using digital media are being developed, tested with young people in vocational preparation measures in six countries and evaluated (Reimann & Huber 2016).

Based on the question of how the theoretical construct of "vocational biographical design competence" can be operationalised in lessons with young people, the students of vocational preparation courses developed the topic of vocational biography design visually. Against the

background of the young people's activities in the social media, self-presentation on the Internet (“My digital self”) played a particularly important role: the starting point was to think about how I as a person am portrayed on the Internet. The following questions were raised and the visual material found was then used to research the web: Status of one's own self-presentation: How am I depicted on the Net? How do I evaluate this picture? How would I like to present myself on the net?

The students identified an object or a photo that represents them in their opinion (e. g. skateboard, T-shirt ...). The objects and photos were then included in the photo session: With the help of digital photography and performative expression, the young people answered four questions in a pictorial way and “brought them into the picture” in the truest sense of the word:

- What is my strength (my gold)?
- What is my hobby?
- Who is my role model?
- What would I like to know more about?

Answering these questions required detailed discussion and explanation in previously formed working groups. Young people who could not name a strength were supported by their classmates. The students also wrote a text “About me” to add biographical elements and to express the photographic portrait linguistically. The results were compiled in a photo book with all the students' work and could be used for application purposes.

3 Summary and conclusion

Due to the erosion of the ‘normal work biography’ there is a need for extended vocational orientation for all young people, including high school students, in the sense described above. This need can be assumed for reasons of personality development alone, because the requirements of career biography design affect everyone, and probably not just once in a lifetime, meaning

- To make decisions in which one's own expectations with regard to career planning are balanced against the actual or supposed expectations of others (e. g. father, mother, friends, social stereotypes),
- To associate one's own development opportunities and desires with one's own current starting conditions (e. g. action skills, school grades, certificates of graduation, application skills) and in doing so to
- Take into account one's own interests, aspirations and competences as well as the type and number of vocational training opportunities available.

This need for vocational orientation is additionally supported by the increasing diversification of (educational) paths. However, it cannot then be a reasonable goal of sorting in young people aged 15 or 16 somewhere by means of vocational orientation. This is evidently not successful anyway, as the current average age at entry to vocational education and training of over 19 years in Germany and the high drop-out rates show. Rather, the aim is to support young people and young adults in coping better with status passages and risk situations throughout their educational and working lives.

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Working to get work: freelance work within the creative and cultural sectors

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Abstract

Growth in self-employment and freelance work has been substantial, both in UK and internationally, since the economic downturn of 2008. Research focuses on workers within the performing and visual arts sub sector of the creative industries (the majority of whom work freelance) to examine the range of skills required to work within these industries, how such skills are developed and constantly renewed, and the ways in which work is sourced and sustained within the context of freelance and self employment. Findings suggest that 'working to get work' plays a significant part in the day-to-day life of creative freelancers. This is achieved through personal and professional skills development, networking, and a facility in ways of working characterized by flexibility, adaptability, project working and resilience. It is suggested that findings could have applicability beyond the creative and cultural sector, in fact in all sectors that rely on increasing numbers of freelance workers.

Keywords

labour market; freelance employment; creative and cultural sectors; workers in the performing arts, skills development

1 Background

Within the UK 'self-employment accounts for nearly half of all jobs created since the economic downturn of 2008....it may not be long before freelancers, sole-traders and micro-entrepreneurs outnumber the public sector workforce' (RSA, 2017). The UK Office for National Statistics (ONS, 2018) reported that the UK labour market had seen significant growth in the numbers of self-employed workers from 2008. By 2017 self-employed workers constituted 15.1% of the UK labour force. Tomlinson and Corlett (2017) reported that self-employment (either as a primary or secondary job) accounted for 45% of employment growth between Spring 2008 and February 2017. Further examples of the proliferation of self-employment and freelance work can be found elsewhere, for example Singapore (Karmel et al., 2013), USA (Hipple and Hammond, 2016) and Germany (Eurofound, 2009).

Freelance, and temporary contracted, labour is being used to supplant permanent 'on payroll' staff and functions once carried out 'in-house' for example, cleaning, catering, even finance and HR functions are being outsourced to other providers. Alongside this, an increasing number of school/college leavers, particularly those with few or no qualifications, are susceptible to the fragmentation of jobs, zero-hours contracts and low paid work (IER, 2017; Tomlinson and Corlett, ibid). The reality of the workplace is increasingly characterised by precarity (Fleming, 2017; Standing, 2014), short-term, or zero hours contracts, temporary work and self-employment. A 'job for life' is no longer the experience of most workers.

‘Now a typical worker – more likely to be a woman – can anticipate having nine employers before reaching the age of 30’ (Standing, ibid. 62).

An area of the economy which is increasingly important and where self-employment is commonplace is the creative and cultural sector (a diverse sector offering a wide range of occupations across art and design, performing arts, fashion, media, IT, marketing and publishing). In terms of employment, it accounts for around 2.8 million jobs. Between 2013 and 2014, jobs in the sector increased by 5% compared with an increase of 2.1% for the wider UK economy (DCMS 2016). In 2014, the export of services from the creative industries was valued at £19.8 billion, up 10.9% on the previous year and accounting for 9% of the UK’s total export services in that year (DCMS 2016). The recent Bazalgette Review of the Creative Industries predicts that the creative industries could be worth £128.4 billion to the UK economy by 2025 and help to create up to one million jobs by 2030 (Bazalgette, 2017).

2 Research approach

The data we draw upon are primarily derived from ongoing ethnographic research into work in the creative sector, particularly those working across dance, music, theatre, film and television either in performing or technician roles. Sampling has been purposive (Cohen and Manion, 1994) that is, drawn from specific communities of interest and their typicality (freelance workers within the creative sector, particularly performing arts). This is augmented by snowball sampling: informants identifying others who might qualify for inclusion (Cohen and Manion, ibid). Participant observation in the field, including at rehearsals, studios, live events and interaction through social media has enriched the interview data. There is significant cross-over amongst respondents as many freelance workers find employment across a range of sub-sectors within the creative industries and also in a range of other industries and sectors such as education. Furthermore, it is not uncommon for these freelance workers to also develop their own enterprises as they seek to gain sufficient, flexible employment and income to enable them to pursue their chosen career.

3 Findings

Freelance workers within the sector deploy a range of skills in order to maintain employment. These include practical elements such as physical and technical skills, social and marketing skills, skills in emotional intelligence and reciprocity and the creative skills to develop and create work through entrepreneurial enterprises.

3.1 Practical skills

On a practical level workers reported having to work to maintain their own practical skills in order to remain relevant in the labour market. These included camera men and sound designers buying new equipment and /or software and learning how to use it via workshops or through YouTube, musicians buying and using emerging and changing software packages (Choi and Burnes, 2013; Banks, 2006), dancers taking classes in new dance styles to ensure that they are prepared for any audition (Ashton and Ashton, 2016).

In addition to skills that are directly related to their freelance work these workers also gained other practical skills in order to supplement their income. These varied from plumbing to make-up artistry and dog grooming. Whilst some of these skills were gained through external training (largely self-funded), others were gained informally. For example, one performer began working backstage and became sufficiently proficient to work across both sound and lighting in London’s West End theatres. Identifying the skills required and knowing how to gain such skills within limited financial means is a significant strength of all these workers. They conformed to Knowles (1975:18) conceptualisation of ‘self-directed

learners' that is: 'taking initiative in identifying learning needs, setting goals, identifying learning resources (material and human), implementing strategies and evaluating outcomes'.

3.2 Social and Marketing skills

Social networks are crucial to freelance workers because this is the primary source of gaining work, or hearing about work, or accessing key gatekeepers. These are maintained online through various social media platforms such as Facebook, Twitter and Instagram, but also in person through events and informal meetings. This also enables workers to keep updated on 'live' information such as, who is hiring and for what. The wider the network the greater the range of possibilities, but maintaining such a range of networks takes time, effort and skill.

Marketing and promotion are also central to freelance work. Again, this is achieved at the workers' expense. Performers and choreographers have to keep their 'headshots' and 'showreels' up to date and of high quality in order to pitch for work. The use of social media for self-promotion is increasingly important. Some respondents reported having received social media marketing workshops during their vocational training; others had paid to attend workshops on effective social media marketing and management as working professionals. An awareness of the needs and norms of the industry is also vital for the success of any marketing strategy or engagement.

3.3 Emotional Intelligence and Reciprocity

Social norms are embedded in wider professional practices such as arriving early to work, learning to work quickly as part of a team and taking responsibility for one's own work within a project. Respondents reported the importance of resilience when facing 'knock- backs' (unsuccessful auditions) and how to address issues quickly and effectively. Social and emotional skills included the ability to adapt behaviours according to the environment "becoming a chameleon that can blend in", even in the most novel context.

A further aspect of this is the way in which workers behave reciprocally, even sacrificing work for another worker if they feel their need is greater. This was particularly demonstrated by musicians, but there were elements of this reciprocity across the sectors. People unable to accept jobs offered through their networks would recommend each other despite the intensely competitive labour market that marks the sector. In this respect traditional notions of competition and the competitive nature of these industries is tempered by the mutual reliance on your fellow workers to gain and maintain employment.

4 Discussion

The findings point to a range of skills that are transferable and increasingly coveted in other employment contexts. We found that there was considerable depth in the skills gained; this went beyond anticipated skills such as team work, working with other professionals and working independently. Tacit skills included an ability to work flexibly across a range of areas, identify their own skills gaps and seek out opportunities to develop these skills with an understanding of how and why they are relevant within their industry and the labour market.

Another range of skills displayed by these creative workers was the ability to market themselves and their work appropriately and network effectively in order to seek out and create opportunities. Networks were used to develop creative solutions to a range of issues. These might be issues faced as individuals, such as finding flexible solutions to ensure some financial stability, or solutions to problems within a particular work context. In short they engage in a variety of activities drawing upon a range of skills 'working to get work'.

These skills are vital to this group and enable them to find sufficient work, often from a range of sources, in order to maintain and develop themselves in a sector that is marked by

precarity and a dynamic pace of development (Bazalgette, 2017; Lahiff and Guile, 2016)). Such skills are increasingly important in the UK labour market and therefore the UK economy more broadly.

5 Conclusion

Beyond the realms of freelance and self-employment such skills are also linked to the project based modes of production that are prevalent in many sectors. This type of production offers flexibility and speed in innovation, making it increasingly popular as a way to organize work within larger organisations (Whitley, 2006; Hobday, 2000). Tech companies such as Google and Facebook are the most obvious exponents of this approach but it is becoming increasingly popular in the organization of work outside of the creative and tech sectors (Sydow et al., 2004; DeFillippi, 2002).

The proclivity of freelance workers in the sector to innovate and find creative solutions through collaboration and networking, and to find, create and develop diverse links was central to their abilities to gain and maintain employment. These skills were vital to their success as they 'worked to get work' rather than passively waiting for opportunities to come to them. We suggest that the need to develop and sustain such skills is not restricted to those working within the creative sector but could have a wider applicability for any sector where freelance employment is ubiquitous.

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Notes

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Higher VET in Sweden - A new approach to curricular formation

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Abstract

This paper concerns a study on policy on Swedish Higher Vocational Education (HVE). It's focus is on how policy define what knowledge should form curricula in HVE. Documents have been thematically analysed using Bernsteinian theory of recontextualization and conceptualisation of knowledge as either horizontal or vertical. Findings show that the creation of curricula has been positioned away from the national public context and positioned in the local contexts of programme provision. It is also found that knowledge in HVE programmes should be generated in the production of goods and services and is considered legitimate if selected by employers. The paper discusses how HVE reproduces existing social divisions and students' positions in social hierarchy as wage labour workers and that the definition of knowledge is based on employers' demands, neglecting knowledge forming autonomous workers and individuals with full democratic inclusion and participation in civic practice.

Keywords

higher vocational education; curriculum; labour market relevance; educational policy

1 Introduction

Basic conditions for citizenship and democracy may be described as the right to be included, socially, culturally and personally (Bernstein, 2000). Another condition is the right to participate in civic practice at the level of politics and in processes where order is constructed, maintained and transformed. One key to these democratic conditions is education, or more precisely, knowledge which support inclusion and participation. New forms of post-secondary vocational education and training (VET) are emerging in countries all across the world, and the diversity of provision in institutional contexts as well as in working life is expanding. Relating vocational higher education to stratified power structures and social mobility, the question of knowledge in VET curricula and how it is decided is thus crucial. This paper deals with this issue, particularly the Swedish post-secondary VET.

In Sweden, post-secondary VET is since 2009 provided in a state-funded tertiary system called Higher Vocational Education (HVE). The system of HVE is a market of both public and private provision and characterised by great employer influence. Swedish HVE is one example of the global overall expansion of higher education in tertiary systems, which in different formations can take the form of for instance, two year 'short-cycle' higher education provisioned by universities, applied baccalaureates in community college, higher level and degree apprenticeships trough in-company training, or hybrid programmes that combine vocational and academic education (Bathmaker, 2017; Hippach-Schneider, Schneider, Ménard, & Tritscher-Archan, 2017). This expansion is widening the accessibility to higher education and that may be providing possibilities of social mobility for disadvantaged groups historically excluded from higher education (Marginson, 2016).

However, growing participation in and expansion of accessibility to higher education doesn't infer reduced inequalities or possibilities of social mobility (Marginson, 2016).

Higher education in the Nordic countries, where egalitarian system design has shaped universities, are however considered examples of systems distributing social power broadly. If vocational higher education in general, and HVE in particular, also is to provide social power it must likewise offer students access to empowering knowledge (Bathmaker, 2013; Wheelahan, 2015).

The aim of this paper is to present a study of policy, on Swedish HVE, which purpose is to identify what knowledge policy define for curricula in HVE. This is done to enable a discussion on this vocational pathway in higher education and reproduction of social power relations.

2 Higher Vocational Education – The Swedish system for post-secondary VET

Swedish post-secondary VET is since 2009 organised in what is called Higher Vocational Education (HVE). Post-secondary VET had previously been scattered across different public (as well as private) funding systems and incorporated in different pedagogical traditions. Alongside state funded initiatives concerning initial VET in public adult education the establishment of the HVE system have been implied to reflect the then ruling conservative-liberal government's 'work strategy', a principle making employment the one crucial bearer of social inclusion (Andersson & Wärvik, 2012). In the HVE, programmes are only approved if there is an explicit demand from employers pledging their needs and involvement. The education providers compete amongst each other in a tendering-like process for approval and government funding by displaying their degree of association to employers making these pledges. The providers of HVE programmes are primarily privately-owned education businesses but programmes are also provisioned by, for example, public adult education organizations, actors in popular education or universities (National Agency for Higher Vocational Education, 2018b). However, employer representatives are always the majority of the members of the so-called management boards of each HVE programme, following whose instructions the education providers are to run their programmes (*SFS 2009:130 [Regulation of Higher Vocational Education]*). Employers on these boards are expected to contribute by creating curricula, offer placements with supervisors for work-based learning and to continuously work with quality assurance. They are also to contribute financially through monetary contributions or by reducing costs of consulting fees charged by representatives of working life who take part in the programmes as educators.

In the last two years the number of students in HVE programmes has been stable around 50,000 (National Agency for Higher Vocational Education, 2017, 2018c). This is 10% of all students in Swedish higher education (Swedish Higher Education Authority, 2017). In the year 2022, the number of HVE students is intended to be 70,000, indicating a rapid expansion. (National Agency for Higher Vocational Education, 2018a). Because many students enter HVE after gaining experience from several years of working life, not directly after finishing upper secondary education, the average age of the HVE student is 31 (National Agency for Higher Vocational Education, 2017, 2018c). Graduates are intended to qualify for jobs such as driving instructors, technicians in the waste- and energy industry, facility managers, accountants or project managers in the construction industry, to mention a few of the hundreds of occupations towards which the HVE programmes are targeted.

3 Method and theoretical framework

This is a qualitative study and data is fourteen Swedish policy documents published between 2006 and 2017, relating to Swedish post-secondary VET and the establishment of HVE. The documents have been analysed through a theoretical thematic analysis based on the theory of recontextualization and the conceptualisation of knowledge realised as either horizontal or vertical discourse (Bernstein, 1990, 1996, 1999).

4 A new approach to curricular formation

Findings show that in the Swedish system of HVE creation of curricula has been positioned away from the national public context and positioned in the local contexts of programme provision. Neither policy documents nor the responsible national agency defines the content to be taught in HVE programmes. There is no national curriculum, no outlining of core competences and no specified occupations towards which the programmes are to be targeted.

Policy distinctively charges the education providers with the responsibility of recontextualizing horizontal discourse of working practice in the making of curricula by pointing out the necessity for the transformation yet not taking responsibility for or controlling this process at a national level. The recontextualizing principle deployed in HVE also positions authority over the selective process of 'what' and 'how' to employers. Policy has constructed a system in which employers and education providers convene directly with one another to articulate and select what knowledge an HVE programme should reproduce in order to meet the needs of specific employers. Effectively, the recontextualizing of knowledge into pedagogic discourse is mainly carried out with the direct involvement of agents from the field of production of knowledge, in this case representatives of working life.

Furthermore, findings show that policy also defines that knowledge in HVE programmes should be generated in the production of goods and services and that knowledge is considered legitimate if it is selected by employers. The knowledge defined for HVE curricula is knowledge developing the procedural repertoire of HVE students with strategies useful in production. Noteworthy is that the definition of knowledge for HVE as coming from working life isn't lacking components of 'theory'. Included in this definition is what is labeled as 'theoretical anchorage'. This is vertical discourse reduced to strategies meant to improve the repertoire of the HVE students, i.e. to make them better, or more productive, workers. This is vertical discourse (re)contextualized to the procedural level of horizontal discourse which is so to speak embedding 'theory' into 'practice'. This definition of knowledge in HVE curricula infers the use of segmented pedagogy aimed at specific goals highly relevant to the student and that preferably includes features of the original context and practice (Bernstein, 1999). What knowledge is defined for HVE thus not only demarcate subject matter, the 'what' of HVE, but also its framing, the 'how' in provision of HVE programmes.

5 Discussion

Drawing on findings from an analysis of policy documents regarding HVE this paper argues that formation of curricula for HVE programmes is based on an idea of supply-and-demand. With the purpose of supplying hiring companies and organizations with graduates, the intention is that, by initiating an HVE programme, an employer can expect, within two or three years, to have some 20 to 30 graduates to choose from when hiring. The graduates in this lineup have been trained according to a curriculum created to generate the qualifications the employer needs in its enterprise. By then, the employer has also had the chance to 'test run' students during their training by offering them placements for the work-based learning portion of the programme. It seems the policy makers are taking for granted that the many employers involved in processes of creating curricula in local contexts of HVE programmes have the will and ability to select knowledge for high quality curricula based on what is useful in production. However, UK experience shows that it is problematic to assume this works well (Young, 2006). In light of the experience with employer bodies funded by the state to create curricula, which revealed both unwillingness and inability, the question is raised of what the resulting curricula of the local processes for every HVE programme in Sweden actually entail.

Furthermore, implications for social power relations and students' possibilities of social mobility in this approach to curricular formation can be described from two perspectives.

Firstly, as curricula are created in local processes, in which employers are positioned as the authority, it ties the programmes and their students to these employers trough specifically adapted knowledge and outcomes in curricula. It locks the students to pre-defined positions in the local labour markets. It also inserts the logics of the stratified labour markets, and the general inequalities that follow with the organisation of wage labour, into the HVE programmes (Avis, 2012). Thus, HVE reproduces existing social divisions and the students' positions in social hierarchy as wage labour workers. No matter how advanced their repertoires may be, they are still based on segmented knowledge of practice tying the students to the contexts of that specific practice. Secondly, as the definition of what knowledge should form HVE curricula is based on meeting employers needs of workforce suitable for production, the original definition neglects knowledge forming autonomous workers with abilities to reflect on situations and actions and to create innovative knowledge in their occupational field (Brockmann, Clarke, & Winch, 2008). This is knowledge that is necessary for full democratic inclusion and participation in civic practice (Bernstein, 2000).

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Biographical notes

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Eckelt, M.& Martínez-García, J.S. (2019). Participation in VET in Spain during crisis. In F. Marhuenda & M.J. Chisvert-Tarazona (Eds.), *Pedagogical concerns and market demands in VET. Proceedings of the 3rd Crossing Boundaries in VET conference, Vocational Education and Training Network (VETNET)* (pp.117-124) https://doi.org/10.5281/zenodo.2641083

Participation in VET in Spain during Crisis

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Abstract

During the economic crisis in Spain the number of students in VET increased by more than 50%. In no other sub-system of the Spanish educational system did anything comparable happen during this period. The paper analyses this expansion of VET and how this affects the relationship to other sub-systems of the educational system.

Keywords

Spain; South Europe; participation in VET; economic crisis

1 Introduction

From academic year 2006/07 to academic year 2015/16 inscription to initial VET increased by 55.1% in Spain. Besides this massive expansion of VET provision, VET's image in Spain is improving. That is quite an exception in the European context (Cedefop, 2017, p. 3). But even though the general economic indicators improve and the Spanish economy is growing since 2014 again, it is one of the European countries where there is limited recovery of youth unemployment (Meierkord, Meyer-Hamme, & Thies, 2017, p. 12). The slow, but constant decline in the unemployment rate from 2013 on did not stop the expansion of VET.

Table 1 Overview educational indicators for Spain; Source: Eurostat & MECD

Year or Academic Year	2007 2006/07	2010 2009/10	2013 2012/13	2016 2015/16
Students in initial VET	453,543	537,571	661,047	703,551
Early leavers	30.8%	28.2%	23.6%	19.0%
Graduates from lower secondary	303,685	317,723	324,309	358,094
Tertiary educational attainment	40.9%	42.0%	42.3%	40.1%
Youth unemployment (less 25)	18.1%	41.5%	55.5%	44.4%

In the same period of time the number of early leavers from school lowered from more than 30% to 19%. In comparison to other European countries this is still a very high percentage of young people aged 18 to 24 years, who have not completed upper secondary education. But this development indicates a rising demand for secondary schooling during the crisis. Also, the number of graduates from lower secondary schooling (ESO = *Educación Secundaria Obligatoria)* rose during the crisis. In Spain to enter in VET-courses it is obligatory to have finished ESO successfully. That is why all early leavers, who leave school before finishing ESO, do not count as potential demand for fully qualifying VET-courses.

A distinct polarization of the educational systems' output is a long-lasting peculiarity of the Spanish educational system. On the one hand the number of young people without any qualifying diplomas is high; on the other hand Spain is one of the first countries in Europe where since 2007 more than 40% of the 30-34-year-olds successfully completed tertiary studies. In comparison to the vocational educational system there has not been a strong boost in the matriculation at university during the crisis.

When the economic crisis hit Spain in 2008 the unemployment rate rose fast. Especially young people were affected. In the worst moments more than every second young Spanish person was unemployed and still in 2016 with a growing economy the unemployment of young people stayed high at 44.4% (Eurostat).

In comparison to former economic crisis since the 1970s there is a new phenomenon regarding the labor market impact: Those persons with low or no educational diplomas have been hit much harder during this crisis than those who hold higher educational degrees. In no other crisis before has education had such a strong influence on the risk of becoming unemployed (Martínez García, 2015, p. 106).

Despite this, the public debate was dominated by migration of young unemployed academics, over-qualification of many young career-starters and – surprisingly during a crisis - a lack of skilled workers. In educational politics the strengthening of vocational education and implementing reforms orientated on the German dual VET-scheme have been presented as reactions to the crisis.

Germany and other countries with a high proportion of young people in VET have had much lower youth unemployment rates. Therefore in European educational policies the strengthening of VET is promoted as a reaction to youth unemployment. This new orientation of the debate about education becomes especially clear in the *European Alliance for Apprenticeships*, which was launched in 2013 as a joint declaration of the European Commission, the European Council and social partners' organizations to fight youth unemployment by promoting work-based learning (EU, 2013).

2 Research Question and Methodology

To what extend or if at all it is possible to implement elements of foreign VET systems to another country is controversial. For sure the results of policy transfer like the implementation of elements of the German dual apprenticeship system in other contexts are very difficult to predict (Barabasch, 2010; Phillips & Ochs, 2004; Rappleye, 2006). The interaction between a vocational educational system, other sub-systems of the educational system and the labor market is influenced by a wider set of historically and nationally routed factors, which constitute a specific regime of collective skill formation (Busemeyer & Trampusch, 2012) and work culture (Greinert, 2004): Each combination of institutional and legal frameworks, economic structure, type of well-fare state and many other factors creates a unique case; usually on nation state level. Therefore, methodologically we concentrate on a case study of the Spanish VET system.

The massive expansion of VET provision seemingly took place without a matching expansion or decrease of other sub-systems of the educational system. Even if the VET-system

seemed not to have interacted directly with the other elements of the Spanish education system, the theories of skill formation and work culture let us expect a re-calibration of the complex relationships around the VET system, if this sub-system is changing its size that fast and massively. We analyze a ten years period from academic year 2006/07 to 2015/16.

The analysis is based on the official statistical data published by the Ministerio de Educación, Cultura y Deporte and own calculations based on the Encuesta de Población Activa (EPA – Labor Force Survey). The EPA is a trimestral survey conducted by the Spanish Statistical Bureau; the sample consists of around 65,000 families/180,000 persons. We explore:

1. How the expansion of VET has changed the relation between upper secondary and higher post-secondary initial VET as well as the relation of the VET sector to general secondary and tertiary education?
2. Who are the new students that entered vocational education and how the expansion changed the composition of students of the VET sector regarding age, gender, previous educational and social class background?
3. What contribution has the new dual apprenticeship scheme to growing VET and how does it change the Spanish VET system?

3 Educational participation in VET 2006/07–2015/16

In the current Spanish educational system based on the LOMCE from 2013 there is an obligatory schooling until the age of 16, consisting of six years of primary school and four years of secondary school, called ESO (*Educación Secundaria Obligatoria)*. After the obligatory school the students have the possibility to continue with a two years general upper secondary school, called *Bachillerato*. Finishing the *Bachillerato* offers university access by passing an entrance examination.

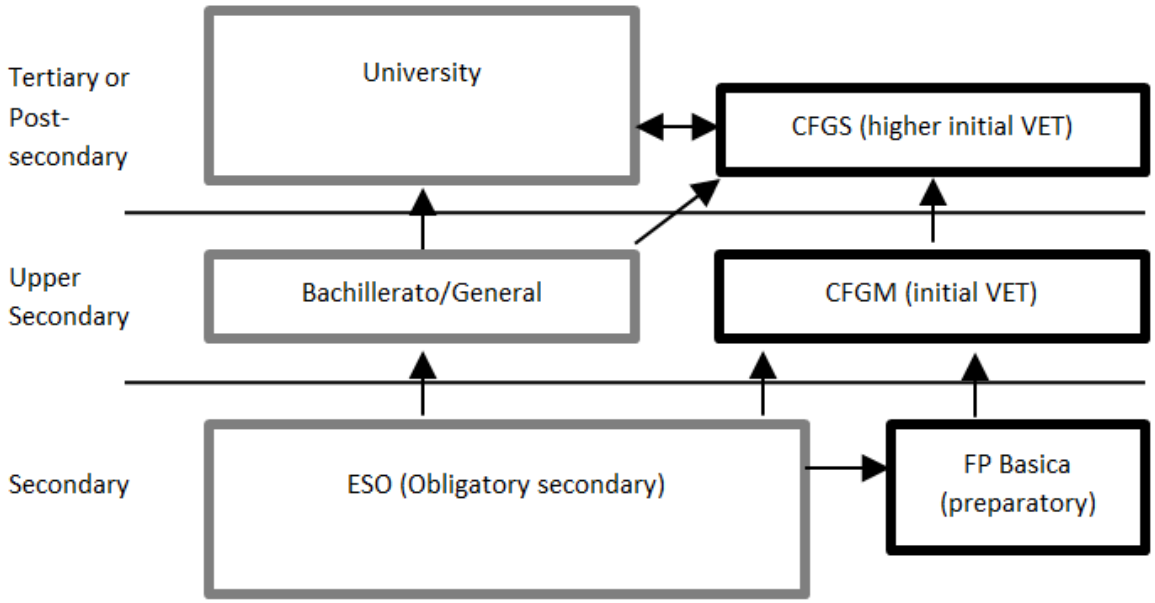

Figure 1 Current Spanish educational system after the reform from 2013

Vocational education exists on three levels:

- *Formación Profesional Básica* (FP Básica), which is a newly introduced two years course for students that have not finished successfully the obligatory secondary school ESO. Therefore it presents a form of preparatory vocational schooling. Probably it will be seen as a reservoir for all those students with a problematic school career, especially because usually the FP Básica-classes are part of a general school.
- *Ciclos Formativos de Grado Medio* (CFGM) are initial vocational education and training courses on a medium level with duration of two years (ISCED 4), which can be accessed by students who have finished successfully the ESO or the FP Básica. Therefore, the CFGM are to be seen as the alternative to *Bachillerato* in the upper secondary.
- *Ciclos Formativos de Grado Superior* (CFGS) are initial vocational education and training courses on a higher level with a duration of two years (ISCED 5), which can be accessed by students who have finished successfully the Bachillerato or a test for students with CFGM background. Therefore the CFGS are to be seen as post-secondary higher education and an alternative to university studies.

In initial VET the *Ciclos Formativos de Grado Medio* (CFGM) as well as the *Ciclos Formativos de Grado Superior* (CFGS) can be attained as full-time classroom training (*presencial*) or as distance-learning (*a distancia*). During the investigation period especially the modalities of distance learning, which are commonly used by older and/or working persons, multiplied from 8,088 in 2006/07 to 61,810 in 2015/16. Accordingly, its share of all inscribed VET students rose from less than 2% to nearly 9%.

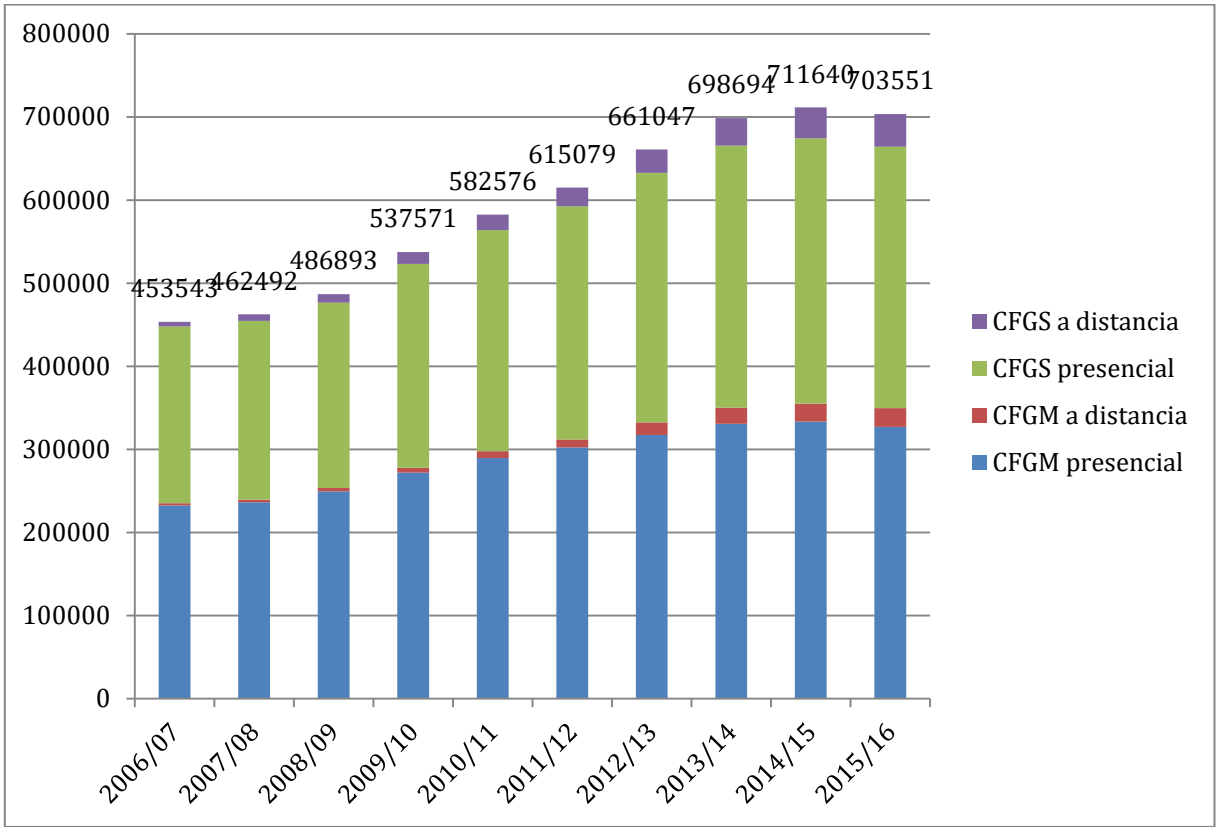

Figure 2 Students in initial VET 2006/07 to 2015/16. Source: MECD

During the investigation period 2006/07–2015/16 the matriculation at CFGS was growing faster than at CFGM. So, the share of higher post-secondary VET rose from 48,1% to 50,3% of all VET-students.

Table 2 Students in different educational offers 2006/07–2015/16

Academic Year	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Preparatory VET										
Garantía Social	45924	46973	3255	210	6					
P.d. Cual. Prof.			51659	74715	81775	84217	84009	83805	25421	215
FPB									39867	61909
Lower secondary general										
ESO	**303685**	**311922**	**321195**	**317723**	**315667**	**319591**	**324309**	**327916**	**341824**	**358094**
Upper secondary VET										
CFGM presencial	232653	236489	249506	271990	289568	302445	317365	330749	333541	327134
CFGM distancia	2571	3070	4010	5935	8309	9571	15130	19501	21579	22497
CFGM total	**235224**	**239559**	**253516**	**277925**	**297877**	**312016**	**332495**	**350250**	**355120**	**349631**
Higher post-secondary VET										
CFGS presencial	212802	215052	223098	245354	266012	280495	300321	315409	319305	314607
CFGS distancia	5517	7881	10279	14292	18687	22568	28231	33035	37215	39313
CFGS total Higher initial VET	**218319**	**222933**	**233377**	**259646**	**284699**	**303063**	**328552**	**348444**	**356520**	**353920**
VET TOTAL	**499467**	**509465**	**541807**	**612496**	**664357**	**699296**	**745056**	**782499**	**776928**	**765675**
Upper secondary general										
Bachillerato	595571	584693	589473	609072	623489	628753	634604	640978	638515	644165
Bachillerato distancia	34778	37440	39774	41491	48724	55423	57494	55670	52223	51392
Bachillerato total	**630349**	**622133**	**629247**	**650563**	**672213**	**684176**	**692098**	**696648**	**690738**	**695557**
University										
University total	**1421651**	**1423425**	**1430147**	**1471719**	**1529862**	**1572617**	**1548534**	**1539709**	**1506179**	**1492741**

During the investigation period there was a real run into vocational education and training in Spain. The growing participation in VET did not result principally from changed education preferences: After secondary school young people have the two educational options in upper

secondary education, CGFM (secondary VET) and Bachillerato (general secondary). The number of pupils finishing ESO rose by nearly 40,000 per year, most of them inscribed for Bachillerato as the number rose by nearly 50,000. But because the growth was stronger in vocational education the relation between students of Bachillerato to students of CFGM changed from 2.7 in favor of the latter to 2.0.

In the transition from upper secondary education to post-secondary CFGS or tertiary academic education the students have more educational and labor market choices. For this reason, the transition reconstructed based on matriculation statistics is less clear. Anyway, it shows that participation in tertiary academic education rose less. So, the relation between university students to students of CFGS (post-secondary VET) shifted constantly in favor of the latter from 6.5 in academic year 2006/07 to 4.2 in 2015/16.

4 New VET students entering during the crisis

The massive inscription into VET offers during the economic crisis is an anomaly in the Spanish educational system. To understand, who these new students are, we explore their socio-demographic and economic background. This work is still in progress. We hope to present findings during the conference in May 2019. We expect to find a rising age and a growing number of students that come back into the VET system, because they lost their job or could not successfully enter the labor market after finishing their studies during the crisis.

5 The Spanish Dual VET option

Since 2012/13 vocational schools can offer any formal CFGM or CFGS in a dual modality. That means that the students can do up to 85% of the learning-time in a private or public enterprise instead of the school. Anyway the school is responsible for the student and has to sign the necessary agreements with the cooperating companies and get this approved by the regional authorities. The Spanish dual VET is still very new, the law allows different ratios of in-company and school learning, the legislation of implementation of the national law differs in all 17 regions and there is few comprehensive data and evaluation published yet (Attwell, Garcia, & Garcia Pontydysgu, 2017; Bentolila, Cabrales, & Jansen, 2018; González Gago, 2015; Homs, 2016; Marhuenda, Chisvert, & Palomares-Montero, 2016; Molina, 2016).

In the academic year 2015/16 3.1% of all VET students studied in a dual modality; most of them in higher VET-courses CFGS. The impact of dual VET in the growth of matriculation in VET is therefore not significant. But it should carefully be analyzed, if by this modality a new form of distinction inside the VET system arises, that might devaluate the value of VET diplomas on the labor market.

6 Conclusion

The expansion of VET in Spain was driven by the economic crisis. A crisis in a capitalist economy generates unemployment amongst workers, most affected are those who have less employment protection, which often means young people and unskilled workers. While they lose jobs, income and career-opportunities, they gain disposable time. VET-courses in Spain – in contrast to university – are free of charge and easily accessible as there is a dense network of vocational schools and low entry requirements. The Spanish rising VET participation might have been more a socio-political offer for the unemployed than an actual educational choice.

If this conclusion proofs correct the rise of participation in VET could be a temporary phenomenon, which might disappear in the next years; depending on the labor market opportunities for low skilled works. Although, possible long-term effects like the changing social prestige, the recruiting of companies and the political attention for VET have to be consid-

ered. Regarding the new dual VET, its impact seems much higher on a political and ideological level, than the number of apprentices would justify for the moment.

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Theory and practice in secondary schools in Argentina: knowledge, experience or work practices?

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Abstract

This paper aims to interpret the meaning and orientation of practices for the transition to the world of work, as a compulsory curricular area of the secondary technical and vocational education in Argentina. The conceptual analysis is centred on the relationship between theoretical education and practice during the learning trajectory in the secondary and technical level and questions the meaning of practices, as a mean for the students to bring into play knowledge about socio-productive processes related to the work environment.

The results of researches of the PEET-IICE/UBA/CONICET allow for considering the objective conditions for the transition to the world of work in the context of provincial, economical and social inequalities and institutional differentiation in technical education. Finally, the article proposes the interpretation of the behaviour of some schools according to the modalities of training, level of consolidation, size, institutional profiles and the implementation of practices according to the social and economical conditions of their specific territories.

Keywords

technical secondary education; curriculum, theory and practice; comprehension of world of work; economic and social inequality; differentiation of schools and work and study practices; objective conditions of transitions to the world of work

1 Introduction

This paper aims to interpret the meaning and orientation of practices for the transition to the world of work, in a compulsory curricular area of the secondary technical and vocational education in Argentina. The conceptual analysis is centred on the relationship between theoretical education and practice during the learning trajectory at the secondary and technical level (Riquelme, 1993). The approach to the relationship between theory and practice as well as of the integration between curricular knowledge and experience become necessary to question the significance of practices as learning areas in which students must put into practice pre-professional knowledge about the social and productive processes of goods and services which may resemble future work environments.

The theoretical perspective of this paper responds to the researches and studies developed during the last decades by the Program of Education, Economy and Work[1] in the field of technical education and vocational training.

2 What do we understand by technical and vocational education?

Technical schools had an early beginning in Argentina with the establishment of the first schools of this sort towards the end of the 19th Century. According to Tedesco (1970) and Gallart (1983), the purpose of such schools was to provide education to students of low income and to deviate graduates from primary schools for providing the incipient industry with technicians. The curriculum followed the classification of the existing industrial processes in four areas: chemistry, mechanics, electricity and construction. The programmes included practical learning at workshops and theoretical studies of basic notions for operating these processes; there was a strong emphasis in mathematics, technology and technical drawing. Since the mid 20th Century, technical education consolidated, especially with the launch of the CONET (National Council of Technical Education) that grouped both secondary technical education and vocational training; furthermore, changes were introduced in the industrial technical education teaching plans.

A radical breakdown in the country's educational policy was marked by neoliberal trends of state modernization that set the transference of secondary education from national to provincial governments and the later restructuring of levels and cycles, during the first years of the 1990s, which withdrew technical education from secondary school.

A decade later and following different critical diagnosis about the breakage and fragmentation of the educational system caused by the nineties' reform, new transformations were attempted in the organization of levels, cycles and curricular plans in order to homogenize provincial differences. This can be interpreted by saying that during the last thirty years secondary and technical schools faced "critical transitions" (Riquelme, 2004) derived from partial or total changes of levels and cycles, changes of authorities and/or of the technical government of the level or modality and curricular changes of teaching plans[1].

Technical secondary education is currently organized in six or seven years divided in two cycles: the first one is to preserve the main core of common character to all orientations and modalities that may adopt secondary education; and the second cycle emphasizes in specific technical training and in practices related to each specialization.

Since the nineties' reforms, technical schools have changed their training profile traditionally intended for the incorporation to specific services (management, computing and tourism) and agriculture developed by each province. These processes have made technical education supply rather vague, and even similar to that of common secondary education.

3 Tensions between theory and practice at the curriculum of secondary and technical education: an old debate.

This section aims at defining questions widely debated in the fields of pedagogy, sociology and labour economics: the place of training and practice for learning and labour insertion.

[1]Website https://educacion-economia-trabajo-peet.org

3.1 Theory and practice at secondary and technical school

The tension between theory and practice in secondary and technical education derives from the distinction between intellectual and manual work - thinking versus making - typical of Western culture. Thus, education is structured in differentiated modalities following such dichotomy and fragmentation, and hence stigmatizing the division between "education of the intellect" or "general education" and "practical education" or "technical education" (Riquelme, 1993, p. 3).

The first researches of María Antonia Gallart confirmed the existence of an educational rationality and a productive rationality; hence technical schools were shaped more similarly to other schools rather than to productive organizations. The specificity of technical schools is the presence of workshops that marked the separation between theory and practice; overcoming this breach constitutes a tension in technical education (Gallart, 1985).

Such division of fields of knowledge is deceptive; any subject or training proposal should contemplate both theory and practice, in order to ensure a proper approach to knowledge as well as an element of implementation to secure knowledge appropriation. The comprehension of a notion must include the theoretical positions and their implementation; therefore practices must build from knowledge.

Practices at the end of the training cycles prove the weakness of the contents of education (Riquelme, 1993): plans and programmes with encyclopaedist approaches, deep fragmentation between theory and practice, out of date contents and a certain inclination to their "telescospication/telescopización" through the mere reduction of the university-relevant subjects. Technical training itself is more theoretical than handcrafted; it supposes an accumulation of too many contents and no time for synthesis. This could be considered as "technical encyclopaedism", because of the difficulties for making sense of what has been studied that entails. Technical education itself struggles between "knowledge accumulation" and the "ability for reasoning and practical implementation" as general education does. Despite a certain vindication of practice as a learning strategy over good theoretical teaching, excessive value is given to work practices, which usually translate into mere exercises of repetition or imitation of trades, alledgedly fostering specialized training.

3.2 Curriculum and knowledge

Vocational training and education should exceed the teaching of contents merely aligned with work positions' requirements, and voided of real knowledge and understanding of the world of work, its contradictions and technological changes. This has made it necessary to review the structure and the supply of cycles and modalities of the educational system – both formal and non formal-; the explicit contents, the type of scientific and technological education; the skills and attitudes developed and the level of projection of these towards social and productive reality (Riquelme, 1985).

The perspective of the French sociology of work focuses on the way knowledge from the vocational training may be meaningful for the industrial and sectorial activities, the "empirical- know- how" - the practical relationship that the worker maintains with the work environment and its objects -, and the "analytical- know-how" that requires conceptual-based intellectual training. Another distinction is the "partial- know-how" that is applied to a part of the work process and the "general and exhaustive- know-how" that allows for comprehension of work situations (Riquelme, 1991).

The notion of knowledge is the object of debate and study of many theoretical currents, and in the saying of Barbier and Galanatú (2004) it is the objectification of knowledge in concepts and theories (cited in Herger, 2013). The question about knowledge is relevant for the development and comprehension of both curriculum and the differentiation between specialized knowledge and everyday knowledge or the knowledge through experience, without

leaving aside their relationship and the "pedagogization" of different knowledge for different groups of students (Young 2009). The boundaries of knowledge grow in significance for the creation of identities, hence for opening opportunities to acquire powerful knowledge or, on the contrary, setting learning barriers. Therefore, it is important to distinguish between leaning at educational institutions, such as schools, and learning carried out at other places, such as home or the workplace. Criticizing constructivist or over-socialized perspectives, Michael Young and Johan Muller sustain that experience cannot be the basis for teaching plans, and that students cannot actually "build" their own learning (Young & Muller, 2013).

There are trends towards the modularisation of the curriculum, which put practice at the centre of teaching. Such trends have to be observed with precaution because they constrain access to the understanding and explanation of phenomenon (Young y Muller, 2016). The authors point out that these types of pedagogic strategies harm the disadvantaged students because they are excluded from the know that or propositional knowledge, and because of the acceleration of the progress of knowledge the elite groups can continue to ascend in the appropriation of more knowledge. These trends restrict the right to powerful knowledge because students cannot distinguish it or acquire it by themselves (Riquelme, 2016, mimeo).

From a didactic perspective, pedagogic devices become artificial in their providing simulations and decontextualization in favour of teaching and learning processes. Four types of vocational training may be distinguished: according to the instruments used, depending on the transmission of contents or the developing of abilities inside or out the school, regarding the asymmetry of the learning and teaching subjects and contemplating the relationship between theory and practice (Souto, 2013).

In the same way, some studies associate the notion of devices to the mechanism of mediation between the worlds of school and work, such as: training practices for students and teacher at enterprises, workers' training at schools, joint-programs with the community, research and development projects (Jacinto & Millenaar, 2007).

Some pedagogues assert that "if both types of education are indispensable for both the personal and the citizen development, academic education is equally necessary for vocational training" (Camilloni, 2006, p 5). It is known that the most flexible persons are those with a general education. There is "a so called new vocationalism that integrates technical, vocational and academic skills. There is a strong agreement that it should be provided technological-general and specific education as well general education with a broad base" (Camilloni, 2006, p.5).

3.3 Comprehension of the world of work and the culture for work

With the development of practices of study and work as a framework, the "comprehension or understanding of the world of work" should be highlighted as the idea of a profound revision about the current myths on education and work in different moments of the pedagogic work; the re-signification of the general and scientific-technological education; the use, recovery and update of disciplinary contents; a new meaning of the discipline as a tool for the better understanding of social and productive reality; an assessment of the practices of integration of study and work prevailing in middle education (Riquelme, 1993, p.12).

In this sense, and as a projection of the idea of comprehension of the world of work, institutions could outline problematic situations, laboratories, workshops, and a reflexive perspective at the social and productive reality though guidelines, guided observations and tours for students.

Recent developments aim at developing a cross-sectional axis to overcome isolated activities through the creation of a "culture for work" (Gómez Campo, 2006) cross-cutting school culture. This concept entails an interpretative and analytical comprehension of how education and work are related and the study of job opportunities or options after secondary

school. One dimension of this concept is the setting of pedagogic practices in which students are the protagonists, generating autonomy and the capacity for further learning and the approach of relevant questions of the world of work (problem solution skills, team work and communication).

4 Provincial economical and social inequalities and institutional differentiation of technical education: on the objective conditions for the transition to the world of work

The challenge of this paper was to introduce the perspective of the development of our researches on the relationship between education and vocational training, multiple social and productive demands and provincial differences among the particular responses from the schools according to their institutional profiles.

This way, the possibilities for considering or designing practices at the end of the cycle of technical and vocational schools would depend - to a greater extent - on the social characteristics of the population, the dynamic of the labour market and de demands from the local or provincial productive apparatuses, that are the socio-economic and political context of the schools and that settle the boundaries to the possibilities for the transitions to the world of work (at least on these territories).

4.1 Local and provincial inequalities

Argentina, likewise other countries in the region, has strong provincial inequalities resulting from a historic disparity in the productive performance that coincide with a high economic and social heterogeneity among and within provinces. This subject has been studied in previous decades noticing typologies of provinces according to their economical and social conditions (FUDAL, 1978; Riquelme 1978) and their impact in the living conditions of their population as well (FUDAL, 1978; Beccaria & Minujin, 1985; Anlló & Centrángolo, 2007; Cetrángolo, Steinberg & Gatto, 2011)2.

The characteristics of productive apparatuses and of labour markets as well as the living conditions and even the cultural standards of the population in the localization areas of the schools influence the possibilities and decisions about the practices that students could do in their transition towards the world of work. The analysis of the provincial and local social and economic conditions for the insertion in the world of work allow to consider differential situations among areas according to the main productive sector, the labour markets' demands, the size of the populations and the relative living conditions, as well as the spaces or types of practices to be developed.

Thus, it is possible to distinguish among the contexts that present more advantaged social and economical conditions, with some advantages or limitations to those with critical or even strongly critical and isolated as presented below.

- Advantaged social and economical conditions: they correspond to diversified economic structures regarding activity sectors of great size, where employment demand is distributed between the modern industry and services; or areas with industrial or innovation enclaves that include large, medium and small enterprises with concentration of employment of high or medium educational level, even if affected by low demand; this can also occur in areas with dynamic agribusiness in current crisis. It usually coincides with large and medium sized cities and with small cities in dynamic socioeconomic contexts and with relative high social conditions. In these areas, there could be good conditions for the rotation of students of different modalities and specializations in the productive processes of enterprises of different sizes.

- Social and economical conditions with some advantages: areas with industrial and/or modern services profiles that include medium and small sized establishments employing workers with high and medium educational levels and where informal commercial and service activities co-exist. They are also characterized by withholding a developed public sector that employs professionals and technicians. In these areas, there could be conditions for the rotation of students of different modalities and specializations in the productive processes in different enterprises and in the municipal or provincial public sector.
- Limited social and economical conditions: they correspond to small or medium urban areas with an important weight of public employment as the main source of demands of workers, with lower economic development settled on personal and trade services. In these areas, there could be limited opportunities for practices, due to the low productive and commercial demands, leaving the public municipal sector as one alternative for the students.
- Critical social and economical conditions: they correspond to areas of low economic development with an agricultural or small business base and with predominance of the informal sector. There are unfavourable living conditions in rural or peri-urban areas in which the local public sector is a limited alternative of employment. In this context the practices usually occur inside the school and in some cases at the public municipal areas.
- Critical social and economical conditions of strong isolation and lack of demands: they coincide with isolated rural areas with serious social necessities and subsistence agriculture, where the local public sector is not an employment alternative. In these contexts, practices can only take place at school, although limited by the available resources.

It must be pointed out that in 2018, given the situation of Argentina at the time, even the areas with relative advantages suffered the consequences of the drop of the activity in many productive branches and the raise of unemployment and labour informality.

4.2 Differentiation of the technical secondary education

During the last decades, general secondary and technical secondary education went through reforms of the structure of levels and cycles and political and administrative changes that determined what we have characterized as critical transitions (Riquelme, 2004; Riquelme & Herger, 2015). During the nineties and since the Federal Education Act, the creation of the polimodal and the technical and vocational tracks brought fragmentation to the levels among provinces and the withdrawal of technical education. The Technical and Vocational Act (2005) and the National Education Act (2006) sought to recover and homogenise the level and it modalities, but starting from dissimilar situations of structure, curricular contents and coverage in the country.

No doubt, technical education was a level in check and the orientations of the national and provincial educational policies, as well as the not always planned reforms derived in 24 differentiated secondary education sub-systems with uneven duration and curricular design according to each province.

Technical education in Argentina was orientated towards the industry throughout the 20th century and towards technology and the new information technologies by the end of the century. During the reform of the 1990's provincial technical schools were merged into polimodals, and during the 2000's the so-called technical and vocational education rose combining the technical modality with both services and agricultural modalities. Currently, there are a diversity of specializations, the most representative of the industry are construction, electro-mechanics, electronics, food industry, chemistry and other processes industries.

The consolidation of the academic structure of cycles of technical and vocational education allows for differentiating schools and provinces, according to the moment of creation

and the implementation of the curriculum, or by the greater weight of the modalities industrial/technological, services or agricultural and their specializations. This way, different situations may be registered: completely consolidated technical schools, schools with consolidated modalities but in the process of incorporation of a new modality or specialization and even schools with different degrees of structuring of the cycles and schools or recently founded.

The size of the schools according to its enrolment shows a relationship with its characteristics because it gives a glance of their level of organization and student recruitment. The schools with a larger size tend to be located in urban areas and have more resources than those smaller institutions located at peri-urban or rural areas.

Institutional profiles reveal differentiation among educational establishments by their existing basic resources such as adequate building conditions, availability of material resources and the traits of their teachers (Riquelme, Herger y Sassera, 2018; Sassera, 2014). There are technical schools with adequate and sufficient buildings, material resources and trained teachers; technical schools with needs of improvement of their buildings, resources and teachers' availability, which do not interfere with their institutional functioning; and there are schools with greater difficulties that interfere in the institutional functioning and the implementation of practices.

The complexity of the differentiation of technical and vocational education in Argentina is expressed by the provincial differentiation explained above in addition to the differentiation derived from the degree of curricular consolidation and the institutional profiles. The following table synthesizes and illustrates the behaviour of some schools according to the industry, services and agricultural modalities considering the level of consolidation, size, the institutional profile and the carrying out of practices interpreted by the social and economical conditions at these territories. The cases have been selected from a study made by the authors.

Table 1. Economical, social and provincial inequalities and institutional differentiation of the technical and vocational secondary education in Argentina: presentation of some school cases and the type of practices of labour insertion in relation to their institutional profiles

Source: PEET-IICE/UBA-FFyL – INET (2017). Study: "Gathering of professional practices in secondary technical schools", FO-NIETP-INET-2017 Line 6.

Modality	Social and economical local and provincial conditions for the insertion to the world of work				
	Advantaged social and economical conditions	**Social and economical conditions with some advantages**	**Limited social and economical conditions**	**Critical social and economical conditions**	**Critical social and economical conditions of strong isolation and lack of demand**
Industrial	Specializations: electricity, construction, chemistry and another processes industries. Santa Fe. Large and consolidated university school with adequate resources. Practices with medium level of organization and oriented to the strengthening of learning.	Specializations: electromechanics, electronics, design and multimedia industries. Buenos Aires. Medium-large and consolidated school with adequate resources. Practices with high level of organization and oriented to the world of work.	Specializations: electronics and processes industries. Buenos Aires. Large and consolidated school with needs of building improvement. Practices with medium level of organization and oriented to the strengthening of learning.	Specializations: electronics and food industries. San Luis. Medium school with change of modality. Great building difficulties and in need of supplies. Practices with low level of organization and oriented to the community.	Specializations: construction and electro-mechanics. Jujuy. Large and consolidated school with great building difficulties and in need of supplies. Practices with low level of organization and oriented to the world of work.
Services	Specializations: management and computing. Santa Fe. Medium-large and consolidated school in need of building improvement and trained teachers. Practices with medium level of organization and oriented to the strengthening of learning.	Specializations: management, computing and chemistry. San Juan. Large, consolidated and traditional school with a new specialization (chemistry) and adequate resources. Practices with high level of organization and oriented to the strengthening of learning.	Specializations: computing and tourism. Buenos Aires. Large and recently consolidated school in need of resources and tools. Practices with medium level of organization and oriented to the strengthening of learning.	Specializations: computing. Córdoba. Small school founded recently, without workshops. Practices with medium level of organization and oriented to the strengthening of learning.	Specializations: computing. San Luis. Medium school founded recently, without adequate infrastructure, equipment and with lack of teachers. Practices with low level of organization and oriented to the strengthening of learning.
Agriculture	City of Buenos Aires. Medium and consolidated university school with adequate resources. Practices with medium level of organization and oriented to the strengthening of learning.	Mendoza. Medium and consolidated school in need of supplies. Practices with medium level of organization and oriented to the strengthening of learning.	Corrientes. Small school founded recently, without adequate training environments. Practices with medium level of organization and oriented to the strengthening of learning.	Formosa. Small school of mid term consolidation with resources and teachers difficulties. Practices with low level of organization and oriented to the strengthening of learning.	Buenos Aires. Small school of recent consolidation with adequate training environments and resources. Practices with medium level of organization and oriented to the world of work.

5 As a closing remark: objective conditions of practices as a transition to the world of work

This article confirms the difficulties of schools to face the possibilities and limitations of the social and economical contexts of the territories they are in, which are their environments and settle the objective conditions of their context. This brings into play the capacities of schools and their groups of teachers to compensate for and develop actions as well as to programme practice alternatives of study and work, defined as pre-professional or introductory to the work of technicians. Even the occupational field of the technicians has been questioned during the last decades, objecting their existence in the reality of the companies' work structures.

In the study developed by the author for the National Institute of Technological Education (INET), the so-called "professionalizing practices" implemented and informed by schools from a sample, were classified by types of practices: (i) those practices that follow the regulatory criteria and take place in concrete work situations or respond to the regulations of external organizations (44,7%); (ii) those that follow the regulatory criteria and take place inside the schools responding to the necessity of the institution, other organizations and/or activities of trading of goods and services (30,3%); (iii) practices carried out inside the school that involve knowledge application (techniques, regulations or production means) related to professional profiles but without reference neither to the demands of the school or other organizations (19,7%); (iv) practices that take place inside or outside the school and are oriented to the knowledge improvement of the socio-productive processes and the execution of a professional profile, but which do not entail students putting into practice neither knowledge (1,7%) and (v) practices unrelated to professional profiles (0,2%).

No doubt, the prime situation corresponds to those schools which objective context conditions allow them cope with demands where the youth can carry out their practices according to their specialities, a proper number of places for the rotation of all the students, access to different work processes in the industry and services sectors and municipal areas, besides achieving the involvement of all students without gender or merit discrimination.[3]

The comprehension of the world of work cannot be reduced to its practice, every teaching plan must be oriented to integrating and developing a series of activities in order to guarantee pupils to circulate through different situations not limited to close environments and enabling them to assess the diversity and complexity of the world of production and work.

Notes

[1] There are 2842 technical and vocational education institutions in the country, of which 1474 are technical secondary schools with management from the state and 191 of private management; the total technical secondary schools represent 14% of secondary schools. Enrollment has increased over the last fifteen years, with the state sector accounting for the majority of students, although it represents 18% of all secondary students. The enrollment of the technical secondary reaches 18% of the total of secondary students and are attended mainly in the state sector. Although during the last 15 years there has been a certain increase in the number of students, this relative weight is below that reached in the mid eighties (33%). The big provinces of Buenos Aires, Córdoba and Santa Fe, have the largest percentage of enrollment, and the orientation with the most students is the industrial followed by agriculture and services (INET, 2017). Improvements in access have not reversed the traditional problems of retention of students in technical schools, where repetition and dropout rates are high in the first years, students change to common secondary and there is still a low number of graduates of the modality.

[2] The classification of the provinces according to the levels of education reached by their population (Riquelme, 1977, FUDAL 1978, Beccaria & Riquelme, 1985, Riquelme, 2004, Riquelme & Kodric, 2013), allows to distinguish between: provinces with high educational level, provinces with a medium high level of education, provinces with a middle level of education, provinces with a low level of education and provinces with very low educational level. These studies were carried out to interpret and understand the differential behaviors in access and permanence in education and educational situation in the provinces resulting from the educational profile of the population. Another line of economic and social grouping of the provinces uses gross geographic product and living conditions and human development indicators to account for the disparity of situations between provinces with better indicators of development, relatively high development, relatively low

development and under relative development (FUDAL 1978; Anlló & Centrángolo, 2007). A study of the last decade characterizes the differences between departmental territories (Steinberg, Cetrángolo and Gatto, 2011, Centrángolo, 2017) from social, demographic, economic, labour and educational dimensions. The work evidence situations that vary between: large cities with educational, socioeconomic and infrastructure levels above the average; large cities with coverage problems and trajectories in the education sector; small or intermediate cities in dynamic socioeconomic contexts and favourable educational indicators; small, intermediate or peri-urban cities with favourable and dynamic economic contexts; medium or large urban centres with vulnerable contexts; rural and peri-urban areas with socio-economic, infrastructure and educational deficits; rural areas with economic and social emergency.

[3] The areas of provincial educational conduction should contemplate for the secondary level and the technical and vocational education, a central technical area for support and assistance to the schools on: the education and world of work relation in the province and localities and the multiple social and productive demands; the programming of the practices with the provincial and municipal public sector and the business sectors; the provision of insurance and other coverage to encourage the completion of internships or stages outside the school (in external organizations); the strengthening of planning and organization capacities of the practices in groups of nearby schools or of the same local areas and or by specialization; the exchange of experiences in the jurisdiction and in other ways in order to analyze the best results and problems solving; the organization of inter-school meetings with the supervision teams of each district or region for the exchange of experiences, difficulties and achievements.

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Where are the trade unions? Some insights into the historical evolution of the Swiss VET system

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Abstract

The Swiss VET, in its current institutional form, was gradually established over a 50-year period between 1880 and 1930. Beside the Confederation and the Cantons, the third main actor in this institutionalisation process can be identified in professional associations in the craft sector. On the contrary, trade unions play a minor role in the all process. The paper presents the main reasons that could explain the discreet presence of trade unions in the process of institutionalization of the domain and analyses the consequences of this on the first laws on VET and on the successive evolution to the present day.

Keywords

history of Swiss vet; 1880-1930; trade unions, handicraft associations

1 Introduction

Comparative research into the historical evolution of VET systems reveals considerable differences in the way different countries have developed their own VET system (CEDEFOP 2004; Thelen 2004; Busemeyer & Trampusch 2012). Some recurrent features can nevertheless be pointed to, underlining in particular complex negotiations between the interests of the state, of companies, of workers and of young people (and their families). Focusing on the development of dual VET models, Busemeyer and Trampusch (2012) highlight four "neuralgic points of contention" (p.16) that "coagulate" the main conflictual issues among the actors in the domain. These neuralgic points are: "*the relationship between firm autonomy and (semi-) public monitoring*", "*the relationship between school-based and firm-based VET*", "*the financing of initial VET*", and the "*relationship between VET and general education*" (pp. 17-19). The negotiations around these four main issues between the state, the employers' associations and trade unions are decisive in establishing the complex division of responsibilities characterizing dual VET systems.

The evolution of the Swiss VET system can be read in the context drawn by these four neuralgic points, but one element is striking: the comparatively little weight and lower level engagement of trade unions (and of left-wing parties) in the whole process of the institutionalization of the VET system. This lower level of engagement emerges in particular if we compare it with the development of the German dual model of VET (cf. Trampusch 2010; Wolf 2017; Emmenegger et al, 2018; Emmenegger et al, *forthcoming*). Current research into the history of the Swiss VET system unambiguously shows that the lead in the institutionalization of VET was taken by professional associations in the domain of handicraft (in particular by the Swiss Handicraft Association [*Schweiz.Gewerbeverband*]), while the trade unions played a secondary role, surprisingly supporting most of the initiatives launched in this domain by the handicraft associations. (Tabin 1989; Gonon 1998; Bauder 2008)

So, the first questions that arise is the following: how can we explain the lower level engagement of the Swiss trade unions in the process of the institutionalization of the domain and

how to explain the support of these milieus for initiatives from the handicraft sector? Secondly, we have to ask to what extent this lower level engagement influenced negotiation on the four neuralgic points quoted above and more specifically on social issues linked to VET, for instance on working conditions (working hours, wages for apprentices) or on social measures favoring integration of young adults into the world of work?

Analysis of documents (laws, official reports, scientific publications, press articles, etc.) written between 1880 and 1930, the decisive period for the establishment of the Swiss VET system (Bonoli 2012; Gonon 2018), can help us to find an answer to these questions.

2 The weakness of Swiss Trade Union

These documents show that in Switzerland we do not witness a “class struggle” in the field of VET (Tabin 1989; Bauder 2008). Commenting on the results of the parliamentary commission, which prepared the first federal law in 1930 and where most of the interest groups of the time were represented, the Federal Council referred to “a rare unity of opinion on most of the important issues”(CF 1928, p. 766). This “rare unity of opinion” is the result of the fact that the trade unions did not adopt an opposition strategy in the domain of VET, which fact could be explained mainly by the weakness of workers’ organisations at the time. We find a confirmation of this in a draft for a law on apprenticeship proposed in 1913 by the Swiss Confederation of Trade Unions (*Schweiz. Gewerkschaftsbund*), where we can read: "the trade unions are not yet strong enough in all occupations requiring apprenticeship training to represent the interests of the workforce themselves”. For this reason “they consider the legal regulation of the apprenticeship relationship to be absolutely necessary”, and “their wishes meet here with those of the employers" (SGB 1913, p.2).

Comparing the role of trade unions in Switzerland and in Germany, Patrick Emmenegger, Lukas Graf, Alexandra Strebel (forthcoming) highlight several aspects that could explain the weak and consensual position of Swiss trade unions in the domain. This weakness is partly due to the federalist nature of the Swiss state and the decentralised nature of Swiss VET, split between cantonal responsibilities and occupational specificities. Such fragmentation probably slowed down the formation of strong trade union organisations and introduced a kind of "depoliticization" (forthcoming, p. 12) of the issue. Finally, in the process of institutionalisation of the Swiss VET system, regional public authorities (in particular municipalities and cantons) took on tasks directly related to the control of apprenticeship conditions at an early stage, from the first cantonal laws in 1890, which pre-empted “any possibility of unions playing a key role in this area” (ibid. p. 8) in constrat to what occurred in Germany.

3 The trade unions’ position on the issue

However, while the weakness of the trade unions certainly plays an important role in explaining their limited and consensual involvement, it should also be noted that at the time VET issues were not at the center of their concerns and a largely shared position on the topic was lacking.

On one hand, trade unions showed only little interest in VET issues, at least in the decades around 1900 (Bonoli 2016, Bauder 2008, Tabin 1989). Their major preoccupations were working conditions, wages, social insurance and political representation of workers (Heeb & Schürch 1993, GTHMO 1975). As Hans Hirter's analysis shows (Hirter 1984, p. 937), of the more than 6,000 claims made during all the strikes and protest movements in Switzerland between 1880 and 1914, topics related to VET appear only 47 times, while claims related to wages or working time are counted in thousands.

On the other hand, at regional level, we observe a widespread support for initiatives related to the improvement of workers qualifications. This support, based on the desire to improve working conditions and wages through a better qualification, materializes in an impressive

number of vocational courses for workers and apprentices, courses which took place in the evening or on Sundays and were organized by occupational workers' associations. However, this type of regional level commitment seems to have had relatively little influence on political positions at national level, where a more ideological interpretation of VET was put forward (Bauder 2008, p. 24 and p. 165), leading sometimes to critical positions against it.

Firstly, trade unions and left-wing circles justify not fully engaging in the issue of workers' training by specifying their priorities. Before engaging in issues related to training or education, it is *necessary* to improve the material conditions of the workers. In other words, as Robert Seidel (pedagogue, socialist politician and editor, among other activities, of the "*Arbeiterstimme*" the organ of the Socialist Party and the Trade Union Federation) points out, "you have to have enough to eat, you mustn't be freezing, if you want to have sense and feeling for education" (1881, p.2).

In this regard, what is striking when analysing the sources of the time is that the social argument, systematically evoked by bourgeois circles to promote vocational training (Cf. Comtesse 1890, Stocker 1917), which can be summarized as follows: "improving working, wage and living conditions through better training", is not at the center of the trade unions arguments. For them, the improvement of working and living conditions can only be achieved through negotiation, or through struggle, with employers; negotiation or struggle controlled and led by the trade union organisations in defense of all workers in a given sector. Adequate training or education were only possible after the improvement of conditions in the world of work. Training or education were not considered or fostered as a means to achieve an *individual* improvement in working conditions.

Secondly, the aims of VET were also often criticised for being too oriented towards ensuring good workers, docile to company bosses (*Arbeiterstimme* 19.2.1881), and insufficiently targeting "real" education: that is, according to Robert Grimm, one of the most prominent personalities in the Swiss labour movement: "the harmonious development of all physical, mental and spiritual abilities dormant in human beings" (1921, p. 13). A target that would require more general education and less workplace learning. It is from this perspective that we can read the support of trade union for full-time vocational schools, as well as the establishment from 1912 of the Swiss Centre for Workers' Education (Gschwend et al, 1987).

Finally, it should be noted that trade unions always also criticised workplace learning, a setting for learning that exposed young adults to exploitation and that was difficult for the authorities to control.

4 The first cantonal laws promoted by the handicraft milieus

Despite these criticisms, the first cantonal laws in the domain of VET and the first federal law of 1930, were largely approved by trade unions and left wing parties. Although these laws had been proposed mainly by handicraft milieus and right-wing progressive parties, besides economic aims – to improve production through better training –, they also comprehended measures to improve the *quality* of training and to ensure the *protection* of apprentices: measures largely supported also by trade unions.

To explain this, we have to consider that one of the main issues that pushed the professional associations to demand such laws was represented by the "unfair competition" that some "unscrupulous" bosses (Countess 1890, p.21) were making by exploiting apprentices as cheap labour force. Now, the response to this problem of unfair competition will entail a series of measures, in particular the regulation of the number of apprentices per company, of working hours and of the quality control of training, which were also desired by the trade unions for reasons of protection of apprentices. This convergence between measures against unfair competition and the protection of apprentices has certainly also contributed to trade

union support for these first laws in the domain. Besides, the debates at the time were strongly influenced by philanthropic arguments wanting to protect young adults from mistreatment and poor quality training. In this context, these measures were also part of a general strategy used by handicraft associations in order to strengthen their position against large-scale industry, which was less interested in controlling work conditions and in developing a high quality VET (Comtesse 1890). It should also be added that, in a period marked by the “Social Question”, these measures can be considered as social policy measures aimed at stabilising the socio-political climate, by helping young adults from the lower classes of the population to acquire good qualifications, to find better positions and achieve better living conditions, and thus to reduce protest movements (Bonoli 2015).

A closer look at these first laws on apprenticeship reveals some other interesting elements. We can affirm that these laws do not fully reflect the logic that characterised the class struggles of the time, which fact can also contribute to explain the support of trade unions and left-wing parties. In fact, these laws were still inspired by medieval guild apprenticeship in which the notion of "profession" played an important role (Stocker 1917; Ambrogini 1926). These laws did not aim only to train productive workers, but to introduce young people into a “professional community”. An introduction that must ensure quality training to improve the practice of the profession, but also to open the door to a career, by taking over the employer's company, by becoming independent or by taking exams to become a Master. The themes of a well-prepared succession for the professional community and of comprehensive training to ensure the necessary skills for independent work activities are also in the center of the debates that led to these laws (SGV 1895/1918).

5 Conclusion

The above-described elements help us to understand the role played by trade unions in the institutionalization of VET in Switzerland. They also help us to understand how the Swiss dual VET model developed, integrating, despite a low level of engagement of trade unions, not only economic aims but also social policy aims with measures to assure the quality of training and the protection of young people.

If we consider, in conclusion, the effect of the absence of a strong trade union actor in the negotiations at the origin of Swiss VET, in particular around the four neuralgic points already mentioned, we must recognize that the position of the handicraft associations was able to prevail at several levels: by obtaining broad control of the development of the sector (in particular of contents definition); by confirming on-the-job learning as a pillar of VET; by imposing apprenticeship conditions that ensure a profitable cost/benefit balance for companies; and by limiting the provision of general knowledge to ensure relatively specialised profiles. However, the dominant position of handicraft associations did not lead to a system focusing exclusively on economic performance. On the contrary, the specific socio-political situation of Switzerland around 1900 and the major challenges facing handicraft circles at that time meant that the first laws in the domain incorporated a kind of balance between economic and social aims, thus ensuring support from the trade unions.

Finally, these elements help us to understand the current situation in Switzerland, where trade unions still do not play a leading role in the domain, even though they take part in commissions and are regularly consulted, but where a balance between economic and social aims is always at the center of a conception of VET which is still largely shared by all the political orientations and which led in 2002 to the adoption in Parliament of the current VET law, with no opposing votes.

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Ferrández-Berrueco, R. & Humpl, S. (2019) . What are the companies looking for when collaborating with education? In F. Marhuenda & M.J. Chisvert-Tarazona (Eds.), *Pedagogical concerns and market demands in VET. Proceedings of the 3rd Crossing Boundaries in VET conference, Vocational Education and Training Network (VETNET)* (pp.143-147) https://doi.org/10.5281/zenodo.2641090

What are the companies looking for when collaborating with education?

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Abstract

This paper describes a first approach to what the entities (companies) that collaborate with universities expect or demand from this collaboration. The methodology used was the semi-structured interviews and focus groups conducted with a sample of Spanish an Austrian company representative of each of the relevant categories: Ownership and size of the company, production sector, academic sector of production and if they welcomed students from a single or several programmes. The preliminary results do not show any differences in expectations between the different profiles and countries. Thus, although in any case, Corporate Social Responsibility is named as the main reason for collaboration, expectations in companies involved in external placements are related to future staff selection and others. Nevertheless, although focus groups corroborated those results, content analysis provided a new question, maybe differences come from the type of collaboration, as companies involved also in the dual system seem to be in search of learning and innovation.

Keywords

dual system; external practices; employability; university-labour market relationship.

1 Introduction

Achieving a good relationship between the university and external companies collaborating in teaching (for external practices, preparation of study plans, etc.) is a prerequisite for improving the quality of the training offer and for improving the employability of graduates (EC, 2010; 2011).

However, this relationship is not always as fluid as it should be. Most of the time because universities do not understand what the companies expect from this collaboration and forget that their partners are not NGOs. However, it is also true that other times it is companies that are not fully aware of the potential benefits and impacts that can be obtained by collaborating actively.

These benefits, as literature informs, are related to *Economic factors* (i.e. enhance company productivity, getting free staff for some time, etc.) (Basit et al., 2015; Daley et al., 2016; Healy et al., 2014; Elijido-Ten and Kloot, 2015; Ferrández-Berrueco et al., 2016a; Siebert and Costley, 2013), *Corporate Social Responsibility (CSR)* (enhance the company social image) (Daley et al., 2016, Ferrández-Berrueco et al., 2016a,b; Healy et al., 2014; Garnett, 2016; Whittington and Ferrández-Berrueco, 2007), *Company modernization* (innovation and learning) (Basit et al., 2015; Felce, 2017; Ferrández-Berrueco, 2016a; ; Whittington and Ferrández-Berrueco, 2007; Antcliff et al., 2016; Geller et al., 2016; White, 2012 and Ions and Minton, 2012) and *Strategic planning* (search for future employees or good contacts in the university) (Daley et al., 2016; Elijido-Ten and Kloot, 2015; Felce 2017; Ferrández-Berrueco et al.,

2016a; ; Healy et al., 2014; ; Whittington and Ferrández-Berrueco, 2007; Geller et al., 2016 and Hegarty et al., 2011).

This communication describes the process we have followed in the EMBI project in order to obtain a first approach to what the companies that collaborate with the university expect or demand from this collaboration.

The project concerns the following three research questions:

1 What do collaborating companies expect when they collaborate?
2 Is there any difference on expectations considering the type of company?
3 Are company expectations remaining stable in different contexts?

2 Methodology

The methodology used was a survey sampling using both semi-structured interviews conducted with a sample of entities selected following a quota sampling and focus groups. In both techniques, we considered the attendance of one representative of each of the categories defined as relevant to the study: Ownership and size of the company, production sector, academic sector of production and if they welcomed students from a single or several programmes.

The survey was carried out in two stages, the first one, associated to the first research question, included exploratory semi-structured interviews to 46 Spanish companies collaborating with one university in external placements. The second phase, associated to the third research question, consisted of two focus groups, one in Spain (six participants) in order to find out more about the reasons for the obtained results and a second one in Austria (four participants) to find out if those reasons remain stable in other countries.

Data analysis was mainly qualitative although Chi-Square was applied in order to make a first approach to the second research question about the differences between types of companies. As no differences were reported, the second stage, that is the focus groups, were organized focussing on the difference of contexts.

3 Results

Interviews content analysis showed that main explicit motivation was related to Corporate Social Responsibility (84%) including answers as “social obligation” or “companies must take part of social development” but, implicitly, as interviews were progressing, the search of future employees was the most evidenced (80%), and SCR changed from “social duty” to “social image” (74.6%). The third place in expectations was related to the saving resources (61.1%), as salaries, work force, etc. Table 1 shows the percentage of the main answers collected.

Table 1 Interviews main answers associated to research categories

Category	Total answers	Sub-category	N	%
Motivation	46	Corporate Social Responsibility	39	84.8
Economic factor	54	Saving	33	61.1
		Investment	16	29.6
Transformation	79	Innovation	31	39.2
		Modernization	20	25.3
		Learning	14	17.7
Corporate Social Responsibility	59	Prestige	44 (35)	74.6
		Propaganda	11	18.6
Strategy	40	Future employees	32	80.0

Note. Number of answers differ from number of companies as one company could mention more than one sub-category in its response. The actual number of companies is included in brackets when they are different.

Statistical analysis of the answers did not show any difference attending the type of companies considered. So, we could organize the focus groups in a more unified way.

Comments from participants to both Focus Groups broadly corroborated the results obtained in the interviews. Thus, although these interviews just came from one country, we could conclude that companies' expectations were the same wherever they were placed.

Nevertheless, the Focus group carried out in Austria, showed a new variable that this research had not considered so far: that is the type of collaboration. Companies in the interviews collaborated only in external placements. This was a consequence that at the Spanish context this is almost the only way of extended collaboration with higher education. But in the Austrian case, dual system is also broadly extended, and companies collaborating also in dual system seemed to be much more aware of the need of learning and modernization.

4 Discussion

It has been shown that the connection between business and education is an actual need for improving employability. But this connection cannot be built only under education requirements. Companies collaborate as they expect something in return. This research shows evidence that these expectations are mainly related to the companies' strategy for future, social image and saving resources. This agrees to some of the previous theoretical results remarked by authors as Basit et al. (2015); Daley et al. (2016); Healy et al. (2014); Elijido-Ten & Kloot (2015); Felce (2017); Ferrández-Berrueco et al., (2016a, 2016b); Garnett, (2016); Geller et al. (2016); Healy et al. (2014); Hegarty et al. (2011).

We also have shown that these results seem to be similar in different types of companies and different contexts. Nevertheless, other new perspectives dealing with collaboration appear, as it seems that different ways of collaboration could bring different expectations. Thus, the Austrian cases that used to collaborate also in a dual system, pointed out also c*ompany Transformation* variables in their arguments.

Collaboration also defines the manifold roles of universities in society: Providing professional skills for a highly qualified workforce, taking social responsibility in training young people without restrictions and further development of disciplines and research. This raises new questions, some from technical issues: Is it possible to link expectations and types of collaboration? If so, which type of collaboration provides a wider engagement and benefit for companies? and for education? And, what about the students' dimension? How are they in-

cluded into the model? Are all the collaborations helpful in terms of learning opportunities? And others from ethical perspective: in case of conflict, which should prevail?

In any case, more research is needed, expanding the number of companies attending the same variables considered here and adding the type of collaboration. This is the only way that the connection between labour market and academy meet in a win-win relationship.

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Biographical notes

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Dr. Stefan Humpl is managing director and partner of 3s Unternehmensberatung GmbH and chairman of 3s research laboratory. His main topics in research are labour market and education system studies, and also supports the Austrian Public Employment Service through information about job and qualification trends via the AMS Skills Barometer (www.ams.at/qualifikationen), a labour market information and guidance tool that combines quantitative and qualitative information on the basis of a broad range of sources (meta-analyses). In international projects Stefan Humpl consults Cedefop (support to the Skillsnet group and to the Skills Panorama), DG EAC and DG EMPL, the UN, and the EU-Canada dialogue on Youth (with the special topic strategies against Youth Unemployment). He is experienced project manager in national and EU research and development projects in the area of education and labour market. He is consulting in curriculum design and strategic development of educational institutions (vocation education and training as well as higher education) and public bodies concerned with VET and HE, but also quality improvement in education through evaluation and feasibility studies. He was involved as expert in the development of the work-based learning toolkit (www.wbl-toolkit.eu) as well as in several activities for the European Agenda for Apprenticeships.

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VET and Business Strategies of Manufacturing Companies in Spain

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Abstract

The aim of this paper is to analyse the business strategies of Spanish companies in terms of Vocational Education and Training (VET), identifying and studying the general characteristics of Spanish manufacturing companies and their differences based on human resources employed with professional training. This analysis will be developed quantitatively, within the framework of the Business Strategies Survey of SEPI Foundation, which is an annual panel survey, aimed at industrial manufacturing companies based in Spain. The survey referred to 2016-2017 will incorporate, for the first time, some items related to VET, being surveyed 1800 industrial companies. This analysis will be developed from a knowledge economy approach. The contribution of this research makes to the field lies in its novel comparative approach and in the quantitative scale of the sample. Nevertheless, the research has its limitations and that it is necessary to continue study in this significant scientific field.

Keywords

vocational education and training; business strategies; manufacturing industry; productivity; innovation

1 Introduction

As established by the Lisbon Strategy (2000) and the current Growth Strategy (2010), the key to competitiveness, inclusiveness and sustainability lies in the capacity to create knowledge societies. In this context, companies face the constant challenge of achieving a competitive advantage which requires them to reflect on how to do it and conditions the strategies they adopt to do so. Firms' strategies vary widely and evolve in line with shifts in markets, economies and society in general. So, which path to choose? Specialisation or diversification, expansion or concentration, differentiation or cost, innovation or improvement?

In all these decisions and strategies, one factor remains constant and universal: the knowledge the company has access to (Grant ,1996; Nonaka and Takeuchi,1995; etc.) and, especially, the skills its employees possess (Leiponen, 2000; Murray and Steedman, 1998; etc.). The people who make up a firm are its driving force. It is they who reflect on, develop and implement the strategies selected. Aware of this, companies are increasingly putting mechanisms in place to discover what knowledge they need to achieve their strategic aims, whether or not they have it in-house and if they don't, how they can obtain it (e.g. through training, recruitment, outsourcing, and so on). In recent years, Europe-wide analysis has highlighted the importance of investing in vocational education and training (VET), revealing the positive impact it has on productivity and/or innovation as firms adapt to ever-greater digitisation, process automation and, in general, the incorporation of new technologies. It is relevant to note that empirical studies indicate that a positive of value creation (Jones, 2011; Wolter and Mühlemann, 2015; Cedefop, 2011; Mahlberg et al., 2009; Konings, 2008; Huerta et al., 2006; Zwick, 2006; Aragón-Sánchez, 2003; Alba-Ramirez, 1994), although the parameters of

analysis are diverse and heterogeneous and require further development, especially in the Spanish case.

In this highly demanding and competitive context, VET makes a key contribution to learning both because it delivers new cohorts of graduates of the formal VET system (aimed at young people and known as initial vocational education and training — IVET) and because it updates workers' knowledge throughout their professional lives through the VET for employment system (available both to those in work and those unemployed). While education's socio-economic importance has been studied extensively, VET has received limited attention and research has been disperse and fragmented. In the last decade, however, a new line of work has emerged that is making steady, albeit slow, progress. This is reflected in the Riga Conclusions, in which the EU has committed to enhancing the outcomes of VET (2015–2020) as regards the international competitiveness of the human capital emerging from VET programmes and achieving greater recognition for vocational qualifications. As a result, professional competencies and skills are now part of the European agenda for competitiveness and employment. Furthermore, studies are now under way into VET's economic and social benefits (New skills agenda for Europe, 2016).

In this context, this paper addresses the new sources of productivity available to Spanish industry, particularly against the background of analysis of the effects of knowledge spillover, as viewed from the perspective of the role played by employees' vocational training. The paper studies the business strategies of Spanish companies according to the qualification of the workers in terms of vocational education and training. First, it aims to identify and study the general characteristics of Spanish manufacturing companies and their differences based on human resources employed with professional training. Second, the aim is to analyse the differences in productivity, innovation and competitiveness of companies that have a higher proportion of personnel with professional training.

This analysis is part of a collaborative research project between the SEPI Foundation and the Bankia Foundation for Dual Training to gather information in relation to the professional training of workers in the manufacturing sector.

2 Methodology

This analysis is developed quantitatively, through econometric techniques, within the framework of the Business Strategies Survey, which is an annual panel survey, aimed at industrial manufacturing companies based in Spain.

This survey has been in operation since 1990 between the Ministry of Industry and the SEPI Foundation, having an annual average of 1800 industrial companies been surveyed using a questionnaire with 107 questions and more than 500 specific fields, and which also includes information on the firms' balance sheet together with their profit and loss statements. The SEPI Foundation preserves the consistency and quality of the time series and produces the corresponding 'Annual Report and Statistical Tables'. The ESEE's population of reference is composed of firms with 10 or more employees within the manufacturing industry. The geographical scope of reference is the Spanish economy, and the survey uses yearly variables. One of the most relevant characteristics of the ESEE is its representativeness. The initial selection was carried out combining exhaustiveness and random sampling criteria. Those firms with more than 200 employees were included in the first category. The second category was composed by firms employing 10-to-200 workers. These firms were selected through a stratified, proportional and systematic sampling with a random seed (SEPI, 2018). The ESEE is oriented towards capturing information about firms' strategies including information about (1) 'activity, products and manufacturing processes,' (2) 'customers and suppliers', (3) 'costs and prices', (4) 'markets, (5) 'technological activities', (6) 'foreign trade'', (7) 'accounting

data' and (8) 'employment' The last variable includes the number of employees working in the firm, its structure according to the type of contracts, their professional categories and qualifications, as well as other information needed to calculate the effective work-time during the year.

The survey referred to 2016-2017 incorporates, for the first time, some items related to VET, as a result of this piece of collaborative research between both foundations. The design of the 'Vet' items was elaborated for both foundations and the survey and statistical treatment was done by Sepi Foundation (Díaz-Chao and Torrent-Sellens, 2018). The analysis of the data is developed from a knowledge economy approach, allowing a better understanding of business strategies according to similarities and differences in VET keys; in terms of business characteristics and productivity, innovation, etc.

The contribution of this research makes to the field lies in its novel comparative approach and in the quantitative scale of the sample. Nevertheless, we are aware that the research has its limitations and that it is necessary to continue study in this significant scientific

3 Results and discussion

3.1 From a descriptive analysis

Firstly, one fifth of employees working in Spanish industry have VET qualifications. In total, 21.9% of staff employed in Spanish industry hold a VET qualification and 14.5% have a university qualification. The remaining 63.6% have either a school-leaving certificate (ISCED 2) or no qualifications at all. In short, most of Spanish industry's employees do not hold any qualifications, a situation that is accentuated in industrial SMEs (firms with 200 employees or fewer), where the figure stands at 66.6%. Therefore, it seems to be that training remains a challenge that industry has yet to address, as evidenced by the fact that around two thirds of people working in industry have no qualifications at all. Meanwhile, around one fifth of them have a vocational qualification and a further 15% are university graduates.

Secondly, in industrial SMEs most workers (66.6%) do not hold a qualification. The breakdown by level of education also reveals that 20.4% of employees hold vocational qualifications and 13.1% hold higher qualifications. For their part, in large enterprises (with over 200 employees) the breakdown reveals higher levels of education and training, although the number of staff without any qualifications remains significant (49.5%). In large industrial enterprises the proportions of employees with vocational or university qualifications stand at 29.5% and 21.0%, respectively. So far, as companies grow, so the number of employees with vocational or university qualifications likewise increases.

Thirdly, the data compiled also highlight that, when measured by percentage of companies, the breakdown of firms' human capital is clearly unequal. In around half of Spain's industrial companies, employees with vocational qualifications make up just 14.5% of the workforce. In contrast, in the 10% of firms at the upper end of the scale, the proportion of VET graduates rises to 58%. Similarly, in around half of Spain's industrial companies' university graduates account for merely 11% of the workforce. Conversely, in the 10% of firms at the upper end of the scale, the proportion of university graduates stands at 32.7%.

3.2 From the employment and human resource perspective

Firstly, it should be noted that vocational qualifications are associated with greater job stability. The proportion of salaried staff on permanent, full-time contracts is higher in companies that employ people with vocational qualifications (83.7% of the total).

Secondly, in addition to this greater job stability, VET is also associated with greater efforts to train employees. In firms that employ VET graduates, both internal expenditure per

employee (€81.40) and external expenditure per employee (€106.60) are clearly higher than in companies without workers with vocational qualifications.

Finally, the greater stability and emphasis on training in companies with staff with vocational qualifications also translates into higher salaries. Thus, in 2016, the average personnel cost per employee in these companies was just over €44,500, a figure 28.7% higher than among firms that did not employ VET graduates.

3.3 From the technology and innovation perspective

One of the first things to highlight about companies that employ staff with vocational qualifications is their greater propensity to invest in R&D. In total, 30.2% of industrial firms carry out and/or subcontract R&D. The data on R&D expenditure as a percentage of sales reveal a similar trend. For those companies that employ VET graduates, the ratio stands at 0.84%. The higher technology intensity among firms that employ personnel with vocational qualifications is clearly linked to their greater capacity to develop collaborative networks: 13.6% partner with VET centres, 17.1% with suppliers and 20.4% with universities and research centres. In addition, they also stand out for their greater capacity to evaluate technological change (20.1%) and to recruit staff with corporate R&D experience (6.3%).

The findings for R&D are replicated for innovation. In other words, innovation intensity is greater among firms that employ staff with vocational qualifications. It is worth highlighting here that nearly one in five (19.8%) industrial firms in Spain has an innovation plan in place. Another thing that distinguishes industrial companies that employ people with vocational qualifications is that they work on innovation in a variety of fields: product innovation (13.6%), process innovation (33.9%), organisational innovation (18.7%) and sales and marketing innovation (16.0%).

By implementing a value-generation process that makes more intensive use of human capital, technology, R&D and innovation, industrial firms that employ VET graduates could also be expected to perform better. The data obtained confirm that premise. Firstly, industrial firms with staff with vocational qualifications generate higher sales volumes (€63.5 million), create more gross value added (€13.9 million) and have more assets (€56.3 million) and employees (177.8 on average) than companies that do not employ people with vocational qualifications.

3.4 From the efficiency perspective

A second key finding is that industrial firms that employ personnel with vocational qualifications are clearly more efficient than those that do not. This becomes evident when analysing productivity figures per employee and per hour worked. While productivity among industrial companies that employ people with vocational qualifications stands at €63,500 per employee and at €36.30 per hour worked, among firms that do not employ VET graduates it is significantly lower (€42,600 per employee and €24.20 per hour worked).

4 Conclusions

These data reveal that VET has clear positive effects on the value that industrial firms generate through innovation and development of human capital, as well as boosting staff salaries and increasing business efficiency.

The contribution of this research makes to the field lies in its novel comparative approach and in the quantitative scale of the sample. Nevertheless, we are aware that the research has its limitations and that it is necessary to continue study in this significant scientific field.

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Marketization of Vocational Adult Education in Sweden

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Abstract

The focus of this paper is the organisation of vocational adult education on upper secondary level in Sweden, and specifically the process of marketization that has taken place here since the late 1990s. Swedish adult education on this level, including vocational as well as theoretical courses, is organised by the local municipality, but with national governing policies including a national curriculum. However, the courses and programmes *per se* are not necessarily organised by the municipality itself. There is a widespread system of procurement, which means that courses could also be organized by varying other providers, typically private training companies. That is, there are both private and public providers, but the training is paid for by the municipality, which also decides who will be admitted to different courses and has a responsibility for the quality assurance.

Keywords

marketization; adult education; vocational education and training; municipality

1 Introduction and background

The organisation of Swedish adult education has decisive differences in the ways market principles are applied, as compared to the development of compulsory and upper secondary school in Sweden, with a system of independent schools, which has been the main focus in prior research on marketization in the Swedish school system. There are a few studies that touch upon the topic of marketization of Swedish adult education and its consequences (e.g. Beach, 2004; Beach & Carlsson, 2004; Bjursell et al., 2015; Fejes, 2006; Fejes, Runesdotter & Wärvik, 2016; Lumsden Wass, 2004; Runesdotter, 2011), some of these with a focus on vocational adult education (Wärvik, 2013). The limited research on marketization of Swedish adult education is quite surprising bearing in mind that this quasi-market of adult education is large and encompass a high percentage of all students. In 2017, 45.9% of all students in municipal adult education (MAE) were enrolled in courses organised by a non-public provider, an increase from 14.4% in 1997. This can be compared to 25.2% of all students in upper secondary school being enrolled with an independent school in 2017 (Swedish National Agency of Education, 2019).

This paper is part of a research project that studies the marketization processes in Swedish adult education. Little is known about the present ways of organising vocational adult education in the Swedish municipalities, and our paper presents findings from the first step in the research project – a nationwide survey to the municipalities. In the project as a whole we are employing a policy ethnographic approach (cf. Ball, 2006; Beach, 1995; Gustafsson,

2003), an approach that also could be named trajectory study (e.g. Rizvi & Lingard, 2010). This approach is focusing the trajectory and transformation of policy, from the central context of influence to the local context of practice. In this first step we aim at providing an overview of how the national policy for the organisation of adult education is enacted on the local level, with a particular focus on vocational adult education.

The paper will answer the following research questions:

- How is vocational adult education organised in different municipalities in Sweden?
- How is educational counselling and quality assurance in vocational adult education organised in different municipalities?
- What character does the marketization of vocational adult education have in different municipalities?
- What differences are there between vocational and other adult education?

The analysis is based on data from a nationwide survey distributed to representatives for adult education in all Swedish municipalities (290), with 164 responses representing 201 municipalities (69%). (Some municipalities have a common organisation for MAE, and here one response represents more than one municipality.) The survey data is supplemented by background data from public statistics on the character of the municipalities, providing the basis for some comparisons between different types of municipality, mainly concerning size of population.

2 Results

2.1 The character of marketization of vocational adult education in municipalities

The survey results show that most municipalities in Sweden contract external providers for part of their MAE courses. Vocational education and training (VET), which is a part of MAE, have external providers to a somewhat higher degree than the general courses that mainly prepare for higher education. 29% of the responding municipalities organize most or all of the VET courses in MAE at their own municipal schools, while 34% mainly or only organize the general courses in MAE at their own schools. In the largest cities, 40–50% of MAE VET is organized by external providers.

These external providers are typically selected in a procurement process (in 77% of the municipalities). However, some of the larger municipalities have introduced a system called authorization. Procurement is in most cases organized with external providers submitting a description of courses they want to organize, based on criteria decided by the municipality, and the price for this. Thereafter, the municipality is choosing the provider with the lowest price that also fulfils the predefined criteria.

In the system of authorization, the municipality decides the price for each course/student, and defines criteria to be fulfilled for authorization as a legitimate provider of the course. When the municipality has authorized the providers, they have to recruit their students. The system of authorization means that the municipality does not have to spend time and resources on an extensive procurement process, but the result could also be that there are plenty of providers of the same course in one municipality. In some municipalities there are 30–40 providers that offer potential students a lot of courses and programmes. One municipality using this system has answered that they have 4,000 courses and 600 programmes (including apprenticeship VET programmes, but the figures include VET as well as general education).

2.2 Organising vocational adult education in different municipalities in Sweden

VET within MAE is rather extensive in Sweden. Most (76%) of the municipalities that responded to the survey have up to 300 students in VET for adults, but some larger municipalities have more than 1,500 VET students. However, there are still more students in general courses than in VET courses. Almost all municipalities (99% of those who responded) are also taking part in the national VAE initiative (vocational adult education, in Swedish *Yrkesvux*), a targeted initiative where municipalities can apply for and receive state subsidies for more study places in VET for adults. There has also been an option to use the subsidies for a combination of VET courses and courses in Swedish for immigrants, as a response to the high number of refugees that have arrive in Sweden last years. The condition for these state subsidies for VAE is that at least three municipalities have to build a partnership to cooperate in planning and organizing the courses. One of these municipalities are responsible for a common application, and reporting, for these VET courses, but the municipalities that cooperate share responsibility for fulfilling the requirements for subsidies.

It is relatively common that MAE is organized as distance courses. Among the responding municipalities, 66% say that VET is organized as distance courses to some extent, compared to 73% for general courses. Distance courses in VET to some or a high extent is more common in smaller than in larger municipalities, a pattern that we cannot see for general courses.

In larger municipalities, it is common that the same course is arranged by more than one provider. Many municipalities indicate that they – thanks to the fact that they have more providers – almost always can offer a study place for all applicants. Particularly, this is true for courses on compulsory school level (which actually is compulsory to provide for adults who lack this level of education), and for general courses on upper secondary level (which is not compulsory to provide). A number of municipalities have indicated that there are restrictions concerning study places in VET for adults.

In most municipalities (according to the survey results), adult students are free to choose between providers. If a (potential) student is not admitted at the school/provider they applied for, they normally have to apply again at the next opportunity, but it is also quite common that the person is offered a study place at another provider (in 24% of the municipalities) or in another municipality (30%). Many municipalities also buy single places in MAE VET in other municipalities, which are paid for via an inter-municipal agreement.

2.3 Educational counselling and quality assurance in vocational adult education

2.3.1 Counselling

Most municipalities have a common organization for educational counselling for all MAE (85% or responding municipalities). The counsellors are situated at the providers or centrally in the municipality. A number of municipalities have replied that they have a demand on the providers to offer educational and work counselling for their students, but it is formally the municipality that is responsible for educational and work counselling to be available.

In the open questions in the survey, we can see that the educational counsellors might have a central role in the admission process for MAE. The counsellors also have an important role as support for the students during the courses, by following up study results.

2.3.2 Quality assurance

The most common methods of quality assurance in the municipalities are student surveys (used in 84% of responding municipalities) and statistics concerning output (78%). In addi-

tion to this, quality assurance is conducted through report meetings (62%), written reports from providers (54%), site visits at the providers (49%), and surveys to providers (42%). More than half of the respondents do not make site visits at the providers for quality assurance. In addition to these ways of quality assurance, answers to open questions show that there is also quality assurance through statistics of grades and follow-up of employment rates after studying in adult education.

Most municipalities that have answered the survey (68%) have not taken any specific measures based on the quality assurance work. However, measures to secure quality, and sanctions for providers as a result of lacking quality, are more common in the large city areas than in small municipalities. Measures taken due to lacking quality are for example to set up an action plan, a fine order, discontinued admission, or that the contract is cancelled.

3 Discussion

The findings from the survey show that the marketization leads to a flexibility for adult education with a freedom of choice for the students regarding study pace and form, while there are good opportunities for adults to be admitted to VET as well as general courses in MAE. However, the marketization causes problems for the municipalities who have difficulties fulfilling the demand for flexibility. Large organizations and appeals to procurements, short-term contracts that make it difficult to plan, as well as the risk of over-establishment are other problems described in the wake of the marketization. There are also answers that suggest resource shortages in MAE. In some municipalities, adult education is described as 'invisible' in relation to upper secondary education, others describe problems with recruiting qualified teachers for MAE and some that there are no resources for students in need of special support.

The national VAE initiative has led to cooperation between municipalities regarding MAE and has increased the opportunities of adults for admission to VET. However, the short time frame of subsidies received for VAE makes it difficult for the municipalities to plan and arrange MAE VET. There is also a requirement for co-financing from the municipalities to receive the subsidies. The model used for this is described as very costly for smaller municipalities and therefore limits the study places in VAE.

Educational counselling and quality assurance are key elements in MAE. In the marketized flexible adult education with a wide variety of education programmes and several providers who offer the same courses, some at distance, some at semi-distance, some in school, the counsellor is described as having an important role in guiding (potential) students in choosing providers, programmes and courses (when, how, where). The counsellor also follows up on the students' learning outcomes, helps them with course changes, problems etc. In cases with restrictions concerning study places in MAE VET the study counsellor can also have a role to act as a gate-keeper in the selection process.

The large number of providers in MAE also place high demands on quality assurance. The survey shows that the quality is largely 'student cantered' with a focus on student surveys and statistics concerning output. However, it is not so common to make site visits at the providers for quality assurance. In some of the survey answers, shortages both in the quality of education and quality assurance by external educational providers are described. Some of the open answers of the survey also describe problems with cheating when it comes to the grading of courses. 'We often see that students coming from other municipalities with grades from procured private providers receive grades in courses they should not have. It's cheated. […] Every time that happens we break a bit. I have lots of similar examples. It is really, really hard then to keep the banner high.'

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The model of knowledge in the career choice process – a theoretical and empirical further development

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Abstract

Choosing an occupation appears to be a big challenge for young adults. For a successful school-to-work transition extensive knowledge seems to be necessary. The newly designed model of knowledge in the career choice process describes different forms of knowledge as a result of enhanced efficacy beliefs and intense career choice activities (information readiness and exploration). Along this model expectation, five different forms of knowledge relevant to the career choice will be explained. In the analysis, based on a data set with 493 young adults in grades 7-12, the five models were confirmed and acceptable proportions of the explained variance were determined. For the practice of career guidance and counseling, these results mean that intervention should aim at strengthening the self-efficacy. Therefore, concrete pedagogical intervention possibilities and ideas for increasing self-efficacy are presented.

Keywords

career choice; self-efficacy; exploration; knowledge

1 Introduction

The article deals with the question how self-efficacy and outcome expectations are related to behavior in the career choice process and knowledge. These findings should simplify a successful school-to-work transition for young adults and are intended to point out new aspects of their skills development. Based on the theoretical considerations on the first development of the model of knowledge within the career choice process and its empirical analysis by Struck (2016, 2017) the transferability of the model relationships to four additional knowledge dimensions will be examined.

If relationships between self-efficacy and career choice activities as well as knowledge can be confirmed, this results in possibilities of educational intervention for practical implementation in public or private educational institutions in order to be able to support young people in their career choice process.

2 Theoretical Background

The construction of the model of knowledge in the career choice process is based on the theoretical expectations and models of the social cognitive career theory (SCCT) by Lent, Brown and Hackett (1994, 2002) and is therefore designed as a path model. The social cognitive career theory by Lent et al. (1994, 2002) argues that self-efficacy and outcome expectations influence the behavior during the career choice process. Bandura (1997) describes self-efficacy as the attitude of a person to direct his/her focus consistently and successfully on an

activity. Self-efficacy has an effect on motivation as well as on effort and the perseverance required in problem solving.

The models of the social cognitive career theory therefore contain self-efficacy as a central/major variable. Along with the two effectiveness beliefs (self-efficacy and outcome expectations) and the career choice activities (information readiness and exploration) five different forms of knowledge relevant to career choice will be explained. The model describes the acquisition of knowledge as a result of enhanced efficacy beliefs and intense career choice activities. Information readiness as a motivational requirement together with exploration as an activity to discover the self and the environment are important conditions for an individually successful school-to-work transition.

The knowledge model is based on the model concept of the SCCT but will be modified. In social-cognitive career theory interests and goals (influenced by self-efficacy and expected results) are seen as prerequisites for achieving performance or satisfaction. Following on from this, the process variables of interests and goals vary in the sense of the scientific interest in order to be able to explain knowledge. The career choice activities, information readiness and exploration, are regarded as suitable to illustrate the readiness of the active engagement with the occupation choice. Knowledge (here: knowledge about the desired occupation) arises as a result of increased conviction in one's own abilities and as a result of intensive career choice activities and is therefore suitable as a endogenous variable in the model (Struck 2016, 2017).

3 Model development, procedure and methods

Following the theoretical preliminary, reflections of the development of the knowledge model and its empirical analysis with the endogenous variable knowledge about the desired occupation by Struck (2016, 2017), this article examines the extension and transferability of the model contexts to four further (additional) knowledge dimensions. For this purpose, the endogenous variable varies in every path model: In addition to knowledge about the desired occupation, the dimensions self-knowledge, conceptual knowledge, conditional knowledge and planning competence are used in the sense of a further development. The model fit of the five models and the proportion of explained variance of the five endogenous variables along direct and indirect effects in the model will be verified. If the endogenous variable can vary over the five dimensions of knowledge in the career choice process, while the five models can be confirmed by the analysis, this result increases the meaning, importance and content expressiveness of the model in general.

If the extension and transfer of the model contexts to other forms of knowledge, which is relevant to the career choice process, is successful this will increase the significance of the model in terms of content for the practice of vocational counselors and teachers in educational institutions.

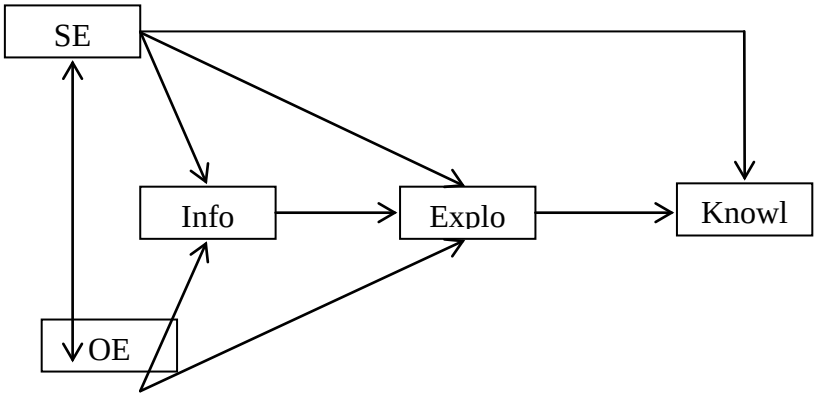

Figure 1 The model of knowledge in the career choice process (cross-section)

SE=self-efficacy, OE=outcome expectations, Info=information readiness, Explo=exploration, Knowl= different forms of knowledge (knowledge about the favored occupation, self-knowledge, conceptual knowledge, knowledge of condition or planning competence), varies in every path model.

The empirical verification of the drawn model in Figure 1 is performed via path analysis on one cross-sectional data set of 493 young adults in grades 7-12 from comprehensive schools and high schools (mean age: 15.6 years, 51.7% female).

The questionnaire recorded nine scales with 63 items and used a self-assessment process. Five scales are part of the concept to measure the career choice competence (in German: *Berufswahlkompetenz*) by Ratschinski (2008, 2012).

These scales are as follows:

- Self-efficacy, a 12-item scale by Fouad, Smith & Enochs (1997)
- Outcome expectations scale with 5 items by Fouad et al. (1997)
- Information readiness, using a 5-item scale by Seifert & Stangl (1986)
- Exploration using a 6 item scale by Kracke (1997)
- Knowledge about the favored occupation via a 9-item scale developed by Seifert & Eder (1985)

In addition, the dimensions of self-knowledge (9 items), conceptual knowledge (6 items), knowledge of condition (7 items) and planning competence (4 items) by Lipowski, Kaak, Kracke and Holstein (2015) are used in the questionnaire.

4 Results

Table 1 Analyze of mean, standard deviation (SD) and estimate of the reliability (alpha)

	Mean	SD	Alpha
self-efficacy	3.17	0.40	.80
outcome expectations	3.28	0.43	.63
information readiness	3.51	0.37	.55
exploration	3.16	0.50	.74
knowledge about the favored occupation	2.88	0.64	.90
self-knowledge	3.17	0.52	.84
conceptual knowledge	2.86	0.60	.81
knowledge of condition	3.01	0.69	.88
planning competence	2.66	0.75	.76

Range of means: 1-4

Table 1 shows the means, the standard deviation and the reliability of the nine scales: Especially the self-efficacy and the different forms of knowledge clarified a high reliability. The results of the reliability of the scales outcome expectations and information readiness were not to be expected like this, because these scales had been more reliable in further studies, for example in Struck (2016, 2017) or in Ratschinski (2014).

The relationships between the variables were analyzed using regressions and path models. Path analyses offer the advantage of indicating the strength of the standardized regression

coefficients as well as the proportion of explained variance of the dependent variables and provide additional information on the model fit.

The analysis confirmed the five models and found an acceptable proportion of explained variance of the five endogenous variables. The model with the endogenous variable planning competence shows the best adaptation to the data (χ^2=0.82, df=2, p=.66, RMSEA=0.000, CFI=1.00, r^2=.20), the highest proportion of explained variance is achieved by the endogenous variable self-knowledge (χ^2=6.81, df=2, p=.03, RMSEA=0.070, CFI=0.99, r^2=.37). In addition, the other three models fit also well to the data, likewise the models with the endogenous variables conceptual knowledge (χ^2=9.15, df=2, p=.01, RMSEA=0.085, CFI=0.99, r^2=.24) and knowledge of condition (χ^2=6.22, df=2, p=.04, RMSEA=0.066, CFI=0.99, r^2=.22). Furthermore, the adaption of the model with knowledge about the favored occupation (χ^2=12.44, df=2, p=.00, RMSEA=0.103, CFI=0.98 r^2=.20) shows an acceptable result, especially because this model has been verified before in Struck (2016, 2017).
The results underline the expressiveness of the model: Between 20% and 37% of the variance of the endogenous variables can be explained. The development and compilation of the model of knowledge in the career choice process is theoretically comprehensible and empirically provable. With the theoretical model development and its second empirical verification and confirmation a research desideratum could be closed. The meaning for the career choice process is crucial because the model, with its individual direct and indirect relationship expectations between the different variables of the effectiveness beliefs and the career choice activities, can explain all-important forms of knowledge needed in the career choice process. The adaption and transferability of the model relationships to four additional knowledge dimensions had been successful. Also, because of its second verification, the model can be seen more in a sense of generalization, respectively more universally applicable.

5 Conclusion

The designed and confirmed model of knowledge in the career choice process describes different forms of knowledge as a result of enhanced efficacy beliefs and intense career choice activities. In this way, knowledge (over all the five forms) is the result of increased beliefs in their personal abilities and the result of intensive career choice activities. The assumed relationships in the model of knowledge in the career choice process could be transferred to four additional dimensions, which underline the expected relations of the efficacy beliefs to the career choice activities and to the different forms of knowledge.

The results also confirm the important role of self-efficacy by explaining the activities and knowledge: Young adults are more active in their career choice process when they feel confident about their abilities and as a result of their activities they achieve a higher level of different forms of knowledge. Self-efficacy determines the level of readiness and activity to cope with challenges in the career choice process as well as the five different, relevant dimensions of knowledge. For the practice of career guidance and counseling in educational institutions such as schools or independent educational institutions these results mean that intervention should aim at strengthening the self-efficacy: After determination of self-efficacy, young adults can be encouraged and supported individually. If teachers, parents or career counselors try to increase the knowledge (and the activities) to support young adults in the career choice process, they can use the sources of self-efficacy by Bandura (1997). The first source (past performance) is the most effective possibility to increase the self-efficacy. Young adults should gather their own experience and knowledge in different vocational and career decision tasks to get the experience of being successful using their own abilities. Furthermore, teachers and parents can show positive role models with similar, important characteristics (for example background, gender and age) to improve self-efficacy (second source of self-efficacy: vicari-

ous experiences). The role model demonstrates that another adolescent has been successful in this task before, like the career choice decision or the school-to-work transition. In addition, verbal persuasion (third source of self-efficacy) can help young adults and could be practiced by teachers and parents. Moreover, for both aspects peers and peer education are useful. People in the same age (peers) can be better modeled and understood, their credibility is higher and they are more authentic in problem-solving. In general: Enhanced efficacy beliefs are helpful in contributing to education and the school-to-work transition of young adults, as they allow individuals to make independent and profound career decisions.

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Abiétar-López, M., Giménez-Urraco, E. & Navas-Saurin, A. (2019). Family educational backgrounds and family support in basic VET: Students' perception. In F. Marhuenda & M.J. Chisvert-Tarazona (Eds.), *Pedagogical concerns and market demands in VET. Proceedings of the 3rd Crossing Boundaries in VET conference, Vocational Education and Training Network (VETNET)* (pp.164-170) https://doi.org/ 10.5281/zenodo.2640905

Family educational backgrounds and family support in basic VET: students' perception

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Abstract

Through this communication we intend to relate the educational background of the families of basic VET students with the support that these students perceive their families offer them for their professional education and training. Having this main objective, we will expose data that allow us to outline the state of the issue on the basis of the empirical evidence obtained in the field work developed in the research "Success and dropout pathways in vocational training educational systems levels 1 and 2" (EDU2013-42854-R). Overall, the results presented allow us, firstly, to describe the families of basic VET students in terms of the educational level attained. Secondly, the crossing of this variable with the various aspects through which we describe students' perception about the family support allows us to evidence differences related to the educational background of the families.

Keywords

vocational education; educational background; family support; student's perception

1 Family educational background and student's perception of family support

Following Castel's work (1997), both labor integration and the strength of the relationships among individuals and their family and social environments determine the situation of integration, vulnerability or exclusion. Basic VET, as one of the measures addressed to attend diversity, prioritizes the permanence in the educational system, even if it implies the reduction of demands and expectations. Permanence by itself, despite reducing school failure rate, does not allow students to gain neither personally nor professionally achievements due to the constraints to develop a career. Thus, this educational context generates a type of devalued citizenship, which keeps basic VET students in a space of social vulnerability.

This paper is focused on the influence of family context on the decisions and itineraries of basic VET students. The approach to the family accounts for the relationship between their educational background and the student's perception of family support.

In relation to the family educational background, data about our educational system show the relevance of the educational level of the mother. Specifically, in 2017 the rate of Early School Leaving was located in the 3.8% in the case of young people whose mothers reached higher education, moving to a 11.3% in the case of post-compulsory secondary education, 20.7% for those whose highest level attained was compulsory secondary education, and 37.3% when they had maximum primary studies (Ministerio de Educación, Cultura y

Deporte, 2018). The data obtained through the questionnaires may enable us to transfer these analyses to basic VET in the Valencian region.

1.2 The research: main framework and methods

The data that we present in this paper have been obtained in the framework of the research project "Success and dropout pathways in vocational training educational systems levels 1 and 2" (EDU2013-42854-R). The objectives of this project, in which are involved the Universitat de les Illes Balears, the Universitat Autònoma de Barcelona and the Universitat de València, are aimed at describing those students that attend VET and the conditions that involve the development of their itineraries in this training, as well as to develop proposals to reduce school failure and early school leaving.

In order to fulfill these objectives, our research team is developing a longitudinal study in which we monitor students who began their studies in the academic year 2016-17 in VET systems 1 and 2 in a specific territory (in our case, in the Valencian region). As specific research methods, we are handing out questionnaires to the students and interviewing teachers and the management team of the educational organizations. We have completed this approach with data analysis in order to contextualize the phenomenon studied.

The data on which we base the analysis presented in this paper correspond to the results of the first pass of questionnaires, which was conducted between November 2016 and February 2017. In the definition of the research sample, we conducted a stratified sampling by conglomerates based on three criteria: the professional branch of the program, the location of the educational organization and its ownership. On the whole, this allows us to have a representative sample of VET level 1 and 2 in the Valencian region. Specifically, in VET level 1 we have 737 students distributed in 71 classes of 41 educational organizations and in VET level 2 we have 1240 students distributed in 85 classes of 43 organizations. In most of these organizations, both VET level 1 and 2 are taught. We will present here the data concerning VET level 1 (basic VET).

The theoretical framework of the research is based on the concept of student's engagement. In order to approach the concept, we consider four dimensions: affective, behavioral, cognitive and academic (Appleton, Christenson, Kim & Reschly, 2006). These dimensions are on the basis of the Questionnaire 1 (Q1). The questions relating to student engagement were complemented with questions relating to socio-demographic characteristics (age, sex, family situation). On the whole, this allows us to relate the context, the student engagement and, when data of Q2 and Q3 are available, also with the itineraries performed by the students.

2 Main results

As explained above, the results presented are based on the results obtained in the Q1. We start with the description of the basic characteristics of the sample concerning the educational background of the mother and father (figure 1).

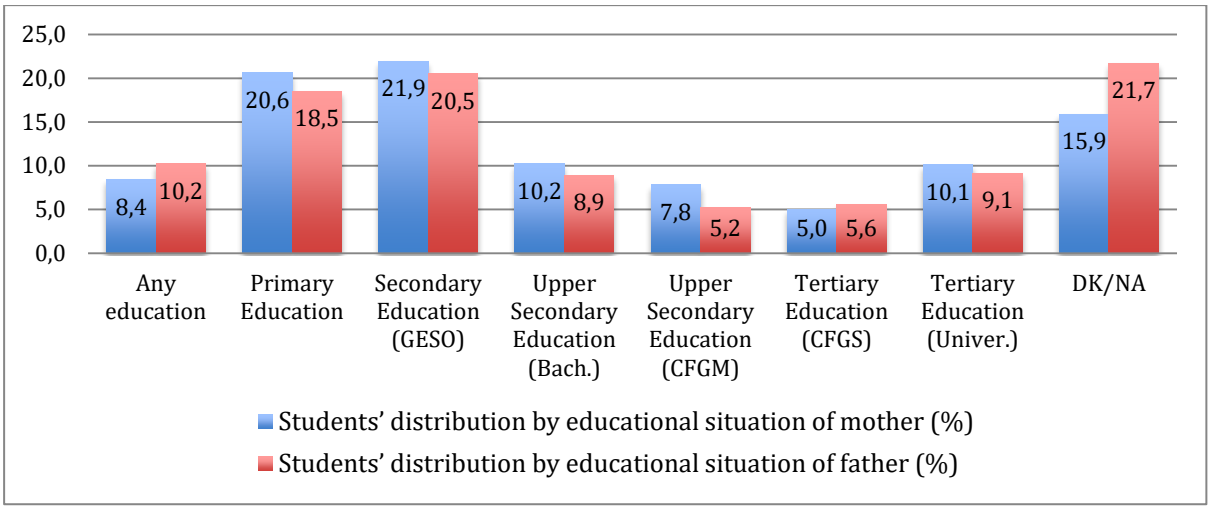

Figure 1 Student's distribution by educational level of their parents

Data show that the educational level of the families stands around the Secondary Education: 50.9% of mothers and 49.2% of fathers are in the first three levels. It is also significant to highlight the students' lack of knowledge of their parents' educational level: 15.9% in the case of mothers, 21.7% in the case of fathers.

In order to broaden this description, we have crossed variables to see the answers of the students regarding their perception of the family support based on their educational level. Specifically, we present in the figures below the results for two items: "My family is available when I need it" (figure 2 and 3) and "When I have problems in high school, my family is willing to help me" (figure 4 and 5).

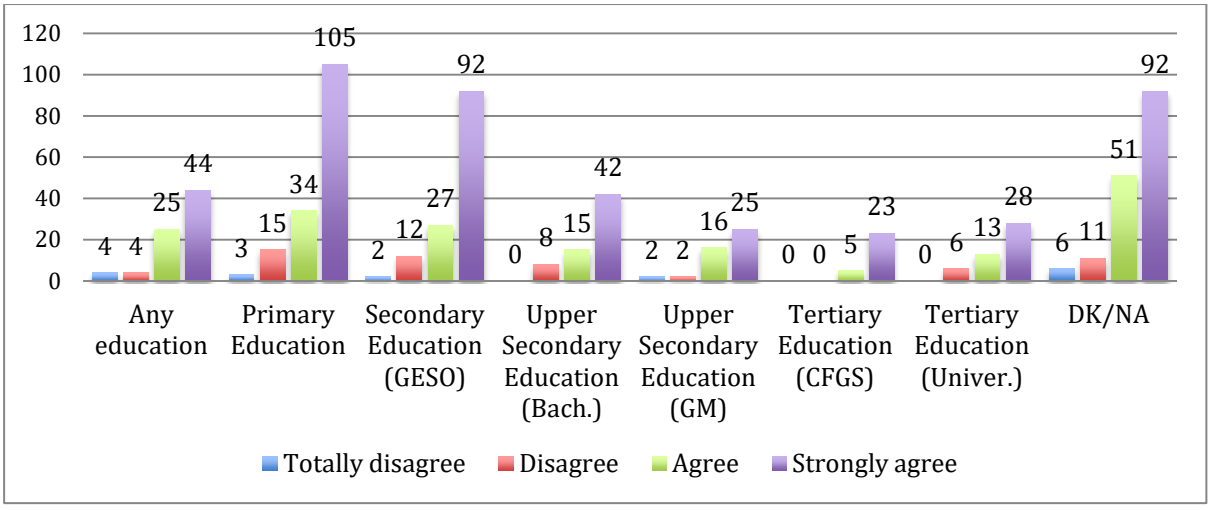

Figure 2 Agreement / disagreement with "My family is available when I need it" by level of studies of the respondent's mother

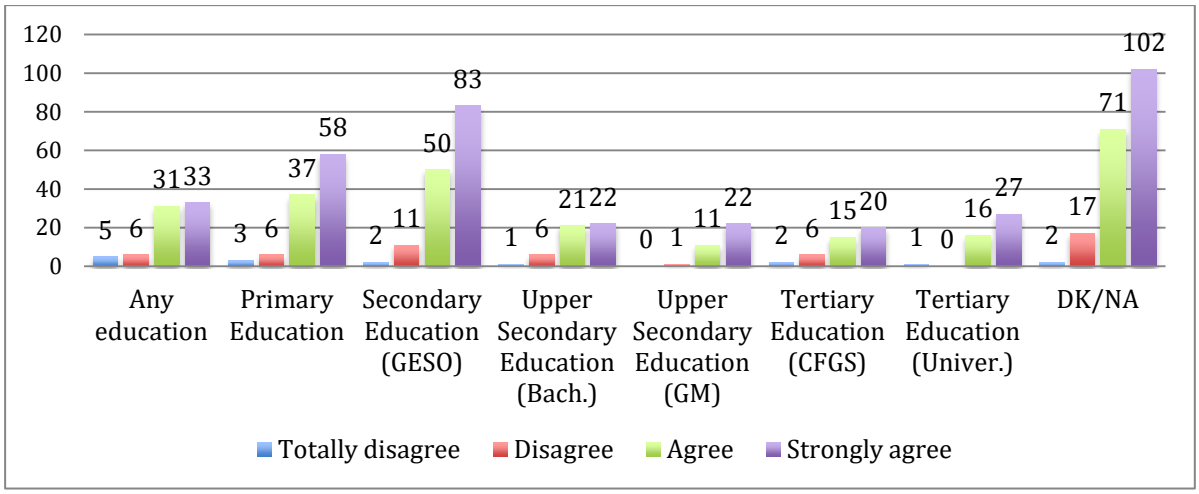

Figure 3 Agreement / disagreement with “My family is available when I need it” by level of studies of the respondent's father

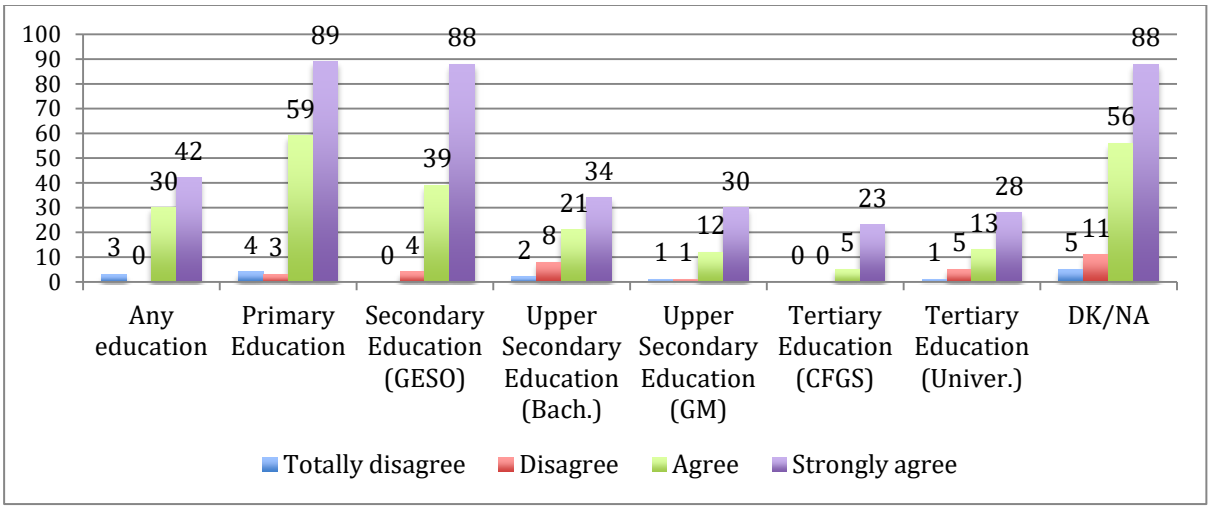

Figure 4 Agreement / disagreement with “When I have a problem in High School, my family is willing to help me” by level of studies of the respondent's mother

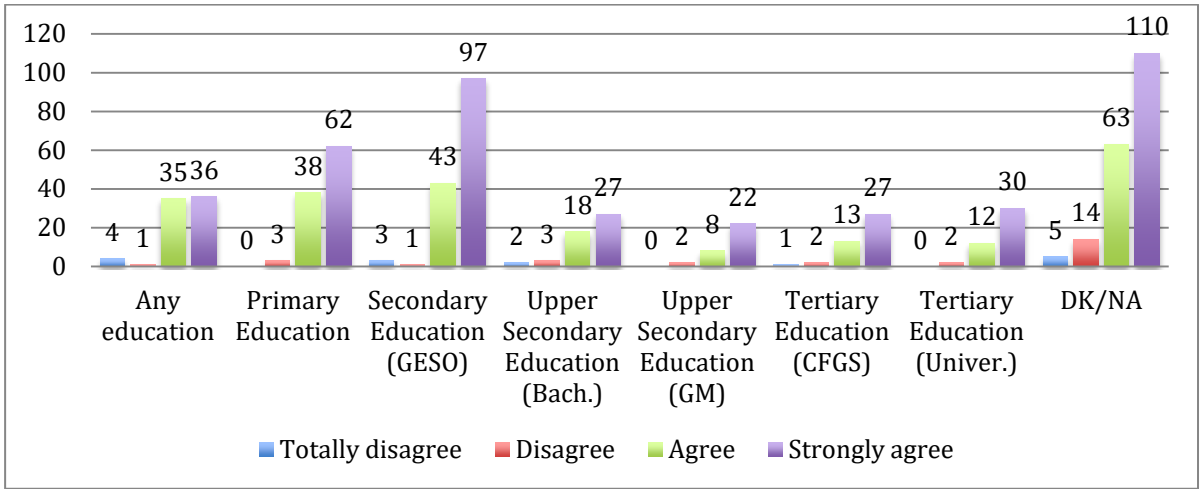

Figure 5 Agreement / disagreement with “When I have a problem in High School, my family is willing to help me” by level of studies of the respondent's father

The data show that the students' perception is positive, prevailing in all the educational levels of their parents the agreement with the statements raised. We could point out slight differences in the several educational levels in those answers that indicate disagreement; although the general trends remain quite similar. In this sense, therefore, the educational level of the families does not seem to be determinant in the students' perception of the support. In fact, this trend is maintained in other similar statements of the questionnaire such as: "When something good happens at High School, my family wants to know", "My parents (or persons who fulfill their functions) expect to continue my studies for as long as possible"; "For my parents (or persons who fulfill their functions) it is important that I pass the course".

However, it should be also noted that there is a statement in which this trend varies: "My parents (or persons who fulfill their functions) know when I have homework or tests" (figures 6 and 7). Here, there is a higher rate of disagreements. Although we have only a descriptive approach, we could think about differentiating the perception of family support with the follow-up that may involve actions such as knowing when the student has homework or exams. In view of these data, students perceive support from their families although they are not involved in the school issues per se. Therefore, this support could be related to the training program more than with the day-to-day student's reality.

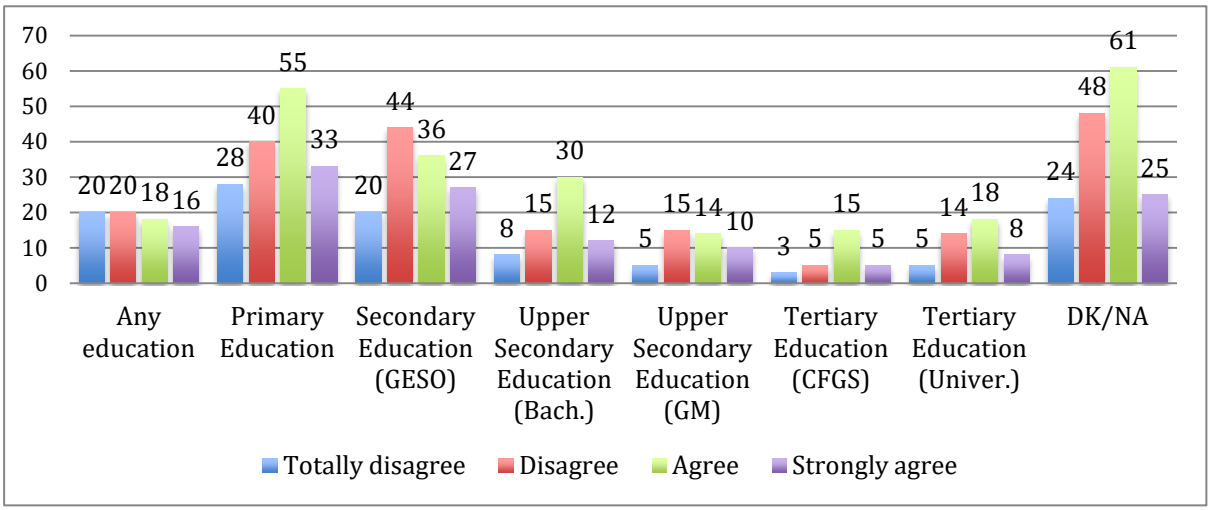

Figure 6 Agreement / disagreement with "My parents (or persons who fulfill their functions) know when I have homework or tests)" by level of studies of the respondent's mother

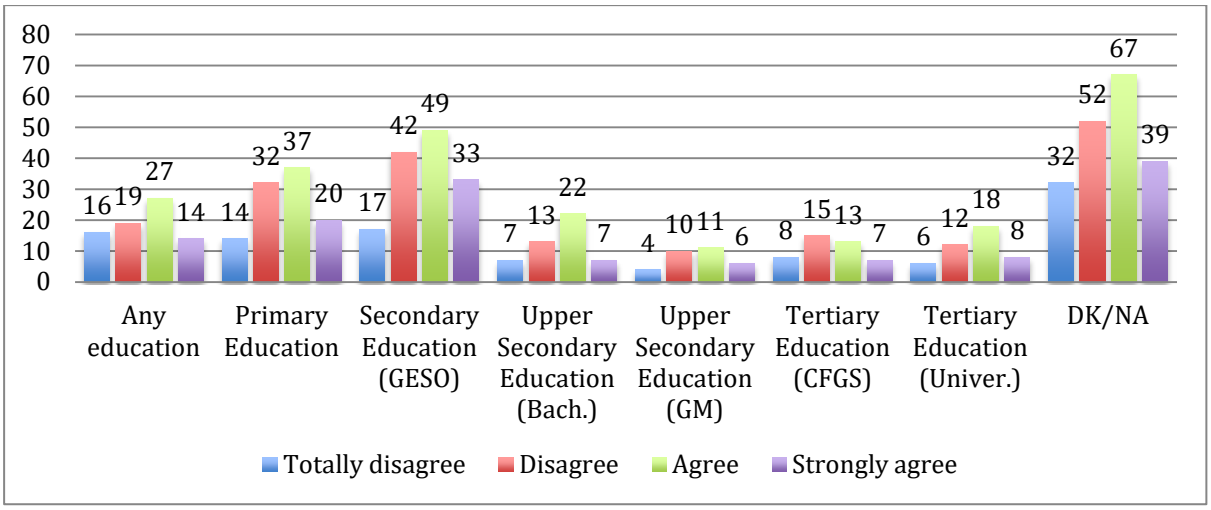

Figure 7 Agreement / disagreement with "My parents (or persons who fulfill their functions) know when I have homework or tests)" by level of studies of the respondent's father

In order to deepen the results and transcend the descriptive scope, the research team is currently working on the data analysis. In this regard, an inferential analysis is being carried out in order to be able to interpret the results. For now, we can point out that in terms of significance the first analyses indicate that students with mothers without studies are the group with the lower perception of family support and parental commitment. In the same vain, students with fathers without studies show a perception of less parental commitment than other students. However, for this group, the differences in family support are not statistically significant. All in all, these results suggest that we need to complete these statistical analyses with a qualitative approach to deepen in the results.

3 Brief conclusions

The description of the data presented here allows us to conclude in two ways: first, we may affirm that basic VET families have mainly an educational level that could be placed at level 0-2 of ISCED11. Secondly, regarding the students' perception of family support, a positive perception stands out, and it is quite similar in all the educational levels.

However, we need more approaches and analysis to deepen this study. For instance, regarding the inferential analysis that are being carried out, we may wonder if the educational context still do not include in their curricular design those actions needed in order to integrate those families with lower educational levels in the school context. Therefore, the continuity of this research goes through questionnaires 2 and 3 and through a qualitative approach through group interviews and discussion groups that will allow us to delve into the results with the purpose of obtaining interpretative keys about the students' engagement and also to be able to assess the role that family plays in the students' itineraries.

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Nore, H. & Lahn, L.C. (2019). How can apprentices learn and develop professional competences through ePortfolios? In F. Marhuenda & M.J. Chisvert-Tarazona (Eds.), *Pedagogical concerns and market demands in VET. Proceedings of the 3rd Crossing Boundaries in VET conference, Vocational Education and Training Network (VETNET)* (pp.171-175) https://doi.org/10.5281/zenodo.2641862

How can apprentices learn and develop professional competences through ePortfolios?

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Abstract

Work-based learning is an important part of vocational education and training in many countries. As such, trainers have responsibilities that go beyond instruction and include learning support and feedback, as apprentices need to reflect on their professional development and responsibilities. Different kinds of ePortfolios are designed to support learners and trainers in developmental processes, promote knowledge sharing and underpin transferable skills as part of a professional competence. In this paper, we will discuss the impact of different designs: developmental, accounting, assessment and management tools. We will link the discussion to the underlying understandings of what is competence or professional competence in the different types of tools. Finally, we will look into the learning potential in ePortfolios.

Keywords

ePortfolio; innovative apprenticeship; transferable skills; professional competence

1 Introduction

There is an increasing use of ePortfolios, both in higher professional education (van der Schaaf, 2019) and in vocational education (Schwendimann et al., 2015), brought in as innovative ways of linking work and learning (Attwell & Pumilia, 2007). Even though our study is from a Norwegian context, the discussions on how authentic experiences combined with reflections, mediation of meaning and a deeper understanding of work processes and learning to learn are universal (Elsholz & Knutzen, 2010; Billett, 2014).

The paper is based on data from a former study on quality in VET where we interviewed apprentices, in-company trainers and training offices and used documentary evidence from e-portfolios, local training plans, task descriptions, assignments and assessment schemes for validation and elaboration (Lahn & Nore, 2018).

In this paper, we will first introduce the Norwegian context for learning through apprenticeship, then the use of ePortfolios, followed by contrasting understandings of vocational and professional competence. The final discussion reflects two research questions: What kind of learning processes take place when apprentices and trainers use different types of ePortfolios? In what ways do apprentices learn to be professionals by using ePortfolios?

2 Hybrid learning arenas in Norwegian VET

In vocational education and training (VET), students and apprentices learn in different contexts: partly in schools, partly in training enterprises and partly through digital media. The amount of learning in each arena differs from country to country. For example, in Norway we have a sequential dual model with two years in VET schools, followed by two years of ap-

prenticeship in enterprises. In addition, a work-based subject is added for the school-based part, which means that approximately 1/3 of the vocational schooling in the first two years is work-based in enterprises. When entering apprenticeship, approximately 80% of the apprentices sign a training contract with a training office on the one hand, and a work contract with an enterprise on the other. The training offices hold the responsibility for the training according to state regulated curricula and quality standards set by the owners of the training offices, which are the training enterprises. The training enterprises hold the responsibility for the instructions and follow-up of apprentices in daily work. Training offices offers consultancy and support to the enterprises and apprentices and build bridges to vocational schools. To this complex field, we add an institutional dimension by positioning the ePortfolio systems as a liaison device between apprentices, training offices, schools and enterprises that forms a kind of hybrid learning arena (Lahn & Nore, 2018). The ePortfolios are often regarded as a crucial part of the training offices' quality systems.

After the two years in VET schools, teachers no longer have responsibility for the learners. In the companies, apprentices have one or more trainers, lots of colleagues and often co-apprentices to discuss with on the quality of performed work. This means trainers have responsibilities that go beyond instruction and include learning support and feedback. The training offices are not available for apprentices in their daily work and cannot encourage the apprentices directly to reflect on their professional development and responsibilities, but do look at the possibilities of using ePortfolios, both as a substitute and to support learning processes.

3 ePortfolios

The use of ePortfolios is often mentioned as a tool for supporting professional development in-between learning arenas (Ortoleva & Betrancourt, 2015; Schwendimann et al., 2015; Nore & Lahn, 2014). In addition, ePortfolios give teachers and trainers opportunities to try out a tailor-made education, and to reflect on learning strategies and their impact (Nore, 2015).

International studies show how the use of ePortfolios in vocational education and training promote interaction between schools and businesses (Mauroux et al., 2016). ePortfolios may contribute to knowledge sharing between apprentices and strengthen their basic skills, including digital competence and the ability to learn to learn. These skills are commonly referred to as "21st century skills", core work skills (Brewer, 2013) or transferable skills (Nägele & Stalder, 2017).

Findings from our study show that ePortfolios are used very differently across vocations and training offices. This also goes for their ability to mediate or integrate between the different institutions and actors in the dual model, as well as between apprentices as peer learning. The variations in learning activities and the use of ePortfolios represent historical differences among trades. Plumbers, industrial mechanics and automation bear long traditions of apprenticeship and performance-based assessments and as such on the documentation of performed work, reflections on the quality of work and the development of professional identity. Sales and health care are newcomers in Norwegian VET, and struggle with the apprenticeship system. In these trades, we found ePortfolios used in a more scholastic oriented way, with fixed and written assignments assessed by the training offices.

Formerly (Lahn & Nore, 2018), we have discussed the use of ePortfolios in Norwegian VET along four lines: (1) *Developmental ePortfolios,* which enable an understanding of personal progression in competence development; (2) *ePortfolios as accounting devices* which support training companies and training offices in their statutory obligation to report to regional authorities; (3) *ePortfolios as assessment tools,* in which apprentices may compare their skills and competences with the national curricula on the one side, and the in-company standards on the other; and (4) *Learning management through ePortfolios* - Standard assignments that prevent the apprentices from using authentic tasks as objects of reflection.

We concluded that ePortfolios mainly support restrictive learning processes and indicated improvement, particularly for networked learning and explicating tacit knowledge. More innovative feedback and assessment procedures could be linked to the recognition of apprentices socializing, working and learning online, thereby challenging established boundaries for learning in both time and space (Brown et al., 1989; Brown, 2008).

In our study, we found that trainers and peers were rarely connected to the apprentices' ePortfolios, whereas the main communication was between the apprentices and the training office. In the following, we want to pursue the question of whether this is due to the designs of ePortfolios, with underlying differences in the understanding of what is professional competence and how such competence can be developed, as supported by ePortfolios.

4 Professional Competence

According to Mulder (2014), professional competence consist of domain-specific activities, which can be demonstrated through individuals' performances, and professionals are competent when they act responsibly and effectively according to given standards of performance. Such standards are either competence-oriented or competence-based frameworks (Mulder, 2017). Learning outcomes as described in Norwegian vocational curricula are competence-oriented, and in accordance with European Qualification Frameworks (EQF). They describe intended learning without any guidelines for the organization of learning processes. Trainers, and colleagues at the workplace, do not necessarily understand how to convert learning outcomes into relevant work tasks and learning processes, and leave the interpretations to the training offices.

In contrast, competence-based frameworks identify core occupational tasks with defined competences, and act as roadmaps for competence development (Mulder, 2017). This may also link to the German concept of Lernfelder, and the influence on the German curriculum development (see Gessler, 2017). Such frameworks are easy to identify for training establishments, but may be either too functional (no generic competences), too restricted (no transversal or transferable skills) or too situational (restricted to a company-specific context and culture).

Learning to be professional goes through immediate responses to experiences at work. Trainers, peers and customers provide feedback to apprentices every day as part of an authentic assessment (Gulikers et al., 2004), but rarely in ePortfolios. Apprentices construe and construct from a broad range of experiences with work tasks, problem solving, customer claims, deviances, cooperation, etc. The brute and social mediating factors through work experiences help shape the personal development process for those who think, act and learn. Through reflections and negotiations, apprentices build their own domain-specific professional conceptions, procedures and values (Billett, 2017).

Vocational curricula in Norway are developed in cooperation with actors representing the various vocational domains, serving as a common competence standard for trade or journeyman's certificates and form the basis for work-based training. This is why the curricular (competence-oriented) learning outcomes are central elements in most ePortfolios.

5 Discussion

In our study, there were just a few ePortfolios that could be named as developmental tools to support apprentices' meaning making on authentic work tasks, and to build professional identity in a broad sense. It seems as if ePortfolios serve more as quality assurance for learning and development according to standardized learning outcomes. Here, the training office plays a major role, and the apprentice fills in schemes just ahead of obligatory half-year reviews.

This is part of statutory reports to the regional educational authorities, but does not serve as a tool for developing professional competence and pride.

The primary actors in the learning processes should be the individual apprentices, as their learning and reflections are close to the core work tasks at the specific workplace supported by feedback from local trainers, co-workers, peer-apprentices and management. If trainers and peers should engage in the process, they need to be involved in the identification of core work task and processes with defined competences. When they recognize the descriptions and requirements, it is easier to give feedback and involve in developmental processes. Where ePortfolios are closer to company-specific descriptions and requirements, trainers seem to be more involved and apprentices appreciate and utilize the tool.

In addition to core work tasks and competence requirements, ePortfolios should be designed for more actors; apprentices, peer-apprentices, trainers, colleagues, training offices and perhaps teachers. Situational learning is collaborative and includes common reflections and negotiations on, for instance, responsibilities and autonomy at work, work process learning, problem solving and innovations.

We have introduced ePortfolios as hybrid learning arenas linking the different VET actors together, and preparing the basis for more collaborative learning and perspective making. A redesign of ePortfolios from a strict curriculum design or a simple task-oriented design is needed to make them more interactive, collaborative, and opening up for both meaning making and perspective making. According to Billett (2014), meaning making is the most central and enduring way in which occupational knowledge is learned, sustained and remade. Another part of learning to become professionals is perspective making, a process of becoming aware of one's own perspectives in relation to the perspectives of others, and of learning to look at one's own practices through the eyes of others (Bakker & Akkerman, 2017). We are looking forward to studying the effect on learning to be professionals from redesigned ePortfolios that are more collaborative and open to continuous development and negotiations of professional competences, including transferable skills.

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Chisvert-Tarazona, M.J., Palomares-Montero, D. & Ros-Garrido, A. (2019). Accreditation and validation of professional qualifications: Monitoring of the process by insertion companies. In F. Marhuenda & M.J. Chisvert-Tarazona (Eds.), *Pedagogical concerns and market demands in VET. Proceedings of the 3rd Crossing Boundaries in VET conference, Vocational Education and Training Network (VETNET)* (pp.176-181) https://doi.org/10.5281/zenodo.2641063

Accreditation and Validation of Professional Qualifications: Monitoring of the Process by Insertion Companies

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Abstract

People at risk for exclusion and vulnerable populations have serious difficulties in accessing the ordinary labour market. Their work insertion is more complicated than that of people with high employability capacities. People's social exclusion risk could be reduced if, among other measures, their access would be facilitated to the accreditation and validation of their professional competences. This work shows how Work Integration Social Enterprises support people at risk for exclusion in obtaining the accreditation and validation of their professional qualifications. We critically describe and analyse the process, concluding that the initiative breaks with the perception of accreditation and validation of competences as an individual action. Instead, this process introduces the idea of a multi-party process for integration that returns the individual to its societal dimension.

Keywords

accreditation; validation; qualifications; guidance; work integration social enterprises

1 Transitions to the validation and accreditation of professional qualifications

European training policies ascribe great importance to the recognition of learning that has not been acquired in school but in non-formal or informal environments. Recommendations made by the European Council (2012) are aimed at promoting the validation of this learning with attention to social cohesion, among other considerations.

However, lifelong learning does not always reflect patterns of social justice. There is evidence that younger people, those who have high education levels, those who have jobs, or those who work in highly skilled occupations are the ones that are more often involved in lifelong learning programmes (Boyadjieva and Ilieva-Trichkova, 2017; Roosmaa and Saar, 2012). In this regard, Bukodi (2016) argues that lifelong learning mainly serves as a way of maintaining rather than reducing inequalities associated with social origins. In fact, as Walker (2012) notes, the more privileged classes accumulate more resources and advantages, even in terms of education. Some authors reckon that this strong critique made of lifelong learning programmes also affects the system of validation and accreditation of professional qualifications. Marhuenda and Bernard (2008) consider that the certification, validation and accreditation of learning outcomes in the labour market will be less accessible to people with lower social status, those who are more vulnerable, less educated and with less formal accreditation.

The common pathway for obtaining the certification, validation and accreditation of professional qualifications is not concerned about the learning process carried out by individuals to get those qualifications. This process typically focuses exclusively on results; that is, the process only evaluates learning outcomes that can be observed (Souto-Otero, 2012; Tejada, 2007). These procedures are directed at those who request accreditation, placing the responsibility at the individual level (Duvekot, 2014). However, an alternative approach is possible wherein the process of certification, validation and accreditation of professional qualifications does not only fall solely on the individual. We posit that the responsibility of the process can be shared among different agents: the individual him/herself, public administrations and companies such as Work Integration Social Enterprises (WISEs).

In the Spanish context, the Organic Law 5/2002 of the 19th of June on Qualifications and Vocational Training (2002) introduced the opportunity to evaluate and accredit professional qualifications in Spain (article 2). This process did not materialize until seven years later with the approval of Royal Decree 1224/2009 of the 17th of July, which established the procedure and requirements for the evaluation and accreditation of professional competences acquired through work experience or non-formal training contexts. This regulation opened the possibility for certifying available and verifiable professional competences included in the National Catalogue of Professional Qualifications (CNQ).

This process seems to be a resource of special interest given the high percentage of the active population that does not have certificates of professional qualifications. Figures from the Economically Active Population Survey, Quarter 2/2018, show that 63.32% of the population over 16 years of age does not have this training. These groups are widely represented in WISEs, which are entities that hire groups at risk for social exclusion. This hiring is for a period never exceeding three years in order to facilitate transitions to the ordinary labour market, where individuals are exempt from social protection.

We find few examples in which the responsibility of the validation and accreditation of qualifications process is shared between the individual and other agents. We could cite the case of Mercadona, a commercial chain in the food sector, or the Federico Ozanam Foundation, an entity in the third sector, but these are isolated cases. This work analyses how WISEs support integration workers (IWs) in this process. Our objective is to understand how organizations that operate in the Third Sector, under the scheme of Social Economy, assume a joint responsibility to help their workers, who are in vulnerable situations, to obtain the accreditation of their qualifications.

This paper presents advances on the state of the R&D project “Processes of training, monitoring, qualification and personal development in Work Integration Social Enterprises: innovation in social inclusion from employment” (EDU2013-45919-R, EMPLEA). One may find among its objectives “To identify and analyze the evaluation of Production Worker (PW) and Accompanying Worker (AW) to Integration Workers (IWs), in those moments of inflection of the learning process at the WISE”. To fulfil this purpose, one of the research aims is to understand the involvement of WISEs in accreditation processes.

Previous research has developed the improved proposal of mapping occupations to be accredited with WISEs and identified the limitations of the process that greatly affect the most vulnerable groups. These limitations include limited incorporation of level 1 qualifications in the CNQ, scarce calls for places at this level of qualification and the absence of criteria for positive discrimination that would allow the participation of these groups (Chisvert-Tarazona, Ros-Garrido, Córdoba-Iñesta and Marhuenda, 2015). This uncertain panorama places the most vulnerable groups at greater risk for social exclusion. The performance of these groups during the teaching-learning processes within WISEs could be vital to benefit their access to the system of validation and accreditation of professional qualifications.

2 Research question and methodology

The following is our research question: Are WISEs prepared to share joint responsibility with IWs to facilitate the certification, validation and accreditation of their professional qualifications? A positive answer will allow us to consider the importance of consolidating resources to support the validation and accreditation of qualification processes by enterprises under the safety net of the social economy.

To answer the research question, we base our empirical study on Eraut's theory of learning trajectories (Eraut, 2009; Eraut & Hirsh, 2007). This theory considers workplace learning and its link with performance to understand how organizations can better facilitate workplace learning and proposes a conceptual tool to observe professional competences. Therefore, our methodology was qualitative and longitudinal. Specifically, the longitudinal study was carried out between 2015-2017. We visited ten WISEs. They were visited three times throughout the research period. Within these WISEs, a total of forty-seven IWs were observed in-depth in real work situations. Additionally, we conducted 32 semi-structured interviews, 11 with PWs and 21 with AWs. The results provide information about the strategies and practices implemented by WISEs to facilitate the process of validation and accreditation of their workers' qualifications.

3 Results

Our study shows how the WISEs work to inform, train and make IWs aware of the importance of the accreditation and validation of professional competences. Indeed, WISEs have participated in training workshops to understand the procedures to formally assess and accredit vocational qualification. Therefore, we can confirm that WISEs assume joint responsibility of this process. However, in practice, limited progress has been made in guiding and counselling IWs to facilitate, in an understandable way, all the information about accreditation and methodology for obtaining recognition of their professional competences. WISEs are shown to have good intentions, but they have not put these intentions into good practise.

Based on the information gathered during the research phase, 9 out of 10 WISEs have been able to identify professional qualifications that could be accredited according to the CNQ. Most of these are occupations that require low-level qualifications; only two companies have been able to identify level 2[1] qualifications.

In three WISEs, AWs have demonstrated a clear intention to obtain the accreditation of their competences. These are institutions that, as a first step, have offered training to IWs with certificates of professionalism, inside or outside of their facilities. In 6 WISEs, the need by companies to improve training to certify, at least, some unit of competence is explicitly recognized. The main obstacles to progress in the integration of accreditation processes are i) the need to maintain a high rate of work (they are enterprises that must be productive and not only well thought of socially); ii) the geographic location of the company and; iii) the lack of opportunities and support. WISEs, to help candidates understand their needs for certification and to identify their professional competence, need knowledge, tools and time to help individuals to provide evidence of their labour and formative history.

[1] At the European level, there are more levels of qualification than in Spain. The eight levels of the framework cover all types of qualifications in Spain. Level descriptors are defined in terms of knowledge, skills and competences. The four upper levels are compatible with the levels of the Spanish Qualifications Framework for Higher Education, based on the Dublin descriptors (Law 5/2002 and Royal Law 1128/2003, and their modifications at Royal Law 1416/2005, that stands the National Qualifications Framework).

It is surprising that in five out of ten companies, IWs do not know the processes for accreditation of competences. It is especially striking that the initiatives to obtain Graduate certifications for compulsory secondary education have not been successfully developed.

Since the beginning of 2017, we have actively participated in the design of a guide to facilitate the processes of accreditation of professional competences to be fully adapted to the needs of the IC. This guide has been promoted by the State Federations of Insertion Companies: the Federation of Business Associations of Insertion Companies (FAEDEI) and the Spanish Association of Social Economy and Solidarity Rescuers (AERESS). The guide has been developed by a mixed working group that engages members of insertion companies of both federations and members of the 'Transitions Research Group' at Universitat de València. This guide has a simple didactic format that includes examples that facilitate an understanding of the procedure. In order to disseminate the results of that guide, the processes of accreditation have been included as a main theme in two state meetings aimed at accompanying personnel in these third sector institutions.

Based on these results, we can say that WISEs are aware of the importance of these processes and are interested in assuming joint responsibility.

4 Conclusions

These results show that efforts are headed in the right direction. Although there is still a long way to go, the WISE map of occupations that can more easily be accredited in the Spanish context has helped to start the process of validating and accrediting certain qualifications (Chisvert-Tarazona, Ros-Garrido, Córdoba-Iñesta and Marhuenda Fluixá, 2015).

The results highlight an institutional proactivity among WISEs. Business federations are leading the appropriation of validation and accreditation procedures in four important ways: (1) participation in research projects that include accreditation as a main goal; (2) development of guides and handbooks adapted to the WISE context (Guillera-Marco and Chisvert-Tarazona, 2018); (3) political actions to promote positive discrimination for bringing more opportunities for vulnerable people to access validation and accreditation procedures; and (4) training WISE managers and AWs in the validation and accreditation procedures.

In practice, we find WISEs to be widely concerned with guaranteeing the certification of apprenticeships. However, WISEs have experienced serious challenges with leveraging the benefits of the procedure. The analysed WISEs have not taken advantage of those WISEs in the surrounding area that have demonstrated the possibility for integrating accreditation processes in teaching contexts.

By definition, the accreditation process obviates the place from which learning has been accessed. However, we have found indications that these institutions have the explicit objective of introducing accompaniment in the processes for accreditation of competencies. The competency learning process accessed by IWs in their companies may benefit from this collective effort.

This initiative breaks with the perception of accreditation and validation of competences as an individual action while it introduces the idea of community, providing a way for integration that returns the individual to its societal dimension. Therefore, individuals and enterprises have a joint responsibility.

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Exploring the Issues in 'On the Job Training' (OJT) Assessment Rubric for Construction Technology Diploma in Malaysian Vocational College

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Abstract

On the job training (OJT) is a pre-requisite requirement for Construction Technology Diploma students to graduate in the Malaysian Vocational College system. The implementation of OJT comprises of assessment processes in assessing students' hands-on performance which uses rubric as an assessment tool. However, based on the literature and documents analysis, it has been identified that the current OJT (organization) assessment rubric is still inadequate in assessing students' competency. The current OJT (organization) assessment rubric is not detailed to the job scope of construction site supervisor. It has been observed that the OJT assessment only uses a single rubric to assessed all diploma programs in the Vocational College. In addition, the current OJT (Organization) assessment rubric is focusing more on the soft skills elements which primarily supposed to gauge more on the hands-on competency of the students. Another issue that has been identified in OJT assessment rubric is that this rubric does not provide descriptors for each of the assessment items according to the scale. As a result, the OJT supervisor from the organization/company does not have clear guidance in assessing students' competency. Therefore, this research suggests that the OJT (Organization) assessment rubric for Construction Technology Diploma should improve on the technical skills elements in order to gauge the competency of construction technology graduates. Furthermore, new descriptors for each technical and soft skills elements need to be identified in order to develop a comprehensive OJT assessment rubric for the Construction Technology Diploma.

Keywords

on the job training; construction technology; Malaysian vocational college; assessment rubric

1 Introduction

The Malaysian construction sector has been thriving since the early days of its independence due to the significance of the sector (Khan, Liew & Ghazali, 2014). In the construction industry, skilled workers who possess specific skill sets, education, training and experience, and also abstract thinking are crucial for effective projects delivery (Zannah, Latiffi, Raji,

Waziri, Mohammed, 2017). Therefore, in fulfilling this need, Malaysian Vocational College has taken the initiative by offering the Diploma in Construction Technology with the aim to produce competent site supervisor for the industries (Bahagian Pendidikan Teknik dan Vokasional, 2017). In graduating from the Construction Technology Diploma program, students need to undertake 'On the Job Training' (OJT) which is an industrial training and during this period, the students will be assessed on their hands-on competency (MOE, 2014). The assessment tool adopted in this OJT is an assessment rubric, and these students will be assessed by the organization/industry supervisor using this rubric (Bahagian Pendidikan Teknik dan Vokasional, 2017). Therefore, this paper will focus on the discussion of issues arise in OJT (Organization) assessment rubric for the Construction Technology Diploma in the Malaysian Vocational College.

2 Vocational College, Construction Technology OJT

A study was done by Awere, Edu-Buandoh, Dadzie, & Aboagye (2016) has identified that graduates are lacked in-depth technical competence in construction technology discipline, lack of maturity and organizational working skills, and they are not able to use the necessary techniques and skills related to technological construction tools for engineering practice. As revealed by Choudhry & Zafar (2017), lack of training affects the new worker's performance in a construction project. In addition, the separation between theory and practice in construction technology course is recognized as a potential problem (Awere, Edu-Buandoh, Dadzie, & Aboagye, 2016). Furthermore, some employers do not handle training programs properly. As for example, supervisors giving tasks that are not related to their course scope and not relevant with the career (Jamaluddin, Ayob, Osman, Omar, Kofli, & Johar, 2013; Verecio, 2014)

3 Vocational College, Construction Technology OJT Assessment

During OJT, the employers and supervisors in the organization play an important role in the assessment process. Employers should give proper guidance on company rules, regulations and procedures since the students who perform industrial training are not yet graduated (Machart, 2017). However, there exist problem regarding organization supervision during the industrial training, which, there is a lacking in eligible staff to supervise the trainees (Bukaliya, 2012). It is believed that most of the assessors are lacking the knowledge in workplace-based assessment procedure (Chinyemba, Bvekerwa, Chirimuta, Sithole, & Gwangwava, 2012). It has been emphasized that supervisory control is a factor that needs to be improved in the practice assessment process of practicum (Verecio, 2014). In addition, the incompetence of assessors and inconsistent assessment process are potential threats to the quality assurance management system (Chinyemba, Bvekerwa, Chirimuta, Sithole, & Gwangwava, 2012).

Workplace-based assessment is often marginalized when the matter is important as it directly affects learning and training (Vaughn & Cameron, 2009). In truth, assessment on skills, knowledge, and ability of workers are the critical components in training packages (Smith & Keating, 2003). In White Card training report for the Australian construction industry, there are a few issues in assessment which have been highlighted (Australian Skills Quality Authority, 2013):

1. Not adequately assess the communication skill and understanding required by the training packages
2. Low quality in the delivery of training and assessment

3. Low reliability in the assessment, in particular, the assessment of the level required in the competence of communication skills.
4. Assessment training and strategies are inconsistent with practices and no strategy to assess communication skills

Assessment of Construction Technology Diploma students during OJT may not provide accurate result as some students spent most of their time at the office compared to the site due to safety reason. As a result, they cannot be assessed for tasks related to the job scope on site. For assessment result reporting purposes, some tools may be used such as checklists, anecdotal records, and rubrics (North Carolina Department of Public Instruction, 1999). OJT assessment also involves the usage of the rubric (MOE, 2014).

4 OJT (Organization) Assessment Rubric

OJT (Organization) assessment rubric is the instrument used in measuring students' hands-on performance during OJT in the organization. However, there are a few issues in the current OJT (Organization) assessment rubric which are :

1. Current assessment rubric was not specific to the job scope of site supervisor. This is because Vocational College used the same rubric for all diploma courses (Technical and Vocational Education Division Academic Management, 2017).
2. Current assessment rubric only consists the soft skills elements. It is believed that the OJT assessment rubric should comprise technical skills elements. This is because, technical skills are equally important as soft skills as perceived by the industry and students (Patacsil, & Tablatin, 2017). Furthermore, according to Bringula et al., (2016), technical skills are similarly important as soft skills for the successful integration of entry-level employees.
3. Current assessment rubric does not provide detail criteria for each scale in every item. Whereas, students' active use and internalization of the assessment criteria is the primary goal of formative rubric use (Fraile, Panadero, & Pardo, 2017). As a result, organization supervisors who are assessing the students during OJT do not have clear guidance in assessing students' competency. According to De Luca & Bolden (2014), the assessor will assess performance inconsistently that will limit the rubric in helping to achieve performance standard if the rubric does not express the criteria clearly.

There are a few importance in studying the development of rubric which is used in the assessment process which are :

1. The rubric is an instrument which is commonly used to assess students' performance based on a task given. The use of rubrics can increase learning and performance under assessment for learning and formative assessment conditions (Panadero & Jonsson, 2013).
2. The usage of a rubric equipped with criteria may guide students in completing a task. This is because a rubric is usually defined as a document with a list of assessment criteria, a scoring strategy and quality definitions normally stated on a scale (Reddy & Andrade, 2010; & Stiggins, 2001).
3. The criteria stated in the rubric can be referred as a guideline for students in improving their grade or marks. This is because, success criteria is one of the emphasized elements when rubrics are used for formative assessment purposes (Fraile, Panadero, & Pardo, 2017).

4. The development of rubric grading criteria for OJT rubric will be able to increase reliability score by having consistent grading criteria based on standard (De Luca & Bolden, 2014).

5 Conclusion

From the literature analysis, it has been identified that assessment rubric is very important in assessing students' competency during OJT. Evidence suggests that the assessment rubric should comprise the technical skills elements as well as soft skills elements because most employers find these two constructs are important in order to be a competent worker. There are needs in highlighting the importance of rubric that equipped with criteria, which may function as a guideline for students in getting better grades. It is believed that the rubric can increase the reliability score by having consistent grading criteria based on the standard. Therefore, further research is suggested to conduct a study on the development of OJT (Organization) assessment rubric with careful considerations from the aspect of constructs, elements, criteria's and scale.

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How the perceived quality of in-company training matters: a study with apprentices in technical and retail occupations

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Abstract

Given the growing focus on initial vocational education and training (IVET) quality in Switzerland, a study investigating in-company training quality as perceived by 320 apprentices in technical and retail occupations was conducted. The aims were 1) to examine potential differences in the perceived quality of in-company training between the two occupational fields and 2) to analyze how the perceived quality of in-company training was associated with apprentices' sociocognitive learning processes (self-efficacy beliefs, self-regulated learning, help seeking tendencies) and their intention to prematurely terminate a contract. A survey was used to collect the data. The results reveal a single difference, related to time overload, between the two fields. Furthermore, multiple aspects of quality mattered for the sociocognitive processes considered, over and above the effects of control variables (motivations for choosing the apprenticeship). Finally, interaction effects between the occupational field and the quality aspects were found. The study constitutes a very first step in providing recommendations for in-company training.

Keywords

perception of training quality; in-company training; apprenticeship; sociocognitive processes

1 Conceptual and theoretical framework

The notion of VET training quality is becoming increasingly important in the discourse of educational stakeholders as well as on the legal level in Switzerland (Gonon, 2017). Training quality can be defined as a subjective conception of an ideal toward which the training should strive; it is based on the judgment of fitness for and of purpose (Wittek & Kvernbekk, 2011). Whereas quality is not directly measurable, the perceptions of quality are. Even if the Swiss VET system is acknowledged as high performing and internationally valued, it is essential, for maintaining and further developing this quality, to investigate how apprentices, vocational school teachers, and in-company trainers define and perceive the quality of VET. Indeed, training quality is a complex and multidimensional construct that might be defined differently by apprentices, trainers, and stakeholders (Ebbinghaus, Krewerth, Flemming, Beicht, Eberhard, & Granato, 2009). At the basis of this study is the assumption that investigating the

training actors' perceptions of quality allows for a deep understanding of what quality is and how these perceptions hold relevance for learning in the VET context.

Research on training quality has shown, in the Swiss context, that the perceived organizational and pedagogical quality of in-company training is generally high, and that it is predictive of outcomes such as premature contract termination (PCT) (Negrini, Forsblom, Gurtner, & Schumann, 2016). The role of in-company trainers in this quality has notably been underlined (Hofmann, Stalder, Tschan, & Häfeli, 2014). In addition, the way apprentices appraise in-company training has been found to be more critical for their satisfaction than their appraisal of the teaching in vocational schools (Stalder, 2003). However, most studies examining how training quality matters for apprentices have only considered satisfaction and PCT (or PCT intention) as outcomes of training quality. Despite their relevance for learning, important sociocognitive processes, such as apprentices' self-efficacy beliefs and self-regulated learning (Schunk & Zimmerman, 2008), have been largely ignored as outcomes of perceived quality. Indeed, the sociocognitive theory of learning (Schunk & Zimmerman, 2008) assumes that learning processes are affected not only by students' beliefs, such as their motivations, but also by how they perceive their learning environment.

Accordingly, this paper reports a study on the perceptions of apprentices—in two occupational fields—regarding the quality of in-company training and investigates how these perceptions relate to several sociocognitive outcomes relevant for successful learning: self-efficacy beliefs, self-regulated learning (motivational self-regulation and help seeking tendencies), and PCT intention. Apprentices' motivations for choosing to learn their occupation is considered, given their potential association with the sociocognitive outcomes considered. While connections were globally expected between the perceived quality aspects and sociocognitive processes, no specific hypothesis were formulated.

1.2 Research questions

The study was based on the following two research questions:

- Are there differences in the perceived quality of in-company training between the two occupational fields?
- How is the perceived quality of in-company training associated with apprentices' self-efficacy beliefs, self-regulated learning, help seeking tendencies, and PCT intention?

2 Methods

2.2 Participants

A total of 320 apprentices (M_{age}=18 yrs. 8 months) in two occupational fields participated in the study: technical (n=188) and retail (n=132). They were enrolled in a dual VET program alternating between in-company training and professional school, in the French-speaking part of Switzerland.

2.3 Procedure and Instruments

During 20 minutes of regular class time, participants were asked to complete a survey including, among others, the following instruments.

The **perceived quality of in-company training** was assessed using a French translation of the *Inventar zur betrieblichen Ausbildungsqualität*[1] (Velten & Schnitzler, 2012). Thirty-nine items[2] assessed eight aspects of the quality of in-company training as perceived by the apprentices:

1. Task importance (3 items): how important the tasks performed by the apprentices in the company are;
2. Diversity and demand of the tasks (6 items): how varied and demanding the tasks are;
3. Autonomy/flexibility (3 items): how much the apprentices perceive being responsible for organizing the tasks;
4. Trainer assistance (4 items): how careful and open the trainer is perceived to be;
5. Trainer professional skills (8 items): how capable of effectively training the apprentices the trainer is perceived to be;
6. Feedback (5 items): how much regular and objective feedback the apprentices receive from the trainer;
7. Time overload (4 items): how sufficient the time given to the apprentices for executing their tasks is;
8. Relationships and integration with colleagues (6 items): how the colleagues care about the apprentices.

Regarding the **outcomes of perceived quality**, the following aspects were considered:

1. Self-efficacy beliefs (3 items): how the apprentices perceive their abilities to learn (source);
2. Help seeking tendencies (6 items): i) Instrumental help seeking (3 items): asking for the assistance necessary to overcome difficulties, such as asking for explanations or hints; ii) Expedient help seeking (3 items): asking others' help to avoid effort and easily gain the outcome;
3. Self-regulation of motivation (3 items): how well apprentices believe they can manage their affective and motivational processes to achieve their goals;
4. Premature contract termination intention (2 items): the apprentice's intention to quit the current training company for another one in the same field or to quit the professional field.

Finally, ten *Motivations for apprenticeship choice*, each with a single item, were assessed as **control variables**: salary, intrinsic career value, perceived trade utility, fallback career, social influences, perceived ability, working conditions, employability, instrumental value, and social pressure.

3 Findings

After testing the factorial validity of the instruments, an ANOVA was used to compare the answers between the two occupational fields in terms of their perceptions of quality (research question 1). A statistically significant difference ($F(1,318)=17.88$, $p<.001$, $\eta^2_p=.05$) was found for perceived *Time overload:* in the retail field, apprentices reported a higher overload

[1] Inventory of the in-company quality training.

[2] All items of the study had the same Likert response scale from 1="not at all true of me" to 6="very true of me."

(M=3.10, SD=1.01) than in the technical field (M=2.63, SD=0.97). This difference might reflect stricter requests from the job market and poorer working conditions, already manifest during the apprenticeship, in the retail field. The seven other quality aspects considered were perceived at levels >3.5.

To answer research question 2, four hierarchical multiple regression analyses (i.e., one for each outcome considered as a dependent variable[3]) were performed, including—as independent variables—occupational field in step 1, motivations for apprenticeship choice in step 2, and the eight aspects of perceived quality in step 3. The results, shown in Table 1, reveal that, over and above the effects of occupational field and *Motivations*, multiple aspects of quality mattered for the outcomes considered. The explained variance in the outcomes ranged from 13% to 37%.

For instance, both *Instrumental* and *Expedient* tendencies to seek help were explained by *Relationships with colleagues*, meaning that good relationships are associated with seeking more help in either of the two tendencies. However, *Instrumental help seeking* and *self-regulation* were also explained by the quality of *Feedback* as perceived by the apprentices. More precisely, the less the apprentices receive feedback from the trainer, the more they will look for help to be able to find the answers independently, and the more they will self-regulate their motivation for their training. Furthermore, in the hierarchical multiple regression analyses, several interaction effects between the occupational field and the quality aspects were found. For instance, *Self-efficacy beliefs* were more strongly tied to *Task importance* for apprentices in retail than in technical occupations. Similarly, *Expedient help seeking* was more strongly tied to *Autonomy/flexibility* and to *Relationships and integration with colleagues* for apprentices in retail than in technical occupations. On the contrary, *Expedient help seeking* was more strongly tied to the *Trainer assistance* for the technical apprentices than for those in retail. These interactions reveal that the importance of the aspects of perceived quality differs between the occupational fields.

[3] Motivational self-regulation and instrumental help seeking items were found to load on a single factor and, thus, merged in a single composite score.

Table 1 Results of multiple hierarchical regression analyses

	Instrumental help seeking and self-regulation			Expedient help seeking			Self-efficacy beliefs			Premature contract termination intention		
Model	1	2	3	1	2	3	1	2	3	1	2	3
	β	*β*	*β*	*β*	*β*	*β*	*β*	*β*	*β*	*β*	*β*	*β*
Professional field	.03	-.06	-.04	.15**	.13*	.12	-.03	-.09	-.09	-.01	.11	.04
Motivations for apprenticeship choice												
Salary		-.04	-.07		.09	.10		-.06	-.06		.12*	.15**
Intrinsic career value		.04	-.02		-.08	-.06		.07	.07		-.18**	-.12*
Perceived trade utility		.14*	.12*		.14*	.13*		-.02	-.01		.03	.04
Fallback career		.02	.08		.05	.03		-.09	-.06		.13*	.06
Social influences		.11	.10		-.15*	-.14*		-.04	-.05		.05	.06
Perceived ability		.15**	.11*		-.11	-.12*		.42***	.37***		-.09	-.04
Working conditions		.11	.06		.01	.03		.06	.07		-.13*	-.08
Employability		-.05	-.03		.16**	.17**		.06	.05		-.06	-.07
Instrumental value		.10	.09		.05	.06		.16**	.14**		-.07	-.05
Social pressure		.00	.00		.08	.07		-.07	-.06		.10	.08
Quality of in-company												

training												
Task importance for the company			.07			-.04			.37***			-.05
Task diversity and demand			.04			-.08			.05			-.24***
Autonomy and flexibility			.08			.25*			.05			.09
Trainer assistance			.16			-.23			.08			-.06
Trainer professional skills			.02			.05			-.03			-.01
Trainer's feedback			-.17*			-.08			-.14			-.08
Time overload			-.11			.07			-.08			-.02
Relationships and integration with colleagues			.18**			.27*			-.04			-.10
R^2	.00	.12	.24	.02	.10	.17	.00	.29	.35	.00	.15	.27
Variation of *F*	.22	4.24***	5.67***	6.91**	2.70*	2.33*	.24	12.57***	3.09**	.07	5.49***	5.77***

Note Professional field was coded retail=0; technical =1.

4 Research significance

The contribution of this study is threefold. First, it revealed how apprentices' perceptions of the quality of in-company training matter for several sociocognitive outcomes, over and above the effect of motivations for apprenticeship choice. Apprentices feel more or less able to learn, ask for help in different ways, and have more or less PCT intention depending on the way they perceived their training.

Second, the study showed that perceived quality differs in only one aspect between the two fields considered. The same quality aspects are perceived as high in both fields; notably, the apprentices perceive that the task they are asked to perform is of high importance to the company, and that these tasks are diverse and demanding.

Finally, despite few differences in the perceived quality between the fields, the results revealed that some aspects of perceived quality play a different role depending on the two occupational fields considered. For a salesperson, expedient help seeking is more strongly based on autonomy and flexibility, trainer assistance, and relationships with colleagues than it is for apprentices in the technical field. In the technical field, seeking expedient help does not depend on these quality aspects. This means that quality should be investigated in relation to a specific field rather than at a more general level. The study constitutes a very first step in providing recommendations for in-company training.

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Florinda Sauli is a junior researcher at the Swiss Federal Institute for Vocational Education and Training SFIVET. Her PhD thesis, currently under development, will compare the perception of training quality of institutional and noninstitutional actors in the context of the Swiss vocational education and training system.

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Apprentices' perceptions of quality in the Swiss initial vocational education and training dual system

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Abstract

The quality of education and training is a key factor in explaining apprentices' motivations and helping sustain their efforts in acquiring the necessary skills for their future occupation. Yet, the perceived quality of initial vocational education and training (IVET) may vary according to the learning location and the occupational fields. To identify the characteristics defining IVET quality, according to apprentices, and whether these characteristics differ between occupational fields, a survey was administered to 320 apprentices enrolled in a Swiss dual IVET program in the fields of retail and technics. The apprentices were asked what they consider to be the high- and low-quality aspects of their education and training. Results showed that the most frequently mentioned aspects reflecting high quality referred to the apprentices' social learning environment, whereas the codes related to poor quality referred to the IVET context. Differences in the perception of quality were found between the two occupational fields.

Keywords

initial vocational education and training; quality of education and training; dual system; qualitative study

1 Conceptual and theoretical framework

The quality of initial vocational education and training (IVET) is a key factor in explaining apprentices' motivations and helping them sustain their efforts in acquiring the necessary skills for their future occupation (Ebbinghaus, Krewerth, Flemming, Beicht, Eberhard, & Granato, 2010). However, no shared understanding of what characterizes a high- or low-quality education exists (Wittek & Kvernbekk, 2011). Teachers are mainly considered those responsible for these performances and, consequently, for the quality of education (Hattie, 2009). Therefore, the concept is often measured through *teacher/teaching quality or effectiveness* (Smith & Yasukawa, 2017). However, while teaching practices have a major influence on learners' motivations and achievements (Hattie, 2009), these are not the only factors that play a role. To define quality in IVET, we assume, like other scholars, that it is necessary to consider the conceptions or perceptions of the multiple stakeholders acting at the different levels of the educational system, such as the apprentices, teachers, in-company

trainers, and professional associations (Griffin, 2017). In sum, the quality of IVET is a complex topic that still requires investigation.

The conclusions of several studies conducted in the context of Swiss IVET indirectly inform about some aspects of the apprentices' conceptions of training quality. Only some aspects are underlined in what follows. First, an aspect that appears central is that teachers and trainers who have professional experience not only in the learning location they work in but also in other learning locations are valued by apprentices (Sappa, Aprea, & Vogt, 2018). Second, the degree to which in-company trainers can offer the apprentices meaningful learning opportunities is strongly tied to how apprentices perceived the quality of training and their perseverance in their current apprenticeship (Stalder & Carigiet Reinhard, 2014). Finally, in the case of apprentices in the retail field, which is characterized by a flexible work organization, the quality of social relationships within the training company and with customers appears crucial in helping apprentices face highly demanding working conditions (Duemmler & Caprani, 2017).

The current study took place in the Swiss initial IVET dual system. It focuses on apprentices' perceptions of the quality of their training at school and at the training company in two occupational fields: retail and technical. The study aims at examining what characterizes quality across learning locations and across occupational fields.

The study was driven by two research questions:

1. According to apprentices, which characteristics define the perceptions of IVET quality at school and at the training company?
2. Do these perceptions differ between the two occupational fields considered?

2 Methods

2.1 Participants

The participants were 320 apprentices enrolled in a Swiss dual IVET program (M_{age}=18.8; SD=3.15). Two occupational fields were considered: technical (n=188, 10.5% women) and retail (n=132, 64.1% women). These programs alternate between two main learning locations (dual system): the professional school and the training company. Therefore, apprentices attend classes at school on a basis of one to two days per week and spend the remaining days at the training company, supervised by a trainer.

2.2 Procedure

As part of a larger survey administered during class time, participants were asked to answer six open-ended questions assessing their perceptions of the quality of education and training at school and at the training company. They were asked to report, for each of the two learning locations, at least three aspects about a) what they like in their education and training, b) the positive aspects of their IVET program (again for both learning locations), and c) the negative aspects (e.g., "What could be improved in your education at school/at the training company?").

The answers were fully transcribed and imported into the Nvivo software for coding. A coding scheme was developed both in a deductive, or theory-based, and inductive (i.e., emerging from the data) way. Each meaning unit was analyzed in relation to the others to improve the coding scheme's coherence. A total of 3713 meaning units were coded: 1872 referred to quality at school (using 17 codes), and 1841 to the training company (using 18

codes). The list of codes is shown in the appendix. The intercoder agreement, based on 5% of the statements, was satisfying (school: Cohen's κ=.782, company: κ=.735).

3 Findings

For most of the codes, similar themes reflecting the perceived quality at school and at the training company were found. Inspired by Bronfenbrenner's (1977) *Ecological systems theory*, which distinguishes several nested environmental systems that individuals interact with, all codes were further categorized according to their level in the system: 1) *micro-level* ("learning") codes referred to the main activities realized at school (classes) or at the training company (tasks) (e.g., diversity of the classes/tasks); 2) *meso-level* ("social learning environment") codes referred to the direct or indirect involvement of persons influencing the perceptions of IVET quality (e.g., the pedagogical skills of teachers/trainers); 3) *exo-level* ("IVET context") codes referred to the organization of the IVET, the educational programs, i.e., the institutional and decisional level. Overall, the most frequently mentioned aspects reflecting high quality referred to persons, whereas the codes associated with low quality referred mostly to the system.

Regarding the first research question, the main elements characterizing high quality at school were intrinsically motivating classes (14.6% of the total), relationships with peers (12.8%), and links between theory and practice (9.4%). On the contrary, aspects related to demands and pressures (15.4%), the educational system (13.6%), and the (lack of) teachers' pedagogical skills (12.8%) were found to reflect a low quality according to the apprentices.

At the training company, the main elements characterizing high quality were the relationships with colleagues (18.8%), the trainers' pedagogical skills (10.8%), and the diversity of the tasks (8.9%). Low quality was characterized by the trainers' poor pedagogical skills (15%), time management (14.6%), and organizational management (13.5%).

The pedagogical skills of the teachers and trainers appeared as reflecting both the positive and negative aspects of quality. These skills were the most indicated among all the teacher and/or trainer competences: they represent two-third of these codes for the teachers and three-fourths for the trainers. These results confirm the importance, for the apprentices, of their teachers' and trainers' pedagogical skills, and their central place in the perceived IVET quality (Stalder & Carigiet Reinhard, 2014). While similar themes emerged at the two learning locations, their degree of relevance differed.

Concerning the second research question, the comparisons between the occupational fields concerning the education at school, using a χ^2 test, revealed that aspects like the link between theory and practice and the material were more prominent in the perceptions of quality in the technical field than in retail. For the latter, contacts with peers were seen as more important. Concerning the training at the workplace, it was found that, for the technical field, the diversity of tasks or working conditions were more important, whereas, for retail, the contact with customers and time management were central.

4 Significance of the research

This study sheds light on how IVET quality is perceived by apprentices in two occupational fields. Quality of training is, unsurprisingly, multidimensional and complex, depending on several levels of the apprentices' ecological system. Accordingly, the most important aspects contributing to a high quality education refer to social relationships (with peers and teachers at school, with colleagues, trainers, and customers at the training company), reflecting a strong need to belong (Baumeister & Leary, 1995), and to the content to be learned at school or the tasks to be realized at the training company, in terms of variety and the perceived links between theory and practice. Conversely, what contributes to a low quality refers mainly to

institutional aspects, like the educational system, time management, or salary. A transversal and central element concerns the pedagogical skills of teachers and trainers, showing the importance of providing these professionals with strong pedagogical preparation. In fact, apprentices seem to give a lot of importance to the pedagogical competences of their teachers but also of their trainers. Even if the latter must transmit a trade, they are also expected to have strong pedagogical skills. Furthermore, the importance and criteria of IVET quality depend, to some extent, on the occupational field. Notably, according to the perceptions of quality of apprentices in retail, the social aspect appears particularly important (in terms of relationships with peers, colleagues, and customers) (see also Duemmler & Caprani, 2017). For apprentices in the technical field, quality is more strongly tied to the tasks, material, or working conditions, whereas the social aspect is less pronounced. Such specificities suggest that IVET quality is, to some extent, different between professional fields.

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Appendix: coding scheme of quality aspect

A. Learning location: Vocational school
A.1. Micro-level: Learning
A.1.1. Extrinsically motivating classes
A.1.2. Intrinsically motivating classes
A.1.3. Class diversity
A.1.4. Class (not specified)
A.1.5. Links between theory and practice

A.2. Meso-level: Social learning environments
A.2.1. Teacher general pedagogical skills
A.2.2. Teacher structure skills
A.2.3. Teacher occupation-specific skills
A.2.4. Teacher social skills and intrinsic motivation
A.2.5. Autonomy-supportive teaching
A.2.6. Teachers (unspecified)
A.2.7. Demands (i.e., expectations, tests, exams)
A.2.8. Relationships with peers and climate

A.3. Exo-level: VET context
A.3.1. Time management
A.3.2. Educational system
A.3.3. School geographical location
A.3.4. Material

B. Learning location: Training company
B.1. Micro-level: Learning
B.1.1. Extrinsically motivating tasks
B.1.2. Intrinsically motivating tasks

B.1.3. Skill acquisition
B.1.4. Tasks diversity
B.1.5. Links between theory and practice
B.1.6. Tasks (unspecified)

B.2. Meso-level: Social learning environments
B.2.1. Trainer pedagogical skills
B.2.2. Trainer occupation-specific and social skills
B.2.3. Demands
B.2.4. Apprentice's autonomy
B.2.5. Relationships with colleagues and climate
B.2.6. Contact with customers

B.3. Exo-level: VET context
B.3.1. Organizational management
B.3.2. Training management
B.3.3. Time management
B.3.4. Working conditions
B.3.5. Company geographical location
B.3.6. Salary

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Promoting Quality in Apprenticeships: Self-evaluation as an Instrument for Trainers to Assess Apprenticeship Quality

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Abstract

The article compares several in-company cases to study the relationship between the influence of the work environment on the quality of an apprenticeship. This in order to find out which kind of conditions of the work and learning environment have an positive influence on the quality of an apprenticeship. These conditions relate to a range of issues such as trainer performance, work task, infrastructure, support guidelines, frameworks. To get informed statements on the quality of training processes within the company learning environment the responsible trainers are interviewed. In the last chapter the cases are analysed to identify key lessons for an quality oriented apprenticeship.

Keywords

quality apprenticeships; innovative work environment; trainers; guidelines; self-evaluation

1 Introduction

There is increased interest in a deeper understanding of learning in apprenticeships. The reasons for this are twofold: on the one hand, dual vocational training and education receive much interest as a strong bridge between the education system and employment. On the other hand, some countries began to implement dual elements of apprenticeship like increasing time of internships or closer cooperation and coordination between vocational school or college and in-company apprenticeships. Crucial for these developments to succeed is to secure and develop quality.

To develop a quality model, one first has to choose relevant criteria and indicators underlining them. These criteria have to represent important aspects of quality in apprenticeships. Questions to be answered are: What are suitable criteria which reflect key functions of a good apprenticeship? How can relevant criteria be integrated and applied into apprenticeship quality assessment concepts? How can this be used as a quality improvement instrument for companies who train via apprenticeship? The article will compare several company cases in order to find out which criteria are key for quality of an apprenticeship as well as how the assessments can be used to promote high standards.

2 Methodological considerations of how to evaluate quality

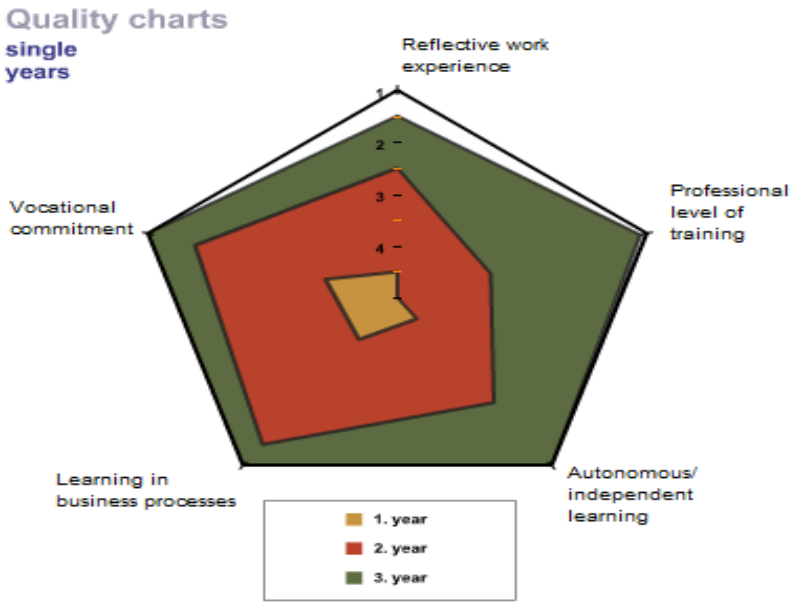
To get informed statements on the quality of training and the learning processes involved, one has to ask the people that actually take part in these processes – trainers and apprentices. In this article, we draw mainly on the first group. In the last ten years, a web-based self-evaluation tool for trainers was developed and vocational teacher students carried out a vari-

ety of research projects in order to validate the tool's quantitative findings in a discourse involving key stakeholders as full time and part time trainers, company managers, and others in and outside the company.

The quality of learning within an apprenticeship is evaluated by questioning the trainers about six main criteria. The first four criteria and indicators are input criteria representing quality of the 'in-company work and learning processes'. The last two criteria (output dimensions) are related to the effect of the training on the apprentice's development in terms of professional competence as well as his or her commitment to the job.

The six main criteria are:

1. **Reflective Work Experience**: Experience-based learning in the work process is central for vocational training. Therefore the amount of time spent on learning in productive work processes can be used as an indicator for the quality of training.
2. **Professional Level of Training**: The higher the degree of complexity of work tasks, the more can be learned. Trainers are asked to what degree the assignments of the trainees or apprentices reach the level of 'professional tasks' (as opposed to 'everyman's simple tasks').
3. **Autonomous/independent learning**: This criterion investigates the relationship between detailed assignments and the apprentices' ability to perform tasks independently. Are the apprentices able to plan, do, act and control their work task on their own?
4. **Learning in business processes**: This criterion collects figures from the trainers about the degree to which the apprentices participated in real work assignments.
5. **Professional competence:** Indicators for a learner's fitness for occupation are the results of the final vocational examination, e.g. the number of attempts and the adjustment time needed after completion of the apprenticeship programme to reach the competence level of a skilled worker.
6. **Vocational commitment:** This criterion assesses the apprentices' commitment to the company and the professional occupation as well as the extent to which they accomplish their own work tasks independen



The article will compare nine apprenticeship cases in order to find which of the quality criteria are most relevant and influencing the quality development process. The quality, return and cost tool is based on 25 questions which offer the possibility to generate several graphical elements. This allows than to access the quality criteria and by which circumstances in each particular case the apprenticeship development has been of good or of less good quality. These judgements are based on the assessments undertaken by the full and part time trainers which are responsible for the apprenticeship arrangements in the company.

3 Reflection of several QRC cases

The article will show several cases from different sectors and occupations. The nine cases come from different labour market areas, such as industrial and craft trade sectors. Included here are professions such as industrial & building electricians, mechatronics technicians, mechanics, hairdressers and painters. All cases are analysed using the QRC tool. They were investigated to find out whether there is a relationship between the quality of the learning vironment and the innovative capability of the apprentices.

An overview of the cases will be shown via a Table (cannot printed here while too large), which covers company types, occupations concerned and the achieved QEK results: quality index and strength/weaknesses achieved. The different cases are ranked in three fields: *top, middle and lower field*. The first three represent stronger apprenticeships organised in such a way that they develop the innovative capabilities of apprentices. Three cases are clustered in the middle field.

All cases are above average but still have different weaknesses regarding some of the dimensions of the QEK tool (e.g. too little trainer support for apprentices, lack of a range of relevant occupational oriented work tasks, too many silly task for the apprentices). The cases in the lower area are below the common quality standards in the sectors. In all aspects of the QEK tool, they display greater or smaller deficits represented by weak quality indexes and '*poor'* spiders. The comparisons are possible because they are taken out of a pool of more than 170 companies in several German regions (Rauner et.al. 2008).

The results from the assessments by the company trainers showed several problems and challenges in the apprenticeships: Too much work while too little learning*:* The cases show that it is important to build capacities on learning right from the beginning of an apprenticeship. This means that apprentices are best motivated by real *work and learning tasks*. Many companies miss a range of good practice examples: Work and learning tasks are integral parts of the company's business processes and they can increase in their difficulty and complexity: *from beginner to advanced beginner to professional tasks*. As shown in examples of good practice, this is done by maximising the learning time within the working time.

Are the apprentices' work tasks comprehensive with planning and preparation as well as control and documentation? Work tasks to train apprentices should follow a comprehensive work task structure. This means that the apprentice learns to do the practical job but also understands its relation to other activities such as planning the work, and preparing and assessing the results. This also covers feedback on the work activities. The product quality must be discussed to see whether the quality of the product can be met, or if not: Where are the difficulties and obstacles?

Work and Learning Task as a integral part of the company's business process: The work and learning tasks must be arranged in a systematic order, and not arbitrarily. For the trainer it is therefore important to consider which learning and work tasks are appropriate for the current status of the apprentice. In some company learning cases, it may be advisable for the trainer to plan a deeper investigation of his company. A questionnaire or an investigation grid

with the most important aspects could be used here. Such instruments turn a non-systematic visit by the trainer into a target-oriented investigation (Deitmer 2011).

The work task should force apprentices to cooperate with colleagues and other departments**:** The basic idea is to develop a range of working and learning task that match the practical skill needs of work tasks and which, although covering a complete task, build upon each other, and in total cover the complete business processes. Work task not only describe the object of the work, working methods, work instruments and other requirements, they should also include learning through others and in cooperation with others. (Howe et al. 2002)

In general, weaknesses regarding the quality of in-company training are linked to the following factors:

1. Low share of learning in real business processes
2. Low level of work tasks (degree of diversity)
3. Low orientation on work processes.

Such deficits find their expression in a low competence level of apprentices. But if the potentials of learning in qualifying work processes are maxed out, it is possible to:

4. Reach higher competence levels and to
5. Lower the costs of training.

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Biographical notes

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Teacher competences in relation to simulation-based training and learning

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Abstract

In an empirical-based research project about simulation-based training in the social and health care programs, one research question concerns the teachers' competences in relation to simulation-based training. The results of the analysis show that when comparing simulation-based training with classroom teaching, the teachers perceive the significant difference to be the role as facilitator. As a facilitator, the teacher has to develop and accept a new way of controlling the training situation, in which the teacher must be open towards unexpected issues and develop another attitude to teaching profession.

Keywords

simulation-based training; teacher competencies; social and health care programs

1 Introduction and research questions

The Danish social and health care programs show an increasing interest in simulation-based training and learning. During the last couple of years, the social- and healthcare colleges have been developing simulation environments including investing spectacular sums in simulation equipment, in particular mannequins. Furthermore, the colleges are currently trying out simulation pedagogy, i.e. how technologically based simulation should be conducted in order to support the students' motivation for learning as well as their learning outcome.

In a developmental project, (2017-2019) five social and health care colleges have developed and tested standards for simulation-based training. In the parallel research project, the aim is to provide empirical-based knowledge about the students' learning processes and learning outcome that can inspire further development of the standards and pinpoint the needs for teacher competences in relation to simulation-based training.

Simulation-based training shares the same kinds of challenges as other forms of practice-based learning. The most important challenge being that the students' learning processes and learning outcomes are in fact enhanced by choosing simulation-based training: As in other kinds of practice-based learning, the learning process in simulation-based training includes three phases:

1. Briefing which introduce relevant theory and the practical task in the scenario,
2. Scenario in which the students accomplish tasks in practice
3. Debriefing where the students reflect on the events of the scenario.

The paper focuses on teacher competences in relation to simulation-based training, posing the following research questions:

1. Which challenges do the teachers encounter when they carry out simulation-based training?
2. Which competences can be inferred from these challenges?

2 Brief literature review

Research into simulation-based training can be divided into the following main issues: accomplishing simulation-based training including degree of fidelity, activities in the phases of briefing and debriefing, the learners' outcome from simulation-based training, and the teachers' competences (Aarkrog, 2018 a; Aarkrog, 2018b). The paper focuses on teachers' competence.

The main research issues in relation to teacher competency, concern the teacher's ability to establishing a balance between being a professional performing in practice (i.e. playing the role as social and health care helper) and being a student (Sjöberg et al, 2015) including balancing fidelity with disruption of fidelity (Rooney et al., 2015), issues concerning the technology (the mannequin) (Winkel et al., 2014). The teacher's competences in relation to conducting the debriefing in a constructive tone and ensure 'psychological safety'. (Edmundson et al., 2016), including the ability for reflection (Flatgård & Berg, 2016). Finally, research includes the balance between the students' self-directedness and the teacher's directions. (Khaled et al., 2014; (Kolbe et al., 2013; Lioce et al., 2015).

3 Method

The data collection employed observiews, i.e. observations of the three phases of simulation-based training brieifing, scenario, and debriefing followed by interviews with a group of four students and the teacher(s) who had participated in the observed simulation. At each of the five colleges (He, Ho, Ra, Si, and Sk) 1-2- observiews were accomplished twice (spring and autumn, 2018). The interviews were recorded and transcribed.

4 Results

According to the interviewed teachers, the central role in relation to simulation-based training and learning is the role as facilitator. The role as facilitator differs from the role as teacher in various ways. One difference concerns the teacher's subject knowledge. The teacher prepares and accomplish the lesson, including the relevant theoretical knowledge and skills. The facilitator can expect the students to pose questions or make reflections that include knowledge that the facilitator need to brush up or do not know. "You have to let go of the role as an expert and accept that you do not know everything" (Teacher, Sk).

Another difference concerns the facilitator's scope of control. The facilitator has to be prepared for unexpected situations or questions. The role as teacher is familiar and consequently comfortable, "It is a matter about leaving the comfort zone when becoming a facilitator instead of a teacher. When you teach you are in control at the blackboard; as a facilitator… the students are the players… and one should be able to reflect together with the students" (Teacher, Ho). The facilitator assists the students reflecting on their actions in order that they reach the learning outcome targets. "The students should be more active, they should be heard. When I teach in the classroom, I have the role as the captain. As a facilitator, you can take several routes; I guide them to see various possibilities" (Teacher, Ho).

The several routes mean that the teachers have to be flexible and open to various issues. One of the teachers relates subject knowledge and flexibility, "You have to get your subject knowledge straight; or perhaps it is wrong to put it that way; it is a kind of flexibility. When I am in charge of the teaching I follow a structure; this (simulation-based training) asks for more flexibility; I am much more on my toes, more alert or alert in another way; I do not really know how to explain this." (Teacher Si). Flexibility means that the teachers feel that they as facilitators have to be better prepared than as teachers, "I must know my stuff, because

a lot of issues can be raised, e.g. working posture, communication. When you ask the students you have to be in control of your stuff" (Teacher, He).

In order to maintain control over the training situation the focus on the learning outcome target become particularly important, "The more the students bring in (into the debriefing) the better their learning outcome. E.g., one of the students said "We began by washing our hands with spirits" and I could have continued with this issue; there are so many issues. However, I had to focus on the learning outcome targets." (Teacher Si). Thus the teacher controls the situation by filtering out topics that do not support reaching the learning outcome targets. This means that she will have to decline some of the topics brought up by the students, risking that the students can be hurt or demotivated for engaging in the debriefing. Thus, the teacher's flexibility towards the students' needs for discussing particular topics is challenged, because the teacher has to stick to the learning outcome targets.

A third difference is that reflection becomes a more central and natural tool particularly in the phase of debriefing. However, reflection and feedback are intertwined. The students ask for feedback and some of them even for grades; however, in the debriefing the aim is to avoid direct feedback in order that the students through reflections realize how they perform and how they can improve their performance. According to the teachers, it is difficult to establish a culture for reflection avoiding the direct feedback, "it is a matter of school culture; the culture has to be changed" (Teacher, Ra). Part of changing the culture includes that the teachers are skilled at reflecting together with the students. When the students are not able to reflect on their performance, the teachers need tools to qualify the reflections, "When Erna (the doll) has breathing difficulties and the student is not able to relate this to COPD, I am nervous to bring this up, not wanting to expose her in front of the classmates. I asked her, whether she would have performed differently next time, and she answered 'no'! Okay, she might have had *some* reflections… such as, would there be other solutions? However, it is also risky to propose other solutions without assessing the students which may cause some (of the students) to think that this is not a pleasant situation anymore."

Thus facilitating the students' learning involve considerations about the students' self-directedness: when and how much should the teacher interfere? "There is a risk that the students learn the wrong things; on the other side, there is not one correct answer… Better to feel safe and confident about finding a mutual solution" (Teacher Ra). However too much self-directedness might let down these students: "This group of students ask: What do you want us to do?" (Teacher, Ho). "They can cope with so little" Teacher Ra).

The role as facilitator calls for several competences; the teachers should be able to guide the students in reflection processes; the teacher should have social and personal competences, being flexible and open to the students' needs for bringing up issues. The teachers should be able to invite the students to participate in a genuine reflection on practice while keeping the learning outcome targets in the students' minds. However, most importantly the teachers should be able to change their attitudes about the proficient teacher who will be able to provide solid answers to all the students' questions.

5 Discussion

Corresponding to previous research, mentioned above, the results in this project also point to the importance of establishing a psychologically safe environment for reflecting on practice and to the balance between the students' self-directedness and the teacher's directions of the students' learning.

The role as facilitator gives raise to considerations about the teacher's scope of control. On the one hand, the teacher should establish a milieu for reflecting about the students' performance in the scenario, establishing psychological safety and be open to the students' needs

for discussing various issues. On the other hand, the teacher wants to control the issues for reflection in order to appear well prepared.

Interestingly, the simulation-based training does not entail roles or competences that are not already relevant in relation to e.g. practice-based training or project work. These pedagogical principals have a rather long tradition in Danish VET. Even so, the role as facilitator seems to be a current challenge.

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Biographical notes

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Professional careers in basic VET: an approach from the students' interests

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Abstract

The main aim of this paper is to present the perspective that the students of basic VET in Valencia (Spain) have about their own professional careers, taking into consideration the different interests that they have in the training they are attending. In order to achieve it, we will focus on the students' perspective through three variables: The reasons for the choice of the program; the expectations they project of their training; and the personal identity, which is understood here as the adjustment between their personal characteristics and the profession for which they are being trained. Overall, the results may provide us with information on the development of basic VET considering the adjustment between interests of the students and the educational offering available, and the meaning the students give to the programs in their professional career started in these educational contexts.

Keywords

vocational education; career development; students' interests; vocational interests

1 Researching professional careers in basic VET

This aim is framed in the research project "Success and dropout pathways in vocational training educational system levels 1 and 2" in the region of Valencia. This project in which three Universities from three Spanish regions participate (Universitat de les Illes Balears, Universitat Autònoma de Barcelona and Universitat de València) has as its main objectives knowing the VET students and the conditions that facilitate their itineraries in this training. Moreover, the research aims to develop proposals in order to reduce early school leaving. All this is conducted through a longitudinal study of the itineraries of the students of VET level 1 (basic VET, FPB) and level 2 (Intermediate-Level Training Cycles, CFGM). This longitudinal approach is essential in the research on students' pathways and transitions, as it permits a better understanding of those processes that the students perform in the educational institution (Casal, Merino & García, 2011). Furthermore, it should also be noted that this is the first time that this methodological approach is used for researching VET in the Valencian Region.

Specifically, in this proposal we will present an analysis focused on the Initial VET (level 1) and aimed at knowing the professional careers projected by the students who attend the programs. In order to develop this analysis, we will focus on the perspective of the students through three variables. Firstly, we analyse the reasons for the choice of the program; secondly, we focus on the expectations they project of their training; and finally, we consider the personal identity, which is understood here as the adjustment between their personal charac-

teristics and the profession for which they are being trained. We consider that these three variables allow us to approach the professional career initiated by the students in basic VET. In this regard, in our analyses about professional careers we start with the definition of pedagogical identity proposed by Basil Bernstein (2000, p.66): “a pedagogic identity is the result of embedding a career in a collective base. The career of a student is a knowledge career, a moral career and a locational career”.

In the analysis presented in this paper we will cross these variables with the professional branches of the programs. We consider that this may allow us to obtain a more exhaustive image of the different professional careers projected by the students of the initial level of VET in the frame of the educational offerings available in the Valencian region. Therefore, it will enable us to assess, on the one hand, the management and development of basic VET in terms of educational policy. On the other hand, we will be able to describe in which programs (and in which professional branches) the students are more or less interested in the content. Moreover, we will describe which students project to a greater or lesser extent a career in the profession in which they are being trained.

The data on which these analyses are based correspond to the results of the first pass of the longitudinal study conducted in the academic course 2016-17. In basic VET, this included a total sample of 737 students distributed in 71 classes of 41 different educational organizations. In the design of the project and definition of the sample we followed a stratified sampling based on three criteria for stratification by clusters: the professional family of the program, the geographical distribution (differentiating between organizations located in the metropolitan area of those who are located outside) and the ownership of the organization. Together, we have a representative sample of basic VET in the Valencian region.

2 Branches and professional expectations

In order to develop this point we have focused on the professional expectations sorted by the different branches studied. For the purpose of the general study, professional expectations are a part of the career development along with professional identity.

We present the results for 4 different items directly related to professional expectations and 2 for professional identity. Every item is studied for the 16 branches studied in this research. Of the 737 students surveyed, we may count with 729 answers to follow the next results.

The 4 items concerning expectations are:

- 8.a - Thanks to the studies I’m following I will be able to have a job which will provide me enough money to live
- 8.b - Thanks to the studies I’m following I think I will manage to pursue what I want
- 8.c - The studies I’m following will help me to have success in my professional career
- 8.d - I will need further training in order to achieve what I really want

The 2 items concerning professional identity are:

- 8.e - The studies I do are adequate to my personal characteristics
- 8.f - I like the profession I’m being trained for

As a general result we may conclude that the most of the students (in almost every case) more that 75% of the sample agree or strongly agree with the statements above indicated. For instance, and 82% of students of the Administration and management branch agree with those statement, as well as the 89% of the Transport and vehicle maintenance.

Table 1 Branches and professional expectations

Branches	8.a	8.b	8.c	8.d
Administration and management	82%	64 %	86%	93%
Agriculture	88%	70 %	82%	92%
Graphic arts	89%	89 %	89%	78%
Crafts	63%	38 %	75%	88%
Trade and marketing	85%	71 %	79%	92%
Electricity and electronic	84%	70 %	86%	84%
Construction and civil work	55%	70 %	63%	82%
Metal working	82%	71 %	82%	84%
Hospitality and turism	85%	67 %	74%	90%
Information and com. Technologies	77%	74 %	81%	90%
Installation and maintenance	83%	60 %	80%	80%
Personal image	86%	81 %	76%	86%
Food industry	78%	67 %	78%	88%
Wood, furniture and cork	86%	71 %	86%	100%
Textile, clothing industry and leather	43%	50 %	71%	100%
Transport and vehicles maintenance	89%	96 %	83%	79%
Total	82%	71 %	82%	89%

In the case of the items referred to the professional identity, percentages of adherence are as follow:

Table 2 Branches and professional identity

Branches	8.e	8.f
Administration and management	70%	65%
Agriculture	78%	88%
Graphic arts	89%	89%
Crafts	50%	63%
Trade and marketing	75%	79%
Electricity and electronic	72%	75%
Construction and civil work	64%	64%
Metal working	76%	81%
Hospitality and tourism	72%	87%
Information and com. Technologies	77%	83%
Installation and maintenance	80%	60%

Personal image	81%	81%
Food industry	67%	89%
Wood, furniture and cork	86%	86%
Textile, clothing industry and leather	57%	50%
Transport and vehicles maintenance	96%	96%
Total	75%	78%

3 Branches and reasons for choice

The items used to study the reasons of choice match perfectly with the answers provided in the expectations items. The list of items used to study this dimension is (I choose to study this program…):

- 9.a Because I like it
- 9.b Because I couldn't enter another one
- 9.c Because there are job opportunities in the field
- 9.d To improve my employability
- 9.e Because my friends are following them
- 9.f Because my career adviser recommended it
- 9.g Because my family wanted e to follow it
- 9.h because it was required by my enterprise
- 9.i Because I couldn't find a job

Table 3 Branches and reasons of choice

		9.a	9.b	9.c	9.d	9.e	9.f	9.g	9.h	9.i
Branches	Administration and management	60%	33%	46%	32%	27%	60%	31%	4%	5%
	Agriculture	73%	34%	59%	73%	24%	40%	26%	19%	19%
	Graphic arts	78%	37%	38%	88%	25%	67%	38%	13%	13%
	Crafts	38%	75%	25%	88%	63%	88%	13%	25%	0%
	Trade and marketing	70%	55%	49%	67%	22%	48%	27%	25%	15%
	Electricity and electronic	74%	37%	53%	74%	29%	43%	31%	5%	18%
	Construction and civil work	45%	45%	27%	55%	36%	55%	36%	55%	25%
	Metal working	15%	42%	56%	67%	34%	42%	45%	18%	26%
	Hospitality and turism	82%	30%	65%	76%	22%	61%	26%	18%	14%
	Information and com. Technologies	79%	32%	45%	69%	25%	48%	23%	6%	7%
	Installation and maintenance	50%	17%	0%	67%	0%	0%	27%	0%	60%
	Personal image	81%	20%	45%	67%	14%	38%	5%	0%	11%
	Food industry	67%	44%	33%	56%	33%	33%	38%	0%	0%
	Wood, furniture and cork	86%	42%	29%	29%	14%	43%	43%	14%	0%
	Textile, clothing industry and leather	38%	62%	25%	29%	13%	63%	38%	13%	13%
	Transport and vehicles maintenance	92%	15%	52%	81%	28%	42%	28%	13%	22%
Total		72%	32%	48%	68%	26%	50%	28%	9%	12%

4 Brief conclusions for discussion

Overall, the results may provide us with information on various aspects of the development of basic VET in Valencia: firstly, we may know the adjustment between interests of the students and the educational offering available in this level. Secondly, they may enable us to assess the

meaning the students give to the programs in their training and in the professional career started in these educational contexts. In this way, we may talk about professional careers from the perspective of the students themselves. Thus, we try to relate the student as an actor of his/her own educational biography with the VET system itself and the programs available in a specific territory.

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Transformations in(to) vocational identity among Norwegian VET students and apprentices learning in school and at work

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Abstract

This paper address the development of vocational identity in the Norwegian Vocational education and training, with data from the MECVET Project which is a large-scale empirical study of the development of vocational competences in three professions, healthcare, electronics and industrial mechanics.. The following research question is explored: How do contextual frame factors of the Norwegian VET model influence the development of the vocational identity of VET students and apprentices in transitions from school to work? The empirical foundation for this comes from a context survey in which central findings are identified. Respondents with strong vocational identities show a substantial interest in the further development of their own professional competence in their chosen professions. The most substantial transformation in the vocational identity development took place in the transitions from school-based to work-based learning, with learner autonomy and increased professional judgement being key aspects, as well as particular traits in the Norwegian VET model, namely tripartite cooperation and high degree of skilled worker's autonomy.

Keywords

vocational education and training; vocational competence development; vocational identities and cultures

1 Introduction

Learning and training for skilled work is subsequently a process of learning and becoming someone else in a process of vocational identity formation, not only in competence development, but also in knowing how to perform skilled work at the workplace. This includes learning to navigate the cultural codes, and sometimes the hardships of learning at the workplace (Collin, Paloniemi, Virtanen, & Eteläpelto, 2008). This paper explores how VET students and apprentices in a Norwegian context learn and develop vocational identity, in the context of the MECVET Project (Measuring Competence Development in Vocational Education and Training) piloting the COMET model (Rauner, Heinemann, & Hauschildt, 2013) in a Norwegian context.

Vocational education and training in Norway follows a two-plus-two sequential model; the first two years are in school, followed by two years of apprenticeship in enterprises ending with a trade examination and a trade certificate (The Norwegian Directorate for Education and Training). The particulars of the different learning contexts from school to work provide us

with interesting transfer issues in applying vocational proficiency from school-based to work-based learning. The Norwegian sequential VET model implies substantial shifts in how the apprentices regard themselves and their own learning trajectories, and accordingly changes in their vocational identity in transitional learning from school to work (Reegård, 2015). Further, this also emphasizes the impact of learning contexts for VET students' and apprentices' vocational identity development. Boundary learning (Akkerman, 2011) is a key aspect, especially in studying the identity developments of the respondents in the transition of status from being a VET student to an apprentice, subsequently in changing the venues of learning from school to work.

The following research question explored in this paper is: How do contextual frame factors of the Norwegian VET model influence the development of the vocational identity of VET students and apprentices in transitions from school to work?

Contextual frame factors are defined as social, economic, policy and cultural codes that influence and structure vocational learning at boundaries between school and work (Johannesen, 2015). These boundaries will provide a discussion about the VET students' and apprentices' views on their competence development, aiming for a contribution about the role of learning contexts, and the role of vocational identity development in VET. Important factors are that these VET students and apprentices have often made early career choices which impact their identity development through the various stages in vocational learning from school to work (Hvitved, 2014).

2 Theoretical perspectives: Vocational identity development

Developing a vocational identity is central to young people having made an early vocational career choice, as well as emerging vocational competency and a cultural affiliation to the selected profession, as *vocational becomings* developing a vocational habitus (Colley, James, Diment, & Tedder, 2003; Collin et al., 2008).

Vocational identity development in the MECVET context can be compared to that of model for competence development, drawing a line from the Dreyfus and Dreyfus (1980) model of a five-stage development of skills acquisition, in which novices improve through encounters with practical learning at the workplace taught by a teacher or instructor (Dreyfus & Dreyfus, 1980). Rauner et al (2011:32) argue that growing a vocational identity is a prerequisite for taking the professional role of an expert. The "from novice to expert" metaphor is accordingly aligned to the foundations in the COMET model, which draws on the concepts espoused by the competence model of Dreyfus and Dreyfus, but in a manner comprising eight dimensions from which the competence development is measured (Rauner, Heinemann, Maurer, & Haasler, 2011).

Transformations of vocational identities in boundary VET learning from school to work are discussed in the context of the impact of cultural factors in the assessment of vocational competencies. The major breaks in the respondents' identity development might be related to their transitions and boundary crossing in changing learning contexts from learning in school to work-based learning (Fejes & Köpsén, 2012). In addition, vocational identity development can be regarded as an ongoing process, in which the VET students and apprentices engage in a reflexive process of negotiating developments on the inside, in the self, with an outside influence in a structural developmental leap influenced by the workplace as the new learning context of the apprentices (Alvesson & Robertson, 2015).

The MECVET context questionnaire related to the respondents' vocational identity is analyzed through the COMET model's emphasis on occupational commitment in VET competence. The respondents in the study express vocational identity transformations in the status change experienced by crossing boundaries in becoming apprentices, seen as aligned to the

classic perspective of Erikson in identity development in the life stage theory of moving from adolescence to young adults (Erikson, 1968).

3 Methodology

The data in the study is from the MECVET project, which is a feasibility study testing the holistic assessment of vocational competence in Norway (Lahn & Nore, 2019, in press). The MECVET project is testing the German COMET model (Rauner et al., 2013) in the context of Norwegian VET at three stages of vocational education and training: 1. Second-year students in school-based VET; 2. First-year apprentices and 3. Second (and final)-year apprentices. The data are case-based test solutions written by respondents, and the study sample is N=458.

All the testees were asked to participate in an additional web-based context survey in all three years of the empirical study, in which the response rate was 95%. Here, the scope of the data analysis are the results of the web-based context survey. Measuring and assessing vocational competency is a complex procedure (Baethge et al., 2009). The discussion concerns how VET students and apprentices regard their own competence development, including vocational and identity development.

4 Results

Items in the context survey were related to the following areas of VET: 1. Questions related to the respondents' backgrounds, their education and the school or enterprise; 2. Questions concerning the MECVET case test just taken and 3. Questions related to attitudes towards work and profession.

The main findings in the context survey are that the respondents expressed their vocational identity as an evolving process when they change from school-based to work-based learning. The development of vocational identities of the respondents were expressed through open-ended replies on the survey context. The variables associated with vocational identity in our operationalization of the study through the survey were particularly related to occupational commitment, frame factors and transformations from from school to work.

The survey may support further analysis of test results in three areas:

1. Factors related to the actual **testing situation** (time used and students' interest in participating in the test);
2. Factors related to **vocational identity** – like further education plans and interests of importance for the development of vocational qualifications as Health Care Workers or Industrial Mechanics. At the same time, it may also say something about their engagement and interest in solving the test-task (motivation); and
3. Factors related to the **framework conditions** for developing trade - specific qualifications at the Vg2 level of education. It may say something about students' preconditions for solving the tasks.

The findings can be summed up in the following manner:

- Respondents with strong vocational identities show a substantial interest in the further development of their own professional competence in the chosen professions in the MECVET study.
- Motivation and interest in the profession of choice were significant variables for the development of vocational identity.

- Plans related to future specific professional career- and life goals also proved to have an impact on vocational identity development, particularly among the apprentices in the study sample.
- Independence and the exercising of professional judgement at the workplace can be seen as prerequisites and conditions for enabling learner autonomy and growth for apprentices in work-based learning.
- Competencies evolve throughout the three years of the study:
    - Cultural factors in the assessment of vocational competencies: trade-specific, regional differences, vocational identity development and motivation
- The impact of cultural, contextual learning at the workplace:
    - "My colleagues are supportive"
    - "I have someone to ask questions"
- The impact of social background variables:
    - "My father has worked in this profession"
- Norwegian apprenticeship training offices "bridging the gap" (Nore & Lahn, 2014).
- The learning constraints and opportunities of work-based learning (Collin et al. 2008, Billett, 2004).
- Boundary learning: Development of vocational identity and cultural codes of learning at work, depending on variables related to work environment, support from training officers and colleagues, but also related to social background variables.
- Literacy and vocational competency: the written tests by the respondents suggest weaker writing competences in expressing their vocational competency than practical task oriented proficiency (Hellne-Halvorsen, Nore, & Lahn, 2019, in press).

5 Discussion

The ideal of the autonomous skilled worker aiming for the development of a holistic understanding of vocational skills and knowledge also entails a new vocational didactics suited for the complexity of vocational cultures (Jørgensen, 2009). Following the COMET model, this argument regarding vocational autonomy is also reflected in MECVET test tasks, solutions and the context survey (Rauner et al., 2011). Furthermore, the vocational practices of electronics use instrumental measurements as core frame factors. This contrasts the written culture in the vocational learning in health care, in which apprentices are accustomed to writing case-based solutions from early school-based VET (Mauroux et al., 2016).

The entrepreneurial thinking and the role of the creativity dimension in COMET are also related to vocational pedagogies and tools for VET, although these are not found in the Norwegian performance-based VET assessment culture (Rauner et al., 2013). Perspectives in vocational cultures that must be taken into account are teamwork and collaboration at the workplace, with a newer emphasis on the importance of developing generic skills, transversal skills and core competences in VET (Nägele & Stalder, 2018).

In Norway, there are also vast regional differences among professions such as electricians working offshore and on vessels on the west coast, and electricians working mostly on cabins and private houses in the eastern part of the country, and is reflected in the Norwegian MECVET-tasks. The gender divide in VET, including the Norwegian labor market, can be seen as another perspective that must be taken into account in discussing vocational identity (Hegna, 2017; Vagle & Møller, 2014). Gender, class and diversity measures should also be included in analyzing transformative identity development in work-based learning in VET, in

the context of the frame factors supplied in a Nordic social democracy with tripartite cooperation and social inclusion.

National VET traditions set a cultural framework for vocational learning and cultural development and vocational identity formation among youth, as well as in the development of competency, with local variations in enterprise and trade-specific working cultures. The expression for the development of a vocational habitus and vocational identity depends on motivation, background and how the workplace facilitate for learning in order for this learning environment at work to be expansive or restrictive (Fuller & Unwin, 2003).

As argued by Billett (2009), frame factors and conditions for supervised work-based learning in VET should comprise systematic guided learning in order to develop learner epistemologies (Billett, 2009). Facilitating for vocational didactics in work-based learning can entail that learning experiences that are not necessarily positive can add to practices fit for vocational learning (Billett, 2015). Developing vocational professional competence is many faceted and requires not only profession-specific skills and knowledge, but also includes the vocational didactics dimensions in the frame factors surrounding VET, in bridging the gaps between learning in school and at work (Nore & Lahn, 2014). These vocational didactics, including outcome orientation, cultural-historical embedding, and structures that are historical, temporal, vertical and horizontal, will certainly be subject to transitions due to the ever-changing nature of work (Gessler & Moreno Herrera, 2015).

The pulls, pushes and challenges of youth culture in knowledge society should be discussed in comparison to vocational cultures and the hardships of work. In order to become someone in vocational becoming and learning, you have to be someone in identity development. In this way, we will obtain new data and a deeper understanding of how contextual frame factors affect youth recruitment to VET, vocational identity development and subsequently future VET learning cultures.

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Schooling for College and Career Readiness: The Personalized Learning Reform Movement in the USA

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Abstract

This paper describes an educational reform project implementing personalized learning (PL) in a middle school. Personalization is the next stage of the choice movement and reinforces the logic of consumerism by bringing teachers and children into coproduction of curriculum and instruction. Yet classroom learning is individualized and infused with technology-enabled tools; and graduation competencies, course goals, and behavioral objectives are established one-on-one with the student. Additionally, project-based learning is featured for the development of soft workplace skills such as communication, problem solving, and teamwork deemed valuable in current employment settings. The state mandates students ages eight to twelve study occupational pathways aligned for college and career readiness. This pedagogical model features data analytics, reducing teaching and learning into newer forms of digital Taylorism.

Keywords

college and career readiness; digital education; personalized learning: school reform

1 Introduction

Personalization is derived from the neoliberal logic of new public management—that governmental agencies should be individualizing services for the purposes of enhancing customer satisfaction. Advocates believe personalization has the potential to transform citizens engaged in reshaping the services they desire; thus, becoming activists for reforming the public sector from the ground up. As showcased in North American schools PL features a digitized curriculum showing content mastery through customized and adaptive means. The Gates Foundation has funded PL demonstration grants throughout the country to increase the visibility of the reform model. Advocates charge that instructional technology will allow more students freedom to control their educational experiences. Online platforms vary from class to class and do not conform to traditional instruction as defined by the Carnegie unit, a uniform standard of contact hours earned for course credit. Digital education promoters contend that as a proxy for learning credit hours stifle educational innovation. Driving this reform movement are the domesticating narratives of human capital development.

2 Research methods

This paper is based upon a small-scale study of PL reform conducted at one middle school in Year Two of a districtwide restructuring to adopt personalized learning. The district was awarded a $4 million dollar three-year grant funded by venture philanthropists at the Gates Foundation with additional support from the Dell Foundation and the Broad Foundation; one of a number of urban schools featuring technology-enhanced solutions “to dramatically increase the career readiness rates particularly among low-income students and students of

color" (Pane, Steiner, Baird, Hamilton, Pane, 2017, p. 3). The sixth to eighth graders in the middle school comprised a school population of 68% white, 21% African-American, and 7% Hispanic, and less than 1% Asian-American, among others. About 50% were on the free and reduced lunch program—a proxy for poverty. Three PL teachers, an administrator and a PL instructional coach were interviewed, instructional practices observed, and a number of artifacts and documents, including lessons plans and class handouts, course syllabi, school schedules, student learning pathways, and examples of student work were examined. The study explored how the design characteristics of personalized learning were incorporated into the state's career and technical education pathway courses offered at the middle school. The researcher investigated:

- How teachers manage instruction;
- How instruction shifts in response to the incorporation of PL principles;
- What difficulties teachers face in their efforts to change instructional approaches.

3 The design model

Although there is not one common definition of personalized learning, the Gates-funded schools conformed to five design characteristics: (a) learner profiles, (b) personal learning paths, (c) competency-based progression, (d) flexible learning environments, and (c) a focus on college and career readiness. The middle school study adapted to the design characteristics just mentioned. First, the PL reform valorized digital media over print media. Students rotated into one of three 75-seat digital labs for about two hours daily (of the six-hour school day). This management scheme enabled scheduling smaller team-taught seminar-styled classes (under 20 students per class) in the core academics. Second, the PL reform featured competency-based instruction. Traditional teacher-centered whole group instruction was supplanted by a student-centered competency-based master plan. That is, lessons were tailored to students' scores on pre- and post-tests, and levels of complexity were adjusted on an individualized learning plan. Yet the practice of personalizing instruction conflicted at times with the teachers' view of customary whole group lecture format. Third, the school climate resonated with the spirit of corporate innovation. Each of the grade levels were assigned a semester or yearlong project in science or technology, STEM-related, requiring they work in teams to develop and complete the learning activity. And fourth, the administrators, teachers, and parents became boosters of the institutional makeover. Unlike direct instruction with lessons uniformly assigned to students, this model asked adolescents to take ownership of learning (within the confines of state-mandated standards) and act responsibly with self-regulating conduct that is uncharacteristic of teens prone to procrastination and laziness. Importantly it required school teachers dramatically change their instructional practices to accommodate digital education.

4 The critics

A number of critics deride neoliberal school reform as experimentation targeted to low-income communities considered lacking in college and career-ready skills. Some say the added costs deprive these neighborhoods from much needed local school district operating funds. Others are concerned about the lack of attention to academic comprehension by claiming reformers tout a skills-based curriculum that "excludes students from accessing the theoretical knowledge they need to participate in debates and controversies in society and in their occupational field of practice" (Wheelahan, 2015, p. 751). Those unable to judge

knowledge claims are marginalized in society. Schools ought to transmit what Young and Muller (2016) termed *powerful knowledge* leading to new ways of thinking about the world. Toward that end teacher-pupil relations should be characterized as hierarchical in that teachers hold specialized knowledge and certainly "will not be based, as some government policies imply, on learner choice, because in most cases, learners will lack the prior knowledge to make such choices" (Young & Muller, 2016, p.110). Fielding (2012) viewed multiple problems with this latest pedagogical reform as did Watkins (2012), who pondered how personalized learning could be deepened beyond its superficial description of individualizing instruction. And Preston (2017) strongly disparaged competency-based education and training because it reduces the activity of learning into a binary exercise, discounting the analog production of human movement and behavior "with no interest in the internal nature of our being" (p. 4).

5 Conclusion

By advancing the digitizing of public schools and classrooms the personalization movement contributes to the deskilling of teachers who become mere data collectors and analysts. "They no longer have to make pedagogical decisions, but rather manage the technology that will make instructional decisions for them," claimed Roberts-Mahoney, Means, and Garrison (2016, p. 414). Namely learning analytics measure and collect data on students used by teachers (or their aides and para-professionals) to adjust personalized learning pathways, modify student activities, determine content mastery, record grades, and update learner profiles. Clearly multinational corporations like Pearson Education are advantaged by the worldwide market in personalized learning. Massive revenues are generated from the $600 billion annual public education budget. U.S. Secretary of Education Betsy DeVos supports computer-based instruction at all levels of schooling leading to greater for-profit investments. According to Bulkley and Burch (2011), the education industry will "stimulate the demand and supply of education services and products in the marketplace by reducing financial risks for companies and non-for-profits and enhancing the perceived legitimacy of private engagement in public education as a reform strategy" (p. 244).

Due to the spate of federal mandates for high-stakes testing and pre-packaged scripted curriculum initiatives in low-income school districts countless teachers face a deskilling of professional work (Au, 2011). Yet newer processes of personalized learning via data analytics further erode teachers work. To be exact, data streams are generated by the digital assessment technology enabling staff members to create a profile of student scores on a continuum of competency-based skills. Then, an individualized education plan is prepared by the teacher *for each child* to assist with meeting his or her benchmarks. This activity contributes to what Roberts-Mahoney, Means, and Garrison (2016) maintained is an advanced form of digital Taylorism that

> not only reframes education as a narrow private good oriented primarily toward efficiently preparing students for [the] twenty-first century global economy, it also serves to re-render complex characteristics of human beings into discrete "skills" that are transformed into data points subject to the authority of a computer algorithm outside the control of the individual student, the school, or the community (pp. 416-417).

College and career-ready discourses also enfold teachers into the maintenance of a disciplinary enterprise. As Sonu and Benson (2016) suggested, the child is "invited and coerced into certain kinds of activities" in compliant skills-based classrooms that fulfill the modern social imaginary of competitive advantage. "Here, we find that the child is both an

agent obliged to protect the prosperity of the nation, as well as the subject through which such interventions are inscribed" (p. 236).

As a final point digital education leads to job intensification and expansion because teaching duties are never ending. School administrators require teachers complete a number of bureaucratic tasks required for monitoring, documenting, and recording personalized learning. But consider the intensive labor involved in evaluating online activities. Selwyn (2016) noted how "evidence of each student's 'success' might be based upon the sum of their tweets, blog posts, forum discussions and/or video uploads" (p. 63). Teaching online means reading and grading a number of assignments using interactive platforms. While students gain so-called clickable credentials by completing curricular requirements at their own pace, 24/7, teachers, too, are kept busy managing the course website. At any time of day or night they might be answering inquiries, posting announcements, monitoring student progress, uploading course material, and on and on. Even cleaning out one's email inbox, Selwyn (2017) wrote, is "a necessary evil before commencing a day's work" (p. 4, para. 4).

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Improving VET student teachers' lesson planning competence: The analogy between lesson planning and scriptwriting for anchored instruction films

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Abstract

Learning how to plan a lesson is an important element of student teachers' professional development. There is a vast range of theories, models and guidelines to support this learning process. However, their theoretical bases, empirical evidence and practical benefits vary considerably. Moreover, lesson planning is frequently neglected by teacher education research. The evidence-based approach presented in this paper focuses on the improvement of the lesson planning competence of vocational education and training (VET) student teachers from a business and economics didactical perspective. The innovative idea of this concept is an analogy between lesson planning and scriptwriting for anchored instruction films. The accompanying research project hypothesises that students should plan more subject didactically based and sophisticated. Moreover, it can be assumed that they also focus the learning processes of individuals and their interactions.

Keywords

anchored instruction; lesson planning; teacher education research; teacher professionalisation

1 Introduction

Lesson planning is a basic competence of professional teachers. That is emphasised in national standards for teacher education, published by educational institutions like the German Standing Conference of the Ministers of Education and Cultural Affairs (KMK, 2014) or the British Department for Education (DfE, 2011). Hence, learning how to plan a lesson is an important element of student teachers' professional development.

A vast range of theories, models and guidelines exist that advance lesson planning. They emerge from different fields of research on teacher education and from practically oriented institutions. Therefore, the theoretical bases, the empirical evidence and the practical benefits of these elaborations vary considerably. Beyond that, lesson planning is frequently neglected by teacher education research, although teaching and assessing are often objectives of empirical studies (John, 2006; Rakhkochkine, 2011; Reigeluth, 1983).

In German teacher education, lesson planning is often a domain of general didactics (Arnold & Lindner-Müller, 2012). Because subject-specific objectives, contents, methods and media play an important role in lesson planning, it is greatly influenced by subject didactics as well.

As a result, there is a lack of advanced, subject didactically based teaching-learning arrangements to improve students' lesson planning competence and empirical studies on their effects.

The evidence-based approach introduced in this study focuses on the improvement of the lesson planning competence of VET student teachers from a business and economics didactical perspective. The innovative idea of the seminar is an analogy between lesson planning and

scriptwriting for anchored instruction films. This concept is the main issue of this paper. The accompanying research project hypothesises that students should plan more subject didactically based and sophisticated. Moreover, it can be assumed that they also focus on the learning processes of individuals and their interactions. First analyses of pre-post vignette tests show positive developments in the student teachers' lesson planning competence.[1]

In chapter 2, a cursory overview of lesson planning theories, models and research is outlined. Based on this, the conceptual principles of the didactical design are described in chapter 3. The article concludes in chapter 4 using perspectives of the approach and the research project.

2 Lesson planning: cursory overview of theories, models and research

Apart from the above-mentioned guidelines for lesson planning, there is virtually a vast range of theories, models and research about this basic teachers' competence. The following remarks give a brief overview of these central works.

The task of lesson planning is quite extensive and complex. With a focus on student learning, teachers have to consider and integrate subject-specific objectives, contents, methods and media into their professional actions. Furthermore, educational aspects, such as planning lessons, are generally characterised by national discourses (Mutton, Hagger & Burn, 2011). Based on this variety of perspectives, the theoretical basis of lesson planning ranges from educational psychology, such as behaviorist, cognitivist or constructivist learning theories (Driscoll, 2005), to curriculum studies, such as curriculum theory, curriculum analysis or curriculum reform (Richards, 2018), and different didactical traditions, such as instructional design in North America (Reigeluth, 1983) or general didactics in Germany (Arnold & Lindner-Müller, 2012).

As lesson planning is significantly influenced by national frameworks, the subsequent outlines exemplarily refer to Germany.[2] Over the last several decades, different didactical models have been elaborated. They focus on specific issues in teaching and learning and their conditions. Hopmann (2000) points out that classical didactical models, such as Klafki's, often dominate university teaching-learning environments. However, it has been argued that lesson planning is not as linear as these models suggest (Mutton, Hagger & Burn, 2011).[3] Moreover, these models often emerge from the general didactics field (Rakhkochkine, 2011), even though lesson planning is greatly influenced by subject didactics. In the German VET system, for instance, teachers have to consider vocational action competence as a specific educational objective. Beyond that, lessons are organised as so-called learning fields. Via this conception, curricula are based on work and business processes rather than subjects and refer to approaches of situated and problem-based learning (Mulder, Weigel & Collins, 2007). Sloane's (2009) didactical model integrates these aspects from a business and economics di-

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1 The approach is part of the business and economics didactical project "Improving professional (planning-related) action – anchored instruction" at the University of Kassel. It is funded within the framework of the joint "Quality Campaign for Teacher Education" by the German federal government and states and financed by the Federal Ministry of Education and Research, project number: 01JA1505.

2 For an international perspective on theories, models and research on lesson planning, see Rakhkochkine (2011).

3 Regarding the classical didactical model of Tyler, John (2006) refers to a similar situation in the United Kingdom.

dactical perspective. These remarks imply that the theoretical framework of this concept is characterised by tensions between general and subject didactical insights into lesson planning.

Even though lesson planning – as a basis of teaching and assessing – is crucial, little research has focused on this teachers' core task (Aprea, 2008; Mutton, Hagger & Burn, 2011). First, often-cited studies in the United States of America and Germany were published by Clark and Yinger (1979) and Bromme (1981). Currently, a considerable body of empirical work exists on this issue (Rakhkochkine, 2011). Early research focused on the technical conceptions of teachers' lesson planning and was based on theoretical prescriptions for good plans and rational decision-making. Currently, psychological conceptions of lesson planning and the interplay between planning and teaching have been explored (Rakhkochkine, 2011).

This work is based on research projects on modeling and measuring the competence of lesson planning. They mainly refer to Shulman (1987) to conceptualise the knowledge components of teachers' professional competence (Blömeke et al., 2008). Shulman (1987) distinguishes between content knowledge, pedagogical content knowledge and general pedagogical knowledge. *Content knowledge* "rests on two foundations: the accumulated literature and studies in the content areas, and the historical and philosophical scholarship on the nature of knowledge in those fields of study." (Shulman, 1987, 9) *Pedagogical content knowledge* is defined as "that special amalgam of content and pedagogy that is uniquely the province of teachers, their own special form of professional understanding" (Shulman, 1987, 8), and *general pedagogical knowledge* refers "to those broad principles and strategies of classroom management and organisation that appear to transcend subject matter" (Shulman, 1987, 8). Overlaps and interrelations are reported between pedagogical content knowledge and general pedagogical knowledge. Therefore, defining the boundaries of these concepts is theoretically difficult (Blömeke et al., 2008; Messina et al., 2018).

By focusing on future teachers' lesson planning competence, the three core domains of their knowledge have to be simultaneously addressed (Blömeke et al., 2008). In this regard, pedagogical content knowledge plays an important role, as it "represents the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and abilities of learners, and presented for instruction." (Shulman 1987, 8) Figure 1 illustrates these coherences.

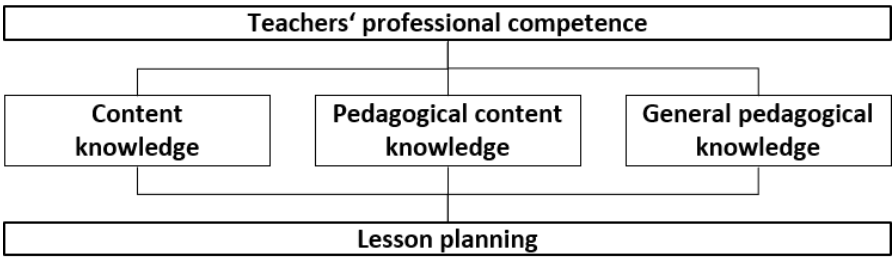

Figure 1 Domains of knowledge of teachers' professional competence and lesson planning

The identification of special aspects of lesson planning concerning pedagogical content knowledge[4] on the one hand and general pedagogical knowledge[5] on the other hand is therefore an interesting theoretical question that this research project explores.

Subsequently, the conceptual principles of the approach to improve the lesson planning competence of student teachers are outlined.

3 Conceptual principles of the didactical design

The teaching-learning arrangement at hand is intended for student teachers in the master's degree program for business and economics education at the University of Kassel. Against the objectives' background and seminar's contents, this chapter will focus on the students' core task: planning lessons with the assistance of the analogy between lesson planning and scriptwriting for anchored instruction films.

The main objective of the course is the advancement of the students' lesson planning competence (objective 1). By focusing on the relevant contents and the technical terminologies of the lessons to be planned, the students have to profoundly deal with economic sciences (objective 2). Moreover, they must take principles of business and economics didactics into account, such as action orientation, work and business process orientation, complex teaching-learning arrangements, situated learning and anchored instruction (objective 3).[6] Not least, the students have to focus on pupils' individual requirements (objective 4) within iterative planning processes (objective 5).

At the beginning of the seminar, the student teachers reflect on their experiences with planning teaching-learning arrangements. Based on this, the discussion of established general and subject didactical models takes place. Their main objectives and benefits for lesson planning are focused on (see chapter 2). Subsequently, the introduction of Sloane's (2009) business and economics didactical model serves as a common and consistent theoretical basis for the prospective lesson plans. The model integrates the above-mentioned subject didactical principles and offers criteria with which to design teaching-learning arrangements within learning fields. Central questions concerning subject didactical (goal and educational orientation, situational adequacy and narrative embeddedness, process orientation, learning and working strategies) and technical (scientific adequacy and application of knowledge, reduction and transformation, generalisation) issues serve as guidelines for lesson planners.

The innovative analogy between lesson planning and scriptwriting for anchored instruction films is at the centre of the seminar. At the beginning of the planning process, teachers have to consider specific aims. They choose appropriate content and plan pupils' interactions. Scriptwriters also start their work with a story in mind. They imagine characters whose interactions lead the story line to fulfilling its purpose (Field, 2005). Scripts for anchored instruction films are focused, as anchored instruction – similar to business and economics didactics – refers to concepts such as situated and problem-based learning (Bransford et al., 1990).[7]

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4 See Kuhn, Alonzo and Zlatkin-Troitschanskaia (2016) for fundamental research on pedagogical content knowledge in business and economics didactics.

5 See König et al. (2011) for fundamental research on general pedagogical knowledge in general didactics.

6 German business and economics didactics are significantly influenced by national discourses. Therefore, the definitions and the applications of the abovementioned principles are partly quite specific (Brockmann, Clarke & Winch, 2008; Gessler & Moreno Herrera, 2015).

7 The idea of analogy formation derives from approaches such as "design task" by Aprea (2008) and "lesson play" by Zazkis, Sinclair and Liljedahl (2013). Aprea (2008) uses the analogy in her

Subsequent to the exploration of the analogy, the basics of film production are introduced as templates for written lesson plans. Central instruments are the film sketch and the script. The film sketch is an outline of the lesson, briefly describing its aims, contents, methods and media. In the script, the actions of the teachers and pupils are edited in a scenic and dialogical shape. The film sketch and the script contain the teachers' goal-oriented activities and the pupils' anticipated activities.

After practicing these heuristics, the students plan lessons using the analogy of scriptwriting for anchored instruction films. They work together in pairs and conceptualise ninety-minute lessons. Regarding the contents, the students focus on the learning field "planning, managing and controlling procurement processes" of the "industrial business management assistant" occupation. The written lesson plans and specific reflection tasks are the basis of the students' performance assessment.

Figure 2 shows an example of an introduction of a lesson that was planned in the form of a script. Stage directions, monologues and dialogues characterise the lesson's chronological sequence. The planner's subject didactical reflections are highlighted with a grey background, and the technical reflections are located in the footnotes.

concept to coach business and economics education student teachers in planning lessons. The mathematics student teachers of Zazkis, Sinclair and Liljedahl (2013) plan lessons in the form of dialogues with a focus on subject-specific problems.

Occupation: Industrial business management assistant
Year of training: 2
Recommended time scale: 80 hours

Learning field 6: Planning, managing and controlling procurement processes

Thursday, 02 May 2018 ⇦ **Stage direction**

07:50 a.m., teachers' room

MARTIN MILLER (thinking):

My lesson with the industrial business management assistants begins shortly. The 25 students (17 men and 8 women) will start with learning field 6 today. *According to the framework curriculum, the learners should be able to plan, manage and control the entire procurement process in the context of procurement logistics by the end of the learning field. In doing so, they must consider the procurement strategy to be part of the corporate strategy (KMK, 2002).*

We already elaborated an overview of industrial corporations' market-oriented business processes in learning field 2. This framework has been repeated by focusing on value-added processes in learning field 4 and the processes of production of goods or services in learning field 5.

I would like to start with connecting to the available competences of advancing business processes. For this purpose, I ask the pupils to create an overview of industrial corporations' basic functions. Subsequently, they should assign the procurement processes to this overview. *The task is repetitive in nature. It will be easy to handle for all learners, so they should work individually.*

⇦ **Subject didactical reflection** regarding *goal and educational orientation*, situational adequacy and narrative embeddedness, process orientation and *learning and working strategies* in the form of a monologue (Sloane, 2009)

08:00 a.m., classroom ⇦ **Chronological sequence of the lesson**

MARTIN MILLER:

Good morning, dear students.

Occasionally, the learners return the teacher's greeting.

MARTIN MILLER:

Today, we will begin with learning field 6. It covers the planning, managing and controlling of procurement processes. To keep track of the central business processes, please outline an appropriate model of an industrial corporation's basic functions[1] in your notebooks. Finally, highlight the procurement processes in your model. Work individually because the task is repetitive in nature. You have a total of 15 minutes.

KATHRIN SCHMIDT: ⇦ **Dialogue**

I have a question about our task. Do we have to name the management processes and core and support processes?

MARTIN MILLER:

Differentiating the processes already goes beyond the task. Please concentrate on an industrial corporation's basic functions. You should assign the procurement processes to these basic functions. Differentiating the processes will be subsequently addressed.

The pupils start outlining appropriate models of an industrial corporation's basic functions.

[1] *Industrial corporations' basic functions are task fields that are connected with contrary flows of goods and funds: 1. procurement, 2. production of goods or services, 3. sales and 4. funding (Hall et al., 2008).*

⇦ **Technical reflection** regarding *scientific adequacy* and application of knowledge, reduction and transformation and generalization (Sloane, 2009)

Figure 2 Example of a lesson plan in the form of a script

The implementation of this teaching-learning arrangement should improve the students' lesson planning competence. The business and economics didactical basis is intended to advance the reference to the respective principles. By planning in scenes and dialogues, the students have to profoundly deal with the economic sciences, and they are encouraged to focus on individuals and their interactions. Finally, this kind of planning requires process orientation.

4 Conclusion

The teaching-learning arrangement was piloted in winter term 2015/2016 in a seminar with 27 student teachers. In winter term 2016/2017, the optimised concept was realised with 9 students. The advanced approach became part of the school-based teacher education course in winter term 2017/2018 with 18 students (Söll & Klusmeyer, 2018).

Prospectively, the innovative didactical design will be integrated with an e-portfolio conception, which improves students' lesson planning competence by making use of business and economics didactical prompts. The approach will also be adapted for all three phases of teacher education.

To examine the effects of the concept at hand[8], pre-post vignette tests (Blömeke et al., 2008) supplement general evaluation tools, such as portfolios and questionnaires, in a parallel test research setting. The collected data are analysed using methods of qualitative content analysis (Saldaña 2016). The first exploration of the 84 paired vignette tests shows positive developments of the student teachers' lesson planning competence, operationalised through the quantity of the addressed categories. However, the explanations of coherences between the categories are partially absent or not very sophisticated. In-depth analysis will be applied in the near future.

In conclusion, the didactical design and the research project have the potential to improve the theory, research and practice of lesson planning and to support innovation in teacher education.

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[8] The objectives of the concept are described in chapter 3.

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How is VET teacher's professionalism changing in work-based learning? An empirical research in some Italian schools on the model of school-work alternation

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Abstract

The paper reports an hypothetical framework for Vet teacher training in work-based learning within of my doctoral research.

The role of the teacher is becoming increasingly crucial for the student's learning in accompanying him in the school-work transitions. It is necessary, therefore that the teacher is more inclined to a role also of tutor able to activate in students a set of basic skills, technical and soft skills through the experience of learning at work in order to exercise an agency, in their own education and throughout life.

In Italy, this research area is still underdeveloped and therefore needs to be explored in comparison with the German-speaking countries where the dual learning paths are well structured.

Keywords

curriculum development; vet teachers; agency; situated learning; work-based learning

1 Introduction

The theme of VET teacher training is linked to some aspects of the work scenarios on which the pedagogy of work is based, questions including:

- The need to tackle the conditions that generate unemployment, especially youth unemployment (for example, the persistence of a significant proportion of young people in Neet (Not employment, not education or training);
- The need to improve education and vocational training not only as a "second or third choice" for the student;
- The transformation of work processes in progress against the "drivers" that emerge from the digitalisation of organizational processes in companies (Industry 4.0).

In Italy the situation of the Neet is not comforting and continues to increase, from 24% in 2005 to 33% in 2016. In Germany, on the other hand, where the dual system is well consolidated by Neet are continuously decreasing (20% in 2015 to 10% in 2016).

The causes of this continuous negative phenomenon in Italy are the consequence not only of the economic conjuncture triggered by the 2008 crisis, but we can identify the causes in particular in the structural distance between the educational system (school, University) and production systems (companies), already identifiable in the "first transitional phase" (secondary school).

The role of Vet teacher plays a key role in work based learning (WBL). We know how in the German-speaking countries (Germany, Austria, Switzerland, Denmark) where the dual system is consolidated, the teacher holds many roles, both as a teacher and as a tutor. In this perspective, it becomes above all a facilitator of the student's learning towards that process of school-work transition, a crucial step for the personal growth of the student.

In Italy, on the other hand the role of teacher especially in high schools, is still rooted in an exclusively didactic model. In the light, above all, of the ongoing legislative and cultural changes in the Italian vocational education and training system, a new impulse was given to the dual learning methodologies in initial training. In order to successfully train these paths, the teacher himself must begin to change his nature, his attitude towards a multidimensional nature, not only in a didactic key, but in a tutorship key, a guide in an perspective of learner's agency of student.

2 Research design

The doctoral research aims at analyzing and identifying the training "variables" characterizing work-based learning processes.

The research project , therefore stems from the awareness that the training experiences of the young people involved in the WBL pathways should be observed and studied not only and not so much in the measure of "how much" the young will learn and not only from the perspective of employability, but in particular with respect to the characteristics of the cognitive processes activated, to the relevance of changes in the relationship with knowledge, to participation in the process of constructing meanings. Basically, it is about understanding the effects of work experience on the training plan with respect to the cognitive structures of the subjects, and therefore on a long-term plan and the transferability of the willingness to learn.

It is therefore necessary to ask ourselves about some "key questions" such as: how to design new effective learning curricula for the student to facilitate school-work transitions ? How can Vet Teachers enable the learner's agency for life long learning approach?

In order to study work-based learning processes, the following theoretical reference models have been identified. First of all, the category of formativity was taken from the context of Pareyson and Margiotta's thinking. For the elaboration of Taxonomy, as a pedagogical device, Tesi's work has used some relevant theoretical frameworks that are part of the broader context of constructivism: learning by doing and Experiential Learning (Dewey), construct of the practice community (Lave and Wenger), transformative learning (Mezirow) and finally the capability approach (Sen and Nussbaum).

3 Methodology

The survey required the construction of a pedagogical device called "TIQ – WBL" (Taxonomy of quality indicators in work based learning) related to the educational processes in school-work alternation paths.

Within this device I have "explored" five indicators containing each two dimensions.

Below, instead, I report the table with the Taxonomy built for empirical research:

Table 1 TIQ –WBL (Taxonomy of quality indicators of WBL)

Indicators	Dimensions	Description
1.REFLEXIVITY	*Self-awareness* *Self –orientation*	▪ Is the learner able to practice cognitive with regard to professional practice, including through the tutor's mediation? ▪ Is the learner able to independently elaborate development objectives of his work-based learning path with particular attention to improving his / her strengths ("professional mastery")?
2.PARTICIPATION	*Identity* *Responsability*	▪ The learner is able to elaborate in a personal way a conscious participation in the work activities related to his learning path, configuring his identity, in different relational contexts (school, company)? ▪ Is the learner capable of developing "responsible" behaviors in the context of learning at work (an idea of mutual commitment, of shared values, of legitimizing one's own "membership" in the group)?
3.AGENCY	*Personal development* *Self-efficacy*	▪ Is the learner able to identify the goals of his professional development by negotiating with the tutor, medium-long-range training objectives? ▪ Is the learner able to develop his potential autonomously in an effective way?
4.CAPABILITY	*Projectuality* *Functionings*	▪ Is the learner able to exercise his ability to act on a project level, pursuing his / her objectives as values through negotiation with the tutor and the group? ▪ Can the learner develop observable skills of action in relation to the professional context that characterizes his process of learning at work?
5.GENERATIVITY		▪ Has the learner acquired the necessary learning to develop a consolidated and adaptable mental and professional habit for new work contexts?

4 A hypothetical framework for teacher training

The empirical-descriptive research involved the use of qualitative-quantitative tools: focus groups, interviews and self-assessment questionnaires to the actors involved in the training processes related to the case studies (students, Vet teachers).

The case study used was the alternation between school and work in some Italian technical institutes divided into two regions (Lombardy and Abruzzo).

From the analyzes present in the empirical research work, a framework emerges with respect to the lines of development of a quality training process for VET teachers oriented towards an “agency role”.

I therefore indicate, below, five educational didactic areas for VET teacher training process inspired by Taxonomy elaborated and used in the empirical survey.

Educational areas:

1. Reflexivity

Macro-objective: To enhance in the learner “the mental habit” of reflection on working practices to improve its potential and correct errors.

Micro-objectives:

- to develop a process of attention to detail in relation to the activities carried out in the learner;
- to develop in the learner the ability to monitor errors and identify strategies to avoid them;
- to make the learner understand the consequences of failure to "check for errors";
- to facilitate the self-orientation of the learner between knowledge learned in the classroom and skills, and skills learned in the workplace.

Teaching techniques: use of methodological approaches based on the pedagogical theories of reflexivity (knowledge in action) and specific teaching techniques (on-board diary, self-study, observation of working and collaborative practices), individual mentoring.

2. Participation

Macro-objective: To stimulate processes of peripheral legitimation and inclusion of single students in group situations present in working contexts.

Micro-objectives:

- To use stimulus-situations to foster shared relationships with users in work contexts without neglecting the consolidation of the different "identity codes" of the students;
- To promote the growth of the responsibility of the student in the processes of division of tasks and development of cooperative performance.

Teaching techniques: group work, mentoring techniques, didactic games, guided simulation.

3. Agency

Macro-objective: To develop in the learner a motivational orientation to the extension of his / her experiences beyond the simple execution of the task in the working area.

Micro-objectives:

- To strengthen the personal development of the learner through the lever of motivation intrinsic action;
- To experiment the advantages of an orientation to the practice that may have the motivational reinforcement value;
- To work on the lever of self-efficacy to reinforce the size related to the professional dress and skills related to the character of the young.

Teaching techniques: "autocaso", "problem de briefing and problem solving strategies".

4. Capabilities

Macro-objective: To put the learner in the conditions to release new potential outside the classroom by developing a concrete experiential experience on his ability to act and experiment specific skills in the professional context through the development of products, artefacts or results even in a real environment.

Micro-objectives:

- To understand the advantages of concrete "functioning" processes in the context of real life (for example the development of a professionalism able to organize the sale of products made, the creation of "artefacts", participation in exhibitions, events public or competition, the preparation of a promotional flyer, the design of a building using the Autocad program).
- To facilitate and guide the student's ability to act towards his own project and towards the pursuit of objectives understood as values (also towards entrepreneurial capacity).
- To accompany the student in the process of acquiring responsible judgment skills through the exercise of the narrative imagination, and of empathy (Nussbaum, 2015).

Teaching techniques: "project management" techniques, psycho-educational methodologies to support the development of the self as personalized coaching. The educational support activities can develop observable outputs, as an organization of market opportunities for the products produced, development of websites for the dissemination of commercial news on products.

5. Generativity

Macro-objective: To support the expansion of the motivational orientation of young people towards objectives of a wider spectrum than the experience of alternation or linked to individual and intersubjective aspirations.

Micro-objectives:

- Orient the young towards entrepreneurial activities (start up, for example);
- Orient the young towards forms of cooperative work in which we can develop a "leap" forward with respect to future development objectives (design a crawdfunding project, for example)

Teaching techniques: Design training (Project work techniques), practice communities with other students through virtual environments, including innovative ones (eg gamification). Analysis of entrepreneurial good practices at desk research level or through micro empirical

research with interviews and questionnaires. The project hypothesis identified above can be translated into an action plan if it becomes a shared plan between school tutors and company tutors thanks to a common action to negotiate results in terms of teaching objectives, methods and techniques used.

5 Conclusions

The capacity to act (agency) is the fulcrum of an educational project centered on the professional dimension. It is not a matter of developing professional behaviors, which are functional to the processes of adapting young people to work contexts that are already already given, but of setting the conditions for development, through the strengthening of the capacity to act of young people, of a fruitful collaborative experience between business and educational institution.

Industry 4.0 scenarios will have to focus increasingly on training tools that are centered on the person, on his "mindset" and on the ability to interact in professional groups by elaborating forms of sharing and coworking. The experiences of school-work alternation and training apprenticeship are increasingly at the center of the attention of companies and the world of work.

Entrepreneurs no longer need hyperspecialists and technical experts designed to remain displaced after any technological innovation. Instead they seek young apprentices of their own work, ambitious, quick to learn, able to make decisions in the absence of complete information, to share their passions, to work in the community. Passion, mental resilience, decision making: not just skills that can be taught by writing formulas on the board.

From this point of view, the teacher as a tutor plays a decisive role in helping to "give shape" to the action of the learning subject, in order to active him to generate of new values. For example: in transferring the knowledge learned in the classroom by combining it with the technical and transversal skills; to learn by working, and to reflect while working; to relate with colleagues, with the most experienced, to share new forms of socialization within a community of practice, to take responsibility. The role of teacher in this perspective can become the main factor of expansion in the learning process of the subject, within the dual paths. The conditions for the expanding process to take place are as follows:

- The ability of teacher to model the skills to be built in the student in real contexts of learning in situation
- The ability to support group negotiation in relation to the accomplishments made
- The ability to monitor and control errors using this supervision to reinforce learning
- The ability to explore alternative ways to organize the student's learning

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Barreira-Cerqueiras, E.M. & Rego-Agraso, L. (2019). The academic and professional profile of the future trainers in Galicia (Spain): Characteristics and motivations to become a vocational teacher. In F. Marhuenda & M.J. Chisvert-Tarazona (Eds.), *Pedagogical concerns and market demands in VET. Proceedings of the 3rd Crossing Boundaries in VET conference, Vocational Education and Training Network (VETNET)* (pp.243-250) https://doi.org/10.5281/zenodo.2641006

The academic and professional profile of the future trainers in Galicia (Spain): characteristics and motivations to become a vocational teacher

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Abstract

Along the academic year 2017/2018, the University of Santiago de Compostela and the Autonomic Education Office of Galicia (Spain), have developed the first edition of the *Pedagogical and Didactic Specialization Course*. This was aimed to people who owns a VET degree and couldn't access to the Master's degree on Education —requirement to apply to become a teacher within the Spanish vocational training system—. A specific research has been developed from a descriptive perspective. It has been designed an *ad hoc* questionnaire that has been fulfilled by 55 students, 78% of the total population involved (70). Results show that these students are mostly men, older than 35 and trained in *Hotel Industry* or *Automotive* sector. Also, most of students coordinated this pedagogical qualification program with their current jobs. We also looked for relationships between some of the variables object of study and it was found that *sex* and *professional field* are linked.

Keywords

vocational education teachers; preservice teacher education; profiles; teacher motivation

1 The Pedagogical and Didactic Specialization Course for future trainers in Galicia

The Law 2/2006 (LOE, known in Spanish) establishes that to be able to become teacher in the secondary and vocational education and training (VET) schools in Spain, it will be necessary to have an university degree, as well as have attended a pedagogical training program with an official Master's degree level. The regulation also establishes that some professionals who have a VET degree could carry out an alternative training program, equivalent to the Master's degree. We are referring to qualified workers linked to the professional fields of (Royal Decree 276/2007): Personal Appearance; Hotel Industry and Tourism; Textile, Dressmaking and Leather; Transport and Automotive; Wood, Furniture and Cork; Mechanical Manufacturing, and Arts and Crafts. In addition to these professional groups, we must add the special regime sports education (Order EDU/2645/2011).

In Galicia this training offer was lacking (Sarceda et al., In press), so, to answer to the social demand, a collaboration agreement was signed between the Autonomic Education Office of Galicia (Spain) and the University of Santiago de Compostela. With this agreement the *Pedagogical and Didactic Specialization Programme towards Vocational and Education Training Teachers* begins its path since the academic year 2017/2018. A training space was created which aims to train pedagogically the future technical professors of VET by joining institutional efforts.

This Course has 60 ECTS and it's developed under a blended learning modality (68% on line and 32% face-to-face). It's a modular training program, composed by 3 types of modules: generic modules —related whit the history of the Education System; educational processes, contexts and people (students, teachers, families) and professional teacher skills—; specific modules —focused in the didactic process inside Initial VET— and, *Practicum* modules —students has to complete an internship in vocational schools along Galician territory—.

2 Methodology

This is a descriptive research, because it aims to approach the object of study from a perspective of recognition and analysis of reality. In this case, our object of study is the students of the *Pedagogical and Didactic Specialization Course* of the University of Santiago de Compostela in its first edition (2017/2018). The specific aims of the study in relation to these students were, on the one hand, to know their academic and professional profile, and on the other hand, to approach the overall assessment that participants make of the training. This information will allow us to establish a profile of students interested in this pedagogical training Course. The instrument used for the compilation of data was an *ad hoc* questionnaire with 45 items of different types and 161 variables organized around 5 analysis dimensions: general data; motivational aspects towards the teaching profession; self-perceived level of teaching skills development; contribution of the different modules to the teaching skills development and satisfaction with the entire Course. In this paper we will focus on analysing answers from students about the variables included in the first and second dimension —general data and motivational aspects to the teaching profession—.

The participating sample is composed by 55 students (Sarceda et al., in press), a 78% of the people initially enrolled in the Course. Sampling was incidental, since one of the last face-to-face workshops was chosen to apply the questionnaire. To analyse the data obtained, a statistical treatment was made including contingency tables accompanied by Pearson's Chi-Square Tests and directional and non-directional measures. All to determine the influence of some of the independent variables (sex, age, professional family) in others related to the profile of the students.

3 Results

In relation to the sex of the sample surveyed, almost two thirds (65.5%) were men, while women represented 34.5%. Both men and women, most of them have more than 35 years (67.3% of the total), and it is noteworthy that the youngest students —between 20 and 25 years old— are only men (12.7% of the sample). Attending to the professional group of their VET diploma, there is a clear predominance of Hotel Industry and Tourism (27.3%), Personal Appearance (25%) —where all students are women— and Transport and Automotive (20%). With less presence there are graduates of Mechanical Manufacturing (14.5%); Wood, Furniture Industry and Cork (7.3%); Textile, Dressmaking and Leather (3.6%), and Arts and Crafts (1.8%). In all of them, the entire sample is composed of men.

Table 1 Sex and Professional Fields of students involved in the Pedagogical Specialization Course (%). Source: Barreira & Rego-Agraso (in press)

	Male	Female	Total
Hairdressing and Aesthetic	0	100	25,5
Hotel Industry and Tourism	73,3	26,7	27,3
Textile, Dressmaking and Leather	100	0	3,6
Transport and Automotive	90,9	9,1	20,0
Wood, Furniture Industry and Cork	100	0	7,3
Mechanical Manufacturing	100	0	14,5
Arts and Crafts	100	0	1,8
Total	65,5	34,5	100,0

We wanted to check if there is a relationship between the variables *sex* and professional field of the students (Table 2). As we can see, the value of X^2 =38.007 presents a p=0.000 significance, which allows us to affirm that there is a relationship between the variables under conditions of dependence.

Table 2 Chi-Squared Test, directional and non-directional statistics about the variables *sex* and *professional field*. Source: Own Elaboration

Chi-Squared Tests	Value	LoF	Asymptotic Significance (Bilateral)
Pearson's Chi-Squared Test Likelihood Ratio N of Valid Cases	38.007[a] 46.805 55	6 6	0.000 0.000
a. 9 boxes (64.3%) have expected a count less than 5. The expected minimum count is .35			

Directional Measurements		Value	Asymptotic Standard Error [a]	Approximate T [b]	Approximate Significance
Lambda	Symmetric Dependent *Sex* Dependent *Family Group*	0.407 0.737 0.250	0.097 0.101 0.092	3.410 4.334 2.486	0.001 0.000 0.013
Goodman & Kruskal's Tau	Dependet *Sex* Dependent *Family Group*	0.691 0.191	0.075 0.050		.000[c] .000[c]
a. The null hypothesis is not assumed b. Use of the asymptotic standard error that assumes the null hypothesis c. It is based on the Chi-Square Test approximation					
Symmetric Measurements		Value			Approximate Significance

Phi Cramer's V Test Contingency Coefficient N of Valid Cases	0.831 0.831 0.639 55		0.000 0.000 0.000
a. the null hypothesis is not assumed b. Use of the asymptotic standard error that assumes the null hypothesis c. It is based on the normal approximation			

From the directional measurements (Table 3) that we have applied (Lambda, Goodman & Kruskal's Tau), we can verify that there is a high level of association between these two variables. The asymmetric consideration of the design can explain their relationship, in the sense that the values of both variables are distant from each other in the 2 tests, obtaining in Lambda more distant scores. The non-directional measurements (Table 4) indicate again that there is a high level of association between the variables analysed, because the Phi coefficient approaches 1 (Phi= .831 p= .000). The Cramer's V Test also indicates a high degree of association, since its result is similarly close to 1 (V= .831, p. = .000). The same happens with the high contingency coefficient (C= .639, p= .000), although this test does not reflect so strong relationship as the previous ones.

With regard to *age*, as we said before, 67.3% of the sample is over 35 years old, and most of these people are linked to the professional fields of Personal Appearance and Transport and Automotive. Regarding their *employment situation*, the majority (78.2%) indicates that they currently have a job, being unemployed the 21.8% remaining. Men represent a greater proportion, both in employed and unemployed groups. Therefore, we wanted to check if there was some kind of relationship between this situation and the *sex* variable. In this case, the Chi-Square Test indicates that there is no dependency relationship between the variables (X^2 =2.170; p=0.141). Likewise, those who were employed were asked if their job was linked to their Vocational Training diploma, to which the majority (79.1%) answered affirmatively. It was 20.9% those who considered that their current employment has no link with their training. Regarding the *time* that *they have been practicing as professionals in their sector* (Figure 1) most of the sample have more than 3 years of work experience (74.4%), which has a statistically significant relationship with the *age* variable (X^2 =30.799; p=0.000). In contrast, only 34.6% have teaching experience (Figure 1), having the highest percentage of them (16.4%) experience as a teacher in private academies. These are followed by those who have worked in training for the unemployed and continuous training (CVET) and finally, by those who have participated in the IVET.

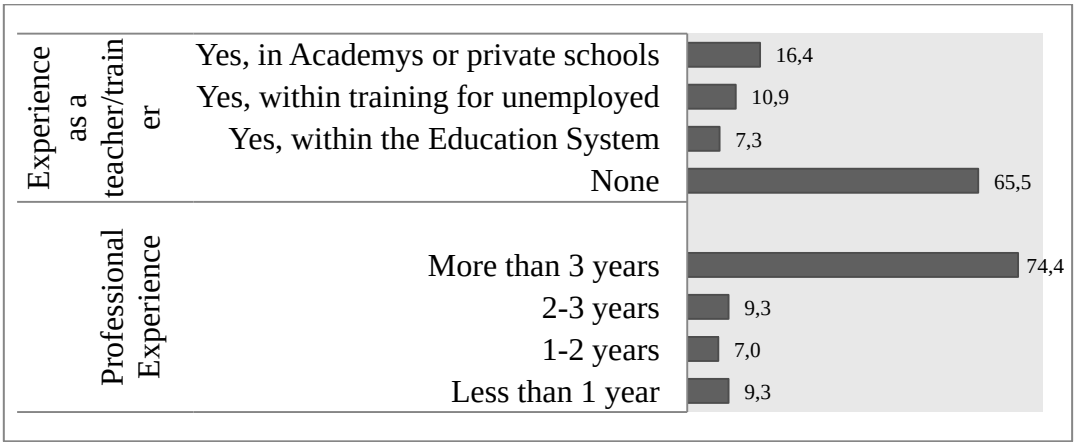

Figure 1 Professional Experience and Teaching experience (%). Source: own elaboration

Given the current consideration of the teaching profession as a sector, in general, feminized (Mariño Fernández, 2008; Carrington & McPhee, 2008; Vieira, 2015), we wondered if there was any kind of relationship between the *teaching experience* and the *sex* and *age* variables, respectively. We reached the conclusion that there is no statistically significant relationship between any of them: with respect to sex variable (X^2 =6.107; p=0.107) and with respect to age variable (X^2 =7.958; p=0.538).

Students have also been inquired about the level of motivation towards the teaching profession. A large majority (98.2%) answered that this is high (49.1%) or very high (49.1%). There is only 1.8% that indicates they had an in-between motivation and any one of the students pointed out low or very low motivations. With regard to the *reasons to become a teacher* (Figure 2), we emphasize that most of the answers are placed in the highest categories (quite or totally agree), except for the answers related to become a teacher because of the family tradition. In this case, most of the answers are located in the category of no agreement (65.5%). On the contrary, the variable that groups a higher percentage of the answer in *totally agree* is that which refers to teaching as a satisfying activity in personal terms (50.9%), followed by the consideration of teaching as an activity also satisfying, but in professional terms (37%). It's worth to mention that the consideration of teaching as a career opportunity was selected by 30.9% of the sample and also a similar figure (29.1%) fully agrees that working as a teacher means having professional stability.

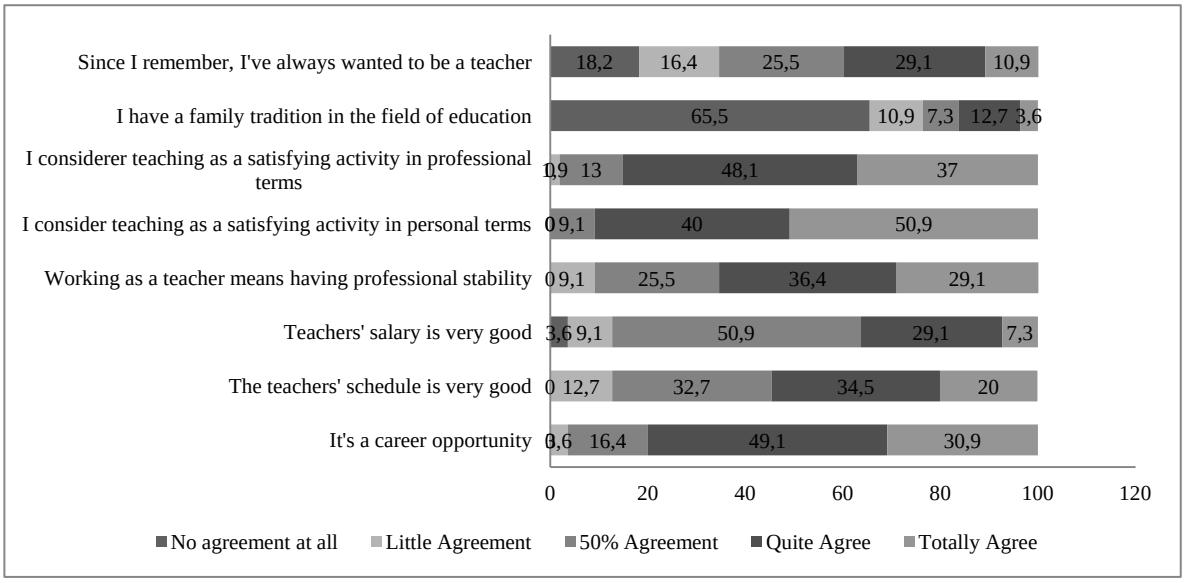

Figure 2 Motivations of the students to become a teacher (%). Source: Own elaboration

4 Discussion and conclusion

The particular situation of those professionals who do not completed a university degree but are still needed as trainers in Spanish IVET, opens a door towards the development of a new training program to promote a pedagogical and didactical skills between the future teachers. This type of pedagogical training is necessary not only for the practical development of the teaching profession (Serrano & Pontes, 2015, p.40), but also towards the study of the characteristics of this different professionals interested on teaching. In fact, there are many research and theoretical approaches that analyse the professional identity of Secondary teachers (Bolívar, 2007, Timostsuk & Ugaste, 2009; Pillen, Den Brok & Beijaard, 2013), their expectations and motivations (Martín & Molina, 2017) or the assessment they carry out about the Master's Degree of Education (Buendía et al., 2011, Benaroch, 2011).

However, this is not happening with IVET teachers. In the international field, attention has been paid to the teachers self-perceived needs with respect to their skills (Santori, Tacconi, & Caputo, 2015), their status and social perception (Rasmussen, 2016) or their possibilities of having a career development (Hofmann et al., 2014). However, in the analysed literature, there are only a few references that address the issue of the profile of the future teachers in a specific way —despite of the educational stages to which they are oriented to—. There are however, some exceptions focused on the demographic perspective (Zumwalt & Craig, 2009, Feistritzer, 2011) or the profile based on sociocultural values and motivations to be a teacher (Richard-son & Walth, 2006). The specific profile that we can draw within this paper about the future IVET teacher, indicates that the typical person is a man with more than 35 years old, with an access qualification probably linked to Hotel Industry and Tourism or Transport and Automotive. Furthermore, he usually balances the pedagogical Course with a job and he has a professional experience of more than 3 years.

We also analysed if there are significant dependency relationships between the variables studied, obtaining positive results with regard to the professional field and the student's sex, as well as professional experience and age. In addition, what is stated in this research matches with the traditional sexual division of labour applied to VET (Mariño Fernández, 2008). This persistent clear gender bias in VET —horizontal segregation—may have its origin in vocational choice (Volodina & Nagy, 2016), but it also seems to be clearly related to the segmentation of the labour market according to sex (Mariño Fernández, Rial Sánchez & Rego-Agraso, 2011; Haasler, 2015). In this sense, it seems necessary to design educational actions in VET framework, to for example, bring women closer to careers related to STEM (Makarova, Aeschlimann & Herzog, 2016, Volodina & Nagy, 2016).

In addition, the future IVET teacher is not a person who has, in general, previous teaching experience. This reality contrasts with a high or very high motivation towards the teaching profession. We could say that these are people who want to redirect their career (Berger & D'Ascoli, 2012) towards teaching. The reasons given to make this decision had to do with the gratification that the exercise of teaching supposes at a personal and professional level, which may be related to the self-perception of their teaching skills or with the value attributed to the teaching fact (Richardson & Watt, 2006). The students also linked the teaching activity with a stable professional opportunity and this is a recurrent point in several researches on teacher motivations (Kyriacou, Hultgren & Stephens, 1999, Richardson & Watt, 2005).

The organization of a pedagogical and didactic training aimed at professionals who do not have a previous university degree is a challenge for Spanish Universities, due to its complexity and because of the access profile of the students —in many cases, far away from the strictly academic uses—. One of the keys seems to be to know in depth these students and their motivations, in order to administer a training that meets their expectations and, at the same time, grant them an authorization for teaching. They must know the IVET system, be able to analyze its framework of action and also to understand the challenges that this educational stage has ahead.

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The Internationalisation of VET: German VET Providers Abroad – Transfer vs. Pragmatism?

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Abstract

Germany has a strong VET system, which is commonly seen as a key factor explaining its persistently low youth unemployment rate, high productivity and social cohesion. Many countries across the globe have therefore expressed their interest in establishing a similar system. At the same time, German commercial VET providers are not very active on international markets, compared with their counterparts of English-speaking countries. The German Federal Ministry of Education and Research (BMBF) therefore launched a program for the "internationalisation of VET" which tries to combine export promotion with the promotion of the dual VET system, as it has traditionally been pursued in the context of German development cooperation. This paper sets out to explore the ideological and theoretical premises of this program. Furthermore, it examines how these premises are reflected in the design of the funded projects and whether and how the projects, once they have started to be implemented, adapt their plans to the context of the targeted country.

Keywords

internationalisation; VET; dual system; commercial VET providers

In the light of a rediscovery of apprenticeship (Rauner and Smith 2010) and due to its presumed capacity to conveniently resolve issues related to both economic competitiveness and social cohesion, VET- more specifically dual forms of VET- have increasingly been subjected to "cross-national attraction" (Philipps and Ochs 2003). Germany, too has found itself pushed to gradually internationalise its VET system. Historically, internationalisation referred above all to attempts at transferring the so called "dual system" to other countries. Currently internationalisation includes opening up German VET to foreign students, establishing transnational trainings as well as the expansion of German training providers' activities on international markets. These developments, which are to a large extent actively supported by governmental funding schemes, are being monitored and critically reflected by VET research. This paper was produced in the context of an ongoing research project funded by the German Federal Ministry of Education and Research (BMBF) in connection with its program "Internationalisation of VET" (*Internationalisierung der Berufsbildung* – "IBB").

1 Contextualisation of the Ministry of Education's Program "Internationalisation of VET"

1.1 Internationalisation of VET

Germany has a long tradition of international VET cooperation. During the 1950s, the first German training centres for skilled workers were established abroad, in the framework of a program called "VET aid for developing countries" (Wolf 2009, p. 49). This first initiative was followed by a growing number of programs involving different ministries, international and multilateral organisations, governmental agencies and non-governmental organisations with sometimes conflicting interests and aims (cf. Wolf 2009, Heller et al. 2015, Stockmann and Silvestrini 2013). In order to improve the effectiveness of international VET cooperation, a strategy was drafted and adopted in 2013 by the federal government in close consultation with other German stakeholders called "VET cooperation from a single source" (*Berufsbildung aus einer Hand*). One of the main elements of the strategy is a common definition of the core principles of German VET underpinning cooperation activities in this field.

Against the background of long-lasting debates about the feasibility of a "transfer" of the German "dual system" to other countries, it states that 'international cooperation is not about transferring the German vocational training system as such abroad. Rather, partner countries are supported in introducing and adapting elements of dual vocational training into their respective system according to their own needs. The independent implementation and the further development in a sustainable way of the dual or cooperative principles are of highest importance' (Deutscher Bundestag 2013, p. 6).

The five core principles of German VET, according to the strategy, are the following:

- Cooperation between social partners, business organisations and the state
- Learning in the process of work
- Acceptance of national standards
- Qualified teachers and trainers
- Institutionalised VET research and consultancy.

1.2 "IBB", a multi-purpose program

Building on the experiences of international VET cooperation as described above, the IBB program is set to meet three main challenges, identified in the program description. The first challenge pertains to the relatively weak performance of German training providers on the international market for VET services. A market study commissioned by the German government in 2012 points to the strong position of Australia, UK and New Zealand, which have taken various measures to support the export activities of their VET providers (cf. Posselt et al. 2012). By contrast, German VET providers are struggling to enter foreign markets, especially given the barriers represented by language and a very demanding and difficult to convey national understanding of VET. A second challenge, which is also an opportunity for Germany, lies with the growing interest of other countries in the German dual system. This interest is reflected in about twenty bilateral cooperation agreements signed between the BMBF and equivalent Ministries from across the globe since 2012. These agreements need to be underpinned with projects, raising the question of funding for a ministry which by law is not allowed to fund foreign partners. Finally, a third challenge is felt strongly by German em-

ployers, who struggle to find skilled workers for production, distribution and support services abroad.

At the heart of the IBB program lies the aim to address the aforementioned challenges by linking export promotion to the political agenda of VET cooperation. In its main funding stream (the c-stream), German training providers are encouraged to submit project proposals for the development of a sustainable business model in order to introduce their products to foreign markets. Providers are encouraged to adapt their products to the demands of a previously chosen country and follow the approach of co-creating their products with foreign clients.

To be funded, projects have to adhere to at least one of the five core principles[1] of German VET and focus on work-, practice- and action-oriented training. As regards countries which have entered bilateral cooperation with the BMBF, projects have to refer to the objectives of the cooperation agreement.

The double purpose of IBB is revealed in the following anticipated program outcomes: First, the program should lead to the "internationalisation of the sector of German VET providers" and second it should "support VET reform in the partner countries". Projects are funded for a duration of up to four years with a grant amounting to up to 50 per cent of the project costs.

1.3 State of research

The question of transfer, especially of the dual VET system, or of elements and underlying principles to other countries has been subject of extensive academic discussion in Germany. A large body of literature focuses on describing and commenting on the evolution of government policies for international cooperation in VET, specifically in the context of German development cooperation (e.g. Arnold 1989, Stockmann and Resch 1993, Greinert et al. 1997, Georg 2006), including evaluations or meta-evaluations of projects and programs (e.g. Stockmann 1997, Wallenborn 2006, Arnold 2006). By critically reflecting on the transferability of German VET, some authors refer to policy-transfer-literature, for instance Barabasch and Wolf (2009, 2010, 2012). Pilz (2017) has developed a six-point strategy as a framework for demand-oriented transfer, while Hummelsheim and Baur (2014) conclude that there are five core elements of a dual system which might be successfully transferred. Finally, other authors question the conceptualisation of the dual systems as "good practice" worth transferring (for instance Deissinger 2015; Euler und Wieland 2015; Heller, Grunau und Duscha 2015; Frommberger und Baumann 2016).

What is lacking so far is research on international cooperation in VET that is theory-driven, or for that matter, dedicated to the development of theory. At the same time, very few studies to date have actually analysed processes of transfer (cf. Gessler 2017,cf. Li 2017) or the adaptation of elements or principles of one VET system to another.

1.4 Research design and questions for this paper

The research conducted for this paper is based on a small-N sample. The unit of analysis are the projects currently being funded through the IBB-scheme, specifically those in the c-stream

[1] Note that in practice, the fifth principle regarding research on VET is not addressed by the IBB funding scheme. Instead, a separate program has been developed which specifically targets the internationalisation of VET research.

which is dedicated to supporting German VET providers in accessing foreign markets ("internationalisation").

The current sample comprises 11 projects in nine countries that started their work between June and September 2017 in different economic sectors and with diverse combinations of project actors (also see 2.1). A peculiarity regarding the sample should be noted here: due to it being based on the funding scheme IBB, the sample was given rather than chosen on the basis of theoretical assumptions.

As the research starts out with a "[…] more or less vague notion of possible hypotheses […]" (Lijphard 1971, p. 692), the purpose of this study is exploratory and aims at getting a clearer picture of the sample regarding the relevance of the five core principles. At a later stage of research hypotheses have to be generated in order to advance with theory development on the subject of internationalisation of VET.

Data for the present research undertaking was gathered through qualitative and quantitative methods. Semi-structured expert interviews were conducted with representatives of German project organisations between February and April 2018. Project documents in the form of project descriptions, interim progress reports and presentations held during workshops or conferences were also analysed. In addition, an extensive online-survey was submitted to project representatives in autumn 2018 which was answered by all respondents.

The puzzle that the authors of this paper encounter evolves around the following issues: projects are supposed to adhere to at least one of the core principles that are thought to characterise German VET and thereby contribute to VET reform in the targeted country. However, recent research has emphasized the historicity of VET institutions and has pointed to the fact that institutional change in VET- arguably a prerequisite for core principles of German VET to take hold in another country- occurs only under certain circumstances and is likely to be incremental and subject to contingency (cf. Thelen 2004, cf. Busemeyer and Trampusch 2012, cf. Vossiek 2018).

Thus, questions for which answers are warranted at this stage are the following:

1. Which role do the core principles of German VET actually play for the product i.e. business model of the projects?
2. To what extent and how do the projects, once they have started implementation, (have to) diverge from the core principles?

2 Empirical findings

2.1 Project Portfolio[2]

The projects funded through IBB's c-stream display variety as regards the country, the branch, the type of organisations involved – but also the product or service to be developed. Out of 11 projects having already started implementation, seven focus on the development of curricula, training courses and materials to be implemented in existing training centres or schools, while four aim to establish a new private training centre to offer initial or continuing VET courses and certificates. Most projects develop trainings for the manufacturing sector,

[2] We decided to omit from the analysis one project in Greece because its set-up rather fits the b-stream of the IBB funding scheme.

two projects also target the logistics sector and one plans to expand into tourism at a later stage. In accordance with the funding requirements, project partners from the private sector justify their application by stating their willingness to develop self-financing activities in the country after the end of the project. Therefore, all projects plan to develop a sustainable business model for future activities in the project country.

The projects are always carried out by consortia involving at least one academic partner (usually a university) and a private training provider or service provider in the field of VET. In half of the projects, not-for-profit organisations such as regional networks or business associations are involved as well. As IBB only provides funds to German organizations, the projects have to find cooperation partners in the respective country. In just about half of the cases, the German Chamber of Foreign Trade (*Außenhandelskammer* or AHK) is among them. Local training providers including VET colleges are also often involved. Some projects also have cooperation agreements with local businesses or business associations and with regional or national VET agencies. Cooperation partners are mainly involved in training provision and networking activities, especially with firms.

Only two countries, China and Iran, are host to more than one project (see Illustration 1).

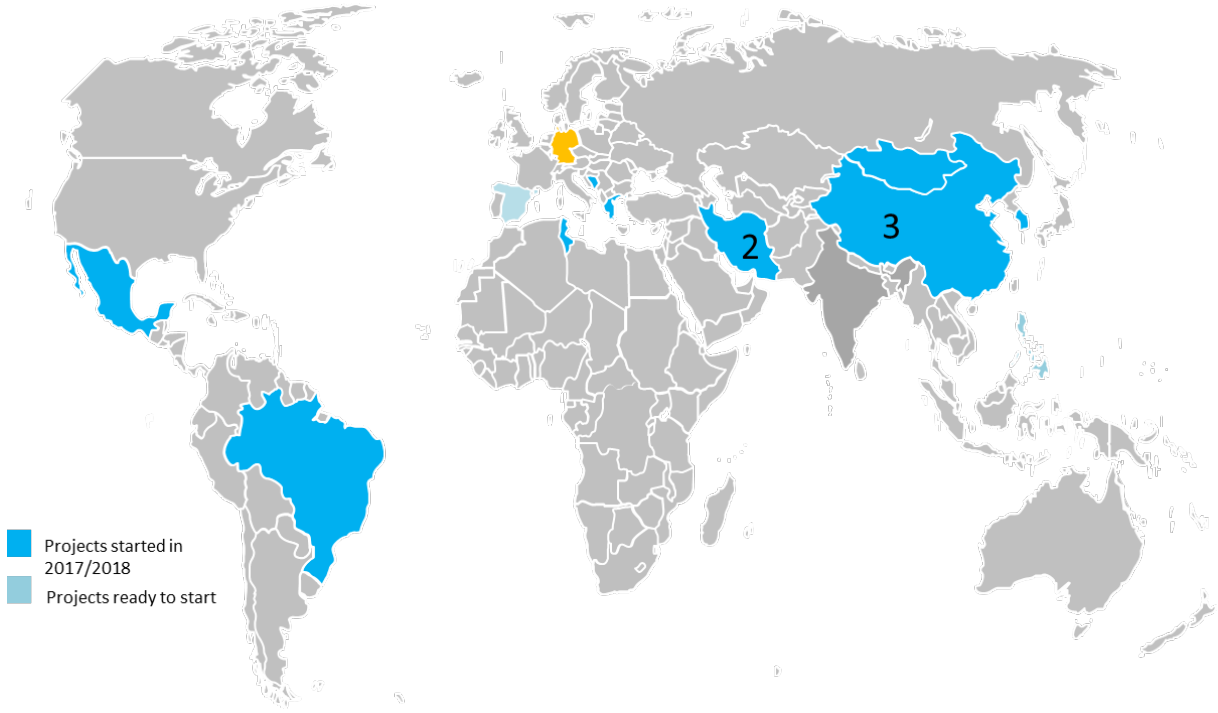


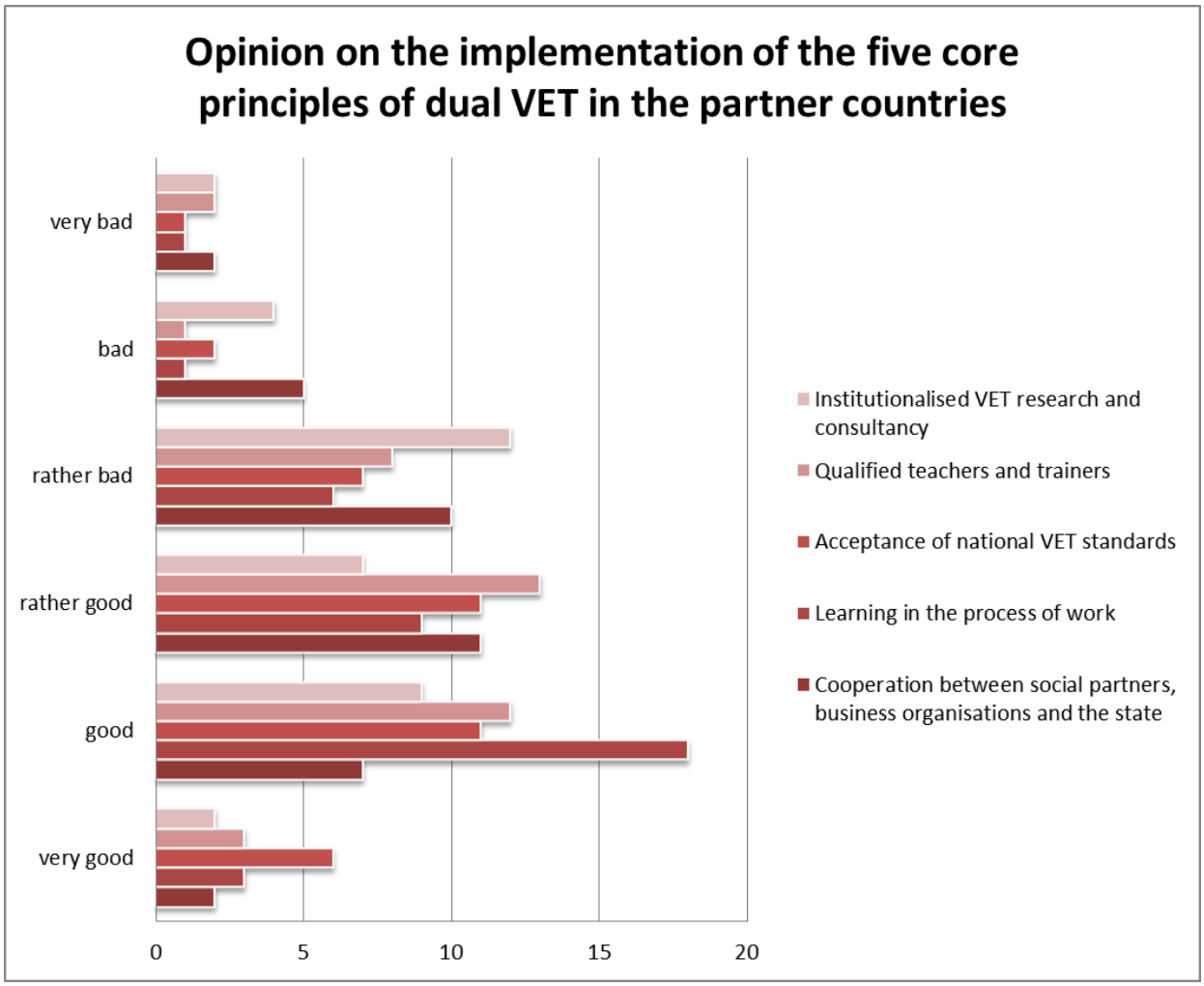
Illustration 1 Projects funded in IBB c-stream (December 2018)

Except for two projects within the European Union and one in Serbia, the majority of projects are being implemented in emerging economies. Many of these countries have introduced reforms to develop new forms of "collective" VET (cf. Busemeyer and Trampusch 2012), but there are some exceptions, such as South Korea.

It is still too early to assess the influence of contextual factors on the implementation of the IBB projects. Nonetheless, it is possible to outline the subjective view of the project actors on the readiness of the respective country for implementing key aspects, albeit in adapted form, of German VET. The online survey conducted in September 2018 reveals that, a few months after kicking off, the majority of projects is especially optimistic as regards the second

principle, “learning in the process of work”. Most negative expectations pertain to institutionalised VET research and the cooperation between social partners, business associations and the state (Table 1)

Table 1 Question to the IBB-funded projects: „How do you rate the conditions in your partner countries for implementing the five core principles of German VET?” (Online survey, September 2018, n=40)



In their comments, the respondents justify their pessimism regarding these key principles mainly by pointing to the perception that institutions in the respective country are not supportive of cooperative processes and that this does not fit the dominant political culture. As regards Teachers and Trainers and Learning in the process of work, the respondents point to the great interest and demand of their local partners as well as their readiness to innovate due to skills mismatch and a dissatisfaction with the current situation. The views on the acceptance of national standards are ambiguous, as respondents seemingly do not share a common understanding of that principle.

2.2 Five key principles of German VET as mirrored in the project designs

The analysis of project proposals, interim project reports as well as expert interviews and the online-survey conducted among the projects provides an overview of how the core principles of German VET feature into the product that is being developed and whether and how projects so far had to adjust their plans during implementation.

The first principle pertains to the collaboration between the state and social partners in all aspects of VET, from curriculum development to financing and learner assessment. While this principle is closely linked to the other three principles below, it is not explicitly addressed by any of the projects. Indeed, the projects do not intent to have an impact on VET governance structures as they feel that this would be beyond their reach. However, they might collaborate with the state at national, regional or local level as in the case for MAIiTeck (South Korea) or GeKaVoc (Kasakstan). Still, collaboration with state entities is regarded as particularly difficult mainly because of bureaucratic constraints and diverging interests among the stakeholders. None of the projects so far involves labor unions or workers' organisations, while a few collaborate with business associations .

The second principle regards learning in the process of work. This principle is relevant for all projects, although its implementation differs, reaching from alternance between school and company to micro-learning tools to be used by employees at the workplace. Two projects (IRI (Iran), MAIiTeck) have participants come to Germany for training. Interestingly, while most projects find it challenging to involve companies in the delivery of their products because of a perceived lack of experience and readiness on the companies' side, some try to build on existing practices of informal, work-based training, for instance in Serbia or Iran. Most projects report a great amount of interest for the principle of learning in the process of work in the respective countries. Didactic approaches building on that principle seem to be a strong marketing argument for the projects.

The third principle pertains to the acceptance of national standards. While one project is planning to deliver national certificates, the majority either intends to offer German or joint certificates or is still weighting different options. Many respondents to the online-survey mention the positive image of German standards in the partner country, where they are often perceived as more up-to-date than national standards.

Principle four, the training of VET teachers and trainers, is explicitly addressed only by a few projects, however, almost all of them include some elements of train-the-trainer during the implementation phase. The focus is on the training of multipliers who are supposed to be in charge of actually implementing the training course developed during the funding period. This prepatory training also includes conveying practical, workplace-related skills, which teachers and trainers in the targeted countries are thought to lack.

None of the projects addresses the fifth principle of institutionalized VET research.

3 Discussion

Looking at the role of the core principles of German VET in the project design, it appears at this stage of research, that learning in the process of work is the most relevant as it is addressed by all projects. As is highlighted in an interview with the project in Tunisia, this principle is seen as the core feature of "Training made in Germany". A closer look at the project documents reveals, however, that the adaptation of this principle to the local context leads to very different results. On the one hand, a project in China aims at implementing initial VET training based on German curricula with school-based and company-based training phases as is common in the 'dual system'. On the other hand, a project in Mexico develops blended-learning modules for the continuing training of skilled workers in German and local automotive companies. Accordingly, the project in China is forced to collaborate with government authorities and Chinese VET colleges, while the Mexican project operates on a free market. Its blended-learning concept does not require local teacher or trainer training, nor is there a need for collaboration with the federal or state government.

Looking at the data gathered so far, it seems that all hitherto analysed projects generally stick to their original plans as regards the integration of the above-mentioned principles of

German VET. However, divergence takes place with a view to the details of the products which are developed, for instance increased modularization of training courses as a reaction to the reluctance of companies to engage in long-term training of apprentices, as is the case for the project in Serbia.

On the basis of this first tentative analysis, several questions are raised for further research:

- How do the project actors interprete the five core principles? Which similarities and differences can be identified concerning the interpretation by the individual projects?
- To what extent does the interpretation of the principles depend on the features of the project on the one hand and on the local context on the other hand?
- How are the projects embedded in the local VET system?
- Which effects does embeddedness have with regard to
    - the incidency of divergence from the original product design?
    - the impact of the projects on local VET systems?
- How willing are the project actors to engage in a co-creative product design process and how does this affect the adherence to the core principles?

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Internationalisation of German VET providers: New Business Models for New Markets?

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Abstract

Context: A special interest of the funding program “Internationalization of VET” by the German Federal Ministry of Education and Research is to support the development of context-related and need-driven business models. This is a special challenge for the involved German VET providers (small and medium sized enterprises) which usually are either internationally consolidated and open up to new markets or nationally experienced. German educational providers in international contexts seem to lack consolidation according to a long-term expansion of their portfolio and also they lack drivers for innovation and for change management within the organisations (Interview with DLR PT, 17.04.2018). The central question is: How do German VET providers develop, adapt and modify their service offer abroad and which role play “promoters" is this process?

Approach: Based on the „business model generation approach” by Alexander Osterwalder and Yves Pigneur we present and analyse an example of a developed business model. The theoretical approach can be located in service science, a heterogenous research concept. Besides, the promotors of innovation and their allocation are analysed.

Results: Starting with a clear idea of a new business model, the analysed project uses several further adaptions of the service to find a customer and context oriented product. Different stakeholders are involved in the process of development and promotors are able to engage in the procedure.

Conclusion: In the context of VET-related services, the business model of the analysis case works so far although the provided service is not part of the standard offers of the company. The service is being adopted to the target market which strengthens the thesis that this procedure is vital for the success of transfer.

Keywords

business model development; service science; program evaluation and research; VET-related services; internationalization of VET

1 Introduction and research approach

The starting point of this article is the current discussion on transfer of vocational education and training. Debates on youth unemployment and skill shortage encourage political discussions and scientific discourses about the German model of dual vocational training and how it could be applied in other education systems (Gessler et al. 2019; Peters 2019). Dual training models are being regarded as a chance to control challenges like youth unemployment and problems in school-to-work transition. At the latest since the financial crisis of 2007/2008 when youth unemployment increased drastically, the issue of employability and innovative ways of qualification became relevant.

In transfer research, it is discussed whether VET can be transferred to the context of other countries. The policy transfer literature refers to findings from politics (e.g., Barabasch/Wolf 2012); different concepts containing strategies and elements have been developed focusing main components of the German VET system regarding transfer (Euler 2013; Pilz 2017); but only few studies are available which analyse transfer processes in detail (see also Gessler 2017).

From the German perspective, there is the problem of German companies abroad to find skilled workers and specialists. The companies need qualified professionals locally where the production takes place. For example, the German Chamber of Commerce in China notes that one of the hardest challenge for German companies in China is to find skilled workers: "*Three out of four companies regard […] finding qualified staff as a major problem*" (German Chamber of Commerce China, 2016).

The funding program "internationalization of VET", funded by the German Federal Ministry of Education and Research (BMBF), wants to dedicate this challenge. The program comprises three different funding priorities:

a) Projects: In cooperation with institutions from the target countries (which do not have bilateral cooperation with the BMBF so far), a)-projects probe in how far bilateral agreement between BMBF and other contries' governments ("Berufsbildungskooperationen") could be expedient. The need is notified by requests from the countries' official bodies themselves.
b) Projects focus these countries which do have a bilateral vocational training cooperation with the BMBF already.[1] Pilot actions and model-like realizations of reform plans regarding the countries' VET systems are supposed to be supported in a concrete, systematic and demand-driven manner. Developments of curricula, training courses etc. can be the target in b)-projects.
c) Projects are funded for implementing education and training services (initial vocational education and training as well as further education). It is a main objective to support the development of context-related and need-driven business models, which is a special challenge for the involved VET providers as they mostly lack the experience of offering services abroad.

[1] The European once are Greece, Italy, Latvia, Portugal, Slowakia and non-European are India, China, Costa Rica, Georgia, Russia, South Africa, Thailand and Mexico.

The research questions of our concomitant research ask which contexts and cooperations enable the projects to successfully[2] reach their goals, which challenges they face and which strategies of problem-solving are expedient.

The idea of the c)-projects is to establish VET-related services abroad to fulfil different demands: qualification and, in sight of the big picture, to make it possible to diffuse the approaches or concepts in the countries' education system. In this analysis, our research questions is: *How do German VET providers develop, adapt and modify their service offer abroad and which role play „promoters" is this process?* This paper presents and analyzes the business models that are part of the c)-project strategies, based on the „business model generation approach" by Alexander Osterwalder and Yves Pigneur (2010).

2 Theoretical approach

2.1 Business model

Our theoretical research concept is located in a business model approach which is called "Business Model Canvas" due to its way of presentation (Osterwalder/Pigneur 2010), which links to Service Science. The economical and societal meaning of services is undeniable – the role of the tertiary sector in relation to the secondary sector grew constantly during the last decades.[3] However, the question arises whether the sectoral economic shifts have already been adequately perceived and processed in science, especially with regard to vocational educational services.

Lusch und Vargo 2006 (p. 4) define service as "the application of specialized competences (knowledge and skills), through deeds, processes, and performances for the benefit of another entity or the entity itself". Service itself offers a range from person-related services to complex business related services. A general accepted definition of service is not easy to be found. Furthermore, a demarcation of Service Science is challenging: Apart from Service Engineering, SDL (Service Dominant Logic), Social Science Services and SSME (service science, management, and engineering), there are far more approaches for exploring services. In our research, the concept of Service Engineering is applied: Service Engineering combines management and engineering approaches to develop (industrial and non-industrial) services to open up new markets. The weakness of Service Science is that it is a general and no domain-specific approach. This means that we need to create a VET-theory related Service Science for our research using the theoretical concepts described below.

For the conceptual work, some of the c)-projects work with the Business Model Canvas (BMC) already. Osterwalder and Pigneurs (2010) approach of the BMC is to compile an image of the own business model to improve the understanding of processes, relations and problems by visualizing. The scheme of the BMC is visualized in figure 1. The Canvas is all about thinking in categories of business and answer the following questions:

- Value Propositions: What's compelling about the proposition? Why do customers buy and use it?

[2] The success of a project needs an operational definition for this paper which is: Projects are able to implement their service (product) on the target market.

[3] In Germany, the share of the tertiary sector in the total employment increased from 1970 up to the present from 45.1 percent to 74.1 percent (Fonger et al. 2017, 7).

- Channels: How are the propositions promoted, sold and delivered?
- Customer Relationships: How do you interact with the customer?
- Customer Segments: Who are the customers? What do they think, see, feel, and do?
- Key Partners: What can the company not do itself?
- Key Activities: What strategy does the business do to deliver its proposition?
- Key Resources: What unique strategic assets must the business have to compete?
- Costs and Revenues: What are the business' major cost drivers? How are they linked to revenue?

The heart of the BMC is to link and to relate the elements with each other and with the business model environment. This can be done by prototyping, testing and trials to develop the "first ideas" to a running business model. After a testing phase, the BMC and its elements are supposed to be adjusted.

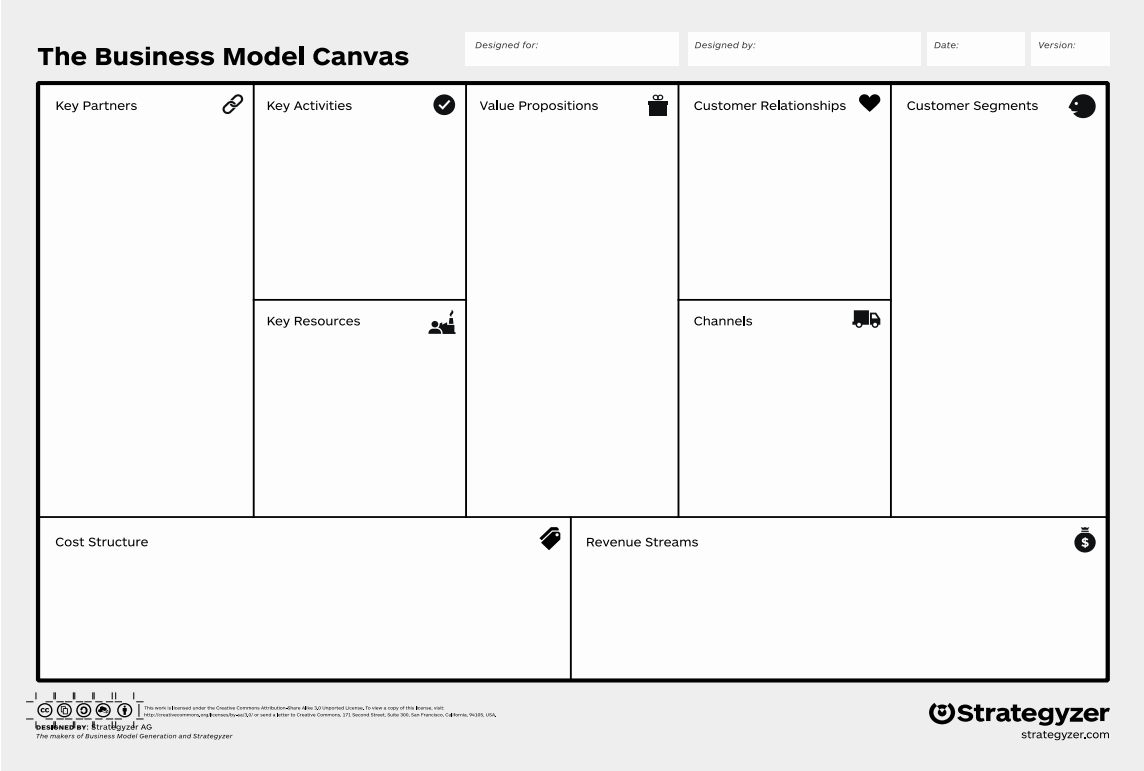

Figure 3 Business Model Canvas. https://strategyzer.com, CC-copyright

Hereinafter, we introduce the second theoretical analysis framework, the promotors of innovation, and we demonstrate the practical application and development of a BMC in Vocational Education and Training by drawing on one of the c)-projects in chapter 3.

2.2 Promotors of innovation

Results of our first online survey, conducted in fall 2018 and executed by our project partner IIT in Berlin, show that 69% of the projects[4] actually work on a project in their respective target country for the first time and only 31% have been active in the country during the last

[4] This includes a), b) and c) projects.

five years. This means a large share of the organizations face the challenges of expanding to a new context and of having to establish new cooperations and connections with potential business partners, clients and local descision-makers such as government representatives. Engeström and Sannino (2010) include this perspective in the theory of expansive learning: “In expansive learning, learners learn something that is not yet there. In other words, the learners construct a new object and concept for their collective activity, and implement this new object and concept in practice.” (ibid., p. 2). Therefore, the authors focus on a development process which is oriented to a given context. Gessler (2017) calls this a *process-oriented approach* (ibid., p. 77). Our thesis is that the types of cooperation – fulfilled through different roles, called promotors – influence the success of a project. There are four types of promotors (Gessler 2019; Gemünden et al. 2006):

- Power promotors contribute through hierarchical power;
- Expert promotors provide expert knowledge;
- Process promotors arbitrate between technical and economic worlds by means of organizational knowledge;
- Relation promotors use extensive network competences to realize innovation.

Figure 2 shows the relationships of two systems, the starting system and the target system which include the four promotor roles each (Gessler 2019, p. 270). The connection is linked by the relation promotors. Fronting the promotors, there are opponents which can be persons as well as artefacts (like rigid routines), alternative concepts and strategies, and destabilizing contexts (e.g., political setting). This illustration can be used as an analysis tool to examine the process of transfer (new concepts, strategies, programmes etc.) with regard to its connectivity to the socio-cultural and education-political environment.

During the next years, the projects will be consulted recurringly about their promotors equipment and development on order to trace the evolution of the promotors’ roles during project implementation as well as innovative elements and transformed contexts. Additionally, the business model is supposed to influence the prospects of success, therefore the development and analysis of the projects’ business models are focused on as well.

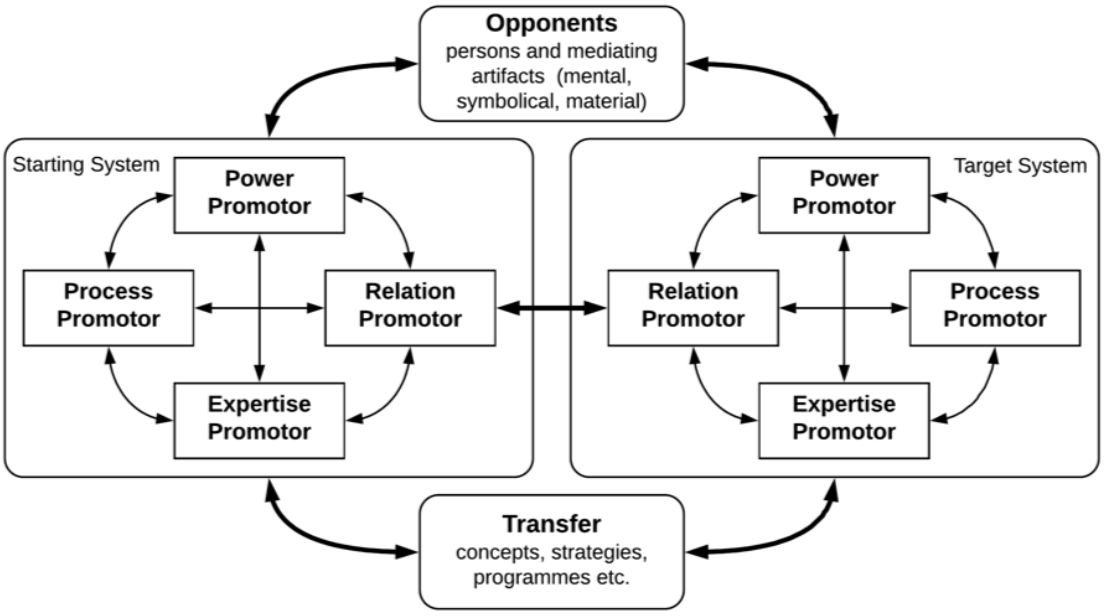

Figure 2 Promotors and opponents in education transfer. Gessler 2019, p. 270.

Currently, 14 c)-projects (which started between mid-2017 and end-2018 and run three years usually) work on the issue: How can a vocational education and training-related service be placed on the market – a foreign, in many cases even unfamiliar market? The countries of interest are Greece, Spain, Serbia, Tunisia, Iran, Kazakhstan, China, South Korea, Brazil, Mexico, and the Philippines. This paper presents the case of a project in Serbia.

3 Case: project NEMID

NEMID[5], a project which strives for the demand-driven development and implementation of a private dual VET school in Serbia, uses the BMC for its strategic planning.

Serbia's youth faces several challenges on the labour market: the share of youths in the Serbian population decreases and youths are disproportionately affected by unemployment – in 2015, the youth unemployment rate was 43,3% (Kovačević 2016).

3.1 NEMID and BMC

NEMID, which was initiated by the German publishing house Klett Präsenzlernen GmbH, considered the following aspects for the first design of the BMC:

Value Proposition. The product is a postsecondary theoretical vocational training in combination with productive workplace learning in a company. The duration is 2 years (see table 1). An accepted certification and good job prospects in the training company (for the trainees) as well as specialized junior employees (for the employer) are part of the proposition.

- Channels. A B2B (business to business) approach via chambers (PKS Serbian chamber of commerce; AHK Serbia) and direct contact with companies is used to reach customers.
- Customer relationships. Two focus groups need to be addressed in particular: teachers (VET school) and trainers (in-company trainers).
- Customer segments. The students in school and the companies are the customers whose needs the product (service) must be fulfilled.
- Key partners. Chambers (PKS; AHK) and ministries (German BMBF; Serbian Ministry for Education).
- Key activities. Theoretical training in professional expertise, methodical expertise and social expertise (in VET school); specific in-company training (workplace).
- Key resources. Teachers, teaching material, organization (VET school); trainers and company (company).
- Cost structure: For Klett, costs of ca. 150€/month/student will arise at full capacity; companies are supposed to pay school fees.
- Revenue streams: school fees paid by companies; revenue for companies results from the value added for the trainees during and after the training time.

[5] The acronym NEMID stands for "Nachfrageorientierte Entwicklung und modellhaften Implementierung einer dualen Berufsschule in Serbien", which can be translated with "demand-driven development and model-like implementation of a dual VET school in Serbia".

Table 3 NEMID first business idea. Based on Ayen (2018).

Increment 1: 2 years postsecondary dual VET course	
year 1	year 2

After some months of project activity, as well as different interviews and feasibility checks with the German Chamber of Commerce (AHK, Außenhandelskammer) in Serbia and PKS, NEMID decided to adjust the original plans due to two facts: Firstly, the responses made clear that the heterogenous educational level of students were not considered. Secondly, a two-year school fee is too high a risk (and cost) for companies.

Therefore, an iterative process of BMC development was initiated: The product was modified towards a postsecondary VET school which is modularized and which offers pre-courses (to make up for deficits accumulated during secondary schooling), see table 2.

Table 4 NEMID second increment. Based on Ayen. (2018).

Increment 2: postsecondary dual VET course, modularized with pre-course		
Pre-course 4 weeks	Module 1 6 months	Module 2 6 months
	Module 3 6 months	Module 4 6 months

After professional content-related feedbacks, NEMID realized that a modularized form might be risky, because for companies, each module is a decision to invest (or to not invest) for the company. Hence, companies and trainees could tend to buy the pre-course and one or two basic courses and leave the VET school afterwards.

A third iteration followed: The VET school offers a pre-course (duration: 4 weeks) and a two-year course (see table 3).

Table 5 NEMID third increment. Based on Ayen (2018).

Increment 3: postsecondary dual VET course with pre-course and mid-term exam		
Pre-course 4 weeks	Year 1	Mid-term exam Year 2

Considerations and responses of companies – which are supposed to eventually use the service finally – were positive, but they first wanted to 'dip only a toe in the water'. Furthermore, companies do not want to pay for the entire amount of school fees. Therefore, a further adaption of the service offer has been made (table 4):

Table 6 NEMID fourth increment. Based on Ayen (2018).

Showcase-course; 4 weeks	Increment 3: postsecondary dual VET course with pre-course and mid-term exam			Specific courses & staff retention; about 6 months
	Pre-course 4 weeks	Year 1	Mid-term exam / Year 2	

Here, students pay the pre-course themselves and companies pay for both years of training, additionally to a training wage for the trainees in the second year.

NEMID plans to start implementation of this concept in 2019 and the project is prepared to undergo additional conceptual changes. This actually is part of the approach: The content and framing of the service is customized to the context of Serbia and the companies operating in the country which will draw benefits from the VET service.

3.2 NEMID and promotors of innovation

For an analysis of the promotor roles in NEMID, the project genesis and the interaction with political acteurs are regarded. Besides, the promotors' roles in the iteration and modification process are being analyzed.

In the very beginning, there was the idea to sell educational services in south east Europe due to a predilection to this geographic region of the Klett board spokesman. Serbia has been chosen after a feasibility study has been made and for the reason of already existing networks to rely on. A subsidiary of Klett Präsenzlernen is Klett Eastern Europe with an affiliate in Serbia which sells textbooks successfully already. Now the business segment of vocational education and training is supposed to be added. Thus, companies are addressed as these announced the need of well trained youth employees. It is a main barrier to find partner companies that are not only searching for qualified employees but are also willing to pay for this resource.

Which political acteurs are involved? PKS, Serbian chamber of commerce supports the search for companies and carried out a company survey (500 businesses, 80% of these are German owned). Furthermore, close contacts to the Ministry of Education via a former Klett Serbia employee ensure the political backup for the project. This is not a direct help for NEMID, but has a legitimizing function.

For the continuation of the project, the branch manager of Klett Serbia is relevant as she can be identified as a relation promotor. She is responsible for client acquisition and the contacts to the political level. Furthermore, she is the process promotor of the Serbian project part. For the iterative process, she is not relevant so far, still it can be assumed that due to her process promotor role, she took on responsibility to pass the business model developments on.

The PKS network is also assessed to be relevant. Since 2017, there is the compulsory membership for companies in PKS. PKS is going to start certificatetion of trainer's licences and NEMID wants to tie up at this point by training the trainers in the companies themselves in order to have direct contacts into the firms. The head of PKS is an important contact for NEMID who can be seen as a relation promotor as well. In-depth discussions with the head of PKS led to the first adjustment of the original business plan, leading to the second increment.

In Germany, there is an expert promotor who is responsible for the development of curricula. Besides, also in Germany, there is the process promotor who is the consortium leader of NEMID, belonging to Klett Präsenzlernen.

Opponents in NEMID can be described in the following way: In Serbia, it is not common for companies to pay for the qualification of their employees. So decision-makers might stick to their habits and possibly the power of imagination – how actually a system of VET operated by a company – is not sufficient to finally venture the investment.

Our thesis claims that each promotor role should be filled in the country of origin as well as in the country of interest for a successful implementation of VET services. At the moment, there is no expert promotor in Serbia. It is possible that an active process promotor in the country of interest can compensate this lack. Relation promotors presumably constitute an exceptional role without influencing the iterative adjustments directly. This role is filled in Serbia but not in Germany so far. Figure 2 shows that the link between a starting system and a target system is a relation promotor in both systems – this is not given in NEMID. Besides, a power promotor seems to be missing in the whole project.

4 Conclusions

Whether NEMID's business model will be successful cannot beforeseen at this stage. Also, it remains to be seen which shifts or developments of promotors will make progress and also which iterations of the business model are coming up. Our assumptions regarding promotors, their roles in the process of adaptaion (adaption of the business model) and the success of a project can neither be confirmed nor rejected so far.

Analyses of projects and their service developments using the BMC tool is expedient in service science approaches. Our thesis is that success and failure options as well as critical junctures can be determined in this way. At the moment, there is no forecase possible to predict the success of failure of NEMID. As our concomitant research will be able to evaluate the project also after project completion and retrospective reviews will be conducted.

Nevertheless, we conclude that in the context of VET-related services, the NEMID business model with envisaged redesigns and iterations works. The provided service is not part of the standard offers of the company, meaning it is being adopted to the target market. Different stakeholders are involved in the process of development and promotors are able to engage in the procedure. If an identification with the product by the whole organization would be important for the success of a service remains to be seen. This is a second step of development within the organization and could be an indicator for a continued existance of the business model after the funding period, which would finally determine the success of the project.

Likewise, it is necessary to regard macro-economic and comprehensive context knowledge when assessing and evaluating the performance criteria of a single project. Therefore, we use the preparation of context analyses (via desk research). We assume that there is a need for all our cases to be analysed in this way. Conclusions regarding BMC and promotor roles model will be possible then. Besides, both approaches for analysis – BMC and promotor model – are being regarded during a process (several surveys) which is beneficial to really assess the developments and decisive factors. Therefore, our VET-theory related approach in Service Science can be considered appropriate so far. To validate the method as gainful in

general, a wider appraisal is necessary with other cases unbiased by the funding program. This point also affects the limitation of our research: we did not choose justified cases ourselves, but we chose the ones that are part of the BMBF program. Due to this reason, scope and validity are limited hithereto.

In general, our concomitant research intends to make statements and offers political counselling with regard to future funding guidelines. Hence, our future research focusses the Service Science level (e.g., what makes VET-related science providers successful?) as well as the mentioned macro-level with potential systemic effects on the countries' VET systems.

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Status and Development of VET in Latin-America and Subsahara-Africa

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Abstract

The findings of this research brief are based on two fieldwork trips that were undertaken in the context of the funding initiative "Internationalisation of VET" of the German Federal Ministry of Education and Research. In 2017 and 2018, we explored the status and development of VET in five Latin-American countries (Costa-Rica, Colombia, Peru, Chile, Brazil) and five countries in Subsahara-Africa (Nigeria, Ghana, Kenia, Botswana and Namibia). The findings of this paper are based on a large number of expert interviews, on-sight visits in training institutions and document analysis and provide insights into five central dimensions of VET (social partner cooperation in VET, learning in the process of work, acceptance of national standards, qualified teachers and trainers, and institutionalized VET research and consultancy) in the respective countries.

Keywords

VET; Subsahara-Africa; Latin-America; fieldwork-based research

1 Introduction

A team of researchers from Osnabrück University, the University of Bremen and their cooperation partner, the Institute for Innovation and Technology Berlin, is currently commissioned with research that accompanies the funding initiative "Internationalisation of VET" of the German Federal Ministry of Education and Research. The programme aims at the internationalization of German VET providers and simultaneously intends to support VET reforms in selected cooperation countries, and funds cooperation projects in the area of VET between German and international partners to achieve these ends. Besides evaluating the funding programme at large, and contributing to international VET research, the team of the concomitant research is also tasked with providing feedback to the ministry that can be used as an input for the formulation of future funding programmes for the "Internationalisation of VET".

In 2017 and 2018, the task of the concomitant research was to explore the status and development of VET in five Latin-American countries (Costa Rica, Colombia, Peru, Chile, Brazil) and five countries in Subsahara-Africa (Nigeria, Ghana, Kenya, Botswana and Namibia), as both regions are of strategic interest for the German Federal Ministry of Education and Research. Hence, the research team undertook two fieldwork trips to these regions and conducted a large number of expert interviews, on-sight visits in training institutions and document analysis. Below, we present our fieldwork in more detail. Subsequently, in a stylized fashion, we summarize the main findings on the current status and development of VET in those countries we visited, and thus provide insights into cases, which are not frequently studied in the contemporary mainstream of VET research.

1.2 "Setting the scene" – Context, approach and methods used in our fieldwork in Latin-America and Subsahara-Africa

In the last decade, and not least due to increased youth unemployment in wake of the global economic crisis of 2008 and its aftermath, dual training models have gained prominence in debates among VET practitioners, scholars and politicians alike. Germany`s model of dual apprenticeship has featured prominently in this discourse, which in turn intensified the cooperation between Germany and other national governments in the field of VET. This led to a strategic reorientation of international VET cooperation on part of the German government and culminated in its strategy of "VET cooperation from a single source" (Berufsbildungszusammenarbeit aus einer Hand") (Deutscher Bundestag 2013). In this strategy, the German government has identified five core principles of its vocational training system, which are intended to feature centrally in VET cooperation with international partner governments:

1. Cooperation between social partners, business organisations and the state
2. Learning in the process of work
3. Acceptance of national standards
4. Qualified teachers and trainers
5. Institutionalised VET research and consultancy

As the team of the concomitant research was given the task to explore the status and development of VET in selected countries in Latin-America and Subsahara-Africa in order to shed light on the potential for future cooperation with German partners in the area of VET, the abovementioned five "core principles" served as analytical guiding posts for our research. Moreover, these principles are also closely related to building blocks of VET systems as identified by recent skill formation typologies (Busemeyer and Trampusch 2012, Pilz 2017).

In late 2017, we undertook a first study visit covering five countries in Latin-America: Costa-Rica, Colombia, Peru, Chile, Brazil. Subsequently, in the beginning of 2018, we visited Nigeria, Ghana, Kenya, Botswana and Namibia as five exemplary cases of VET development and its future perspectives in Subsahara-Africa. In the latter cases, we conducted 33 expert interviews, visited 6 training facilities and attended three group-discussions/workshops at three local German Chambers of Commerce. In the Latin-American countries, we conducted 33 expert interviews, visited 4 training facilities and attended three group-discussions/workshops at three local German Chambers of Commerce. We selected our interviewees in order to represent a broad range of VET – and international VET-cooperation – stakeholders and to gain insights into their different perspectives on the status quo of VET in the respective country. Among our interviewees were representatives of individual firms, training providers, German embassies, the local German Chambers of Commerce, government ministries responsible for VET, national training authorities, vocational schools, employers' associations and VET researchers.

Upon our return, we triangulated the gathered evidence with further primary and secondary sources to substantiate and verify our findings. Short versions of country reports have already been published (DLR 2018) and longer reports on each country as well as a cross-case comparison are forthcoming in an edited volume in 2019 (Baumann et al. forthcoming).

Due to space constraints, we will now present the central findings for the ten cases in two tables listing important aspects of each country's VET system regarding the abovementioned five core principles. Subsequently, we highlight selected findings in a cross-case comparison.

2 Findings for VET in Latin-American countries

Table 1 Selected findings in light of "five core principles" for Latin-America

	Costa-Rica	Colombia	Peru	Chile	Brazil
Cooperation between social partners, business organisations and the state	Social dialogue between employers, unions and the government at the national level (consultative), but conflictive No institutionalized tripartite governance of VET	Sectoral associations involved in curriculum development Firms co-finance training via a levy Unions are weak and have little power in VET politics	Social partners not included in VET politics at the national level	In 2016 creation of the Consejo Asesorde Formación Technico-Profesional at national level Stakeholders have little experience in cooperation, but realistic potential for improvement	Existence of two well-regulated systems: Public system and private S-system (SENAI) Strong employer involvement in S-system (SENAI)
Learning in the process of work	Learners in companies usually have the status of interns Revised regulations needed for on-the-job-training and apprentices	Two separate systems (technico/traditional system) Practical component stronger in the technico programmes	New laws of 2016/2017 have established rules for a dual training model	Mismatch between training system and labour market needs Firms are mostly not involved in training	Law mandates employers to give apprentices employee status Regulation of on-the-job training component needs to be systematized
Acceptance of national standards	Over 500 different VET programmes Little cross-programme standardization confusing for companies and learners alike	Standardisation is relatively high Certificates are accepted on the labour market Certificates not accepted in institutions of tertiary education	Due to the size of the informal sector, regulations for the recognition of prior learning are needed No cooperation between employers and the state in devising curricula	Curricula are outdated and have little connection to labour market needs High reform pressure due to the creation of new VET-providing institutions	A variety of flexible and codified standards for theoretical and practical training exists Regulation of practical training could be strengthened
Qualified teachers and trainers	No common and binding profile for VET teachers No specific training for firms' training personnel	No specific training for VET teachers in general education Training of practical instructors with SENA	No specific training for VET teachers in general education	Teaching personnel needs re-training for teaching practical subjects, outdated knowledge of industry standards/needs	Training personnel a current priority in VET policy No specialized public programmes for VET teachers
Institutionalised VET research and consultancy	No institutionalized VET research	Little VET research at universities and research institutes VET research by SENA	No institutionalized VET research	No institutionalized VET research apart from individual scholars	INEP as a national institute for VET research Additional research at many universities and SENAI
Source	Baumann/Láscarez Smith (2018)	Peters/Gessler (2018)	Angles/Gessler (2018)	Gessler et al. (2018)	Bauer (2018)

3 Findings for VET in Subsahara-African countries

Table 2 Selected findings in light of "five core principles" for Subsahara-Africa

	Nigeria	Ghana	Kenia	Botswana	Namibia
Cooperation between social partners, business organisations and the state	Very fragmented system due to the weakness of the central state Private initiatives with social partner involvement, mostly at the regional level	COTVET and *Sector Skills councils* as potentially important actors to increase cooperation Main challenge are industry involvement and acceptance	In theory, cross-class cooperation at national level In practise, union involvement very limited Interests of informal sector not represented	Little cooperation between government and further actors apart from pilot projects Potentially bigger future role for cross-class *Sector Skills Committees*	Two parallel systems: public system with social partner involvement (NTA) and private, industry-driven system Strong role of private consultants in curriculum development
Learning in the process of work	Rather strong willingness of firms to invest in training No statutory regulations for learning at work	Parallel systems of private and public VET provision Infrastructure for practical training in the public system is outdated	VET is not geared towards labour market needs Despite industry involvement at governance level, limited willingness of firms to train	VET is mostly school-based Infrastructure for practical training is outdated	Dual training models have been strengthened since 2017, employers contribute to training via a levy Yet, in reality very limited capacities for practical training
Acceptance of national standards	New NQF since 2018 Mismatch between training system and labour market needs	Standards are generally accepted Yet, standards and provisions for practical learning in VET are of low quality	Since 2010 reform towards CBET Slow development due to a limited number of experts in CBET implementation	Since 2013 new NQF Industry and practitioner input in curriculum development is very limited, making VET content mismatching to labour market needs	Standards are generally accepted Yet, standards and provisions for learning in VET are of low quality
Qualified teachers and trainers	No systematic education of training personnel for practical skills development No specific regulations for trainers	Teacher and trainer development are central challenges for Ghana's VET system VET teachers have low reputation compared to university lecturers	Increased training needs for VET personnel in wake of CBET reforms No systematic education of training personnel for practical skills development	VET teachers have comparatively low salaries, making it hard to attract skilled practitioners as instructors No specific training for VET teachers in general education	Limited number of teachers allowed to train VET above level 5 of NQF Most instructors for higher training are recruited from abroad
Institutionalised VET research and consultancy	Very limited VET research, despite country size	Very limited VET research capacities	Very limited VET research capacities	No institutionalized VET research	No institutionalized VET research, but initiatives to create a faculty for VET at NUST
Source	Krichewsky-Wegener/Vossiek (2018)	Frommberger/ Krichewsky-Wegener (2018)	Baumann (2018)	Vossiek (2018)	Gessler et al. (2018)

4 Conclusion by way of comparative discussion

Our fieldwork-based research on the training systems of ten Countries in Latin America and Subsahara Africa has yielded some important insights on the current status and development of VET in countries, which are usually not studied in the contemporary mainstream of VET research. In general, we found that there are considerable differences between the two regions, but that the variation within regions is also quite large. However, we also have some preliminary evidence on broad similarities for selected aspects of the countries' VET systems.

In terms of differences, while most of the studied African countries have, or are close to establishing, a National Qualifications Framework (NQF), in the visited Latin American countries only Costa Rica had a NQF and Colombia was close to establishing one at the time of our visit. Moreover, our findings point to a large variety in terms of firm involvement in VET: While firm involvement is not as strong as in typical cases of collective skill formation, the cases of Brazil, Namibia and some regional initiatives in Nigeria show that firm involvement can be stronger than usually expected, but at the same time social dialogue between employers, governments and unions is rather weak at the national level in all cases. Finally, while Namibia and Peru have recently established new laws for dual training models, the regulation of practical training is often stifled by lack of industry involvement or the inadequacy of training facilities. One notable exception is training by SENATI in Peru, which is considered to have a very high standard of practical training.

What has emerged as a cross-cutting topic from our research was the low societal status that VET has in all cases when compared to higher education. One central question for future research could therefore consist in the identification of VET programs that are held in high esteem in the countries under study and to identify factors, which make them attractive to learners, parents and companies. Finally, in terms of VET research and apart from INEP in Brazil and SENA in Colombia, we were often confronted with rather scarcely populated research landscapes, in which only a few individual researchers or government departments conduct analyses of their VET system and labor markets. In this context, building up research capacities and systematic international knowledge exchange between researchers will have to be a priority for broadening and deeping our knowledge on the status and development of VET in these cases, which are unduely neglected by international VET research.

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Cerdà-Navarro, A., Salvà-Mut, F. ; Adame-Obrador, T. & Sureda-García, I. (2019). Tackling intermediate vocational education and training dropout: Contributions from the student engagement perspective. In F. Marhuenda & M.J. Chisvert-Tarazona (Eds.), *Pedagogical concerns and market demands in VET. Proceedings of the 3rd Crossing Boundaries in VET conference, Vocational Education and Training Network (VETNET)* (pp.278-283) https://doi.org/10.5281/zenodo.2641060

Tackling intermediate vocational education and training dropout: Contributions from the student engagement perspective

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1 Introduction & background

Spain combines high rates of Early Leaving from Education and Training (ELET) with low rates of participation in Vocational Education and Training (VET). In 2016 the Spanish ELET rate was of 19.0%, while the rate was 10.7% for the EU (Ministry of Education, Culture and Sport, 2017). Recent studies place the percentage of students enrolled in VET on the total number of students enrolled in upper secondary education between 33.5% and 35% (CedefopReferNet Spain, 2015, 2017, OECD), while for the whole of the EU (EU-26) the percentage is of 48.5% and the average of the OECD is 46% (OECD, 2017). The qualification rate is also higher in Advanced Secondary Education (*bachillerato*) (69.8%) than in Intermediate VET (IVET) (50.5%) (Authors, 2017a).

The Balearic Islands, the Autonomous Community where the research presented is placed, registers even higher ELET rates than the rest of Spain (26.8%) (Ministry of Education, Culture and Sport, 2017), as well as a lower average participation rate and a slightly higher percentage of completion of IVET studies (Authors, 2017a).

In this context, and in accordance with recent reports on the subject (Cedefop, 2016) tackling IVET dropout is a central issue to contribute to the decrease of ELET. We also want to highlight their contribution to the exercise of an active citizenship and of more inclusive and sustainable societies.

The text we present is part of the project “Pathways leading to success in, or dropout from, vocational training in the education system at levels 1 and 2” (“Itinerarios de éxito y abandono en la formación profesional del Sistema educativo en nivel 1 y 2” – Ref – EDU2013-42854-R)", (www.itinerariosfp.org), funded by the Ministry of Economy, Industry and Competitiveness, the Spanish National Research Agency (AEI) and the European Regional Development Fund (ERDF).

The concept of student engagement, one of the most commonly used in research on secondary education dropout, is one of the central theoretical references of our research. According to Reschly & Christenson (2012) it is a metaconstruct that brings together different

research approaches developed from different disciplines and includes three types of engagement: behavioural engagement (participation in academic activities, social or extracurricular), emotional engagement (positive or negative affect on interactions with teachers, peers, academic activities, school), cognitive engagement (personal performance of cognitive or intellectual capital, self-regulation and effort to acquire a good level of knowledge). It is also characterized by the influence of the environment (family, school, community...) and for providing elements for intervention as evidenced in the model of association between context, commitment and results of students based on the project Check & Connect (Reschly & Christenson, 2012). These features are coherent with the objectives of the research and the results of previous research projects on the subject in the context of the Balearic Islands (Authors, 2014; Authors, 2015).

The questions we want to answer in this text are the following: *In which dimensions and variables of student engagement are there significant differences between students continuing their studies in second year and students who leave during the first year or at the end of it? How can this knowledge contribute to the prevention of IVET dropout?*

2 Methodology

Participants

The field work is done in the Balearic Islands (Spain) and the sample (statistically representative) is constituted by 1091 students who started IVET during 2015-16. Of these, at the beginning of the year 2016-17, 844 (77,4%) continued studying the same course, while 231 (21.2%) had left it and 16 (1,5%) is collected as missing data.

Procedure

Student engagement data was collected through a paper self-questionnaire in 70 classrooms of the 21 centres that participated in the study, after approval of the Ethics Committee of the University of the Balearic Islands (UIB). Information about perseverance and dropout has been reported by centres.

Student engagement factors

4 student engagement factors based on 28 items were used in the analysis. Each one of these items was to be responded to on a scale of agreement or disagreement, where 0=”Totally disagree,” 1=”Disagree,” 2=”Agree,” and 3=”Totally agree.” The factors used are: a) Relationship with teachers (9 items) (α=,82); b) Relationships with peers (5 items) (α=,78); c) Misbehavior at school (4 items) (α=,58); d) School Effort (10 items) (α=,79).

Data Analysis

Firstly, we calculated average scores in each of the 4 factors of student engagement. Then, t-tests were carried out to independent samples with the aim of finding statistically significant differences between the two groups (dropout/continue) under study. Finally, in order to determine the size of the effect of these differences, Cohen D was calculated.

3 Results

The results (see table 1) show that the differences between one and another group are significant in the global dimension of the relationships with teachers, as well as in each and every one of the variables that compose it. Conversely, in the global relations between peers, there are no significant differences, as in any of its variables. In the section on indiscipline, the only significant difference lies in the fact that those who leave school present a higher rate of absenteeism. In the dimension of school effort, significant differences are observed in most of the variables.

Table 1 Student engagement and dropout

	Dropout (between 1rst. and 2nd. academic year)			D C OHE N
	Non-dropout	Dropout	Total (Avg.)	
P1.a My teachers are available when I need them.	2,22a	2,05b	2,16	0,26
P1.b The teaching staff at my school listens to students.	2,18a	1,95b	2,10	0,38
P1.c The rules at the school where I study are fair.	1,98a	1,85b	1,94	0,17
P1.d The teaching staff at my school is interested in me as a person, not just as a student.	1,79a	1,53b	1,70	0,33
P1.e In general, my teachers are open and honest with me.	2,21a	1,99b	2,14	0,32
P1.f In general, the teaching staff at my school treats students appropriately.	2,21a	2,03b	2,15	0,28
P1.g I like talking with the teachers at my school.	2,03a	1,76b	1,94	0,38
P1.h I feel safe at my school.	2,22a	2,06b	2,17	0,24
P1.i At my school, most teachers care about students.	2,01a	1,82b	1,95	0,26
Relationships with the teaching staff	2,09a	1,90b	2,03	0,44
n	739	352	1091	
P2.a My peers care about me.	2,05a	1,95a	2,02	0,15
P2.b My peers help me when I need their help.	2,25a	2,26a	2,25	-0,02
P2.c My peers respect my opinions.	2,08a	2,04a	2,07	0,07
P2.d I like communicating with my peers.	2,42a	2,43a	2,43	-0,02
P2.e I have friends at my school.	2,46a	2,39a	2,44	0,11
Relationships with peers	2,25a	2,21a	2,24	0,09
n	739	352	1091	
P5.a I am purposely a bother in class.	,23a	,33a	0,26	-0,16
P5.b I respond to the teacher in a manner that is inappropriate	,24a	,34a	0,27	-0,14
P5.c I use “cheat sheets” or other methods for copying during exams.	,27a	,38a	0,31	-0,16

P5.d I have missed class(es) without an excuse.	,63a	,98b	0,75	-0,37
School misbehavior	,34a	,50b	0,39	-0,32
n	739	352	1091	
P7.a Before turning in school work or homework, I go over it to ensure that I did it correctly.	2,26a	2,18a	2,24	0,12
P7.b When I do a school activity, I try to have a good understanding of what I am doing.	2,43a	2,29b	2,38	0,24
P7.c When I try hard in studies, the results I get are positive	2,31a	2,11b	2,25	0,28
P7.d I believe that exams, tests or class exercises are a good tool to know what I have learned.	2,07a	2,04a	2,06	0,04
P7.e What I am learning in my classes is important for my future career.	2,53a	2,45a	2,50	0,12
P7.f I compare myself with my classmates to know if I'm learning at the right pace	1,73a	1,73a	1,73	0,00
P7.g Studying will offer me many career opportunities in the future.	2,53a	2,40b	2,49	0,21
P7.h I wish to continue my education once I finish with my current study progrm.	2,36a	2,19b	2,30	0,22
P7.i The studies that I am taking make me optimistic about my professional future.	2,33a	2,14b	2,27	0,27
P7.j I like the profession for which I am receiving training.	2,44a	2,18b	2,35	0,34
School effort	2,30a	2,17b	2,26	0,29
n	739	352	1091	

Note: the values of the same row and subtable that do not share the same subscript are significantly different at p <0.01 in the bilateral equality test for column means. Boxes without a subscript are not included in the test. The tests assume equal variances.

4 Conclusions

These results may contribute to the prevention of IVET dropout, as they illustrate the differences and similarities between students that leave school and students who persevere in them, in relation to some of the main dimensions of student engagement. The results show the central role of the relations with teachers in the differentiation between the student group that leaves and the student group that continues, as well as how significant the differences in some other items closely related to educational practices are. They are coherent with the results

obtained in the review of the literature on the subject (Autors, 2017b) as well as in specific case studies carried out in the framework of the same project (Authors, 2017c).

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Laczik, A. & Kersh, N. (2019). Crossing the boundaries in order to improve life chances: A case study of a mentoring programme in the UK. In F. Marhuenda & M.J. Chisvert-Tarazona (Eds.), *Pedagogical concerns and market demands in VET. Proceedings of the 3rd Crossing Boundaries in VET conference, Vocational Education and Training Network (VETNET)* (pp.284-288) https://doi.org/10.5281/zenodo.2641747

Crossing the boundaries in order to improve life chances: A case study of a mentoring programme in the UK

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Keywords

crossing boundaries; mentoring; vulnerable young people; active citizenship

1 Introduction

Adult Education (AE) can act as a vehicle to support transitions and cross boundaries, from school to higher education, further training or to work. Research has shown that this is particularly true in the case of young adults in vulnerable positions of disadvantaged background between the ages of 16-24 who are at a vital stage of decision making at the age of 18 (Kersh & Toiviainen, 2017). This age group experiences a double 'crossing'; one is the transition to higher education, further training or work, the other is moving into adulthood.

In this paper we aim to highlight the extent to which mentoring programme has been effective for engaging and re-engaging vulnerable young adults, and facilitating their social and economic inclusion, and active citizenship.

2 Theoretical framework

In this paper the concept of boundary crossing is employed to provide a better understanding of the ways young adults move between different contexts, settings and spaces. This concept has been often discussed in the literature in relation to vocational education and training, to illuminate instances of learning through boundary crossing within and between the contexts of education and work (Guile, 2010; Bakker et al; 2011; Edwards, 2011; Evans et al, 2006; Tuomi-Grohn and Engestrom, 2003). However, there is limited research on the configurations of boundary crossing in the context of adult education, specifically in relation to the work with young adults in vulnerable positions. In this paper we argue that this concept provides a useful theoretical lens to explore how young adults navigate their spaces and contexts in order to improve their life chances and facilitate their career and personal development.

Boundaries have often been perceived as spaces with potential for learning (Harris and Ramos, 2012; Edwards, 2011; Kersh et al. 2012). Crossing the boundaries across a range of spaces at school, such as physical, virtual or informal, enables learners to navigate these spaces while learning and using their skills within their environments. Research suggests (Kersh, 2015; Evans et al, 2006) that engaging in learning and applying skills not only within, but across a variety of contexts and spaces, enables learners to develop new knowledge to make an informed decision about their future.

The interplay between learning, career-related/professional opportunities and personal spaces has been characterised by their somewhat blurred boundaries, where boundaries and spaces are multifaceted and multi-dimensional (Kersh, 2015). Research suggests that

engaging in learning and applying skills not only within, but across, a variety of contexts involves recontextualisation of skills and knowledge across these contexts (Kersh, 2015).
In this paper we support Edwards (2011) argument that boundary spaces emerge when the resources from different practices are brought together to expand the interpretation, perception and understanding of different situations. The interplay between learning experiences and other spaces (e.g. the college, work experience and higher education taster events) enhances learning opportunities and offers ideas for positive destinations of young adults thus enabling them to take a more active role in society e.g. through employment, further studies and supporting their local communities. (Kersh and Toiviainen, 2017).
Individuals' personal and learning spaces enhance their purposeful motivation, creativity and social practices, as they acquire, use and apply a range of skills across different contexts, within the boundaries of constantly changing contemporary spaces (Kohlegger et al., 2013).
Crossing boundaries and transferring knowledge and skills across a range of contexts presupposes these skills and knowledge to be adapted, deployed and recontextualised used in the new settings.

3 Methodology

In order to illustrate the ways that young adults apply their knowledge, skills and experiences in a range of settings, this paper draws on a Horizon 2020 project 'Adult education as a means to active participatory citizenship' (EduMAP2016-2019) carried out by the international consortium. The project that involved the partnership and cooperation of six European countries, and one non-EU partner, aimed to advance understanding and further develop both the current and future impact of adult education on learning for active participatory citizenship in Europe and beyond. The EduMap methodological approach was based on undertaking both desk and empirical research, carried out through dedicated work packages. Overall, the empirical study was carried out by 8 partner institutions, involving researching 40 adult education programmes across 19 EU countries and Turkey.

This paper will focus on one case undertaken in the UK (Scotland). The case study is a mentoring programme targeting young people who have experienced care and are attending mainstream secondary schooling. Data has been gathered through interviewing stakeholders.

The case was researched between October 2017 and December 2017. It has been identified as an example of good practice (GP) (from Scotland) on the basis of desk research and subsequent email/telephone contacts with gatekeepers and key policy actors associated within this GP. This GP represents an example of informal learning, particular focusing on care experienced young people as a particular vulnerable group. Preliminary research was done prior to data collection through undertaking contextual analysis (October-November 2017). Twenty three interviews have been conducted via face-to-face and telephone interview on a one-to-one and in focus group setting. Access was negotiated through key gatekeepers and policy actors. Data were collected from the following respondents:

- Five mentors (four male and one female), interviewed individually by telephone
- Two head teachers in schools where the programme is running, interviewed individually by telephone (female)
- Two teachers who act as school links, interviewed face to face in pairs
- One coordinator and the project director, interviewed face to face in pairs (female)
- The charity lead (male)

- Eleven learners (6 male, 5 female), through three face to face focus groups

All interviews were conducted in English, using audio recording. The case study data were analysed through thematic analysis employing NVivo qualitative software package.

4 Case study: motivating through mentoring

Within the case study we consider the different elements of the mentoring programme as learning spaces. These include individual mentoring by an external laid person, taster sessions (vocational areas, work environment, higher and further education) for young people and designated supporting school staff. These separate elements work in conjunction and offer support to young people in different ways. We argue that the case study represents multiple boundary crossings through which young people learn about possible future destinations. Our data suggest that crossing boundaries enables them to make informed decision and at the same time helps to develop vital transferable and employability skills which facilitate their economic and social participation in the society. The paper aims to reflect on the project's findings, and stimulate a further discussion on issues related to the role of adult education in facilitating the inclusion and engagement of young adults in vulnerable situations.

The programme was initiated and set up by a charity and now is fully supported by the local authority. The case targets mainly young people (14-19) who have experienced care. However, this programme is also offered to those whom the schools consider vulnerable, disadvantaged or show adult deficit at home which impacts on their ability to get the best out of education and the best out of their school experience. This is a school-based informal education programme and learners are identified and approached through their school. Consequently, information about the programme is provided by the charity staff directly or mediated through designated school staff. The charity pays much attention to information provision to vulnerable young adult (VYA) learners prior to the start of the programme and have designed strategies to capture VYA's interests. VYA learners receive information directly by meeting charity or school staff.

The findings from this case indicate that crossing boundaries between the different elements of the programme and over-time has been a vital aspect of offering equal educational and developmental opportunities for young adults

4.1 Mentoring and taster sessions: navigating the balance between aspirations and opportunities

Mentoring is a vital element to support young adults to navigate and negotiate the balance between their interests and opportunities. Each young adult has a dedicated mentor who meets them every fortnight over at least one year. This regular and sustained support enables young people to connect their experiences acquired from the different learning spaces.

Mentoring offers young people individual support by a lay person and through this, young adults develop knowledge and skills, and gain personal experiences. Mentoring offers personalised learning space for each individual young person and this learning space is enhanced by the taster sessions.

> *Well I guess I had a meeting with my support worker and one of the [UK_GP1] workers. So we sat down and like they explained the programme to me and explained like the kind of help that they offer the young people and what their kind of aim is, like the whole [UK_GP1] thing, like the motivation, the commitment, the resilience, because that's what [UK_GP1] stands for. And I don't know, I just felt like, at that point in my life as well like I really just*

needed someone that was going to be there to like care about just me. [Extract from Learner interview]

Mentoring offers VYA a scaffolding through which they initially developed a trusted relationship and some vital life skills, such as resilience, self-esteem and commitment. Young people were given the opportunity to navigate their journey over time with their mentors according to their individual needs. Each young person needed a different time frame in order to make the next steps; to build on and further develop their already existing skills. These are the very skills that they then will have to recontextualise and able to use during their time in the secondary school and also throughout their lives. Mentoring also aimed to help young adults to discover their talent, support them in recognising it, and further guide them to make a plan and an informed decision about their future. The mentors have vital role in this process.

Taster sessions work in tandem with mentoring. They are offered to young adults on the basis of their individual interests. These may include visits to a higher education institute or engagement in a half a day work experience. There is a pool of taster sessions available to choose from. However, the charity regularly investigating other local potential opportunities. Young people are offered 3-4 taster sessions per year according to their interest. Through these approaches young people are encouraged to overcome their personal barriers and, to identify, sign up and attend these taster sessions. They are using the skills that they have developed during one-to-one mentoring sessions, such as motivation and commitment. This is one example how they use cross boundaries and use their skills in different settings.

The charity and the secondary schools have offered a number of other opportunities for the VYA on the programme to use their skills in different settings, perhaps unconsciously offering them crossing boundaries. Young people had the opportunity to meet each other and share experiences from different schools, some were asked to talk during external events to adult audiences (business people, policy makers) about their experience. All these additional opportunities offered crossing boundaries and reinforced VYAs' skills, such as resilience, communication skills and self-confidence, needed for social and economic integration and to become an active citizen.

5 Conclusion

This case study has demonstrated how mentoring helps young people to cross boundaries between different learning spaces, extending them beyond physical spaces. We argue that, in the context of this case, mentoring is the key ingredient for young people enabling them to recontextualise their experiences and make sense of their personal environment. This individual support allows young people to reflect on different learning spaces they experience within the programme, specifically through collecting and integrating different elements of the programme, thus facilitating their learning and career opportunities in new contexts. Crossing boundaries presupposes recontextualising their skills and experiences in new environments. In addition, our findings suggest that young adults' dispositions and agency facilitate the way they engage in crossing boundaries through constructing and negotiating both the affordances and challenges of new environments and settings.

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Insights into individual migration decisions at the beginning of vocational training – The roles of perceived market demands and individual desires

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Abstract

Learning mobility and other international experiences are regarded as highly important in the (European) labour market. A number of support programmes and campaigns aim at fostering international exchange, a considerable part in the field of vocational education and training. Transnational mobility at the stage of initial vocational training has however hardly been researched yet. The author focuses on this research gap by analysing migration decisions of Polish trainees in Germany via a cross-sectoral analysis of individual partially structured interviews. First findings on two key aspects, namely perceived market demands and individual desires, are discussed in the paper.

Keywords

migration decision; vocational education and training; interview study; poland; germany

1 Topic and design of the research project

Although learning mobility is politically enforced by national and EU-programmes (BMBF, 2017), only a small number of young people chooses to go abroad for the whole period or part of their vocational training (e.g. Körbel, 2011, p. 18; Kalisch, 2012, p. 225). The dissertation project this paper is based on focuses on young people from Poland starting their apprenticeship in the northeast of Germany. It investigates two key aspects that have hardly been explored so far: individual motivation and central challenges (Thurnherr, 2015; Bohlinger, 2013, p. 121). The former concentrates on the influences that initiate, foster or inhibit the individual plan to take up a vocational training in another country. The latter pays particular attention to the various challenges young people who are willing to pursue this aim face, as the barrier to actually implement the plan is very high. This applies in particular to those with limited support from their social environment (Ulrich, Ehrental & Häfner, 2006, pp. 102-103).

The decision to go abroad for vocational training is neither exclusively a career choice decision nor exclusively a migration decision (Thurnherr, 2015). Acknowledging this, the dissertation project is based on both theories and findings on migration as well as career choice. These have been taken into consideration in the development of the research instrument. Individual partially structured face-to-face interviews with narrative-generating questions are being conducted. The target group includes Polish trainees who have started vocational training in the federal states of Mecklenburg-West Pomerania and Brandenburg. The survey period is set at the beginning of their apprenticeship. The interviews are being interpreted with the help of content analysis with a detailed analysis of the individual case and a cross-sectoral analysis.

Nine interviews with the duration of approximately two and a half hours each have been conducted so far and, thus, provide the basis for the analysis presented in this paper. The sample includes both apprentices in dual training occupations (5) and school-based vocational training occupations highly oriented on the dual system (4).

2 Key aspects within the migration decision

This paper focuses on the individual motivation for starting a vocational training in Germany. As stated above, research results on this learning mobility are sparse, so there is a need to include other research findings. Studies on short-term mobility within educational programmes have found a number of correlations between particular, mostly socio-economic, characteristics and the willingness to move. Concerning the individual reasons to go abroad, there are only a few studies with limited significance, especially focusing on young Spaniards coming to Germany for vocational training. According to these findings, the decision is largely connected to the economic crisis in the country of origin (Clement & Koch, 2014; Grünert & Wiener, 2016).

According to the definitions of the United Nations (1998, pp. 9-10) and the European Statistical Office (2016), long-term mobility can be understood as migration, as it usually leads to a transnational change of usual residence for the duration of more than one year. Reasons for migration include cultural, political, economic, religious, demographic, ecological, ethnic and social causes – external constraints, such as those connected to the labour market, are frequently mentioned (Han, 2010, pp. 5-17; Haug, 2013; Kalter, 2000; Lehmann, 2008). This is mirrored in the increasing importance of geographical mobility in the labour market (Friedel, Otto & Dalbert, 2003, pp. 4-5). In the case of long-term mobility there is an added positive connotation of the (alleged) development of abilities and attitudes initiated by staying abroad, e.g. independence, intercultural competence or tolerance of ambiguity. Such aspects can increase young people's willingness to accomplish their vocational training in a foreign country – be it as the first step to an international career or to increase chances on the labour market in the country of origin.

The individuals' personal wishes detached from external constraints are rarely addressed as central causes for transnational migration. However, such influences are expected to be of great impact for this particular migration decision. Going abroad is often advocated as an instrument to achieve personal development and desired by many young people who are curious to explore the world outside their home country (e.g. Grünert & Wiener, 2016, p. 28). Leaving the country of origin can thus be an instrument to pursue individual desires, interests and goals, e.g. experiencing an adventure, getting to know a different culture or improving language skills.

Accordingly, the question leading the analysis is: To what extent is the migration decision of Polish trainees in north-eastern Germany driven by (1) perceived market demands and (2) individual desires?

3 First findings on perceived market demands and individual desires

The interviews have been transcribed and processed in the program MAXQDA. Parallel to further data collection the cross-sectoral content analysis has been initiated. The categories derived from the interview guideline were supplemented by inductive categories based on the material. The first exemplary insights into the data with regard to the two dimensions of "perceived market demands" and "individual desires" are presented, which due to the ongoing analysis are of preliminary character and will be further analysed in the course of the project.

Table 1 Categories assigned to the dimensions in focus

Perceived market demands	Individual desires
1. Economic pressure in Poland	1. Experiencing something new
2. Educational programme in Poland unaffordable	2. Personal attachment to Germany
3. Better career prospects	3. Learning the German language
3 a. Professional future in general	
3 b. Salary Level	
3 c. Work-life balance	

3.1 Perceived market demands

Aspects that can be assigned to the dimension of perceived market demands include the problematic financial situation in the country of origin. This refers to the cost of living in general as well as to unaffordable educational programmes, as the following example shows:

> *Also vorher habe ich in Stettin überprüft, ob ich zum Beispiel Pflege- Kranke- Krankenpflegerin werden kann, aber dazu muss man Studium machen und das ist das große Unterschied zwischen Deutschland und Polen […], drei Jahre und ohne Geld und das ist auch ein... Das ist immer Frage des Geldes. (Krystyna)*

Krystyna tells about her initial idea to start a course of study in the field of health care in Poland, which would have been the only option to become a nurse in her home country. Financial reasons prevented this, as she would not have been able to earn money during the qualification process.

Another and very frequently expressed argument is that of better career prospects. These relate both to labour market opportunities after the completion of training and to conditions of employment. Both are assessed as significantly better in Germany and appear to be an important reason for respondents in their migration decision. Some of the interviewees clearly associate the training with a better professional future in general:

> *In Polen ist kei- nicht gute Zukunft, aber in Deutschland ist besser. Ist richtig gute Zukunft, besser als Polen. (Kacper)*
> *Also nee, ich sag, ich glaube, hier wenn man hier eine Ausbildung macht, stehen bisschen mehr Türen offen. (Maria)*

Kacper directly compares what he perceives as his possible professional future in the two countries and, without further explanation, claims a better one for himself in Germany. Maria, too, is convinced that there are ‘more open doors to her’ after a vocational training in Germany.

The expected better career prospects also include a higher salary. The interviewees describe that they already earn more money during the training in Germany than they would (or in fact have) as a trained professional in Poland. In conjunction with comparatively high costs of living in Poland, local salaries are considered insufficient:

> *Ich weiß nicht, wie die Menschen hier in Danzig leben, wenn sie haben normale Arbeit als Verkäuferin oder Sekretärin oder so weiter oder als Krankenschwester. Es ist unmöglich eine Arbeitsstelle mit den Kindern und so weiter und die Wohnung und Rechnungen alles das zu schaffen, nee ich weiß nicht. (Monika)*

Monika expresses her doubts on how people with ‘regular jobs’ like sales assistants, secretaries or nurses can afford a living in her Polish home city. With regard to salary expectations, some of the respondents weighed up a course of study in Poland against the vocational training in Germany. This comparison between the two countries also applies to the prospective work-life balance:

> *Wie schwer es ist, in Polen überhaupt das alles irgendwie als alleinige Mama hinkriegen. Weil entweder man geht arbeiten, oder man bleibt zu Hause, aber wenn man zu Hause bleibt, äh ja… Es war ziemlich schwer […]. Hier ist viel, viel besser, sag ich, als in Polen. Einfacher so. Weil bei uns ist es nicht so einfach, dass man, keine Ahnung, so zu Hause bleiben kann und Geld kriegt. (Maria)*
> *Und in Deutschland, Menschen haben Zeit für Ausruhen, ja? Wir arbeiten ganze Tag, ganze Tag, eine Arbeit, zweite, dritte, ne? Und in Deutschland, man hat eine Arbeit, ja? Und Freizeit, ja? Und Ausflug mit Fahrrad, mit Familien, ja, und ich find es besser. Nicht nur arbeiten. (Magdalena)*

The comparatively good situation for parents is emphasised by Maria, a single mother, who explains that a paid parental leave as in Germany does not exist in Poland, so one must either stay at home without financial support or go to work. Magdalena adds how important a balance between leisure and working time is for her. In Poland people would need to work multiple jobs whereas in Germany one employment is sufficient for a solid living, leaving time for rest and for the family.

3.2 Individual desires

The interviewees express partly diffuse, partly very specific motivations for wanting to live in Germany:

> *Weil ich neugierig bin. Ich mag immer lernen, ich mag auch neue Länder kennen lernen und die Kultur. (Anna)*
> *Also ich wollte immer im einem anderen Land wohnen. Also für mich ist interessant wie andere Leute leben und so weiter. (Krystyna)*

Some, like Anna, express curiosity about getting to know other countries and their cultures. Krystyna says she has always wanted to live abroad and get to know other ways of life. This interest is not directly linked to Germany, it is rather linked to a general interest in experiencing something new. Some interviewees express their long-standing personal attachment to Germany, however:

> *(Lacht) Keine Ahnung, ich weiß nicht, aber ich will nicht in Polen. Das ist... Ich war immer in... mit Deutschland verbunden und das... ja, das kommt von Herz aus, ich weiß nicht wie kann das erzählen, aber ja, das ist was ich will machen. In Deutschland arbeiten, in Deutschland wohnen, ja. (Monika)*

Due to family members working in Germany during her childhood, Monika had been visiting Germany regularly and developed a strong attachment to this neighbouring country (‘it comes from the heart’). Living and working in Germany is exactly what she wants to do. Learning the German language, too, is an individual desire connected to the training in Germany, although it usually is not described as one of the main motives.

4 Conclusion and subsequent questions

The trainees’ narrations refer to a direct or indirect comparison between the two countries, particularly with regard to financial aspects and other labour-related matters. For many interviewees the vocational training in Germany is connected to a thirst for adventure, be it in terms of living abroad, getting to know another culture or improving the foreign language skills. In addition, Germany is particularly important for some of the young Poles because of

family members who have been living or live there, implying that the decision is directly linked to the country. In general, statements that can be assigned to the dimension of "perceived market demands" take up a much larger space in the interviews than those of "individual desires". This might point to a greater impact of market demands for the migration decision of the trainees.

The analysis has provided a valuable insight into the significance of external constraints and internal needs for this particular migration decision. These and other expressed reasons for migrating will be examined in context by the means of individual case analyses. In this way, more profound conclusions are expected to be found regarding the role that these and other aspects play and how they are interconnected on an individual level.

The cross-sectional analysis itself will be extended by including more cases and by broadening the view to further dimensions. The interviews taken into consideration for this paper also point to motivations, apart from the above mentioned aspects, that lie in politics and social welfare and the quality of vocational training in Germany, as well as the kindness of its people and the geographical proximity to Poland.

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Research of professional motivation peculiarities of future economics teachers in the field of vocational education and training

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Abstract

The aim of this paper is to disclose the peculiarities of the choice motives of the economics teacher's profession in the field of vocational education and training (VET) by the students of the specialty "Vocational Education (Economics)" at Kyiv National Economic University named after Vadym Hetman (KNEU) with a number of psycho-diagnostic methods. The results obtained using the methods of E.H. Schein, A. Rean, J.L. Holland and the revealed statistically significant correlation coefficients are analysed in detail by the authors. It is concluded that the motivation of students has its peculiarities, on the basis of which it is recommended to predict and improve the education and training of future economics teachers in the field of VET.

Keywords

professional motivation; motivation of future teachers of economics; career orientation; educational motivation; professional orientation

1 Introduction

Young people, choosing a sphere of future professional activity, do not simply decide on what they are going to make for life, but also determine their way of life. Motives and goals of the individual determine the vector of its activity, the extent of inclusion in various activities, educational in particular.

Understanding what drives a person, what motives lie at the heart of his behaviour and actions, you can develop an effective system of forms and methods of managing its learning and professional development. Knowing the ways in which motives and value orientations can be put into action, one can predict the prospects of a young person in those or other areas of his professional activity.

2 Problem

The VET teacher is an important educational specialty, but despite the needs of the society in such teachers, those wishing to receive this specialty every year becomes less and less. One of the important directions of solving this problem may be studying the motivation of those students who have chosen their future professional activity as the economics teacher in the field of VET.

3 General provisions on motivation for professional development

One of the key concepts of this research is the notion of motivation. It is comprehensively studied in modern researches (Han, Yin, 2016; Panisoara et al, 2010). In relation to motivation of the professional formation of future VET teachers in the field of economics, the authors proceed from the definition that motivation is the internal dynamic, energetic impulses (motivators) of the individual to the activity and certain behaviour. Motivation of professional formation is multifaceted and multidimensional. On one hand, the same activity can be defined by several motives, on the other hand, it is integral, because it is precisely in the unique combination of individual motives that determine the peculiarities of activity, and in this case, the peculiarities of professional formation. The motives of the activity can be realized or not realized, yet they are decisive as to why the person acts exactly this way.

4 Psycho-diagnostic research of motivation of the professional formation of future teachers of economics

4.1 Research methods

There were taken the following research tools as psycho-diagnostic methods:

1. The method "Career Anchors" (Edgar H. Schein) to study the individual hierarchy of career orientations of students
2. The method for studying the student's educational and professional motivation (A. Rean et al.) to study the structure of students' motivation
3. The method of studying the professional orientation of students (John L. Holland)

To process the obtained results, the average values ($\overline{X}$) and percentages (%%) were calculated for all the indicators found in the study, as well as the correlation coefficients between all the indicators.

The sample was comprised of students studying by the specialty "Vocational Education (Economics)" at KNEU. The study covered 72 people during their first year of study.

4.2 Peculiarities of career orientations

The method "Career Anchors" is developed on the basis of career anchors theory by E.H. Schein. "Career Anchors" are value orientations, social settings, interests, which are socially driven incentives for activities, inherent in each person. Major career orientations are (Schein, 1986):

1. Technical/functional competence
2. Managerial competence
3. Autonomy/independence
4. Security/stability
5. Entrepreneurial creativity
6. Service/dedication to a cause
7. Pure challenge
8. Lifestyle

The first position by the importance of surveyed orientations was taken by the career orientation “Security/stability” ($\overline{X}$ =7.3), the second one – “Lifestyle” – ($\overline{X}$ =6.8), the third one – “Service/dedication to a cause” ($\overline{X}$ =6.6).

Let's consider the interpretation of leading career orientations. Prevalence of such leading career orientation as “Security/stability” was found in 92% of the students in the general sample. Such result, in the authors’ opinion, is related to the specifics of contemporary socio-economic reality, in particular the fact that the present situation in Ukraine cannot be characterized as stable and predictable due to economic and political changes that lead to a lack of long-term prospects for young people. Obviously, in this situation, students consider career stability as particularly valuable. It means that the respondents seek to meet the need for security, and predict future life events. They believe that it is best to work in such an organization, which provides a long term of work, has a good reputation, looks reliable.

The “Lifestyle” orientation, ranked second, has a significant level of manifestation for 88% of students. The essence of this orientation is the desire to maintain the harmony between personal life and career.

The third place was taken by the career orientation “Service/dedication to a cause” ($\overline{X}$ =6.6; 77%). This value orientation is inherent in people who are engaged in their business because of the desire to realize in labour activity the main values that are important for an individual.

The unexpected result was that the career orientation “Technical / functional competence” turned out to be in the last place $\overline{X}$ =4.1 (27%). This can be explained by the fact that the essence of this career orientation is related to the interest in the content of professional activity, the availability of skills and achievements in a particular industry, the desire to be a specialist in this sphere. However, the students still do not have a holistic view of their professional activities. Another reason for the lack of interest in the content of professional activity is that at the present stage, students obtain higher education, but they do not plan to work by the specialty.

4.3 Peculiarities of educational and professional motivation

The method for studying the student's educational and professional motivation (A. Rean, V. Yakunin, N. Badmayeva) allows from another angle to study the motivation of students, in particular, the importance of individual aspects of professionally directed educational activities. The main motives that can be diagnosed with this method are (Badmayeva, 2004):

1. Communicative motives
2. Professional motives
3. Educational and cognitive motives
4. Broad social motives
5. Motives for creative self-realization
6. Motives for avoiding failure
7. Motives for prestige

The most significant indicators of student's educational and professional motivation are analysed further.

It was revealed that among the respondents the first place by the significance was taken by the professional motives - ($\overline{X}$ =3.6), the second position was taken by communicative motives ($\overline{X}$ =3.4), the third position belonged to social motives ($\overline{X}$ =3.1) and educational-cognitive motives ($\overline{X}$ =3.0).

In general, the obtained results can be explained by the fact that students are focused on acquiring professional knowledge and a certain level of qualification. Professionalism is a leading motive for studying students in higher education, however, this process is simultane-

ously associated with the desire to be involved in the communication process that accompanies academic activities, as well as the ability to learn the chosen professional field, gain a wide range of professional and general knowledge and be involved in the student and professional community, have a certain social status in communication, education, etc.

4.4 Peculiarities of professional orientation

The method by J.L. Holland serves to diagnose the professional orientation of the individual. According to this method there are six personality types (Holland, 1997): Realistic, Investigative, Artistic, Social, Enterprising and Conventional.

The statistical processing of the results of psychodiagnosis by J.L. Holland's method reflect the dominance among the respondents of artistic and social professional orientation ($\overline{X}$ =7.9), followed by conventional ($\overline{X}$ =7.5), entrepreneurial ($\overline{X}$ =7.1), realistic ($\overline{X}$ =6.3), and intellectual ($\overline{X}$ =5.2) orientations. This result to a certain extent reflects the general social tendencies of popularity of certain spheres of professional activity. Through the prism of J.L. Holland's theory, such results can be regarded as partly favourable for the future economics teacher of in field of VET, since the Social/Conventional code, which reflects the content of the profession of economics teacher, occupies the second position in the general formula for the professional orientation of students of the sample. The domination of the artistic type must be taken into account in the organization of the educational process, creating conditions for the realization of its needs.

5 Analysis of significant correlations of the research

The research of correlations between the obtained results has some significance (Sidorenko, 2002), since they reflect the peculiarities of the motivation of professional formation in the sample.

Calculations of correlations' coefficients between indicators obtained by the methods of E.H. Schein and A. Rean allowed revealing a significant level of correlation between the individual indicators presented in Table 1.

Table 1 Correlation's coefficients between the indicators of career orientations and educational and professional motivation

E.H. Schein's method	Method of A.Rean, V.Yakunin, N.Badmayeva						
	Communicative motives	Motives for avoiding failure	Motives for prestige	Professional motives	Motives for creative self-realization	Educational and cognitive motives	Social motives
Technical/functional competence	0,41**	0,40*					
Managerial competence	0,40*	-0,40*					
Autonomy/independence							-0,45*
Security/stability		0,42**					

Service/dedication to a cause		-0,47**	0,40*	0,40*
Pure challenge				
Lifestyle			-0,44**	0,47**
Entrepreneurial creativity				

* p≤0,05; **p≤0,01

Calculations of the correlation coefficients between the indicators by the methods of E.H. Schein and J.L. Holland are presented in Table 2.

Table 2 Correlation's coefficients between the indicators of career orientations and professional personality type

E.H. Schein's method	J.L. Holland's method					
	Realistic	Investigative	Social	Conventional	Enterprising	Artistic
Technical/functional competence						
Managerial competence	-0,40*				0,40*	
Autonomy/independence						
Security/stability	0,64**				-0,44**	
Service/dedication to a cause		0,40*		-0,51**		
Pure challenge				-0,40*		
Lifestyle					-0,40*	
Entrepreneurial creativity	-0,40*			-0,41**		

* p≤0,05; **p≤0,01

No significant correlations were found between the indicators of J.L. Holland and A. Rean's methods.

6 Conclusions and future perspectives of the research

The conducted research allows the authors to conclude that the students who have chosen a specialty of the economics teacher in the field of VET have certain motivational peculiarities that need to be taken into account in the process of their professional education and training. To answer the question of how much these peculiarities are inherent to the future teachers of

the economy, it is worth researching the motivational peculiarities of future teachers of other specialties and students of other specialties in general.

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Vocational teachers in the Swedish and Finnish vocational education systems

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Abstract

Vocational education in Finland and Sweden has many similarities, including the cultural values of Nordic welfare state action, school based system and VET teachers with a large experiences in working life. In order to examine the similarities and differences at the level of the actors, vocational school teachers from both countries will be analysed with a quantitative survey, based on previous research and expert surveys in the countries. In both countries efforts are currently being made to promote work based learning or apprenticeship models in vocational education and training, which also places changing demands on teachers as well as globalisation, digitalisation and inclusion.

Keywords

vocational teachers; comparison study; sweden; finland; vet system; school based

1 Introduction

Both the Swedish and Finnish VET systems are school-based systems that formulate an integrative claim, although with different solutions. A common political aim is that no one should be disadvantaged on the basis of neither social/ economical background nor geographical location. This is an important part of the welfare state education policy of the Nordic countries and includes vocational training (Michelsen & Stenström 2018). Further education (post-secondary, adult or higher education) should also be available, following a vocational school decision.

At the same time, the link to developments in the occupations on the labour market presents a major challenge. Work based learning and apprenticeship are powerful themes in the actual discourse in both countries (Fjellström & Kristmansson 2016; Berglund, Hjölund, Kristmansson & Paul 2017; Finnish Government 2018). One strategy to enable the educational institutions to realize a strong linkage to the work life in Finland and Sweden is to hire experienced workers as teachers for school and offer them a short term study besides working (Isacsson, Amhag & Stigmar 2018).

The Finnish system and VET teachers are at the forefront because of the current VET reform in 2018 (Finnish Government 2018; Rintala; Jussila & Nokelainen 2018).

In this paper, we describe the background of one of the rare studies of cross cultural research on VET in Finland and Sweden (Hjelmer, Lappalainen & Rosvall 2010). A basic assumption is that the cultural backgrounds of the countries influence the education system. But still we don't have empirical proofed answers to the following questions:

What political decisions are formulated in the area of conflict between central curricular guidelines and control and regional structuring?

How can vocational education and training be developed for a rapidly changing society in countries with small populations (5 respective 9 millions) and what does this mean for learning in vocational schools and in the qualification of teachers?

The study presented descriptions based on research literature analyses and interviews with researchers and policy makers. The focus is on developing an online survey of vocational school teachers in Finland and Sweden with a single questionnaire for both countries, based on qualitative expert interviews in Finland and Sweden (Kaiser 2018). The survey took place at the beginning of 2019. Findings will be presented at the conference in Valencia and published at the end of the year. Differences in the attitudes and educational pathways of teachers in the two Scandinavian countries should become clear, as should the influence of the different sector-specific and vocational cultures and contexts.

The aim is a country comparison which provides information for the further development of the German qualification and recruitment of vocational school teachers (Kalisch & Kaiser 2019). Furthermore suggestions for the discourses in Sweden, Finland and Europe will be provided.

2 The Nordic VET approach in Sweden and Finland

The Nordic states invest more money in their educational system than the countries in continental Europe. As Michelsen and Stenström (2018) described "In contrast to the liberal countries, there are higher standards at the lower end of the skill hierarchy." (p.2) The aims of vocational education are individual self-steering, success at the labour market, competence for further development (learning), inclusion and civil engagement. Trying to strength the linkage to the labour market demands on the one hand brings VET in contradiction to the second aim: prepare students for changes and higher education. To cope with that the Nordic countries developed different ways (Jørgensen, Michelsen, Olofsson & Persson Thunqvist 2018). That's the case for the different histories of the two countries as well, but VET in Sweden and Finland show similar developments in recent years (Virolainen & Stenström 2014; Olofsson & Persson Thunqvist 2018).

2.1 VET in Sweden

In Sweden, VET is integrated in a comprehensive upper-secondary education, which since the 1980s includes almost all 16-19 year olds in the so called 'gymnasium'. A reform in the early 1990s meant that vocational educational programs were stronger integrated within a decentralized, competitive and goal oriented organization (Alexiadou & Lundahl 2016). Vocational as well as academic programs should give eligibility to higher education (in fact it is only the case with the addition of more courses and a strong engagement of the students). Education should be flexible and prepare for broad sections of the labour market, rather than for specific professions in difference to the German system (Kaiser & French 2017). Fifteen weeks of the 3-year education in upper secondary 'gymnasium' are devoted to work place training. Branches should have influence on the content of the VET programmes on regional and national level. To continue more specialized training programmes higher VET programmes are offered as well as general adult education (Weinert 2010) and apprenticeship after initial VET in upper secondary school in some branches. Recent reforms developed programmes for disadvantaged people (language and introduction programmes) strengthen advanced VET (Bollin 2017) and tried to reform the VET programmes in gymnasium to link them stronger to the demands of the labour market (Sveriges regering 2008, Olofsson & Persson Thunqvist 2018), To set up an apprenticeship model with half time at the workplace is another pathway to bring more and especially students with less ability to theory to become qualified and employable (Fejes 2010), but less than 10 % of the students choose that way. At the same time the partici-

pation in the school based VET programmes has been decreasing. The following table shows the points of analytical comparison of VET and the teacher education in Sweden and Finland.

Table 1 The Systems and VET teacher education in Sweden and Finland

Aspects of comparison	**Sweden**	**Finland**
Status of VET and participation rate	Middle / low (decreasing)	High (increasing)
Steering	State, municipality, social partners, branch representatives	State, municipality, social partners, branch representatives
Finance	Full state funding, including further and adult training	Full state funding, including further and adult training
Level of initial VET	Upper secondary school	Upper secondary school
Duration	3 years	3 years and shorter
Involvement of practice	15 weeks (increasing at the end)	Minimum 15 weeks (increasing at the end)
Possibility to enter academic studies after that	(formal) yes	(formal) yes to Universities of applied science (UAS), former days branchspecific higher VET
Apprenticeship model	6 % in initial VET & in electricity and building/construction branch 3 years duration after initial VET	18 % only 3% as youth, most of them as adults, now implemented stronger in initial VET
Assessment VET	VET teachers Regional branch experts and	Regional branch experts and VET teachers
Entry requirements to Teacher education (TE)	Qualified professional Certificate & work experience & validation on NQF level 5	Bachelor / Master and 3-5 years work experience
TE-Duration, provider	90 ECTs (± two years), Universities,	60 ECTs (One year), Universities of applied science
Content and methods in TE	academic, education science, democratic leadership, teaching didactics, peer learning, blended learning, self-assessment	Pedagogy, working life analyses, competence, counselling, ethics, democracy personalized development, peer learning, self-assessment
Assessment TE	Formative and summative, written and oral presentations	Formative portfolio, written papers
Job possibilities	Upper secondary school (VET programmes), in some cases only one subject in the programmes, adult education, advanced VET	Upper secondary school (VET programmes), adult education, advanced VET, Universities of applied science

(Table content based on interviews and on Alvunger 2016, Andersson 2018, Berglund & Lindberg 2012; Fejes & Köpsen 2012; Heikkinen 2003; Isacsson, Amhag & Stigmar 2018, Mahlamäki,-Kultanen, Muttonen, & Javonen 2018)

2.2 VET in Finland in difference to Sweden

In Finland as well as in Sweden most of the VET programmes offered in upper secondary schools. Contrary to Sweden in most cases they are located in separated school buildings. The participation in the VET programmes is even higher (40%) than in Sweden (20%) (Stenström & Virolainen 2017). The idea of the 1990th educational reform was individualisation and s gave students more freedom in choosing courses and set up a stronger linkage between VET programmes and higher education with a parallel establishing of universities of applied science. To get stronger linkage to labour market in the start of 2000th the on-the-job-learning periods in initial school based VET were derived from curriculum. VET teachers and workplace instructors had to work closer together. A flexible apprenticeship model with competence based assessments had a long tradition for adults to offer them further career choices and to reach the demands of companies. The reform of 2018 tries to transfer this model in initial VET (Finnish Government 2018). This current reform offers more and more individualized training plans, self-assessment and work-based as well as self-learning phases. That allows students to try education in apprenticeships model and to return in the school-based VET as well as to change from school based VET into payed work without finishing the qualification. This freedom and flexibility of the current reform is discussed critically in Finland (Kaiser 2018; Rintala, Jussila & Nokelainen 2018).

3 Tasks and pathways of VET teachers

As shown in table 1, there are a many similarities in Swedish and Finnish VET and the study programmes to become a VET teacher. One of the major difference are the educational pathways to teacher education (in Finland a minimum Bachelor degree in the teaching subject is needed to enter) and the more academic shape in Swedens teacher education in contrast to the more personalised and competence oriented approach in Finland. “The challenges when introducing academic studies for practioners, who do not have prior experience of university studies, have been challenging both Sweden and Denmark” (Isacsson, Amhag & Stigmar 2018, 47) Digital learning is widely used in both countries (Brauer, Kettunen Hallikainen 2018) and students are already employed in parallel (Fejes & Köpsen 2012)..

Their tasks in schools are similar in both countries because of the school-based, practical oriented approach of teaching in the VET schools. Teachers introduce students in workshops to cut hair, clean and repair cars, care for older people and to build electronic circuits for example. Besides that they supervise and asses students practice (Räkkölainen 2011) and written tasks and organise teacher-teamwork, peer education and networks to the regional economic life to get companies for the work based learning. In both countries the VET teachers usually work for public and in some cases for private schools and providers for further training. In Finland they can work as teachers in Universities of applied science as well. As Sweden has problems at the moment to find enough VET teacher students (especially in the technology roeinted programmes) in Finland it is difficult for the Finnish speaking applicants to get into the programme (Mahlamäki,-Kultanen, Muttonen, & Javonen 2018, Interview at Åbo Akademie 2018).

4 Research questions and the design of the comparison study

In October and November 2018 it was planned to carry out 5 to 10 expert interviews with VET teachers in both countries to reconstruct their educational pathways, motivations to become a teacher and their attitudes and value orientation. In a seminar with Swedish speaking Finnish teachers and school principals in Helsinki the two authors of the paper shared the idea to set up a standardized questionnaire on the pathways, regions, subjects and some open ques-

tions on strength and weaknesses of each countries system, after having some talks with the teachers.

The survey with approx. 20 topics was carried out in the beginning of 2019 as an online survey. Access to the interviews was via various meetings at conferences as well as forwarding to universities, colleges and educational administration with a request for support. There was no representative pre-selection of respondents.

Central theses are:

- The educational pathways differ significantly from country to country.
- The values and attitudes show a high degree of similarity and deviate more strongly from one country to another due to the different backgrounds of the teachers in the sector than due to the different countries.
- The situation of vocational schools has an influence on the appreciation of vocational education and training.
- Moving one's own place in the curriculum vitae induces a broader targeting of vocational education and training.

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Duc, B., Lamamra, N. & Besozzi, R (2019). On-the-job trainers at the crossroad between training and production: How the labour market impacts their training activities. In F. Marhuenda & M.J. Chisvert-Tarazona (Eds.), *Pedagogical concerns and market demands in VET. Proceedings of the 3rd Crossing Boundaries in VET conference, Vocational Education and Training Network (VETNET)* (pp.308-312) https://doi.org/10.5281/zenodo.2641079

On-the-job trainers at the crossroad between training and production:How the labour market impacts their training activities

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Abstract

Dual vocational education and training (VET) is the most frequently chosen post-secondary track in Switzerland. Students who opt for this system alternate between periods of learning in vocational schools and periods of training in the workplace. The close relationship between the training system and the labour market is viewed positively when considering how it fosters occupational integration. However, both apprentices and on-the-job trainers are confronted with a major tension that exists in training companies between production and training. This paper focuses on this tension, to analyse the impact that the logics of the labour market have on workplace learning. Based on the results of a qualitative study focusing on on-the-job trainers, the contribution highlights this impact at three levels: how the logic of production interferes with the logic of training on a global level, how on-the-job trainers experience this tension in their daily work and how the demands associated to production influence the practices and content of the training.

Keywords

dual VET; on-the-job trainers; tension between production and training; semi-structured interviews

1 Introduction

Dual vocational education and training (VET) is the most frequently chosen post-secondary track in Switzerland (SEFRI, 2017). Students in this system alternate between periods of learning in vocational schools and periods of training in the workplace. This characteristic is viewed positively when considering how it supports smooth transitions from school to work (Cohen-Scali, 2000) and fosters occupational integration (SEFRI, 2017). However, given the close relationship that exists between the training system and the labour market (Hanhart, 2006), apprentices are often confronted almost immediately with working conditions and production needs (Masdonati, Lamamra, Gay-des-Combes, & De Puy, 2007). In this perspective, dual VET can be viewed as an instance of occupational socialisation (Dubar, 1996; Moreau, 2003), which is supported by on-the-job trainers who are active in training companies.

Considerable literature has been devoted to discussing the influence of the labour market on educational institutions (Felouzis, Maroy, & Van Zanten, 2013), but this paper aims to study training that is provided at the very heart of the world of work, within the training companies. This area can be considered as a laboratory that provides us with the opportunity

to conduct a precise analysis of the impact that the demands of the labour market place on education. Within this specific context, the impact can be found in a major tension that exists between two logics: producing and training (Moreau, 2003). Indeed, the transmission of knowledge and know-how with respect to an occupation is carried out most of the time in work situations, and it is not only "within" but also "by" and "for" productive activity (Thébault, 2018). At the same time, a specific pedagogy that is based on workplace learning can be identified (Billett, 2007; Filliettaz, Rémery, & Trebert, 2014; Fuller & Unwin, 2003).

This paper focuses on the tension that exists in training companies between production and training. Indeed, the current work considers training within a company as a prism through which to analyse the impact that the logics of the new labour market have on workplace learning. In so doing, the paper highlights the difficulties of training within a productive context.

Focusing on on-the-job trainers, this study aims to answer the following three research questions:

4. How does the logic of production interfere with the logic of training?
5. How do on-the-job trainers experience the tension between production and training?
6. How does this tension influence or constrain the training practices and training content to which on-the job trainers refer?

2 Methods

This contribution refers to a collective study and a PhD thesis focusing on on-the-job trainers and is based on a qualitative approach (interviews and observations) and a comprehensive perspective. Eighty semi-structured interviews have been conducted with people who train one or more apprentices in companies in French-speaking Switzerland. To echo the heterogeneity of this population, trainers were selected according to their genders, their years of experience, their statuses in the companies (employees, managers and employers) and their functions in relation to the training of apprentices (administrative responsibilities or human resources and daily training). These trainers work in companies of various sizes (micro, small and midsize businesses (SMB) and big companies) and from several sectors of activity, with or without a long tradition of training.

A thematic content analysis (Bardin, 1986) has been undertaken from deductive and inductive perspectives to identify the central elements relating to the experience of a population that has rarely been studied. For the purpose of this paper, the analysis focuses on the following elements: the conditions under which the training activity is carried out as well as the constraints encountered and the practices and content of training to which on-the-job trainers refer. This contribution is also based on a typological approach (Schnapper, 2012). A typology of on-the-job trainers, which is specific to the PhD thesis, has been constructed with the help of two analytical axes: relationship and commitment to work (strong commitment to work and identification with the occupation or postures of withdrawal and distance from work or occupation) and the apprentices' perceptions, which have led to the emergence of different conceptions among the apprentices (figures of student or workers).

3 Results

According to the research questions, the influence of the labour market on training in a company will be discussed at three levels.

First, on a global level, it appears that the logic of production (rhythms of production, economic pressures, etc.) tends to take precedence over other areas in training companies. Sometimes training seems to take on a secondary role and be optional, as the apprentices are expected to be productive at very early stages of their apprenticeships. This is particularly true in the context of SMBs, which are subjected to important economic pressures and strong competition. Surprisingly, the same logics are found in the training centres of big companies that were initially fully dedicated to training. Indeed, these centres, which could temporarily provide protected environments for training, are becoming new production spaces. This first level of research shows the degree to which the demands of production interfere with training logics, which has consequences on the daily work of on-the-job trainers and also on the training practices and content.

Indeed, at the level of the daily work of on-the-job trainers, the analysis points out that they experience the tension between production and training more than any others who are involved in VET. This tension sometimes seems to be a double bind. Their objective is twofold: the success of their apprentices and the achievement of their production objectives. At the same time, most of the trainers do not have specific times during which they can train apprentices; they have neither specification documents nor any discharge to fulfil their training functions (Besozzi, Perrenoud, & Lamamra, 2017). As a result, on-the-job trainers lack adequate time to train their apprentices, and this is a pervasive theme in their discourse. Moreover, the rhythms of production and the requirements associated with some occupations, such as interruptions by customers, fragment the time that could be dedicated to formative activities. As a consequence, trainers have to find strategies so that they can continue to train, such as doing the training when there are the gaps in their work, during their breaks or outside of working hours or by encouraging self-training among their apprentices (Baumeler & Lamamra, 2018). These strategies allow them to carry on training without having any real time in which to do it and to deal with what can sometimes appear as a contradiction. Although several such strategies are experienced in companies of different sizes, this is particularly the case in micro firms (Baumeler & Lamamra, 2018).

The dominance of the production logics also has an influence on the level of the training practices themselves (pedagogy, assignment of tasks and guidance). The fragmented periods of time that trainers have make it difficult for them to set up specific pedagogies to guide their apprentices in learning the occupations. In some situations, the training context forces trainers to renounce any pedagogy, at least temporarily, and to confine apprentices to less formative tasks. Learning at the workplace, then, appears more and more like a way to present apprentices directly with work and the demands of the labour market for effectiveness and productivity, inviting them to become productive and autonomous very quickly. However, these confrontations do vary according to the perceptions that on-the-job trainers have of their apprentices and can range from direct involvement in work and productivity, where the apprentices are considered as workers, to more progressive involvement combined with guidance that evolves over time, where the apprentices are seen as pupils. In addition, depending on the profiles they have of their apprentices as future workers (executives or executants), the expectations vary from autonomy and self-responsibility on the one hand to the execution of only simple and repetitive tasks on the other. The content of the training is also influenced by the labour market. This can be illustrated by the references to transversal skills that on-the-job trainers make in their discourse about what is central to transmit to apprentices (Duc, Perrenoud, & Lamamra, 2018), reflecting the constant use of such strategies in the world of work.

4 Conclusion

In conclusion, the entire training experience in a company, as it is perceived by on-the-job trainers, is influenced by the world of work and its dominant logics. The initial elements seem to confirm that with respect to the tension between production and training that is highlighted by Moreau (2003) production has clearly become dominant over training. As a result, training in the workplace is greatly influenced by productivity constraints and requirements. For training to take place, on-the-job trainers must play central roles in the mediation work between these two logics (adjusting training conditions, choosing different modalities and contents, etc.) (Thébault, 2018). The trainers do use strategies to cope with this situation, both in practice, such as training during gap times and giving extra time for training, and in their discourse, through highlighting the training components of their work and placing value on models of progressive pedagogy and a certain representation of apprentices. All of this illustrates that in dual VET on-the-job trainers want to go on with their training; in spite of the constraints they experience, this aspect of their work gives meaning to their professional activities.

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Prescribed Curriculum of Dual Vocational Training in the Spanish context

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Abstract

The recent introduction in Spain of dual vocational training (DVT) tries to implement a new model of vocational training similar to the German DVT. The aim of this change in vocational education is to improve the learnings of the students and increase their employability. The export of a successful model of a country to other one does not seem to work properly in countries without tradition in this kind of training and with a different economic and social system. A parameter to measure the adequacy of a system is to analyze curricular improvements since the curricular design seeks to respond to the needs of the labor market by adapting the curriculum to the needs of companies. In Spain the implementation of the DVT does not seem to guarantee the acquisition of new competences but rather the null curriculum.

Keywords

prescribed curriculum; dual vocational training; regulated vocational training; regulations; vocational training

1 The curriculum in Vocational Training

The curriculum in Vocational Training (VET) fulfills an organizing function, introduces limits through a structure of meaning that seeks to respond to the needs of qualification of the labor market. Normative regulations establish prescriptions that act as a reference in the organization of the curricular system and is used as a starting point for the delimitation of content and control of the system.

The Organic Law for the Improvement of Educational Quality approved in 2013, currently in force in Spain, makes explicit its interest that Vocational Training is perceived by society as a training itinerary of first choice. A year before, the same state government introduced a new form of vocational training, DVT, through the training and learning contracts regulated in Royal Decree 1529/2012 of November 8th. Several authors maintain that, after many attempts to export the DVT model to countries without tradition, the result has not been generally satisfactory (Rego-Agraso, Barreira-Cerqueiras & Rial-Sánchez, 2015; Valiente, Scandurra, Zancajo & Brown, 2015). We wish to consider this statement in the Spanish context and assess whether the curriculum proposal explicit in the regulations in the DVT could bring improvements to the current VET model.

The project concerns the following research question: Do the curricular proposals provided by the regulations at the state level and in the regions in the DVT improve the VET model?

The prescribed curriculum forms a fence, fixes and cut back the knowledge to be taught, defines limits of the universe of the thinkable (Bourdieu & Passeron, 1995). The objective of this communication is to generate a space for reflection on this curriculum in DVT in the

Spanish context, available in the state regulations and in regional regulations. We consider relevant to analyze if the decisions of the legislator in relation to the curriculum proposal for DVT presents benefits, damages and / or uncertainties.

To achieve a harmonious integration of spaces and learning process, it is necessary to be aware of fundamental curricular issues. This communication analyzes concepts such as professional qualification and job position, reflects on the distribution of time in the two training environments, on the coordination and training of training agents and the evaluation of learning outcomes and how they affect the development of the prescribed curriculum.

2 Metodology

We have used a qualitative methodology in this work. First of all, we have carried out a review of the most relevant research on the analysis of DVT in Spain and its comparison with the German model, followed in Spain. Subsequently we have made a regulatory review to extract all the information that affects the curriculum on DVT contained in the Spanish and regional laws.

3 Results

The similarities between DVT and VET that has been developed to date in the Spanish context are relevant; both develop work-linked training, its curriculum source is the National Catalog of Professional Qualifications (CNCP), the training space is common (even the classrooms in which they are taught are mixed, including students of both models), the teachers have the same profile and requirements to access their teaching position, also the methodology used and the evaluation system are identical. Among its differences, it is worth highlighting the value that is given to the practice environment in the company, which becomes relevant in DVT. Pragmatic knowledge, learning by doing, the inductive method, respond to the logic that regulates this training. Model in which the curriculum is developed to a greater extent in the business environments.

3.1 The curriculum development in DVT

The DVT in Spain is defined in RD 1529/2012 as "training initiatives that qualify workers through actions that combine work activity in a company and the training activity received in an educational or vocational training school for the employment ". This regulation describes the curricular requirements that a company must accomplish in order to provide DVT, which are: to specify the contents, activities, teaching staff and form and assessment criteria. For their part, the Autonomous Communities make explicit in their regulations that in order to carry out the DVT in their territories, the contents, activities, resources, methodology, evaluation and learning outcomes must be detailed in a training program. Also, the commitment of the students who will participate in the program; the detailed schedule of permanence and teaching of each subject both in the school and in the company. In addition, an individualized training program will be developed for each student.

Most territories do not regulate curricular aspects and are subject to state regulations. Only 4 regions regulate these aspects explicitly: Canarias (Resolution of March 14, 2018), Comunidad Valenciana (Decree 74/2013, of June 14), Extremadura (Decree 100/2014, of June 3, 2014) and Murcia (Resolution of March 14, 2016.) These four autonomous communities establish that the training programs will be agreed with the company and will collect the learning results marked in the national law of the qualification and in the autonomic decrees of each curriculum. These programs will also collect the contents that must be taught in the company and in the VET school. Special mention deserves Cantabria that regulates (Order ECD / 20/2017 of February 23) that the learning results of the FCT (workplace training pro-

gram that is mandatory in the Spanish VET) are the only ones to take into account in their DVT projects.

In Germany, pattern for the Spanish DVT, the curricular specification of dual training is included in the work contract and involves specifying in the training plan, the training received in the VET school and in the company, specifying the skills to be acquired and its timing, as well as the space in which it will acquire that knowledge, in addition to the tests that the apprentice must pass to obtain his certificate of professionalism, and always specifying the training program for each specific position (Todolí, 2015). Basque Country and Castilla y León (Law 4/2018, of June 28 and Decree 2/2017, of January 12, respectively), in their 3-year programs offer the possibility of including complementary training to the one regulated in the state and autonomic regulations in order to adapt the training to the needs of the student or to allow the specialization required by the company or the productive sector. However, it is important to note that the cost is high for the students and for the education system itself.

In short, the curriculum regulations in Spain is identical for DVT and for VET and is established in the regulations of the title and the curriculum of each territory, whether or not it is expressly stated in practice.

Marhuenda, Chisvert-Tarazona, Palomares-Montero, Gil and Vila (2015) point out that the design of the training program is one of the most complex parts of a DVT program but we have seen that no new content or skills are introduced in these projects, so we can ask ourselves if there is progress and improvement in the achievement of the learning outcomes in the DVT, if they are extended with respect to VET but the data reveal that this is not the case. In addition, the participation of the company in the definition of these projects is scarce as indicated in the same study.

Regarding the hours of training that must be taught in companies, the state regulations and territorial laws such as Asturias, Extremadura, Valencian Community and Murcia statablish that the minimum will be 33% of the curriculum, a percentage that can be expanded according to the characteristics of each subject and the participating company. However, we find a disparity of situations as to how the teaching load should be shared between the VET school and the company, and the Administration of the different territories leaves the development of this aspect in their DVT projects to the schools, which are who decide, in consultation with the company, the subjects and the number of teaching hours that will be taught in the company because the regulations don’t give a guide on specific subjects or on characteristics of subjects that are or can not be taught in each space.

We found some Autonomies with more business involvement in terms of percentage of training given in the company and more concretion. It is remarkable Aragón that differentiates the subjects that will be taught in the company and those that will be taught in the VET schools, with 90% of the subjects of the curriculum that are taught in a shared manner between the company and the VET school.

3.2 Evaluation system in DVT

In Spain the evaluation of subjects that are taught totally or partially in the company is the responsibility of the school tutor although the indications of the tutor of the company will be taken into consideration.

Paradoxically, in Aragón the evaluation depends exclusively on the teaching staff of the VET school being the territory in which more hours of training are taught in companies.

Finally, note that the FCT in VET is evaluated only by the tutor of the company.

The research by Marhuenda et al. (2015) reveals that in the DVT the summative evaluation is the least used and seems the most appropriate to assess the learning of skills, fundamental in DVT.

The evaluation in the dual German System is solved from the joint of the implied agents. According to Todolí (2015), in Germany, it is the State that determines whether students have achieved professional qualification through bodies such as chambers of commerce. The evaluation is carried out throughout the period in which the student is in the company and focuses on the productivity of the worker and not on their employability, its objective is the acquisition of skills necessary to perform a job that will lead to a qualification.

In relation to the coordination mechanisms and relations between the company, VET schools and other organisms, professionals or social agents, fundamental in the German system. In Spain, the state regulation establishes no mechanism for coordination and evaluation of the projects. The only reference in this regard is a monthly meeting of follow-up of the student.

In short, we find that the burden of coordination between companies and VET schools always falls on the tutor of the school, there being no formal coordination mechanism in any of the territories between the company and the school or between them and the Administration.

4 Conclusions

The objective of DVT in the legal regulations is to improve the skills of young people and reduce youth unemployment but the evidence seems to indicate that the students of VET and DVT acquire the same competences according to the curricular regulation of both systems. However, it is worrying to observe how the dual system transfers to companies the responsibility of assuming the development of part of the curricular content, beyond measuring their productivity in an occupation proper to the professional qualification in which they are being trained. The difficulties that the model must save in response to the curriculum are diverse given that the educational center can not provide the entire prescribed curriculum. The curriculum that is not taught to these students is transferred to the company in many cases without certainty of their treatment. Neither the coordination mechanisms, nor the evaluation system, nor the formation of the company tutor figure offer guarantees in the current system.

DVT aims to plan new curricular contents that can not be taught in VET schools but only in companies, contents adapt to the job market and serve to improve the skills of students and their employability. According to our study there is no evidence of improvement of the curriculum in the DVT and we can not guarantee that students improve their skills despite spending long periods in the company with this type of training. In addition, the current system can not guarantee that the contents taught in the company in DVT programmes are those that can not be addressed in the school and can only be learned in the workplace.

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Storming and forming. Implementing a new dual VET law in Serbia

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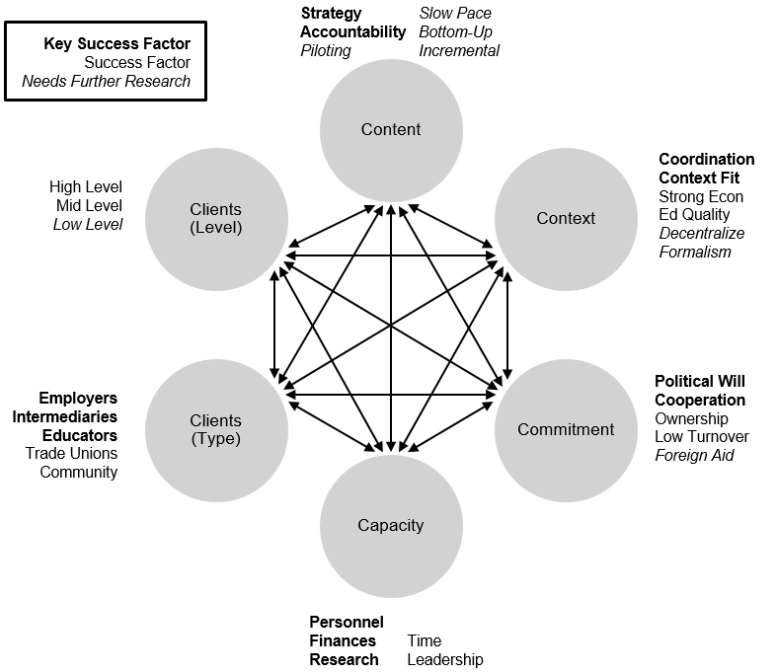
1 Introduction

Serbia is implementing a new dual vocational education and training (VET) law as part of its efforts to improve its VET system. The law includes a transitional article that allows the law to be adjusted after three years (starting in 2018) to remedy any problems discovered in initial implementation. This research project uses the implementation of Serbia's dual VET law to explore the influencing factors for implementing system-level VET reforms.

Our main research question is "what enables and/or prevents implementation of the Serbian dual VET law?" The secondary question addresses the implications of the first, asking, "What changes to the Serbian dual VET law would facilitate implementation?" In this way, the project addresses both theory and practice.

Caves and Baumann (2018) reviewed the literature on implementing VET reforms and found that factors in a six-category framework affect implementation progress, shown in Figure 1. The factors affecting VET are different from those affecting general education reform—visible most notably in the key role of employers and intermediaries—and still not completely clear. This research project aims to clarify the roles, relationships, and behavior of those factors through an in-depth analysis of the Serbian reform case.



Source: Caves & Baumann (2018)
Figure 1 Factors affecting VET implementation

We further contribute to theory by identifying key factors for specific points in the implementation process and by doing so in a transitional economy. This paper deals with the first year of implementation, and we expect that the key factors will be different for early implementation challenges than they will be for the issues that arise later in the process. This is the case for general education reform (i.e. Fullan, 2015) as well as general policy implementation (i.e. Nilsen, 2015). In addition, Serbia is a transitional economy[1] so what we learn here can apply to the many countries using improved VET to drive development.

2 Method & Data

We follow a two-step process of document analysis and informal interviews followed by formal interviews. First, we identify the key institutions and stakeholders in the Serbian VET context through document analysis of the law, the implementation plan, existing research on the Serbian VET system (i.e. Renold and Oswald-Egg, 2017), and informal interviews. We also use this process to identify the key moments in the implementation process. These serve as intermediary outcomes so we can measure progress. This process is complete as of this writing.

Second, we will identify a representative group of key stakeholders based on document analysis, including as many stakeholder types as possible. This is also complete. We are currently in the process of conducting formal interviews through in-country partners. These detect success factors and barriers to implementation. We will then analyze interview responses for trends based on the six-category framework of implementation success factors.

2.1 Document Analysis

The purpose of the document analysis step is to identify the critical institutions, stakeholders, and moments we should focus on during interviews. Table 1 summarizes the informal interviews and documents.

Table 1 Data summary for informal interviews and document analysis

Document/Source	Main Content
Informal Interviews	
Center of Education Policy (CEP)	Implementation plans, updates, Master Plan
Commission Article 40	Implementation plans and updates: Ministry of Education, Science and Technological Development (MoESTD), Chamber of Commerce and Industry Serbia (CCIS), Swiss Agency for Development and Cooperation (SDC), German Society for International Cooperation (GIZ), German-Serbian Chamber of Commerce
International donors/partners	Implementation plans and updates: SDC, GIZ
Documents	
Dual VET Law	New law that dual VET shall be implemented in Serbia starting with the 2019-2020 cohort
Dual VET Imple-	Outlines specific actions, timelines, and actors' roles for

[1] http://www.un.org/en/development/desa/policy/wesp/wesp_current/2014wesp_country_classification.pdf

mentation Master Plan (versions through Nov. 2018)	dual VET implementation
Rulebook on Career Guidance and Counseling	Bylaw for career guidance and counseling
Rulebook on Instructor Training	Bylaw on training instructors that will support participants in the workplace
Rulebook on Student Placement	Bylaw on matching students with companies
KOF Education Systems Factbook: Serbia	Summary of the Serbian education and training system
Analysis of Challenges to Strengthening the Serbian Dual VET System	Report on pre-implementation concerns and possibilities

2.2 Interviews

Interviews are being carried out at the time of this writing with our partners at the Centre for Education Policy. Based on the results of the document analysis and informal interviews, Table 2 summarizes the interview subjects. There are a total of 220 subjects in categories of government, CCIS, trade unions, regional units, schools, companies, students, parents, and international partners. For the first four categories, the interview subjects represent the full population of actors in each type. For the latter categories, we select representatives.

Table 2 Interview subject plan

Institution	Interviewee(s)	Sample
Government		
MoESTD	Minister + 2 assistants in charge for secondary education and dual education	3
VET and Adult Education Council	President	1
Prime minister's office	Person in charge for dual education	1
Standing Conference of Cities and Municipalities	Representative commission member	1
Institute for improvement of education	Director	1
Chamber of Commerce and Industry Serbia		
N/A	President of CCIS	1
Centre for Education, Dual Education and Education Policies	Head of Centre	1
Centre for Support to Investments and Public Private Partnership	Head of Centre	1
Division for Providing Support in Representation and Protection of Members' Interests	Head of Division	1

Trade unions (labor)		
Branch union	President	1
Trade union with special focus on education issues	President	2
Trade union focused on labor issues	President	1
Regional units		
All 17 regional CCIS units	Directors	17
All 18 regional school administrations.	Heads	18
Schools		
Schools piloting dual VET since 2013/14 school year	School principals + Coordinators of Students' Professional Practice	3 +3 (~50%)
Schools involved in dual VET in 2017/18 school year	School principals + Coordinators of Students' Professional Practice	9 +9 (~10%)
Schools not involved in dual VET	School principals	20 (~10%)
Companies		
Companies involved in dual VET	Managers/HR directors	30 (5%)
Companies not involved in dual VET	Managers/HR directors	30
Students		
Students in dual VET in 2018/19	Students	30
Students in other VET profiles in 2018/19 school year.	Students	30
Parents		
Parents of children in dual VET	Parents	15
Parents of children not in dual VET	Parents	15
Donors and International Organizations		
Major donor org.s in dual VET	SDC, GIZ, ADA	3
Major international org.s in dual VET	EUD, ETF, UNICEF	3
TOTAL		220

Source: Centre for Education Policy

There are five schools that have been piloting dual VET models since 2013, 84 implementing in 2017/2018, and 247 schools not participating. All five pilot schools are sampled, plus nine new schools and 20 non-participating schools, representing regions appropriately. We interview 30 students each from the participating and non-participating groups of schools, out of the 2,969 in participating schools and 63,858 in non-participating schools. Similarly, we interview 15 parents from each group of schools.

Six hundred companies are currently involved in dual VET, and we sample 30 with consideration for regional variation and SME representation. We also interview 30 non-participating companies, with the same considerations for regions and size. Selection is a stratified random sample from the CCIS database.

2.3 Interview Analysis

Interviews will be finished in February of 2019. After translation into English, we will code the results using statistical analysis of the quantitative elements and three independent coders for the qualitative elements. Roughly, two-thirds of the questions in the interview contain data we can analyze quantitatively, with the remaining third open-ended. Interview questions address subjects' personal and institutional background, their awareness of the new dual VET law, context fit, magnitude and type of changes required, willingness to participate, ability to participate, expectations for cooperation and coordination, opinions about their own and other actors' political will, and detailed questions about history with dual VET and specific bylaws.

3 Results

At this point, we have already carried out the document analysis. Part of the results of that process is the interview form and subject list, but we also identified critical moments in the implementation process. Figure 2 summarizes the critical path from October 2018 to the program's first full implementation in September of 2019. There are already five pilot schools that have been running dual VET programs since 2013, and 84 that implemented in the 2017/18 school year. For the 2019 school year, the program needs to go to full implementation in all schools with implementation of the law and bylaws.

As shown in Figure 2, there are a number of new processes that need to be in place before implementation can begin, and many of them need to start long before the official program start. Career guidance and counseling should start according to the associated bylaw as soon as possible. Students cannot choose to participate without information. Similarly urgent is the establishment of a licensing body to certify training companies. Companies must be licensed before they can sign up with CCIS to host students. Once companies are engaged, they can sign a Memorandum of Understanding (MoU) with their local schools and regions can begin working with CCIS to develop proposed local enrollment plans.

Based on the local enrollment plans, MoESTD defines quotas, published after approval as the Call. Students take exams to place into programs, and then schools allocate them according to the Call. Once enrollment begins, schools match students to companies according to the bylaw. Finally, after all of those processes are completed—for the first time—the program begins.

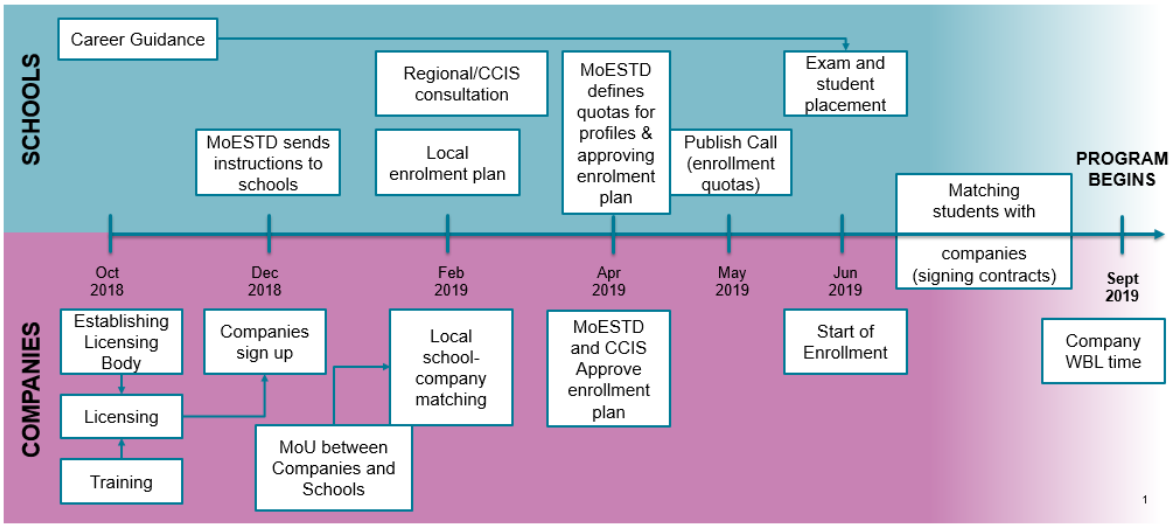


Figure 2 Summary of critical implementation moments 2018-2019

Source: Authors' own depiction

There is a series of interdependent critical moments leading up to successful implementation, and the timeline is already quite tight. Based on interviews, we will be able to see how the process is going and what the main challenges and opportunities are. When there are major success factors and barriers, we will be able to identify them from interviewees' responses.

We expect to find that the fast timeline and missing attention to actors' incentives will delay implementation.

4 Conclusions

In this paper, we will present results from the first year of implementation (spring 2018-spring 2019). At this point, there are likely to be challenges unless the strategy (Content) is very clearly communicated and coordinated (Context). Political will and cooperation (Commitment) are both potential key factors, as are all members of the Capacity category. However, we expect that the items in Clients (Type) and Clients (Level) will be especially relevant at the start of the implementation process since high-level and government actors have been involved in formulating and refining the law for some time, but lower-level and employer actors will be new to the process.

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Note

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Crossing borders and boundaries by borrowing education policies: lending, learning or just cherry picking?

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Abstract

This paper aims at linking two discourses in educational research, i.e. educational policy borrowing and learning predominantly discussed by the Anglosphere community and policy transfer activities in the field of VET (vocational education and training) dominated by the perspective of a German-speaking community. The paper reviews past and present initiatives by the Germany government that aim at "exporting" elements of VET to numerous regions including e.g. Mediterranean, Northern Africa, Latin America and South-East Asia countries. Referring to the theoretical framework of policy borrowing developed by Dolowitz & Marsh (2001), Phillips & Ochs (2003) and Phillips & Schweisfurth (2011), the paper examines three issues considered important to sustainable policy learning and borrowing, i.e. a) the role of ownership and internalisation, b) the level of coercion indicating the conditions under which the transfer was developed, and c) the relation between borrowing/lending, mutual learning processes, and cross-national attraction.

Keywords

policy borrowing; VET; education policy; Germany

1 Introduction

Numerous studies have pointed out the strengths and weaknesses of vocational education and training (VET) and see it as a role model to integrate (young) people into the labour market (e.g. Canning et al. 2000; MacLean & Lai 2011, 5). One of the models that has gained substantial attention is the German VET "system" including a strong public-private partnership model in initial VET ("dual apprenticeship model") and certificates such as the Master craftsmen certificates regulated at national level which are strongly interlocked with the apprenticeship model and build part of continuing VET.

Advocates of the German dual apprenticeship model point at the country's low unemployment rate, its strong linkage with employers, its reliable involvement of social partners and a sound fundament built on mutual trust and shared responsibilities (e.g. Gehin & Méhaut 1995). One of the societal preconditions, however, is its century-old tradition – a fact that cannot be transferred at all. The factor dominating most discussions, however, is the low youth unemployment rate which often resulted in what Phillips and Ochs called "cross-national attraction" (Phillips and Ochs 2003, 451): a model that promises an adequate solution for solving unemployment-related problems and that seems to guarantee labour market-relevant skills as well as a shift of responsibilities towards employers – an issue of particular relevance with respect to financing VET and remuneration of apprentices.

Against this background, I will focus on a particular type of policy transfer, i.e. those initiatives supporting VET that were financed by the German government and aim at supporting capacity building in emerging and developing countries.

2 From Germany to elsewhere: State-supported policy transfer initiatives in VET

With respect to the past 60 years, policy transfer in VET (particularly from Germany towards emerging nations) was much imprinted by a number of policy documents developed by the Ministry for Economic Cooperation and Development (BMZ). In this period, the German government mainly supported policy transfer initiatives aiming at implementing the dual apprenticeship system or at least elements of it to emerging and developing countries (Heitmann 2018; Stockmann & Kohlmann 1998). However, these initiatives have hardly been linked with the discourse on the underlying process of policy borrowing, policy transfer and policy learning in education. Though similar at first sight, the notions vary with respect to the underlying intention: While policy transfer refers to processes "by which knowledge about policies, administrative arrangements, institutions and ideas in one political system (past or present) is used in the development of policies, administrative arrangements, institutions and ideas in another political system" (Dolowitz & Marsh 2000, 5), the notion of "policy learning" focuses on mutual learning processes, ideally between all stakeholders and aiming at tailoring individual solutions rather than transferring existing ones (Chakroun 2010; Raffe & Spours 2007). Ideally, policy borrowing and learning include learning about the home system, identifying policy options, understanding processes of change and anticipating issues that possible policies would raise.

However, this distinction is more analytical than practical. In praxis, the degree of borrowing or learning is much dependent on who is involved in the process of borrowing and learning and on the degree of coercion by which a reform is designed and implemented, and even though interrelations between countries may be strong this is not necessarily an indicator for adopting foreign policies: "The degree to which there has been a reciprocal relationship of sharing between countries, however, is questionable with each country making decisions in light of what is best for development in its own nation" (Kubow & Fossum 2007, 8).

Such decision taking is part of a more complex process of policy transfer and policy borrowing. For example, in the model by Phillips and Ochs (2003, 452), policy borrowing covers four steps – with some levels of variety depending on the particular reform needs and (political, economic, cultural) contexts:

- Cross-national attraction (problem identification and search for what seems the same problem and an attractive solution elsewhere)
- Decision (on how to adapt the 'solution' in the home country)
- Implementation of the somehow adapted 'solution' in the home country
- Internalisation/indigenisation of the 'solution' (developing ownership)

Moreover, though there are several models of policy transfer and policy borrowing including various stages, phases and steps (e.g. Dolowitz & Marsh 2001, Phillips & Ochs 2003; Phillips & Schweisfurth 2011), such models are hard to apply in reality and rather serve a retrospective analysis of policy transfer.

This can also be stated with respect to the German policy transfer initiatives referring to VET where numerous papers and studies document German initiatives to support countries with implementing VET structures (e.g. Borrmann & Stockmann 2009; Stockmann & Vest 1997). However, the documentation landscape is somewhat fragmented given that in many cases evaluation of initiatives was (and still is) not mandatory and apart from a lack of involvement of local evaluators "[i]nternal and external domestic evaluation staff not only lacks experience – they also lack appropriate qualifications. In spite of this obvious deficiency, only very few development cooperation agencies support their partner organisations […] through

systematic programmes in the area of vocational education and training" (Borrmann & Stockmann 2009, 15).

As a consequence, comparing such initiatives and deriving trends, findings and consequences is difficult. For example, Heitmann (2018) identifies five stages of VET policy transfer initiated by the BMZ's launch of strategy papers in 1969, 1986, 1992, 2005, and 2012. His analysis is based on the assumption that all initiatives should (ideally) apply a value chain model developed for VET transfer including a) governance structures, b) funding, c) information systems for VET planning, d) qualifications and curricula, e) training partnership with private sector and f) quality assurance—a value chain "model" that was recently adopted by the European Commission (2017, 12). With respect to the same time period, Stockmann (2018) identifies similar chronological stages which he links with content-related shifts in the respective programmatic strategies. These shifts refer to a stronger focus on poverty reduction, gender equality, peace building and public-private-partnership building as well as a stronger linkage with active labour market policies and business development (Stockmann 2018, 145–148). From a content point of view, however, it seems that the more complex the transfer initiatives are and the higher the envisaged aims, the less it is possible to actually realize the aims which, in turns, leads to excessive demands of those involved in the process and a failure of what the initiatives were made for (Stockmann & Silvestrini 2013, 115). Even more, one of the key results of the same meta analysis of policy transfer in VET is that key success factors in policy transfer include the process of planning and implementing the initiative, performance of coordinators and key stakeholders and widespread impact. However, it is striking that it is particularly the aspect of internalisation/indigenisation that is least mentioned and which seems the most difficult aspect with respect to its long-term impact on policy transfer.

3 Conclusions

Studies on VET transfer supported by the German government are well-documented and have been reviewed in several meta analysis. All these studies result in similar findings all pointing at two reciprocal processes:

- A shift away from the idea of dismantling and deconstructing the German VET system into its element, then transferring its elements into foreign countries and finally reconstructing it on the ground;
- A shift towards a systemic perspective of VET, its interlocking with other societal subsystems (labour markets, health, welfare) including a stronger focus on financing and (local) stakeholders as well as a raising awareness that "less is more", i.e. that only single elements (ideas, methods) of the VET system can be borrowed rather than transferred – if at all.

Those findings may sound simple and logical; however, for a very long time they emerged in parallel and quite decoupled from similar international experience with policy transfer in VET in other countries.

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Challenges of Pedagogy of Work and VET Research: a Theoretical Perspective

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Abstract

This paper discusses on ten challenges surfacing in the landscape of pedagogy of work and VET researches, with reference to the most relevant international surveys and with a special regard to VET field. One of the main issues in this landscape is the problem of cooperation between companies and school, the concept of competence for Vet education, the professional education for Vet teachers, "career change" trough Vet training.

Keywords

adult education; vocational training; pedagogy of work; adult competences; dual system

1 The Notion of Work: a Pedagogical Perspective

Pedagogy sets itself as an important component of the "culture of development". In this connection, ascertaining whether certain aspects concerning changes in the way people work — either at a conceptual and practical level — and the manner today's work culture can be supported and addressed by pedagogy is crucial in the present analysis. This is particularly the case when devising strategies to further professional and social development. Work thus plays a major role in human development while gaining civil and educational values, which are dependent upon cultural and geographical factors in one's social history. Work lies at the heart of the "social question" which currently has been given momentum. This is particularly the case if one considers factors such as business relocation and the supremacy of finance over economics, which set the conditions for ongoing inequalities worldwide, to the extent that in some countries rights such as freedom and democracy are jeopardized. In this connection, reference has frequently been made in the West to the concept of "erosion" of social capital, with the middle-class which now face hardship and social imbalance which might endanger civil coexistence.

If one were to reconstruct, yet ideally, the historical and semantic characteristics through which the concept of "work" has been referred to as a source of humanization over the years, mention should be made of figures such as Augustine of Hippo, Benedict of Nursia, Comenius, as well as Rousseau, Locke, Fröbel and Hessen. Yet this effort, albeit fascinating, is beyond the scope of this paper and priority will be given to other questions.

The notion of "work" has been investigated during the nineteenth and the twentieth century by scholars with different educational background —economics, sociology, labour law, and so forth — who examined a wide range of topics which formed the base of modernity. Among other topics are the relationship between individuals and social groups, the forms of power and authority in socio-organizational contexts, delegation systems and management structuring, workers' safeguards and rights.

An overview of the modern concept of "work", if cursory, calls for the following question: at which point has "work" become the driving force of society in conceptual terms? In order to provide an answer to this question, mention should be made of a fundamental

economic theory. It was Adam Smith in 1776 who explained the wealth of nations by considering the ratio of productive workers out of the total population. This novel approach was illustrative of the central role of work in society, as opposed to the traditional feudal system which was still in place in British society at the time of his writing.

The growing importance placed upon the notion of work throughout 1800 and 1900 in proto-industrial society represents a unique phenomenon, chiefly if one considers individual behaviour. As pointed out by the German sociologist, Ulrich Beck, "industrial society is in all its aspects a society based on salaried employment".

With time, the concept of "work" has also become the subject of a special area of investigation in human and social sciences, where social pedagogy broached the main anthropological and educational aspects.

In the last thirty years, a number of significant changes in the regulation of the employment relationship — e.g. de-standardisation — led to the establishment of certain "drivers": the gradual decline of the Fordist system of production, the emergence of the networking system, and the consolidation of information and the knowledge economy. Accordingly, changes in the notion of "subordination" and a review of work hierarchies — particularly in large-sized enterprises and the public sector — have turned into the key components in today's world of work. Another main element which is worth mentioning is the rise of numerous contractual arrangements, the growing relevance of self-employment, as well as the increase in precarious work, which can be found particularly in those sectors marked by low levels of protection.

Echoing Bauman and his famous metaphor, the uncertain nature of employment has become an endemic aspect of the "liquid society". Factors such as temporariness, uncertainty, and vulnerability, are increasingly characterizing the interaction between work and the individual. Indeed, the emergence of more flexible forms of work places upon the individual clear responsibilities and assigns him more bargaining power which thus far has been the preserve of external entities, such as trade unions and social partners. The Italian labour market is particularly fragmented and certain ongoing trends can be seen, viz. increased unemployment levels for a qualified workforce, high rates of precarious work, if compared to stable employment, noticeable differences in terms of employment at territorial, sectoral, and geographical level, chiefly between the North and the South.

The question at hand that needs to be addressed by scholars of social science and pedagogy is to what extent the foregoing transformations affect the anthropological perspective underlying the notion of "work", on which dignity and identity are premised.

2 The future of work

Attention to the future of work is becoming more and more central in common people feelings. New luddite fears coexist with rosy predictive hopes facing a technologic race speedup, told by media in an ordinary yet sometimes bloating way, thus causing *Orwel-style* fantasies. A *cultural* answer is definitely as essential as a compass in this scenario. New concerns, caused by the 2008 socioeconomic crisis, determined a different and more mature awareness of the *meaning of work to young people, women and over-50s*. Changes in productive assets and in socioeconomic international geography gave birth to a new mindset approaching the subject of work. As a matter-of-fact, a "genetically modified" work can be no longer easily classified and its so-defined "anthropological value" pays now special attention to subjectivity, and positive orientation to relationship; new opportunities can be locally generated, respecting a needful dignity of work as a fundamental share of human living (Alessandrini, 2017; Gessler, 2017). Pedagogy of work finally is a pedagogy exploring new solutions and promoting empirical research as a method to patrol approach and educational practices. It is a

dynamic, future-oriented *pedagogy* continuously realigning itself and its link with all other human sciences. Conceptual framework is related to many authors (Dewey, Wenger, Schön, Billet, Gessler, etc.). Work and education to and with the work have an apical role within the framework enabling human development, beyond the prominence of quantitative growth and efficiency and function values.

We can clearly outline five different interpretations, or rather, five different narratives of contemporary work's transformations (Alessandrini, 2017).

Table 1 Five different narratives of contemporary work's transformations

Multiculturalism of work
A new hybridisation of and in the work
New work territories (*smart working*, *crowdfunding*)
New job training
New semantic items

3 Ten challenges for a new Pedagogy of Work

An essential element of the aforementioned "attitudes" is the awareness that sustainability is vital for a desirable future, that the subject of individual's freedom and self-determination can characterize the future feelings of people towards work experience (technologies can give a relevant contribution through the planning of business models).

Due to the increasing amount of *hybridisation* of the different kinds of work – thus making instability and insecurity prevailing – *human rights safeguards* are paramount, as well as the possibility of gaining access to a respectable work and to the guarantee of a concept we can refer to as the *humanization* of work.

The following list represents the main challenges of work pedagogies (Alessandrini, 2017):

Table 2 The new challenges

The generative work
The dual system education
The *smart work*
The *open innovation*
The talent *promotion*
The growing polarization conflict
The cognitive knowledge new mapping
The long term employability
The skills intelligence
The human development and *sustainability*

4 VET Research as a Focus of Pedagogy of Work

What are, then, the fundamental transformation processes related to training needs and the effects on vocational training for young people? VET research is one of the more relevant topics of pedagogy of work, among others like the issue of dual systems and the school-to-work transition. Other subjects are "how-to-solve" the problem of NEET, the comprehension of future (Industry 4.0) skills, talents promotion and new professional needs, the empyrical research for a professional identity/competences, etc. The main issues in this landscape are the problem of cooperation between companies and schools, the concept of competence for VET

education, the professional education for VET teachers, “career change” through VET training.

The OECD survey for Italy has outlined a proposal of re-launching VET role in our national context. This perspective aims to overcome an articulate vision on VET as a second chance for students. A reading of vocational training in this sense is consistent with the need to improve the training courses to work, not only as an opportunity of placement but also as a value orientation to the working dimension. Recent data show that employability for VET students is better than for students from other sectors.

From September to November 2017, Cedefop conducted a questionnaire survey to understand the various concepts and glossaries in the different European countries, precisely in order to understand differences that cannot be eliminated (also because historically “sedimented”) and to act accordingly in European policies. The researchers have been able to elaborate some tables in order to show the reader the variety of approaches and research trends in European countries. Different conceptions emerge, some linked to the so-called general education, others to the theme of apprenticeship, others to the theme of lifelong learning (ILO, 2017; ONU, 2015). These conceptions enable the Italian researcher to analyse the conceptual latitude of the research on VET and to grasp elements addressing the current Italian phase of renewed interest on this issue compared to the experimentation of the “alternanza” in the schools. There is also a new interest at the academic level on the theme of work-based learning and dual systems (Marcone, 2018).

International research does not show a “best way” in VET (Moreno Herrera, 2017; Perini, Kamarainen, 2018): there are substantial approaches’ differences in Europe and therefore the need for a mutual comparison for the researcher. The fundamental theme is how to interpret the concept of “professional knowledge”, even at level of theoretical frameworks. According to some lines of research, this knowledge is contextual and holistic: it identifies itself in a complex of “physicality”, intellectual comprehension skills, values, imitative skills, but above all integration of experience with individual thought (Billet, 2017; Engestrom, 1987).

The hope is that in Italy the interest in VET studies will be renewed according to approaches also linked to the epistemological dimensions of learning from practice and according to the comparative logic between the models and the good research practices in Europe.

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Swedish vocational education and training teachers' role in work with WBL

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Abstract

VET teachers play a key role in introducing and connecting students to learning environments of specific workplaces, and in helping students to consolidate learning in schools with learning in the workplace. Therefore, the aim of this paper is to describe and analyze the role played by VET teachers in their work with the students' work-based learning (WBL). The empirical study builds on cases from three of the twelve national vocational programmes in Sweden: Building and Construction, Child and Recreation, and Handicraft. The study consists of 15 interviews with teachers from these programmes. The result shows that depending on to what extent the school or the physical classroom has similarities to the workplace, the VET teacher uses examples from the workplace differently in his or her teaching. The analysis shows two different enactments in how VET teachers talk about creating continuity between school and work.

Keywords

vocational teacher; work-based learning; teacher work

1 Introduction and background

Work-based learning (WBL) has a central position in vocational education and training (VET). However, the organisation of and responsibilities for WBL vary between countries, as does the role of the VET teacher in relation to WBL (Cedefop, 2018). In some countries the workplace has the full responsibility for the WBL parts of VET. In Sweden, VET teachers from vocational schools have a central role and responsibility when it comes to the work-based parts of VET on upper secondary level. They are responsible for planning, grading, and ensuring safety and values in the workplace, but they rarely take part of the day-to-day work in which the student engages in the workplace. The aim of this paper is to describe and analyze the role played by VET teachers in their work with the students' work-based learning (WBL).

The curriculum states that students should be on WBL for at least 15 weeks during the three-year long programme, and some who take the apprenticeship track are 50% or more of the time in the workplace. Out of the three years of the upper secondary school VET programmes, two thirds of the time are vocational subjects including the work-based learning parts.

The research question in this study is:

- How do VET teachers work in school and on the boundary between school and working life to enhance students vocational learning?

The empirical study builds on cases from three of the twelve national vocational programmes in Sweden: Building and Construction (BCP), Child and Recreation (CRP), and

Handicraft (HCP). The study consists of 15 interviews with teachers from these programmes. A thematic analysis was conducted and patterns in the interviews were developed into themes (Boyatzis, 1998; Braun & Clarke, 2008).

The study is theoretically based in Lave and Wenger's (1991) and Wenger's (1998) theory of situated learning with its central concepts' community of practice and legitimate peripheral participation. Particularly the concepts of boundary processes, brokering, and design for learning are of interest in the study to discuss the VET teacher's work.

2 Previous research

Previous research shows that VET teachers use many methods when working with WBL in order to link students' learning to different workplaces with the requirements set by the curriculum. Therefore, the way in which they cooperate and communicate with WBL providers may vary with time and situation (Billett, 2006; Vähäsantanen, Saarinen & Eteläpelto, 2009). Vähäsantanen et al. (2009) unwrap different ways of connecting with the workplace where the individual teacher's thoughts on how to work with the workplace affect the cooperation between school and workplace. The different roles VET teachers take on are relational constructions, and they are defined relative to complementary and interrelated roles. This means that VET teachers' work must be put into a broad context that includes the workplace (Billett, 2008; Isopahkala-Bouret, 2010).

Teaching always comprises meetings. A good relationship between students and teachers is important for learning, and the ability to build relationships with students is vital for all categories of teacher (e.g. Aspelin & Persson, 2011; Langelotz, 2014). The VET teacher, who often interacts with students during long hours at school, has the opportunity to develop a solid base of knowledge about the student (Köpsén, 2014). Swedish research has also shown that teachers see fostering as an important part of education as they want the students to develop and mature, the teachers want to give the students a sense of something to believe in (Berner, 2010; Köpsén, 2014). Widening the students' knowledge and understanding is an important part of the teacher work, and this cannot always be satisfied in the workplace (Berner, 2010).

International research has shown that an emergent teacher task is to connect students with their future community of practice, and that the role of broker is crucial for the stakeholders to come together in a joint enterprise (Willegems, Consuegra, Struyven & Engels, 2016). Previous research in the Swedish context has shown that teachers play a key role in introducing and connecting students to learning environments of specific workplaces, and in helping students to consolidate learning in schools with learning in the workplace (Köpsén, 2014; Lagström, 2012). This broker role, however, puts the teachers into an exposed position as they become accountable by two 'worlds' (Akkerman & Bakker, 2011). In this paper I will also elaborate on how VET teachers work in school and use their vocational experience and students WBL in enhancing students learning.

3 Result

The result shows that the VET teachers' work with WBL takes place both on the boundary between school and workplace, and in school.

5.1 VET teachers work on the boundary between school and work

The work on the boundary concerns activities before and during students' WBL periods. This work can be thematised as 'being a recruiter', 'being a matchmaker', and 'being a firefighter'. 'Being a recruiter' describes the work of finding work placements for all the students. This work ranges from being dependent on the teachers' own social network to arguing for the

importance of students finding their own placements. The school is responsible, but the outcome depends to a great extent on the teacher's own network. 'Being a matchmaker' consists of the task to match each student with a good learning environment at the work place. This work is done with the students' learning as well as their social needs in focus, to match each student with a suitable workplace and supervisor. The teacher's capability to cross boundaries connecting students to suitable workplaces demands that the teacher has knowledge of both the students and the local business. 'Being a firefighter' concerns the emergency work related to problems between the student and supervisor but also the preventive work VET teachers do before WBL, in contact with both students and supervisors. This job, done on the boundary of school and workplace, is a highly complex relational work which puts teachers' relational competence to the test. This boundary crossing and brokering are seldom seen as a teacher's tasks, but for the learner in VET, the teacher's background, network, and relational skills become crucial.

5.2 How WBL is used in classrooms

In school, the teachers' job differs. The results show that depending on to what extent the school or the physical classroom have similarities to the workplace, the VET teacher uses or draws upon examples from the workplace differently in his or her teaching. The analysis shows two different enactments in how VET teachers talk about creating continuity between school and work.

5.2.1 Connecting workplace to school all the time

The analysis shows that some teachers consider WBL and connections with workplaces as essential in their in-school teaching. Teachers from CRP represent one group who speaks a lot of the importance of WBL and therefore speaks of it daily in the classroom. For example, before the students are on their first WBL period these teachers point out that they try to make students understand that becoming a pre-school worker or to work in the social sector means a shift in perspective. Before the students first WBL period some teachers use the parable of swimming on dry land. Clara (CRP) says 'I can teach theory in-school before WBL, but after WBL, the students can connect experiences with theory and then I can teach in a different way'. In teaching Camilla (CRP) often uses sayings as 'think of this when on WBL' and in doing activities with the students she says she has to remind them of that 'you can do this yourself at the workplace'. After the students have been on WBL Clara (CRP) continues describing how she uses that experience, 'to get the students motivated in my teaching it is a good thing to connect to their own experiences at WBL'. She figuratively moves between the classroom and the workplace to boost the students' interest, facilitate for learning and create mutual engagement, joint enterprise, and shared repertoire within the community of practice of working life; an understanding for what is not present – practice.

5.2.2 Connecting not needed – it's easy to move between theory and practice

In some teachers' descriptions of their work connecting WBL and school they say they rarely talk about WBL in the classroom/workshop. However, the analysis shows that their in-school work is situated in or close to workshops resembling the workplace. To reach closeness to the artefacts of the WBL the teacher instead can ask questions like 'have you seen this tool before?' to get students' attention. Another case where teachers see WBL as helpful is when talking about work ethics; is it ok to wear a crop top at the hairdressing saloon or to show off tattoos, is it ok to take the first available chair in the coffee room at break? When these teachers talk about connecting with the workplace it becomes something else than how they use

WBL, it becomes a description of how they teach. They describe that having a 'theory' classroom close to the workshop is a winning concept. If they start teaching in theory or practice isn't described as important, that varies, it isn't obvious or important, it depends on many factors.

> If you can move between them [theory and practice], then those who don't get it here [theory room], they'll get it out there. They get an understanding out there and then they can connect here when they come here again. I wish I could use more reality in theory. (Henrik, HCP)

The teachers describe how they in their teaching explain how to do something starting either in the workshop or the 'theory classroom', ending up with some students understanding and some not. They then go to the other site, explain one more time either with the help of practice or theory, and some students now understand while some students have to start working on the task and after that gradually end up understanding. This moving between theory and practice gives students several opportunities to understand and connect theory and practice. The difference between workshop and theory classroom is here interpreted as making the boundary visible even though both sites are in school. The workshop in school is a good substitute for the workplace and therefore there is no need to visualize or discuss WBL in order to create continuity with the community of practice.

4 Discussion

This study contributes to the understanding of VET teachers' work and brokering between school and working life, and how that differs from the often-described subject teachers' mainly school-based work. The study shows that the conditions (e.g. the schools similitude to workplace practice) that the VET teachers work under are of great importance for the frames they can act within and create sameness and continuity between school and workplace for students. In relation to the VET teacher training institution it becomes an important task to prepare the teacher students for this boundary crossing and relational work.

The findings show that in two out of the three different programmes in this study (BCP and HCP) it is obvious how much the workshops/classrooms resemble the work place teachers educate for. Teachers create situated learning for the students in a safe environment and the teachers work in a workplace resembling their former, and the students upcoming, work environment. VET teachers and students engage mutually, dressed in work clothes, whether it is with scissors at hand or with hard hats and boots with steel cap, and they engage in creating hairstyles, cabinets or other constructions together. At the third programme, CRP, VET teachers have to create this sameness and continuity through their use of their work experience in talk and school assignments. The different conditions provide different possibilities for the VET teacher to create what is seen as important for learning an occupation. All the teachers have the same goal – but they work under different conditions which gives their work different character. Teachers at the CRP needs to visualize and concretize phenomenon as 'treat different with respect' and 'children with different needs'. When the building and construction teacher can show a foxtail saw and show how to best hold it, the child and recreation teacher can't do that with 'a typical 4-year old'.

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Work-based integrated learning in the VET programme: Threats to students' readiness

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Abstract

The introduction of Technical and Vocational Education and Training Colleges started with a new qualification called National Certificate (Vocational), NC (V) in 2007 in South Africa. The qualification enables students to be trained in both theory and practice, yet there is an unpreparedness of students at Work-based environment that add to the ever-increasing unemployment rate in the country. The study investigated the threats of unpreparedness for Work-based Learning of students despite qualifying under the NC (V) programme. Curriculum documents were used to track down NC (V) students into the workplace. Face-to-face interviews with lecturers were conducted. The study found that TVET college lecturers are not well prepared to teach both theory and Vocational subjects, which in turn affect the type of throughputs. One major recommendation is to retrain the TVET College lecturers for them to better prepare their students for a world of work.

Keywords

vocational education; national certificate vocational; technical and vocational education and training college; work-based learning

1 Introduction and background

The legislative landscape of the Further Education and Training (FET) College sector has undergone significant changes in South Africa. Public FET Colleges have been renamed Technical and Vocational Education and Training (TVET) Colleges, while private FET Colleges have been renamed private Colleges in terms of the *Further Education and Training Colleges Amendment Act, 2013 (Act No. 1 of 2013),* in Government Gazette No. 36271. As higher education has expanded, there has been increased emphasis on the skills students learn during their time in Higher Education (HE), beyond the knowledge, technical and academic skills related to their subject or indicated by their achieved class of degree (Mason, Williams and Cranmer 2006). As a result, concern to assess and measure the impact of the wider generic skills that students derive from participation in tertiary education has grown. The concept of 'employability' has been most usefully defined recently as 'the ability of an individual to secure and sustain employment and progress within the workplace', recognizing that different types of employment have different 'employability' requirements (Belt *et al.* 2010: 1-5, UK Commission for Employment and Skills, UKCES, 2010: 2-3). However, there is considerable debate about what 'employability skills' are, particularly with reference to '*graduate* employability skills'. Research on employers' perceptions of the graduate labour supply has consistently found that although graduate recruiters generally have had a positive impression of graduates overall, they also reported a lack of some capacities in job applicants and recruits, particularly a lack of business awareness and capacity for self-management, as well as skills shortages in STEM subject areas (CBI 2008, CBI and UUK 2009:49).

According to the Strategy for TVET (2016-2021), TVET can equip youth with the skills required to access the world of work, including skills for self-employment. TVET can also improve responsiveness to changing skill-demands by companies and communities, increase productivity and increase wage levels (United Nations Educational, Scientific and Cultural Organization, UNESCO, 2016). Education is generally good insurance against unemployment and for an individual to stay in employment.

The TVET Colleges were boosted with funds and had their workshops and laboratories refurbished in order for students to be taught both theory and practical as required by the current industrial norms. This endeavor in itself is aimed at enhancing Wok-based learning (WBL) that will eventually pave way for students to fit in industries. The newly introduced course at TVET Colleges is called National Certificate (Vocational), NC (V). The NC (V) started to run in 2007 at a level called National Qualification Framework (NQF) Level 2 and it is a year course that ends at NQF Level 4.

2 Research question

The study was guided by the following research question:

- What are the challenges that TVET College lecturers have in teaching their students?

3 Problem statement

A majority of former Technical College students who are now lecturers mainly occupies TVET Colleges in South Africa. This means that most of the lecturers at TVET College sector are partially qualified. This then makes entry for students into WBL difficult. This paper then presents threats to students' readiness into the world of work having gone under the NC (V) programme.

4 Methodology

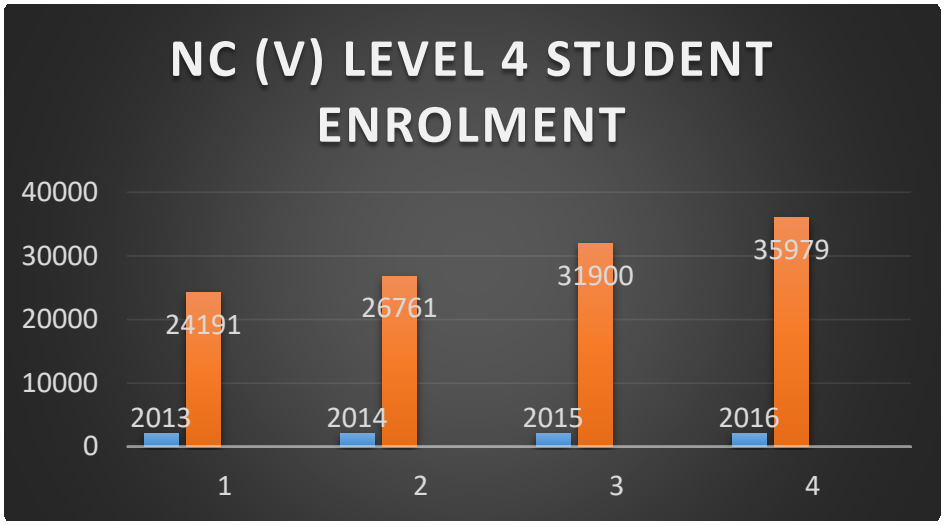
The study made use qualitative research method to collect data. Department of Higher Education and Training (DHET) documents were used to solicit information (DHET, 2016) of how the NQF Level 4 students are absorbed in TVET Colleges versus those that make the cut to artisanship at industries. The qualitative research was used because it provides an in-depth, rich data and it analyzes peoples' individual and collective social actions, interpretations, beliefs, thoughts and perceptions (Kruger, Du Plessis & Maseko, 2002).

Six TVET College lecturers from six different TVET Colleges in Gauteng province were purposively and randomly selected to take part in the study. Face-to-face interviews were conducted with the lecturers. Three of the TVET College lecturers are only qualified tradesmen whereas the other three lecturers only posses a teacher's qualification. There was only one female (FT1) with experience in Fitting and Turning, two Automotive Repair and maintenance lecturers (AR1 and AR2), one qualified tradesman and the other one being a qualified teacher from University. The same was with the two Electrical Engineering lecturers (EE1 and EE2) lecturers. An Engineering Graphics and Design (EGD) lecturer (EG1) holds a teacher's qualification from a former College of Education. The abbreviations that are shown refer to the codes that were given to lecturers.

5 Findings

5.1 National Vocational Certificate students' intake

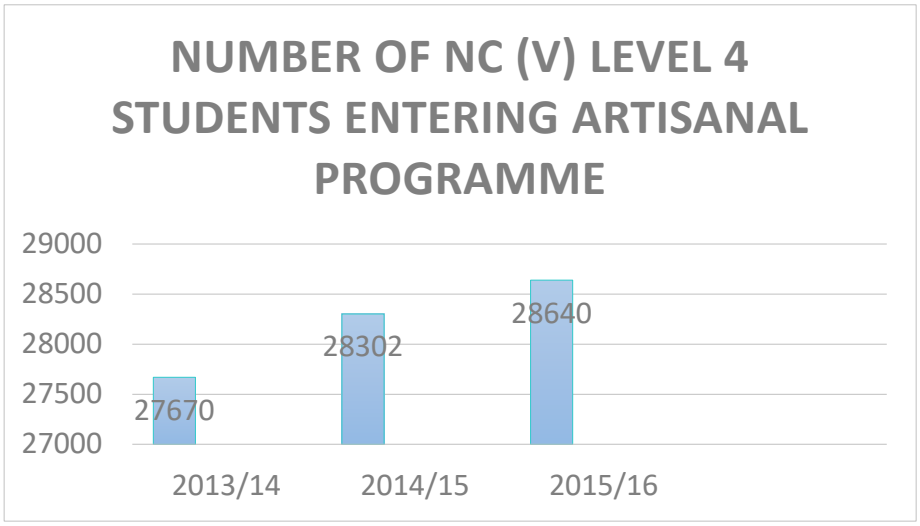
Below is the graph that shows the number of students in South Africa who enter artisanship after completing the NC (V) programme from 2013-2016.



Source: (DHET, 2013- 2016)

Figure 1 Students entering artisanship from NC (V) Level 4

The graph above shows an increasing number of students at NC (V) level programme that enters the TVET College sector. In 2013 the number stood at 24 191 and 2014 saw an increase where the number stood at 26 761. Thirty one thousand and nine hundred (31 900) students registered for NC (V) Level 4 in 2015 and in 2016 the number increased to 35 979. This in itself shows the interest of the community in pursuing a career at TVET College sector. The figure below shows the number of students who entered the artisanal programme as of 2013 to 2016.

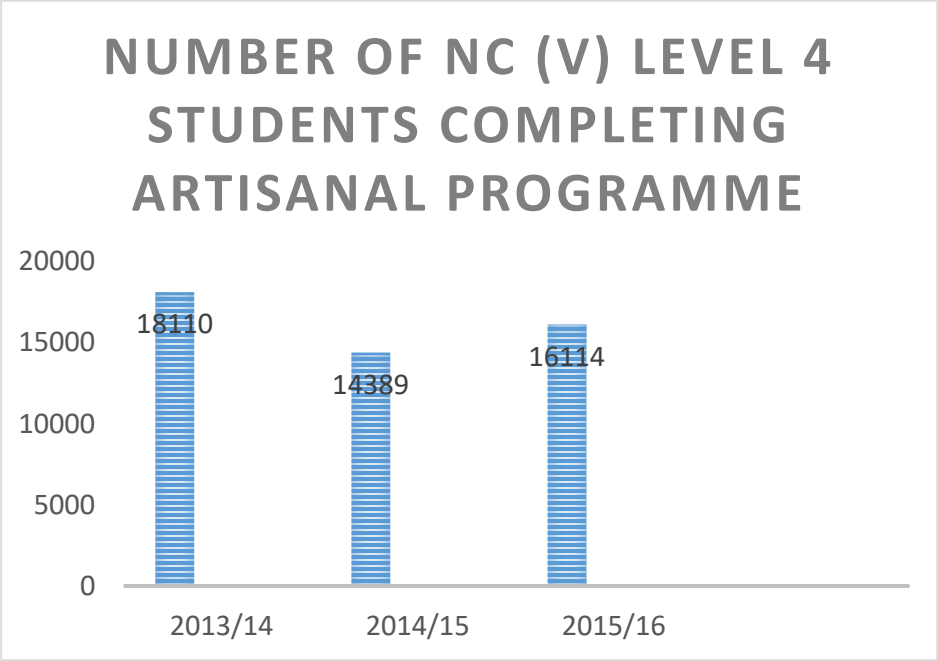


Source: DHET (2016)

Figure 2 Number of NC (V) Level 4 students entering artisanal programme

The above figure shows the number of students who completed their NC (V) level 4 programme and managed to be absorbed into artisanal programme. The figures are evident

that 54% of the students who did NC (V) Level 4 programmes between 2013 and 2014 managed to enter into the artisan's programme from 2013/2014. This then left 46% of the students wandering outside the programme. On the other hand, 48% of the 2014/2015 intakes managed to make the cut into the artisanal programme, thus leaving 52% having not been successful. In the period of 2015/2016 though, 42% of the enrolled NC (V) Level 4 students made it to the artisanal programme. The figures are very concerning considering the position that government has taken to alleviate poverty and unemployment in the country. To add to that, below is the figure that shows the number of students who completed the artisanal programme.



Source: (DHET, 2016)

Figure 3 Students who have completed artisanal programme

The figure above shows the number of students who entered and completed the artisanal programme as of 2013 and 2016. In the 2013/ 2014 period, 9 560 students could not make it into completing the artisanal programme which is 65% of the intake of that period. In 2014/2015 periods, 51% of the students completed the artisanal programme leaving 49% failing. In the 2015 / 2016 period, more than half of the entire group that entered the artisanal programme completed the programme. Fifty six percent of the 2015/2016 students' intake completed the course leaving behind 44% of the rest failing.

5.2 TVET College lecturers' interview findings

Interviews were conducted in order to try and establish what challenges do lecturers have which could contribute to the low throughput rate of NC (V) Level 4 students who crack it into the work based environment.

It was quite interesting to see that lecturers felt comfortable in the way they are qualified and how they teach. The female lecturer (FT1) who was offering Fitting and turning said: *"I hold a Fitting and turning trade with no teachers qualification and I enjoy working in the workshop"*. She further said: *"I do however, work closely with my colleague who facilitates the theory part who has recently graduated from a university"*. The Automotive and repair maintenance lecturer (AR1) commented: *"I have never been trained on a car engine because I studied at an institution that did not have proper workshop"*. His counterpart from another

institution (AR2) said: *"I posses a diesel trade in Automotive and repair and maintenance but I am reluctant to teach theory as it is boring, and as such my other colleague does the theory part"*. EE1 on the other hand, who holds a Bachelors degree from a Gauteng university and is not a qualified tradesman, said: *"I know that Electrical engineering is broad with sections like transformers and steam engines which I never saw in my career as a student"*. His counterpart EE2, said: *"I am from Eskom and I worked there for a couple of years and as such I love practical, theory to me is boring, it just needs notes that's all"*. EG1 lecturer said: *"In my 21 years of teaching career, I had to learn a lot by myself because we hardly get developed at this level; therefore I know what is best for my students. I am in the process of implementing AutoCAD because I know that it is the way of the future"*.

6 Discussions and conclusion

The above responses show that lecturers are not trained the same. This then creates a different type of students who qualify with NQF Level 4. With that said, the greatest threat now becomes the quality of qualified students from TVET College who fail to cope and be absorbed in industries. Research on employers' perceptions of the graduate labour supply has consistently found that although graduate recruiters generally have had a positive impression of graduates overall, they also reported a lack of some capacities in job applicants and recruits, particularly a lack of business awareness and capacity for self-management, as well as skills shortages in STEM subject areas as discussed earlier (CBI 2008, CBI and UUK 2009:49). The findings then call for the retraining of TVET College lecturers to create a culture of learning and teaching to better prepare their students for the world of work.

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Laudenbach, F. & Anslinger, E. (2019). Labour market mobility into and within Germany – Demands, possibilities and effectiveness. In F. Marhuenda & M.J. Chisvert-Tarazona (Eds.), *Pedagogical concerns and market demands in VET. Proceedings of the 3rd Crossing Boundaries in VET conference, Vocational Education and Training Network (VETNET)* (pp.347-352) https://doi.org/10.5281/zenodo.2641762

Labour market mobility into and within Germany – Demands, possibilities and effectiveness

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Abstract

This paper comparatively analyses the impact and functionality of the Federal Recognition Act as well as the external examination. Both approaches can foster labour mobility into and within the German labour market. Focusing on horizontal mobility as a spatial movement of migrants and vertical mobility as an upskilling movement, we link these approaches with individual perspectives and experiences. The results show that both approaches highly depend on the formal education system. For the individuals this linkage can have an effect of exclusion and devaluation but also can have a motivating effect. With regard to their labour market integration, both approaches can enable a sustainable mobility into and within the German labour market. Nevertheless, those processes are very demanding and rely on strict regulations that can impede a smooth procedure.

Keywords

mobility; labour market; recognition of prior learning; upskilling pathways

1 Introduction

In 2010, the European Union declared the importance of labour mobility in its Europe 2020 strategy „to respond in a flexible way to the priorities and needs of labour markets“ (European Commission 2010: 17). In Germany, the Federal Recognition Act was passed in 2012 to enable the recognition of foreign qualifications, taking a fundamental step to comply with the politically desired wish to increase labour mobility and to cope with domestic skill shortages. At the same time the German VET landscape usually refers to the external examination as another means to enter the German labour market with an officially recognized qualification. In contrast to the Federal Recognition Act, the external examination is an instrument with a long tradition which is widely accepted in the German labour market. The linkage of these two approaches is that they both can foster labour market mobility – into and within the German labour market.

This paper aims to shed light on whether these instruments enable labour market mobility and improve the personal situation of individuals in the German labour market. Based on qualitative interviews with individuals who have undergone a recognition process or an external examination, this paper uncovers the experiences they have gathered during these processes, whether their non-formal and informal competences have been considered and how their upskilling pathways have been accepted by the labour market.

By comparing the Recognition Act and the external examination with regard to their impact on labour market mobility of individuals, we link the individual perspective with the institutional level and shed light on how these two instruments – the one rather new, whilst the other with a long tradition in the German VET-landscape – can foster labour market mobility.

2 Defining labour market mobility

Labour and labour market structures are more and more affected by changes. Research confirms an increasing flexibility in the labour market as well as for the employees working within this labour market (Voß/Pongratz 1998; Struck 2006; Seifert/Struck 2009; Erlinghagen 2017). These changes affect questions of trajectories of employment and conditions of employment equally. At the same time these trends imply a higher need of labour market mobility and a flexible adaptation of individuals to the needs of the labour market.

From a European perspective, labour market mobility is usually linked with the idea of free movement. This concept is being described as a means to enable a flexible supply to the demands of labour in different member states and within the member states (Guild 1999). This shall create an efficient European labour market and at the same time allows individuals to improve their employment prospective as well as employers to recruit suitable employees (Boswell/Geddes 2011: 81-82; Fassmann/Lane 2009: 2).

As labour market mobility can comprise an individual work life dimension as well as an institutional cross-national dimension, we define labour mobility in a twofold way: (1) we define labour mobility as an approach that is shaped by the European idea of free movement and thus enables a horizontal mobility. Horizontal mobility relates to the cross-national movement or migration of a person into or within the EU (and Germany) with the aim to improve their labour market prospective. More precisely, it refers to the spatial movement of persons from one country to another and includes their aim to get full recognition of their qualifications at the host country. (2) We define vertical mobility which refers to the upward movement of persons from being unskilled to being skilled and thus having their competences officially recognized. This relates to the idea of intragenerational mobility, “a process (which) unfolds in the course of the worklife” (Allmendinger 1990: 3). At the same time it depends on the permeability of the education system and the labour market (Allmendinger 1990). The result of vertical mobility shall be an official certification or qualification proving the person’s competences.

Recognizing prior learning is considered to increase the labour market mobility and inclusion of individuals (Schöpf 2015). Particularly for the low skilled workers and workers in non-standard employment increasing the transparency and usability of non-formal and informal learning outcomes can support them in overcoming precarious employment and working conditions. Additionally, in labour market segments and sectors where skills gaps are an issue of concern, the recognition of already existing skills and competences of individuals can bring qualified people into work more quickly (Dobischat and Schurgatz 2015: 34). Consequently, it is worth to scrutinize whether the existing approaches in Germany can foster horizontal and vertical mobility and how they are structured formally and institutionally.

3 External examination and Recognition Act: German approaches to regulate labour market mobility?

The question of skill shortages is of high relevance for the German labour market (Bellmann et al. 2015; Bossler et al. 2018). Shortage occupations, such as in the care professions in Germany, determine the labour market and are often open to unskilled and low skilled workers as well as migrants. By recognizing their qualifications as well as their non-formal and informal competences, the Recognition Act and the external examination can path the way for those

workers to enter the German labour market. Both approaches will be described in the following briefly:

The external examination is an approach which enables the recognition of prior learning by facilitating the permission for taking an external examination that forms part of the formal education system. For vocational training, this procedure was established in the 1960s to give people not formally trained under the dual apprenticeship program the chance to acquire a formal vocational qualification. According to the National Vocational Qualification Law (§45 (2) BBiG) and regulations set up by the chamber of crafts (§37 (2) HwO), people are allowed to apply for taking the final examination without having attended the respective vocational training program if they comply with certain requirements, including the proof of relevant work experience covering 1.5 times the duration of the regular training program. Alternatively, it is also possible to proof that relevant competences have been acquired in other ways.

The Federal Recognition Act was introduced in April 2012 to enable the recognition of equivalence of prior learning to national education standards and certificates. It guarantees individuals the right to get foreign qualifications recognized by a competent authority within three months as being equal to a respective national qualification. The recognition process is, in the first place, based on assessing relevant documents such as training certificates, certificates of capability and proofs of relevant domain-specific work experience acquired in a foreign country or in Germany (see § 3 BQFG section 1). Complementary, competence assessment is also possible based on practical tests, work proofs and interviews. When significant skill gaps impede full recognition, a partial recognition can be awarded that can be supplemented, for example, by further training (Böse et al. 2014).

Both approaches are linked to the formal education system of Germany. The former results in a formal examination, which officially proves the skills and competences of a person. The latter is an equivalence assessment which proves that the foreign qualification is equal to the German qualification. Together, they offer a pathway to skilled work and an instrument to increase vertical as well as horizontal mobility. Nevertheless, they both rely on strict regulations and high standards that are defined by the formal education system. Against this backdrop it has to be scrutinized which impact these approaches have for low skilled workers and migrants. This paper empirically provides a first proof of opportunities regarding mobility for low skilled and migrant workers in the German labour market.

4 Insights into labour market mobility – stories of recognition and devaluation

In the previous section, we outlined the institutional structure of the approaches facilitating mobility to low skilled workers and migrants in Germany. In this section we refer to the individual level and present their experiences with the institutional structure.

Our analysis is based on problem centred interviews (Witzel 2000) with 13 individuals that have either undergone an external examination or a recognition of their foreign qualification. Through a qualitative content analysis, these interviews were analysed focussing on their biographical development, their spatial or intragenerational mobility and on the challenges experienced during their recognition process/external examination. The following sections summarize the results of our analysis.

4.1 Vertical and horizontal mobility

For our analysis we interviewed 7 individuals who have applied for recognition of their foreign qualifications. Those individuals whose education was not similar to the German education system had difficulties to immediately receive a full recognition and, hence, to get access to the German labour market. In these cases, labour market mobility was only possible indirectly by restarting education. For example, one interviewee had to restart a vocational educa-

tion and training due to the fact that his school-leaving qualification was not assessed as being equal to the German qualification. Non-formally and informally acquired competences did not play an important role during the recognition processes.

Furthermore, we interviewed 6 individuals that have undergone an external examination. In these cases, the result of the external examination is the official and formal qualification (in the respective profession) and therefore has a high recognition in the German labour market. Consequently, their inclusion into the German labour market was successful. For example, one interviewee worked for years in temporary jobs in the housekeeping sector. By completing an external examination, the interviewee could receive an official qualification as housekeeper. Informally acquired competences could be considered in this example, as the working experiences were accepted as proof of the necessary working experiences.

The recognition of foreign qualifications let individuals work and earn according to their qualifications after the assessment. This allows moving to a new country, while having the same opportunities to work as in the country of origin – at least theoretically. Most of the interviewees had to restart education or to complete compensatory measures. This means that they could work equivalently only after another period of training. Likewise, the external examination facilitates an intragenerational mobility of low skilled workers and hereby enables integration into the German labour market as skilled workers.

4.2 Individual effects of labour market mobility

On the structural level, both approaches resulted in labour market mobility – one at an earlier stage while the other often later. On the individual level they both have effects that are not necessarily identical:

On the one hand, several of the interviewees that applied for recognition of their qualification felt devaluated. Although they already had worked in their profession and/or had completed a qualification in their country of origin, they had to prove their competences and skills once again. Several of the interviewees had to restart their training or parts of it. They personally felt devaluated and discouraged by the recognition process. At the same time, the other interviewees personally had no problems with their recognition process. They indicated that they felt quite confident due to the encouraging counselling process before the application.

On the other hand, the interviewees that completed an external examination had a positive effect. Most of the interviewees returned to work after a long break but had difficulties to return to their original profession. They either felt not up-to-date within their profession or wanted to change their profession. The official proof of having the competences in the respective profession resulted in an encouraging effect for the individuals. They admitted to feel more self-confident due to the accomplished effort. They even continued their learning effort and conducted further training to become a responsible manager. Nevertheless, they all admitted that it was a very challenging process to learn for an exam on their own while continuing their usual work. Moreover, it was a challenge for them to take an exam after a long period without any school education.

With regard to the labour market perspectives on labour mobility, the interviewees indicated that with the support and inclusion of the employer, they perceived the processes as more successful and easier. The interviewees that conducted an external examination indicated that the employer even initiated those processes.

With a view to skill shortages in certain professions in the German labour market it could also be of relevance to consider informal and non-formal competences that individuals have acquired during their lifetime. Our interviewees indicated that those competences only played a minor role. In the present cases of external examinations the recognition of non-formal and informal competences paved the way to the formal examination. Experiences of child-raising (parental leave) or care of relatives could be considered as working experiences. Especially in

the cases under the recognition act, the decisive factor of the equivalence assessment was the proof of formal education. Only with this proof, informal and non-formal competences could be considered during the recognition process.

5 Conclusion

Our study serves as a first insight into the impact and functionality of the Recognition Act as well as the external examination with regard to labour mobility of low skilled workers and migrants into and within the German labour market. Our results show that it highly depends on the formal education system whether mobility (horizontal and vertical) is successful. Consequently, on the individual level those processes can have both devaluating and encouraging effects. Informal and non-formal competences can only pave the way into a formal examination; in the recognition process they only play a minor role. This pathway through the formal education system in both cases entails high standards that are very demanding for both low skilled workers and migrants.

Having in mind the present shortage of skilled workers in Germany especially in the care sector or in the electrical engineering, procedures and further education that streamline horizontal and vertical mobility for different target groups in the long-term seem to be necessary. Therefore, it seems indispensable to create flexible gateways to the formal (vocational) education system.

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Who participates in Continuous Vocational Education and Training and why do they do it?

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Abstract

Demographic, political and technological trends cause an increasing shortage in skilled labor in specific economy sectors (health care, hotel/restaurant industry, trade, technology) in most industrialized European countries (Cedefop, 2016). Consequently, companies/employers are forced to fill a rising number of job vacancies with currently unexploited labor force potential (e.g. unqualified/low qualified people, people returning from career breaks or those with migration background as well as older employees and unemployed people). On the other hand, there is still a substantial number of non-working people of employable age (potential additional labor force, Eurostat, data extracted in May 2017), especially if we look at the groups mentioned above. Hence, to ensure participation in working life and to provide companies with sufficient workforce, CVET (Continuous Vocational Education and Training) measures are essential. CVET can be defined as the continuation or resumption of more or less organized learning after the completion of a first education phase. Previous studies usually focus on attendance figures. Taking the results of these studies into account, it shows that some groups of employees are underrepresented. However, little is known about the motivation to attend CVET or what motivates companies to offer trainings, especially for our target groups.

In part of our studies (interview study and quantitative survey), we refer to all four sectors (see above) of the economy. In a vignette study we concentrate on health care and hotel/restaurant industry. In these two sectors there is the most severe shortage of skilled workers, which is true for most European countries. Furthermore, many people belonging to our target groups work in these sectors without being adequately qualified.

1 Introduction

As early as 2013, many sectors had struggled with hard-to-fill vacancies (Brenzel et al. 2014; particularly the health and social services sector, the hotel and restaurant industry, and the retail and technology sectors; Czepek et al. 2015). Reasons are:

1 Demographic changes in most industrialized nations lead to a decrease in qualified workforce (Cedefop, 2015).
2 Structural changes: A decline in jobs in the manufacturing sectors is accompanied by new jobs in secondary service sectors; the demand for qualified workers will increase (Helmrich et al. 2016, p. 73).

3 Technological changes and digitalization lead to changes in work processes and technologies, requiring employees to continuously improve their qualification (Brynjolfsson & McAfee 2014).

If vacancies cannot be filled by hiring qualified personnel from the labor market, companies must develop other strategies to cover their demand for skilled labor. Particular attention is being directed toward groups that, have not been the focus of companies' (further) training activities and are thus underrepresented in continuous vocational education and training (CVET; e.g., persons without prior vocational training, persons with (longer) employment interruptions or with a migration background, and older workers).

The aim of our study is to identify group-specific and sector-specific causes for, as well as barriers against, CVET measures. Here, we discuss the employees' point of view. Two questions will be answered:

1. What are reasons for and barriers against CVET within marginalized or special target groups (older employees, people with no/low previous qualification, people re-entering the labor market, and those with a migration background)?
2. What types of training would be preferred by members of these target groups?

2 Clarification of CVET, marginalized groups and industry sectors as constructs

CVET is defined as Education/training after initial education and training or after entry into working life aimed at helping individuals to improve/update their knowledge/skills, acquire new skills or continue their personal or professional development (Cedefop 2008, p. 50).

It can be divided into individual, in-company, occupation-related and nonoccupational training (Autorengruppe Bildungsberichterstattung 2018, p. 175).

Continuing education plays an important role in "shaping successful occupational biographies, active participation in society in general and the realisation of a self-desired way of life" (Seeber et al. 2017, p. 21). Offerhaus, Leschke & Schömann (2010) point out that participation in CVET is often determined by age, origin, employment status, level of qualification or education. Such factors are - singularly or in combination - CVET barriers for certain groups of people (marginalized groups; Seeber et al. 2017). *Marginalized groups* include:

- Employees with low or no formal qualification, employees of a subordinate social value (Schulte-Braucks 2013) or those who do not have a (recognized) vocational qualification.
- Returnees to the labor market who have had a greater employment interruption than the statutory parental leave.
- Persons with a migration background, who were born either abroad or have at least one parent that was born abroad (Konsortium Bildungsberichterstattung 2006).
- Older persons aged 55 and over who are able to work but are only sometimes involved in working processes (Cedefop 2015, p. 92).

We focus on *four industry sectors*, namely, retail, health care, hotel/restaurant trade and technology, because these sectors currently have problems with vacancies that cannot be filled.

3 Short summary of the state of research on participation in CVET among the target groups

Research on training causes and barriers has so far been primarily descriptive and used standardized questionnaires to query individual and contextual factors that promote and hinder training participation (e.g., Gorges 2013; Kaufmann & Widany 2013; BMBF 2017; Gorges & Hollmann 2015). The following statements can be summarized:

For *employees with a migration background*, participation in CVET in Germany showed a positive trend between 2010 and 2012, then stagnated for some years and rose significantly by 2016 (up to 40%). However, the participation rate in CVET by employees with a migration background still falls below the one for persons without a migration background (51%) (Autorengruppe Bildungsberichterstattung, 2018). Lower participation is mainly explained by costs of CVET and time restrictions but also by childcare obligations and a lack of a sense of necessity of CVET (Riesenfelder et al. 2011, Barz & Tippelt 2018). In addition, a lack of adequate courses (in terms of time and content) and missing certificates (Brüning 2002) or language difficulties can be barriers as well (Desjardins 2015).

Employees with low or no formal qualification are particularly underrepresented in CVET (Bilger et al. 2013). Frequently these employees attend only if it is mandatory (Gillen et al. 2010) or if participation is driven by the expectation that the achieved qualification will improve performance at the workplace, secure the job/position or provide opportunities for advancement (Schröder et al. 2004, Bilger et al. 2013) and/or higher income (Käpplinger et al. 2013). At the same time, however, interest in the respective content plays a role in deciding for or against participation (Bilger et al. 2013). Costs and cost-benefit-consideration are barriers (Krenn 2010). Furthermore, competing (private or job-related) obligations and training offers outside of working hours restrict participation (Gillen et al. 2010; Käpplinger et al. 2013).

Participation rates for *older employees* show a positive trend over the past few years (cf. Autorengruppe Bildungsberichterstatung 2018, p. 174). The main reasons provided by this group for participating in CVET are social exchange, as well as interest in the respective contents covered in CVET (Tippelt et al. 2009a; Friebe & Schmidt-Hertha 2013). Another reason is the desire to improve one's own abilities in order to better understand new developments as well as the improvement of general or job-related knowledge (Tippelt et al. 2009b, Bilger et al. 2013). Barriers in this population include that older employees do not see a benefit in learning new things (Wooden et al. 2001; Pfeifer et al. 2012), and that the CVET offer does not fit one's own needs (Schröder & Gilberg 2005; Tippelt et al. 2009a).

There are few studies on training participation by people reentering work life. In this group, women are usually the focus because this population is predominantly comprised of women who have longer periods without employment (Dieckhoff & Steiber 2009). The main reasons provided for participation are the desire to return to work well prepared, the expansion of knowledge or a desired occupational change.

The outlined studies mention central causes and barriers without, however, systematically looking at the groups of employees and the sectors that we have in focus.

4 Method

4.1 Interview study

We use a mixed method approach with an interview study, a vignette study and a quantitative survey. This paper focuses on results of the interview and vignette studies.

72 interviews were conducted with employees from our target groups (see Table 1; for detailed descriptions of the interviews and the results see Siegfried et al. in print).

Table 1: Sample interview study

	Employees (with):	Migration background	Low/no formal qualification	Aged 50 or over	Reentering worklife	Total
		(N=14)	(N=21)	(N=26)	(N=12)	(N=72)
Gender and age	Female	5	10	20	12	47
	Male	9	11	6		25
	Age (SD)	31.29 (8.20)	35.95 (11.05)	56.27 (4.22)	39.83 (6.52)	42.97 (12.94)
Sector	Retail	3	7	6	5	21
	Health	--	5	11	4	20
	Restaurant	8	5	5	2	19
	Technology	3	4	4	1	12

The interviews were transcribed and coded (Mayring, 2016). The coding guideline consists of 30 main categories and 42 subcategories (for more detail cf. Siegfried et al., in print). Coder training resulted in satisfying interrater reliabilities (Cohen's kappa .70 - .85).

4.2 Vignette study

Vignettes model decision-making situations that are close to real life decisions and capture individual preferences (Atzmüller & Steiner, 2010). We selected training topics that are highly relevant to employees within a respective sector, for example, pain therapy and dementia management in health care and vegetarian-vegan cuisine as well as complaint management in the hotel/catering trade. We further implemented variations in the options concerning the timeframe (half-day vs. full-day; the total duration is kept constant), the organization (presence seminar vs. web-based/blended learning) and the design (external vs. internal seminar).

In focused interviews (Merton, Fiske & Kendall, 1990) participants were asked to read the description of the catalogues and then decide which option they would prefer along with reasons for their decision. Individual preferences for a design variant were recorded on a three-step scale.

So far, the results from 15 participants (table 2) are available. Coding was performed in accordance with the design variants (see above). Coder training resulted in satisfying interrater reliabilities (Cohen's kappa .85 - .89).

Table 2 Sample vignette study

	Employees (with):	Low/no formal qualification	Migration background	Reentering worklife	Total
		(N=2)	(N=9)	(N=4)	(N=15)
Gender and age	Female	1	3	2	7
	Male	1	6	2	8
	Age (SD)	46.5 (2.5)	38 (6.38)	43 (6.04)	42.97 (12.94)

5 Findings

5.1 Findings of the interview study

The analyses of causes and barriers for continuing training as well as possible differences between the various employee groups and sectors were carried out descriptively and on the basis of ANOVAs. Four groups were used for the analyses: (1) Employees with a migrant background and (2) with a migrant background and low or no formal qualification, (3) persons re-entering employment and (4) older employees.

In sum, the results show that there are similarities in reasons and barriers for all groups (see Siegfried et al., in print). In the case of occupation-related CVET, occupational changes account for most of the responses across all groups (54-92% of persons in each group). Another reason mentioned by employees across all groups was a desire for further development and maintenance of more general knowledge (65-100% of persons per group). In terms of barriers, all groups mention inappropriate offers as a main barrier (29-75% employees per group), as well as competing occupational obligations (23-50% employees per group).

Nevertheless, it is also possible to uncover group-specific characteristics that could only be revealed through targeted questioning, which confirms the methodological approach of our study:

1. The safeguarding of the current occupational situation is mentioned significantly more often by persons with a migration background and those returning to work than by all other groups.
2. Refreshing occupation-related knowledge is more often a reason for further training among re-entrants than for the other target groups.
3. Private competing obligations represent the biggest barrier to participation in CVET, especially for re-entrants.
4. The lack of a sense of need is primarily mentioned by people with a migration background and especially by people with a migration background and low formal qualifications.

Looking at possible differences between the sectors, it is particularly interesting to note that in some cases the abovementioned training causes and barriers have other weightings than the addressee-specific analysis (see Siegfried et al., in print).

5.2 Findings of the vignette study

With the situational approach, we expected even more differentiated insights into the reasons and obstacles to participate in CVET and to obtain ideas for the type of further education measures that are suitable for specific groups.

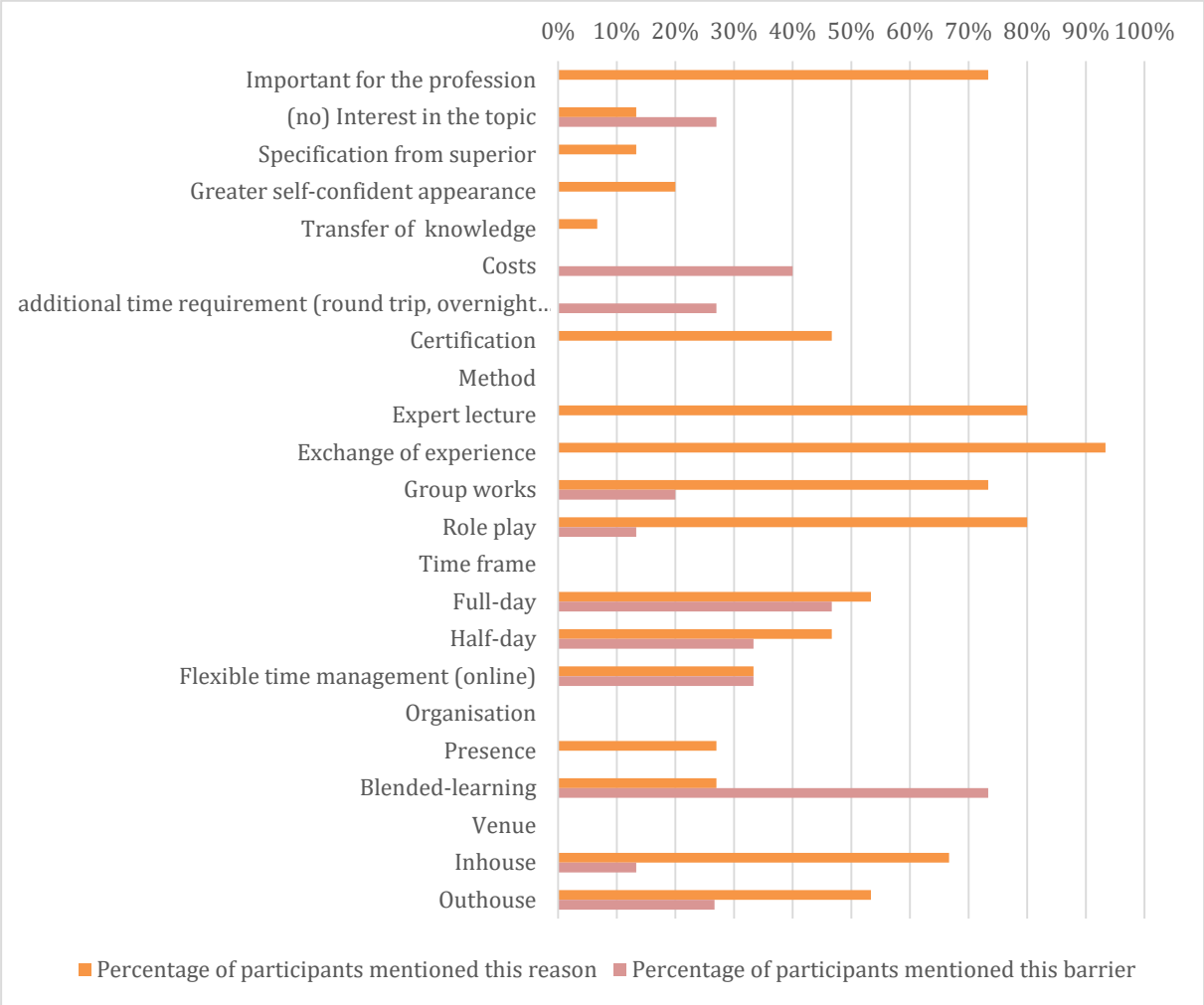

Figure 1 Reasons and barriers to parcipate on CVET vignettes

The analyses of both reasons for and barriers against CVET as well as the individual preference for the different CVET options were carried out descriptively. 40% of participants prefer the first option of the given CVET vignettes, since it is organized as one full-day training session. The participant argued that a block training has the advantage of an intensive training session, along with the ability to leave their workplace and concentrate on the content of the seminar. Interestingly, most participants are positive about the possibility to flexibly organize their time in a blended-learning approach. However, many point out that they lack the discipline to do so and would therefore rather not attend such a seminar. Therefore, 60% of the participants voted for sessions organized as a blended-learning unit as their last choice.

Apart from the different seminar options, the participants explained that their decision to attend the CVET was based on the importance of the content presented in the training (73%), the possibility to gain more self-confidence (27%) and because they receive a certificate (47%). Moreover, they point out, that the methods announced were interesting (expert lecture (80%), exchange of experience (93%), group work (73%), role play (80%)). However, some participants argued against participation in the trainings presented in the vignettes. Reasons included topics being of little interest (27%), fear that too little practice would be addressed (20%) and the cost of accommodation/meals (40%).

Furthermore, we asked the participants to describe—if they had free choice—what kind of CVET they would like to attend. The participants mentioned different topics of interest, such as product training, basic courses (how to hold a tray), sales training, stress management and trainings regarding legal issues.

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Facing gender segregation in Continuing Vocational Education and Training. The case of the City of Buenos Aires, Argentina

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Abstract

The study analyses the practices in Continuing Vocational Education and Training (VET) centres in the City of Buenos Aires (Argentina), in particular those related to gender discrimination and the ways in which these institutions promote gender equality and/or legitimate inequalities. The methodology of the research was primarily based on field work carried out in 4 VET institutions in 2017. The study focuses on two highly dynamic employment sectors in Buenos Aires: computer science and aesthetics. Within the findings, it can be highlighted that the patterns of access to specialties replicate the predominantly feminised or masculinised character of the sectors of employment. The expectations of future insertion are perceived with greater difficulties by the women students inter-viewed. However, some of the studied centres have been challenged by the broader social process in the country towards gender equalities and have addressed the gender dimension, by means of a variety of strategies.

Keywords

continuing vocational education and training (VET); gender inequality; computer science; aesthetics

1 Introduction

This presentation analyses the practices in Continuing Vocational Education and Training (VET)[1] centres in the City of Buenos Aires (Argentina), in particular those related to gender discrimination and the ways in which these institutions promote gender equality and/or legitimate inequalities.

The methodology of the research was primarily based on field work carried out in 4 VET institutions in 2017. The study focuses on two highly dynamic employment sectors in Buenos Aires: computer science and aesthetics. The central question is how gender segregation is produced, reproduced and faced in VET institutions.

[1] In the Argentina, the so called "vocational training", strictly speaking, is a terminal programme (not providing access to higher education). VET is different from the "technical" stream, which is developed in formal secondary and tertiary education, and which provides access to a higher level of education.

In particular, the specific objectives will be to analyse:

1 The gender disparities concerning the accessing different specialities, including self-selection.
2 The expectations of female and male students in VET with respect to their personal and employment development.
3 The centres approaches with respect to gender inequalities.

2 Gender segregation: between social reproduction and new demands

Gender segregation in VET has been shown in studies in our midst and in other contexts (Bates, 1991; Skeggs, 1997). Literature on VET has pointed out inequalities in many fields, beginning by the distribution of students within VT fields. Taking into account the gender segregation within specialities, some research studied differences in the motivations and interests of men and women when selecting the specialities (Seoane, 2013). Family socialization, the desire for upward social mobility, the promotion of certain specialities as public policy, as well as the individual ability to cope with prejudice and adversity along educational experience are some of the influences in those elections (Evans, 2006; Tylor, Hamm and Raykov, 2015). "Gender codes" (Subirats, 1986) are developed in VET institutions producing and reproducing (by selection, representations, and practices) gender stereotypes. Moreover, VET centres always establish gender perspectives even if there are not explicit (Millenaar, 2014). Literature also shows that VET is not only a framework for learning but it can result in an identity transformation, by way of a regulation between own expectations and the requirements demanded in the labour market (Colley et. al., 2006). In addition, there is evidence that males tend to have better labour insertion after the courses, as well as greater mobility towards the formality and qualified occupations (Millenaar and Jacinto, 2015).

Our perspective is that the changes that occurred in the years 2000 in Argentina regarding women rights and empowerment have led educational and training institutions not only to reproduce but also to be agents of questioning and, in some cases transformation. Currently, gender issues have burst forth in public debate forums in the country. Although it is possible to recognize significant milestones in the last 15 years in the incorporation of a gender perspective in the education system, the research questions surrounding the production and reproduction of gender inequalities in VET have become more relevant within the context of these new demands in the public agenda.

However, public policies for vocational training don't put in evidence an incorporation of the gender perspective in relation to the democratization of access to courses, in the institutional or pedagogical management nor in teacher training, or regarding the denaturalization of discrimination in the labour market. With these starting points, our research was aimed at studying whether VET centres have been challenged because of the above-mentioned broader social processes.

3 Gender inequalities in VET: the cases of computer science and aesthetics

3.1 Access to courses

The well-known problem of gender segregation in enrolment is evident in the two specialties. However, in both cases segregation reflects different social processes. In the City of Buenos Aires, computer courses represent 12% of VT enrolment, mainly attracting participants with previous technical training and who continue studying, in many cases, to the higher level. The proportion of women is 53.6% (UEICEE, 2017). That is to say, an apparently balanced gender

distribution is presented. But in the courses studied in depth, the proportion of women is lower because they are Programming training oriented. In fact, within the specialty, the proportion of women varies greatly according to the level of skills which the courses aim at: women are in the majority in basic computer science whereas in programming there is a majority of male students.

In contrast, the aesthetics courses (in 2017, 9% of the total VT enrolment), show a high concentration of women: 93% of students (UEICEE, 2017). These figures are in relation to the weight of women in that labour sector.

Hence, the patterns of access to specialties replicate the predominantly feminised or masculinised character of the sectors and/or sub-sectors of employment.

3.2 Expectations of female and male students

Both women and men expressed that the main motivation for training is to use what they are learning to become self-employed and/or change jobs in the future, and/or add new skills in their own jobs. But female participation in courses acquires broader meanings that differ from those specified by men. To be precise, for the former, not only is the assessment of training reduced to a technical aspect but it is also related to socio-emotional skills.

In Aesthetics, it was detected that women tend to consider the learning of a technical domain a secondary aspect, valuing changes in attitude linked to subjectivity, like “confidence in myself". Thus, the course is also appreciated as a space for dialogue and support in situations of the domestic sphere, such as gender violence. In this way, aesthetics appears as an "appropriate" specialty for women because it is linked with care, emotional states, concern for the body and beauty.

In computer programming courses, women make stronger references to the expectation of achieving useful technical skills for their working life. These women have profiles and expectations very different from those that are trained in aesthetics. They attend courses where males predominate, but this election is in accordance with their previous educational trajectory. They mostly have a technical high school education diploma. That is to say, they previously broke prejudices that attribute to males’ greater inclination and ability to carry out technical studies. When they are interviewed, they show a less stereotyped perception of gender differences than that presented by aesthetics students. However, in their testimonies, they point out that they perceive at the training centres certain stereotyped images concerning the differences between men and women. For example, peers and/or teachers alleging the inferiority of women regarding logical-mathematical skills, expressed through jokes or subtle comments.

The specialties studied are linked to segments of the labour market with marked differences. Aesthetics, part of personal services, is characterized by resorting to profiles of workers of low or middle educational levels, and has a high proportion of females, significant informal and precarious employment. In many cases, training is in house, no certificates are required. In contrast, computer science is compatible with higher training profiles (a majority at technical level). It is a sector with a high degree of salaried, formal employment and higher remunerations, where the female presence is 1 in 4 workers.

Within the framework of these differences, the expectations of future insertion are perceived with greater difficulties by the women interviewed. However, there are great contrasts between the two specialties. Women in aesthetics are more optimistic about their working future. On the one hand, 2 out of 3 women believe that they can acquire a job linked to their training at the end of their studies; only 1 out of 3 men believe that they will be able to do so. For women, the greatest obstacle is seen as the compatibility of the domestic sphere with work outside the home. On the other hand, in computer programming courses almost half of

the men believe that they will be able to access a job directly related to the technical specialty in which they were trained, while in the case of women only 20% believe that may do so due the gender discrimination in the labour market. They confess being "resigned" to the obstacles in the labour market even when they have the diploma and appropriate training.

3.3 The centres approaches concerning gender disparities

What do institutions do to face these discriminations regarding access to courses and the expectations of insertion in the labour market linked to training?

Some of the studied centres have addressed the gender dimension by means of a variety of strategies. From the interviewed, the main factor that seems to have fuelled new demands for the incorporation of the gender perspective by institutions has been the public mobilization around the issue, which includes parliamentary debates, new legislation and policies, and around it a strong social movement.

The strategies of the centres include:

- Act at the time of announcements offering masculinised courses to women, democratizing access to typically male dominated courses;
- Incorporate tutors who develop different actions related to gender issues (awareness workshops in relation to stereotypes, implementation of action protocols in cases of detection of gender violence).

Comparing the four centres studied, it can be observed that reproductive tendencies coexist alongside specific non-discrimination interventions, and more complex and multidimensional perspectives. Their gender perspectives and practices ranges from a centre where none of the aforementioned strategies are visible to another centre where actions based on strong awareness of discrimination appear (teacher training, mentoring, using gender protocols in cases of violence, explicit pedagogical strategies aimed at "deconstructing" stereotypes in the classes, etc). In the middle of these two contrasting cases, a third centre only acts in critical situations like gender discrimination in the classroom or when a student expresses being a victim of gender violence; and in the fourth centre, actions linked to the democratization of access to the courses but not interventions on other aspects of the gender issue are in evidence.

None of the centres takes actions linked to the labour gender segregation (where glass ceilings and cliffs persist, and certificates and diplomas do not guarantee equal opportunities). Even if they have links with companies, the labour market segregation is not questioned or at least, they consider they can’t have any influence on it.

In summary, the VET centres are challenged by the broader social process towards gender equalities. The study reflects changes in both discourse and practices. However, these changes vary between centres and coexist with contradictions based on gender bias (in actions and perceptions). Last but not least, the centres don’t conceive the questioning of gender division of labour as their own role, even if they could contribute to gender awareness.

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Educational pathways of applicants for academic continuing education - The treasure within and its contribution to bridge the gap from "ECVET" to "ECTS"

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Abstract

The equal appreciation of vocational training and higher education leads to university admissions for professionals without classical academic educational qualifications. For this purpose the applicants have to go through a process of validation and formal recognition of their prior learnings. However, the format of this approach remains largely unclear; this is not surprising, as it is up to universities how the authorization procedures for these types of admissions are carried out. In this paper, the approach for the validation of the proficiency level 6 in EQF of the Danube University Krems forms the basis for the analysis of the previously acquired qualifications. We aim at providing an example for recognition and validation process of prior learnings, formal and non-formal gained through professional life in addition to educational qualifications.

Keywords

academic continuing education; permeability; validation and recognition of prior learnings

1 Introduction

Validation at the Danube University Krems, which has been strongly oriented towards European education policy (Orazbayeva, 2017), is identified as a process of validation of individual learning outcomes through measurement by an appropriate scale by an authorized institution and consists of the following phases: identification, documentation, evaluation and validation / certification (European Union 2012, p.5). Not only professionals with atypical educational biographies who apply for academic continuing education can benefit from this orientation, but also prospective students who have acquired foreign qualifications (Pfeffer & Skrivanek, 2013) as well as the equal recognition of non-formal and informal educational pathways of people with disabilities and chronic diseases. By means of individual validation, through the visualization of the competences equivalent to the Bachelor's degree, admission to the Master's program is enabled. This individual and resource-intensive way of admission to study then gives both sides, university and prospective student, clarity and security and it is delivered by written confirmation of the fulfillment of the study requirements for the respective course by the University (Kil 2016).

2 Research Context

2.1 Post-secondary and tertiary VET

Austria has a differentiated system of initial vocational education and training from upper secondary level up to tertiary education. Young people can choose whether to become apprentices in the so-called dual system or to attend a school of middle or higher vocational education. High school graduates can attend post-secondary professional education in the formal education system, where the professional qualifications obtained in secondary vocational colleges (Kollegs) can be obtained in less time and completed with a certificate that entitles them to work.

In addition, there are a number of non-formal training courses in which the required skills can be acquired for the pursuit of specific occupations, in particular in the field of health professions (healing massage, physiotherapy, occupational therapy, etc.). These courses very often require a high school leaving certificate, but are purely vocational training in the post-secondary area.

University education in Austria per se is not primarily designed for vocational training. It is true that not a few courses of study serve the preparation for the pursuit of academic professions in certain fields of activity (medicine, veterinary medicine, law, pedagogy, etc.), but the universities do not understand themselves as "training institutions" but as educational and research institutions that have a broader educational concept are committed (Gornik et.al. 2018; Keser Aschenberger and Kil 2017).

Therefore, more than 20 years in Austria, the universities of applied sciences have been established, which offer vocational training at tertiary level (Pausits 2016). The spectrum ranges from technical, commercial, social and artistic occupations to health professions, administrative occupations and special education in the natural sciences.

Although there are no direct professional certificates associated with the completion of an FH degree program at the BA or MA level, graduates of universities of applied sciences almost without exception find a degree immediately after completing their studies, due to the study programs, which are very close to the needs of the industry Qualifications corresponding workplace. Not a few of these courses are offered to working people.

2.2 Further education in VET and permeability to tertiary education

For graduates in apprenticeship there is the possibility to do a professional master examination (“Meisterprüfung”) who allows to open up a business as self-employed professional and to employ workers. This examination is not part of the formal educational system but is held either by the Chamber of Commerce or guilds. A similar exam for skilled workers in industrial companies opens the way to become an employed supervisor or foreman in industrial plants. Both exams do not offer entrance to the university system although in the Austria National Qualification Framework it is assigned on level 61. This is also the case for a number of non-formal qualifications both in technical and commercial professions like top-level accountants, auditors or management consultants.

The system of attribution of vocational qualifications to the NQF is currently under construction, but in the meantime there are references of classification in all competence levels which are relevant for the HE-System: 6, 7 and 8. A creditability of non-formal education

[1] Please see https://www.qualifikationsregister.at/nqr-register/nqr-zuordnungen/

even at higher levels for a study entitlement is currently not available in the Austrian system. It will be a huge challenge how equality is now handled in the individual universities and how individuals make use their possibilities to get access to academic vocational pathways.

In order to make vocational training, especially apprenticeship training, more attractive, several offers have been developed in the past to enable the transition to tertiary education. The most important of these is the "Berufsreifeprüfung", a type of baccalaureate that can be completed in parallel or consecutively to apprenticeship or training in a BMS. This exam consists of four parts: German, foreign language (mostly English), mathematics and a profession specific theoretical part. The preparatory courses for these exams are funded by the state. Participation in the courses increases steadily every year, but only a small part actually passes the exams. The completion of this exam gives access to universities and universities of applied sciences.

An alternative to regular apprenticeship training is the "apprenticeship with Matura". In this training, young people attend a high school and receive parallel apprenticeship training in a profession. This training lasts five years and ends with a double certification: a level A certificate and a final apprenticeship certificate. Graduates of this type of training can take up studies in tertiary educational institutions without further qualifications.

Without passing a “Berufsreifeprüfung” or a university entrance qualification (Studienberechtigungsprüfung), it is not possible for tertiary education graduates (e.g. apprenticeship graduates or middle school graduates) to take tertiary education, as there are no methods of crediting professional experience or non-formal education in the formal system of tertiary educational institutions acquired qualifications, except for Danube University Krems, university for continuing education, which offers academic expertise, certification and Master’s degree programme for professionals regardless of their previous academic degrees. Next part describes the system of admission based on recognition and validation of prior learnings (formal, non-formal, and informal).

2.3 Danube University Krems

Admission to Danube University Krems is based on a systematic framework for the validation of non-formally and informally acquired competences which successfully passed the university audit in 2015. The validation of learning outcomes, in particular knowledge, skills and competences achieved non-formally and informally, plays an important role in increasing employability and mobility (see Wissensbilanz, 2016, p. 6). The Danube University Krems has developed a transparent and clear procedure and implemented quality-assurance procedures for this purpose. The process is supported by guidelines, instructions and templates for the candidates to maximize their previous experience and competencies in the application portfolio, as well as guidelines for tutorials, interview guidelines, process instructions, and training and coaching for the assessment process to be conducted by competent teaching persons.

The assessment procedure to determine admission competencies, i.e. to assess whether applicants fulfil the admission requirements defined by the curriculum (also known as enrolment procedure) is one part of the general admission procedure “The General Assessment Procedure for the Entire University” (AAV) is, in principle, applicable for all courses of study. This general assessment procedure has two differentiations (AAV-A and AAV-B), namely:

1. **AAV-A** to assess the admission competencies/acceptance requirements for Certified Programs (CP), Academic Programs (AE) and Master (first completed tertiary education) and

2. **AAV-B** to assess the admission competencies/acceptance requirements for Master (equivalent qualifications) if the applicants have not completed their first tertiary education (minimum Bachelor) (https://www.donau-uni.ac.at/en/studium/zulassung/index.php)

This study presents and discusses the access to academic continuing education at the university based on the theory and practice of recognition of non-formal and informally acquired competences of applicants with non-academic education. We want to visualize possible and actual paths to an academic continuing education degree through non-academic competences in addition to the formal qualifications. We will present the methodology clearly and preliminary results in order to discuss further evaluations and connections in biography research and teaching / learning planning for academic continuing education and the missing link between the vocational education and academic continuing education.

3 Methodology

This study utilized a mixed method approach in which qualitative data was coded and quantified and a randomized sampling method was used. A data base consisting of 300 student profiles was formed through innovative methods from the student registry of Danube University Krems. Application documents; CV in the Europass standards, letters of intent and work references were used to establish relevant biographical information and professional experience; their formal, non-formal and informal qualifications were recorded in an elaborate coding system and were quantified. Coding and data entry plan was drawn by the research institutes öibf and ibw (Dornmayer, et.al., 2017) which was approved by the university. For data protection reasons, coding was done directly in the study service center and in the department for quality management and teaching development.

This database shows the different educational pathways that precede the application at the Danube University Krems. For data analysis both quantitative (descriptive analysis) and qualitative (biographical analysis of students' all forms of qualifications) methods of data analysis were conducted. As a result of the data analysis, aspects of non-formal continuing education and informal learning were clearly identified, in addition to the formal qualifications.

3.1 Sample

For this study, Danube University Krems' student database was used. 300 persons were selected through random sampling. First, six subgroups were created according to applications to three faculties of the Danube University Krems - Health and Medicine; Economics and Globalization; Education, Arts and Architecture. Academic and non-academic prequalification was also kept as a distinct category in the sample selection. The sample was limited to applications for Master degrees and to time frame from winter semester 2014 to summer semester 2016. Within these subgroups, every 10th application was drawn. The students drawn were marked with a code to ensure anonymity and re-accessibility.

Characteristics and demographics of the sample were presented below:

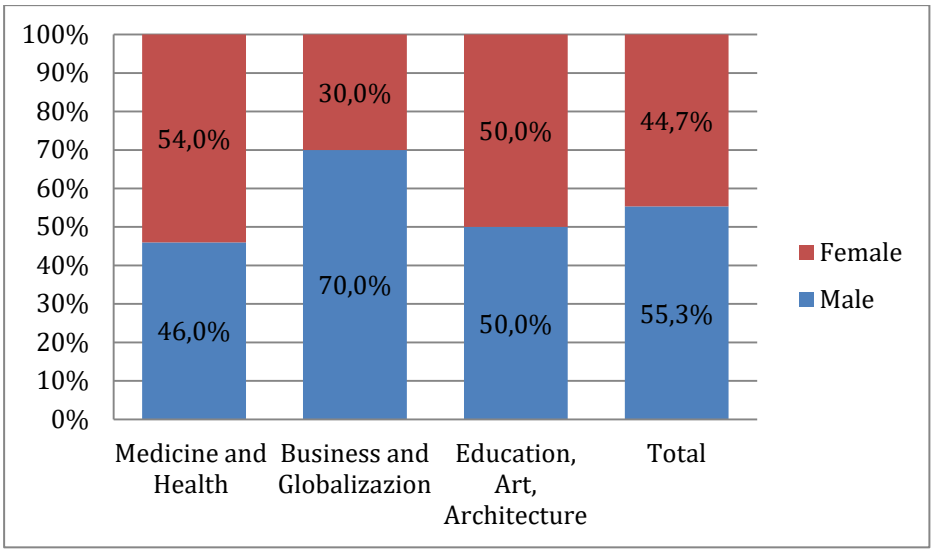

Figure 4 Gender distribution of applicants by faculty

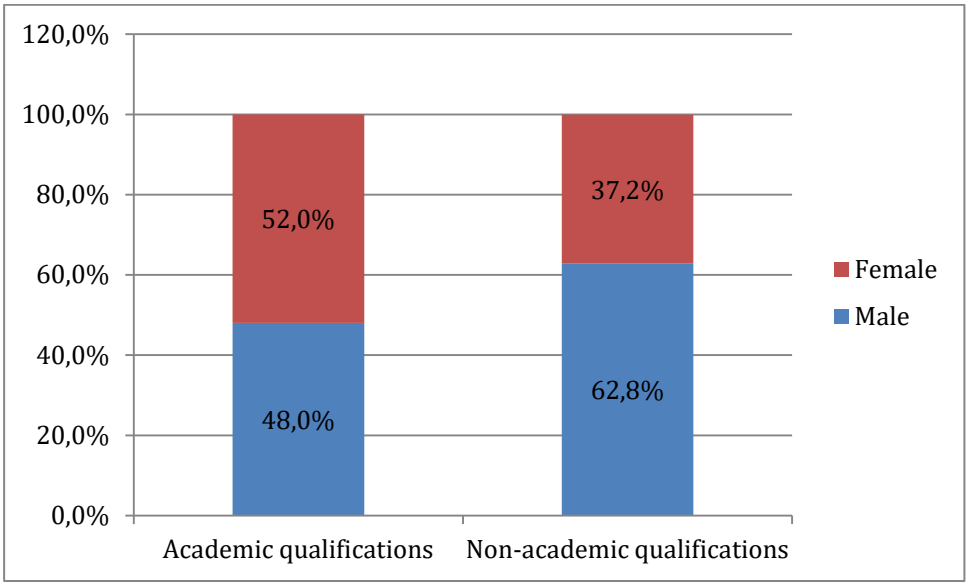

Figure 5 Gender distribution of applicants by academic status

Gender distribution is quite balanced in total, but there are differences regarding faculty and especially regarding academic background, 63% of the applicants without an academic background are male, while it is more balanced within the group of academics. In general 152 of the students had an academic degree, while 148 of them had no academic degree.

The average age in the sample is 37.6 years, the median is 36 years. Less than a quarter (23.7%) is between 20 and 29 years old and is therefore in the (broader) phase of "career entry". The largest group consists of 30- to 39-year-olds with 35.3% of the sample, i.e. people who normally have gained a foothold in working life and have established themselves.

Regarding the age distribution according to academic background, it is noticeable that in the first two age groups persons with academic education clearly outnumbered (28.9% of 20-29 year-olds versus 18.2% non-academic students). In the age groups 40-49 and 50+ non-academics predominate.

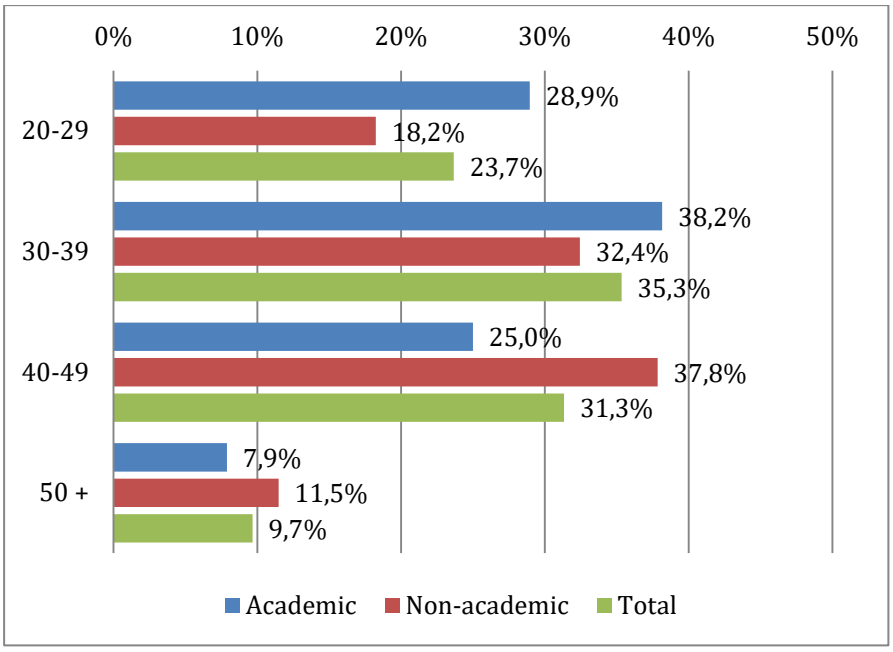

Figure 6 Age distribution of applicants by academic status

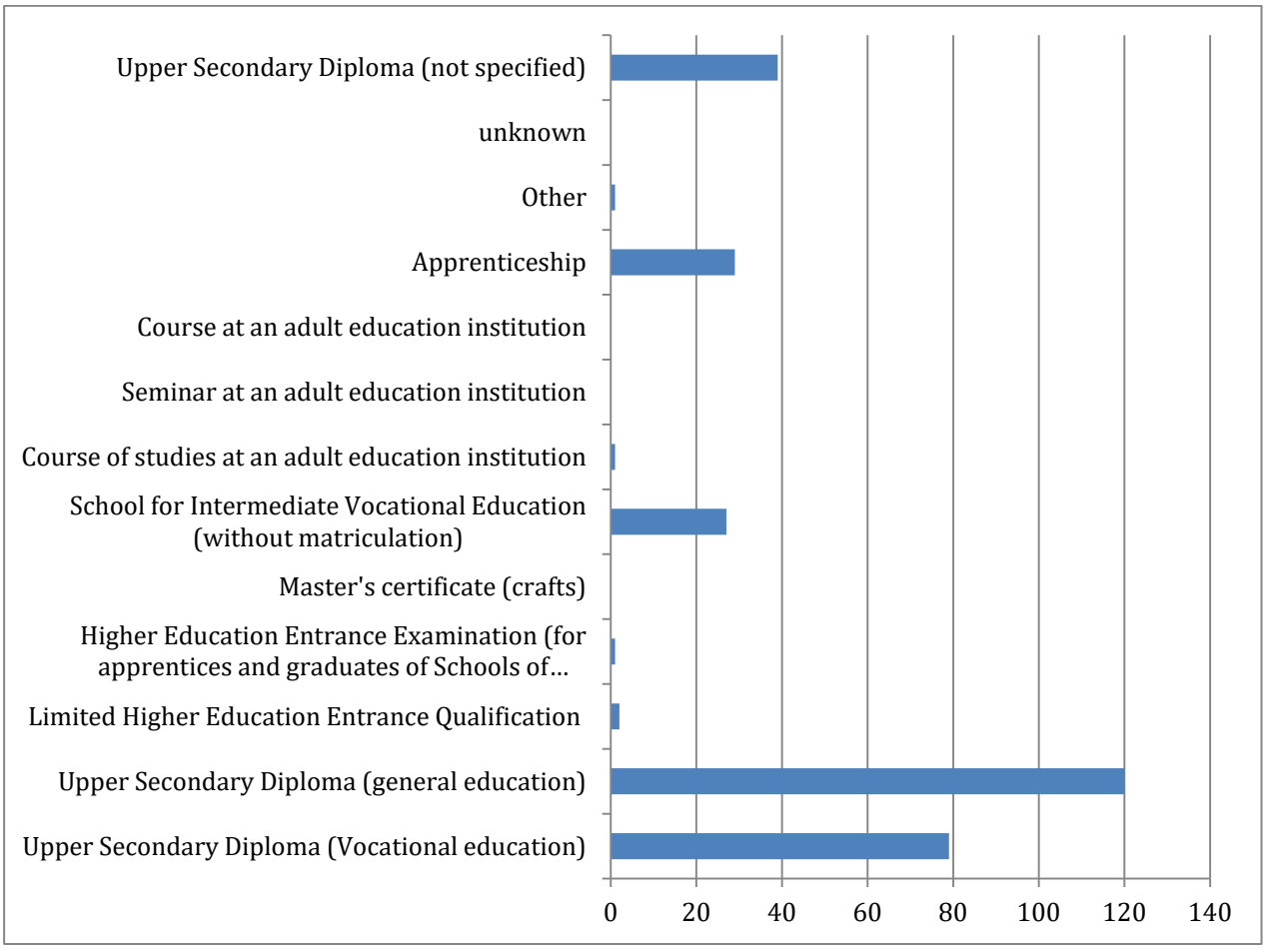

Figure 7 Types of first degrees of students

Average years of experience is 16 within the sample, while non-academic students have more experience (17.2 years) compared to students with an academic background (14.9 years).

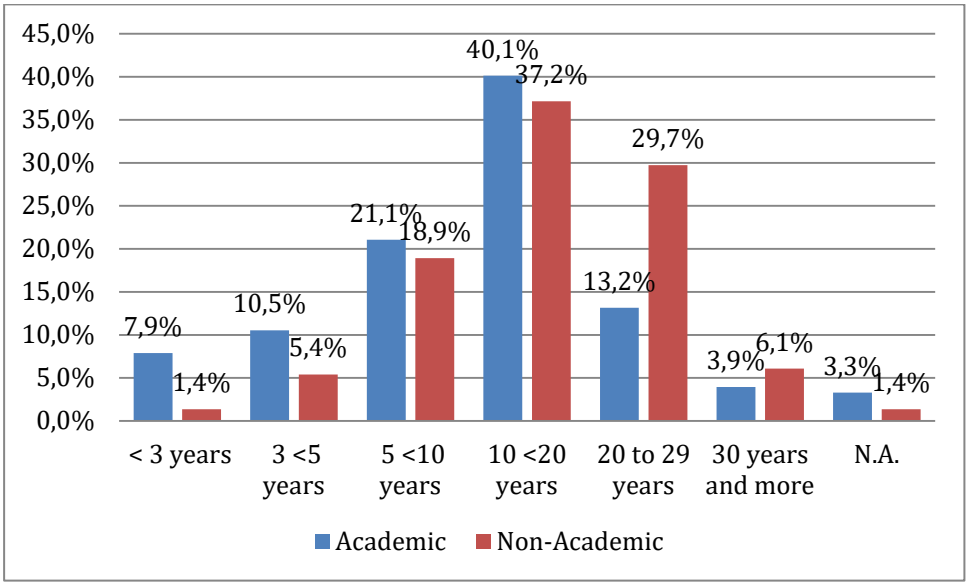

Figure 8 Years of experience by academic background

4 Findings

Based on the sample described above, this paper examines the educational and professional trajectories of non-academic students and especially those who do not hold a Matura, and to follow their path to academic continuing education from VET systems.

A thorough analysis of the CVs and letters of intent indicated that there is a variety of educational and professional trajectories that lead non-academic "non-traditional" students to pursue a degree in academic continuing education. Following their biographical trajectories yielded horizontal and vertical permeability between their professional and educational life courses. Figure 6 indicates the trajectory of non-academic students who come from VET system.

Among all of the applicants without previous academic education at the time of application, 28.4% (29% of men and 27.3% of women) hold an apprenticeship or a technical school leaving certificate without the highest school leaving qualification. While more than 2/3 of them (69%, 81.5% of men and 46.7% of women) joined the workforce immediately afterwards, 28.6% completed further formal education, namely 11.9% (further) apprenticeship, 11.9% a (further) professional education and 4.8% a university entrance examination. Here, the proportion of women clearly dominates with 53.3% compared to 14.8% of men. The proportion of those who do not have any further education or training after the apprenticeship or technical college graduation is 9.5% as low and only affects men, which means 14.8% of the applicants with apprenticeship or technical college as a make up the highest level of initial education.

Almost 60% (66.7% of men and 46.7% of women) completed one or more further training(s) after entering employment: 14.3% attended a college or an academy, 7.1% completed a master's examination, and 4.8% made the Berufsreifeprüfung and another apprenticeship. Courses, seminars and trainings are not quantified here, as several courses, seminars or trainings were often attended by one person. 4.8% failed to complete the university degree or a course at a university they were enrolled.

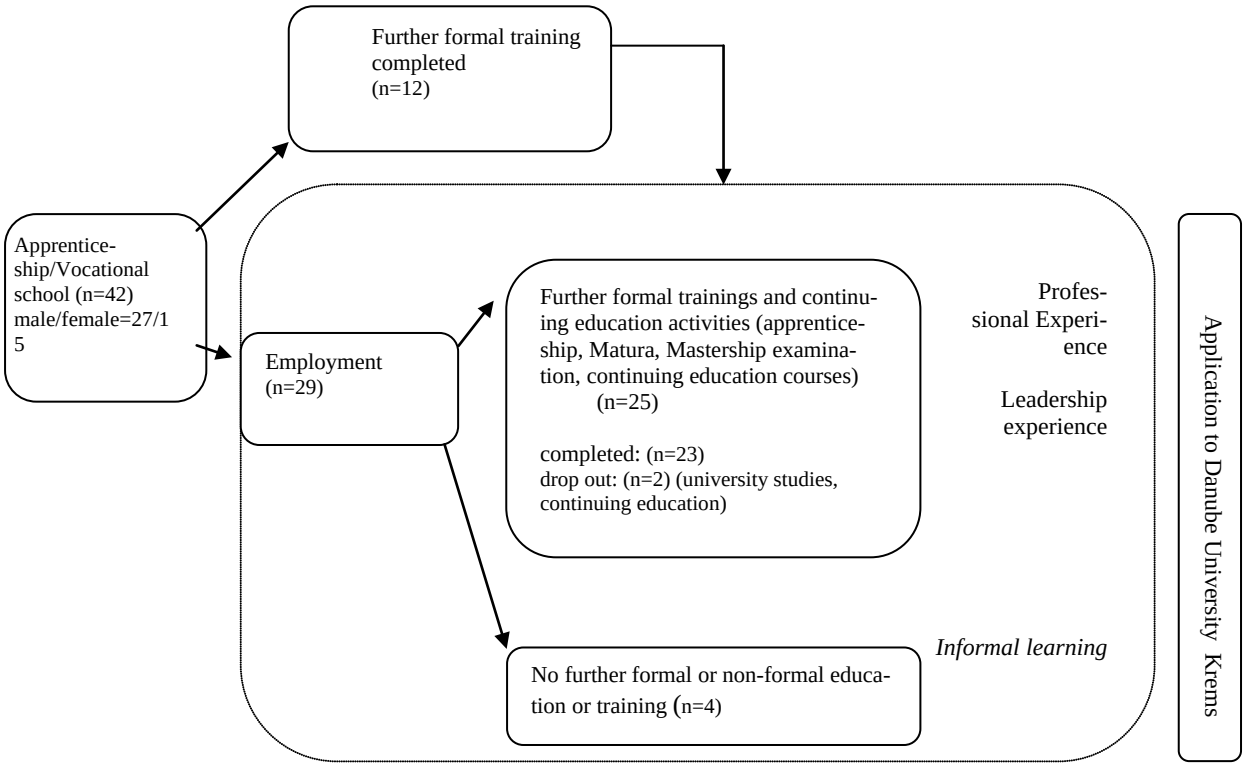

Figure 9 Educational and professional trajectories of the non-academics after highest completed initial training: apprenticeship/ vocational schools

Looking at the individual level yields a trajectory of a person with apprenticeship background as shown in Figure 7.

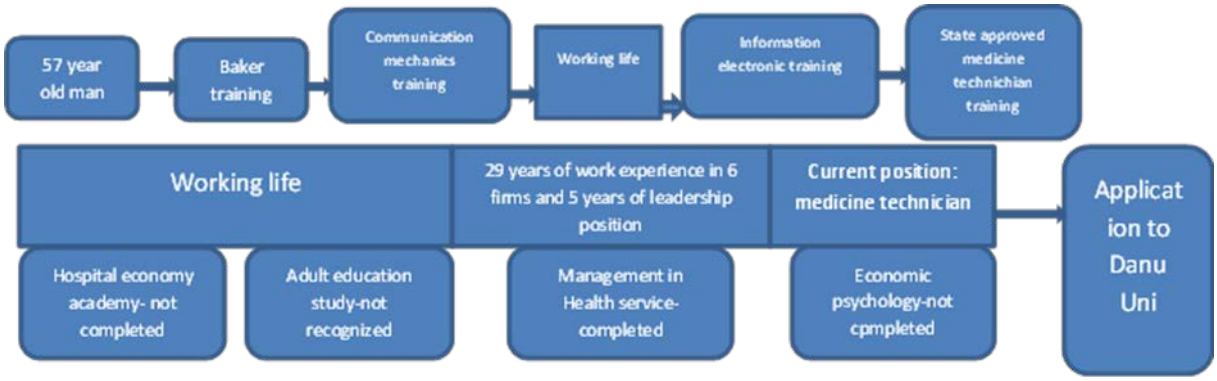

Figure 10 Example of a professional and educational trajectory of a student with a VET background ("From the bakery to the medical technician")

The 57-year-old medical technician has completed an apprenticeship in bakery as an initial training, to which he joined a communications mechanics apprenticeship. After a period of professional experience, he completed a continuing education in information electronics programme to become a technician and at the same time, or overlapping, he completed a continuing education as a state-certified medical technician. In the subsequent professional activ-

ity followed by four further trainings in the health sector and in adult education and a degree in business psychology, two of which were not completed. In total, the applicant has 29 years of experience and 5 years of management experience. He has held his current position as a medical technician for more than ten years. The application at the Danube University Krems was for the study of Information Technologies in Health Care (MSc). In his application, his non-formal and work-based learning outcomes were recognized which lead him to a MSc degree without a Matura and a BA degree.

5 Conclusion

This paper is a qualitative work that delved into educational trajectories of the students who applied to an academic continuing education programme at Danube University Krems. Focus was on applicants with a VET background who do not hold a Matura. Results indicated that there is a variety of paths that may lead to academic continuing education at university level, through vertical and horizontal permeability; however, crucial point is the recognition and validation process at entry to academic continuing education.

Validation, recognition, credit transfer and qualification frameworks creates a permeable education system. Permeability can be defined as the possibility for "learners to be able to move easily between different types of education, (such as academic and vocational) and between different levels (such as upper secondary, or apprenticeship, up to higher education)" (CEDEFOP, 2012, p.1). It is underlined that "permeability must enable learners to transfer and build on all types of their prior learning – formal, non-formal or informal – wherever that learning took place, at school, work or even during leisure" (CEDEFOP, 2012, p.2). Permeability contributes significantly to social inclusion and accessibility of education. Danube University Krems is a very good example in this case as especially validating and recognising work-based learning and non-formal learning of applicants in a transparent way.

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The Disruptive Potential of Digitalisation—The Current Swiss VET Landscape

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Abstract

Digitalisation is regarded to have an extensive impact on the world of work, and hence affects vocational education and training (VET). This paper seeks to discuss the disruptive potential of digitalisation in the current Swiss VET context. Two perspectives are provided: First, topical concerns regarding the performance of the concept of VET are discussed. Second, the paper argues that the disruptive potential of digitalisation can be studied at the level of educational practice, asking how VET providers react upon digitalisation by innovating their training practices. Three examples are presented that show differing takes on digitalisation. Finally, the paper closes with a discussion of the two perspectives.

Keywords

digitalisation; disruption; gradual change; Swiss vocational education and training

1 Introduction

Ever since the first personal computers hit the classrooms in the 1980s and 1990s, the arguments for the implementation of digital technologies into general and vocational educational practice have been remarkably steady (Cuban, 2001; Hawkridge, 1990). For one part, the rationales refer to economic and social changes due to the dissemination of technical innovations in the world of work and the widespread use of digital technologies in everyday life. In this view, politics and educational providers are expected to reflect upon these changes and possibly modify the present state of educational practice. Take the idea of mobile learning as an example (Merchant, 2012; Pachler, Bachmair, & Cook, 2010). For the other part, the prospects of innovating educational practices itself by means of digital technology (e.g. Euler, Seufert, & Wilbers, 2006) have led to continued efforts in seeking new ways of providing more effective, efficient, and relevant education and training. Thus, technological change can produce dynamics that potentially change the landscape of education (Messerschmidt & Grebe, 2005).

Nowadays, the dynamics of rapid change and socioeconomic upheaval associated with the digitalisation of the world of work are discussed diversely along with the implications for work and education. The term “digitalisation” hints towards the fact that our daily lives, our work, and the field of education are under permanent and rising intensity of digital data use and data-based connectivity. In Switzerland, the debate pays specific attention to the vocational education and training (VET) due to its systemic link to the labour market, the high acceptance among Swiss companies, and not least because VET is the most often chosen pathway in the education system at the upper-secondary level. Although digitalisation is not seen as an immediate threat to the ‘dual system’ of VET (Aepli et al., 2017; Arvanitis, Grote,

Spescha, Wäfler, & Wörter, 2017), questions arise that concern the performance of the concept in the digital age.

This paper's aim is to discuss the disruptive potential of digitalisation in the Swiss VET context: How far does digitalisation potentially disturb the concept of VET and vocational education practices? We introduce the term 'disruption' understood broadly as a process, in which established concepts, structures, and practices are being replaced by new and/or different performing ones. Such changes can equally result from innovation (i.e. taking action through adoption and expansion of the 'new') or from external pressure (i.e. catching up/adaption). By drawing on the concept of 'disruption', we therefore focus on the dynamics of digitalisation that challenge the 'vocational' and potentially transform the educational practices.

After a conceptual framing of our argument, we briefly outline of the current discussion on the impact of digitalisation on VET, asking in what way the concept of VET is possibly challenged (section 2). Then, we shift our focus to the practice level, asking how providers of VET react to digitalisation (section 3). Finally, we discuss how far digitalisation has the potential to disrupt VET (section 4).

2 Disruptions of the vocational through the digital: Topical concerns

The term 'disruption' originates from economic theory and denotes, in Schumpeter's view, the appearance of an entrepreneur who changes the game. Economic development is seen as a continuous process of destruction and creation, as economic actors (i.e. the entrepreneur) actively seek to establish and/or sustain on the market, while constantly facing the dilemma between breaking new ground and sticking to the tried and tested (Böhme, 2017). Disruption today includes some sort of discontinuity within a given economic or social context based on new technologies (Bower & Christensen, 1995; Christensen, 1997). For example, established firms that built up scale and expertise can quickly lose their competitive advantage due to newcomers entering the market that make use of technological innovations or pursue new business models. Disruptive innovations introduce a new quality to what was historically being valued regarding the performance of a given product or process (Bower & Christensen, 1995). Such innovations are often faced with quality concerns at first. However, they potentially prevail by offering distinctive alternatives and, subsequently, a better performance below the line (Christensen, Raynor, & McDonald, 2015).

At present, exponents of the international debate claim that the impact of digitalisation on the world of work "[…] has arguably been more disruptive than anything seen in the past" (Frey & Osborne, 2015, p. 7). The process of mass-dissemination and widespread use of digital technologies in a variety of contexts—commonly subsumed under the term 'digitalisation'—is regarded to permanently alter economic structures as well as social and cultural relations. This image is supported by stories of "big-bang disruptions" (Downes & Nunes, 2013) that potentially change the conditions in the labour market along with the demand of specific qualifications within a short period of time. Naturally, this brings up questions regarding the performance and the legitimacy of VET. Among the key functional attributes in question are (1) the provision of a highly skilled and flexible workforce to thrive in the digital economy, (2) equipping apprentices with the 'right' skills for those jobs in demand, and hence (3) enabling relevant learning opportunities. The process of digitalisation might imply a redefinition of what is conceived as the vocational (Avis, 2018). How far VET is affected is of general interest, since in Switzerland VET is regarded as a key driver for the economy and is stirred by associations, firms, and state actors.

In Switzerland, VET has proven to be a remarkably stable, yet flexible concept in upholding a skills equilibrium between the output of the education system and the demands in the

labour market (Kraus, 2009). The specific quality of vocational qualifications is that they represent the effort of defining the skills to be of use in a particular working context but also beyond in a variety of work situations (Gonon, 2002). Traditionally, VET is orientated towards work activities at a medium qualification level, which are structured around occupations. Quality concerns regarding this functioning of VET have been present for a long time (Gonon, 2017). Interestingly, these have—so far—not led to a fragmentation but rather to a consolidation of the general idea of the vocational as a major reference point for VET.

It is clear, however, that the underlying "market conception" (Meyer, 2009, p. 38) of VET makes the concept susceptible to changes in the occupational landscape. The shift towards a service and knowledge society fosters work that is very much based in the ICT realm. Also the industrial sector undergoes changes that promote shifts in the occupational structure (Zenhäusern & Vaterlaus, 2017). While job automation and the computerisation of work tasks are scenarios discussed for many occupational fields, these trends have lead in the direction of up-skilling rather than thinning out the jobs in the middle in the recent past (Oesch, 2016). Thus, quantitative shifts of the workforce, based on job automation, global competition and technological innovation are certainly important, but they seemingly do not put VET immediately off the list.

Maybe better foreseeable are the qualitative changes within occupations that lead to a convergence of competencies. The present direction indicates the rising importance of general and academic skills such as communicative, interactive, analytical, and technology-complimentary non-routine skills (e.g. Aepli et al., 2017; Schweri & Iten, 2018). Thus, the idea of the vocational that historically has divided and, at the same time, consolidated the occupational landscape is becoming more even across occupations. The vocations possibly remain distinct in those areas, where these skills are linked to specialist knowledge and to the practical use of information and technology. Nevertheless, this raises the question of fragmentation versus consolidation in the future once more.

3 How Swiss VET providers react to digitalisation: Selected examples

A focal point in the present discussion is the question of the 'right' forms of training in such times of uncertainty. Historically, paradigmatic fights about learning and instruction have not led to clear answers regarding how to prepare learners best for their later working lives. Nor has VET particularly been open to more general skills due to its market-oriented conception (even though this might not hold true for larger training companies and training associations that often regard VET as a long-time investment in qualified and flexible workers).

Looking from the bottom, VET providers take different actions in order to deal with digitalisation. These reach from technology enhanced in-house and classroom training to distance learning models through to the reorganisation of teaching and learning—showing a plurality of forms and extending tendencies of the classic 'dual system' of VET. Thus, one can ask, how far digitalisation also disrupts the educational practice. In the following, we discuss three examples, of which each indicates a change in the previous state of practice. Those examples were picked by the identification of such a potential 'disruptive element'.

3.1 Industry: Extending the classroom-space across national boarders

A worldwide active and internationally renowned firm in the eastern part of Switzerland developed a strong cooperation with the local school. Teachers and apprentices are willing and able to combine the learning in school and at the workplace. Because some apprentices have a short-term stay in the US or China, the idea of a flipped classroom emerged. The learners meet for lessons, which include videoconferences with colleagues of overseas. The content is discussed in parallel and deepened through questions by the teacher or other students. The key

motive is the integration of digital technologies as an enabler of widening the interaction and reflection.

This extension of the classroom in close relationship with a firm allows a stronger connection between the learning practices in the workplace and the school. The time of presence has to be organised and coordinated along different time zones. Thus the aims and content for the lessons and the reflection in the common sessions have to be clearly defined, including the experiences from the apprentices overseas. Also the role of the teacher in arranging such learning settings is a new challenge.

3.2 Informatics: Computer and information specialists to drive the digitalisation in industry and services

In informatics, teaching and learning the concept of more flexibility of training is quite popular. The presence in the classroom is reduced. A lot of tasks are aimed to meet the growing market demands. The multiplicity of tasks and new problems to solve, the personalisation of learning enables students to find quick answers and solutions to practical problems. Thus, the aim is to make them more employable. One of the key motives is to develop the potential of digitalisation for learning and work as goal (Fleischmann, 2017).

This new arrangement of the curriculum gives more space for self-organised learning of the apprentices. However, the apprentices bear more responsibility in covering all relevant aspects for their own knowledge and skills. Thus, the instructor and teacher have to gain a more detailed knowledge about the learners' abilities and defaults. Their role as supervisors of learning process gets more important.

3.3 Banking: Digital and analogue practices in a paperless learning environment

The use of a tablet as a mobile consultation tool reflects the transformation of the contemporary workplace in Swiss banks. Cross-company training courses have been made paperless, designed to change the learning and communication of the learners. The learners should get acquainted to handle the technology and discover the learning possibilities of the mobile device. The key motive behind this changeover is the anticipated need for new qualifications in the field of learning, communication, and work organisation.

The core role of a tablet in this learning environment, aimed at using the same or a similar device in the workplace, allows the apprentices to transfer specific branch knowledge and digital skills in another context and vice versa. Thus, new opportunities for individual learning are opened up. On the other hand, the paperless approach disrupts established practices of teaching and learning; especially learners initially struggle to balance digital and analogue learning practices (Kessler, 2016).

4 Conclusion: Swiss VET and digitalisation as gradual change

The three cases presented above all spot some elements of the topical digitalisation: A subject-based connectivity, which relies on an extended learning arrangement (3.1), a curriculum-stirred reduction of learning presence in school (3.2), and a media-based interplay in a common learning space (3.3). All three examples represent practices, which emerged but did not fundamentally change apprenticeships in industry, informatics and banking. As in most fields of education the introduction of a new technology does not change automatically all.

The discussion around digitalisation in Switzerland tackles the question whether education and, specifically, the prospects for VET today are so different from former times of technological challenges. For sure, the range of possibilities for instruction, teaching, and learning has been increased. Blended learning is gaining some ground even in traditional settings.

However, the big changes are more or less discussed in papers and seen for a future but not so much in today's work, education, and life. The changes and prospects are, so to say, more gradual than disruptive and are oriented towards the sustainment of trusted concepts. That is, school and workplace instruction are still important. Meanwhile, the expectation for learners to muddle through and to find their individual fit in a digital environment has been increased. Technology is not an imperative, but more an incentive to modify established ways of teaching and learning.

A new form of "experimentalism" (Böhme, 2017, p. 26) as the main mode of action produces fragile experiences and uncertainties on the one hand, but paves the way, on the other hand, for more explorative learning and reflection for the apprentices. In this sense, the new wave of technology has modified teaching, learning and our lives.

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Developments of work and VET through the transitions of the energy sector

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Abstract

The planned comprehensive use of solar energy and windmill power plants etc. as sustainable energies raises the question how the energy system (power grids e.g.) shall be transformed and how smart technologies support systems that balance and coordinate between uneven power generation and consumption. Simulations and test sites as they are run by larger units of researchers at the Karlsruhe Institute of Technology give an account of relevant transformations concerning work and education as well. The paper deals with sociological and educational aspects how working and learning is influenced. One aspect of this development is the world-changing character of scientific inventions such as artificial intelligence and 'deep learning', through which more and more dimensions of societal life become dependent on scientifically invented technologies. As this brings about new problems of safety, quality and control, the scientification of work is scrutinized.

Keywords

modelling; energy transition; scientification of work

1 Social-science Research on Energy Transition and Modeling

After the disaster of the reactor in Fukushima, the German government decided to shut down nuclear energy by 2022 and to maintain thereupon the entire energy supply with sustainable energies. Today, this enterprise of the energy transition still requires a lot of research: How can power grids be transformed and how can 'smart' technologies support systems to balance and coordinate between uneven power generation and consumption, hence solar energy and windmill power plants etc. generate fluctuating amounts of energy. Simulations and test sites as they are run by larger units of researchers at the KIT give an account of relevant transformations concerning work and education as well.

The research project "Poetic Modelling and Energy Transition"[1] relates to the facets and the roles of models and modelling for the success of the ecological and political aims to foster sustainability not only in terms of the technological power generation but also societally, as shifts in societal life are inevitable. The energy transition is therefore a socio-technological enterprise with high significance for numerous concomitant developments in the future.

[1] This project is funded from 2017 to 2021 by the VW-Stiftung within the framework "Extraordinary Projects" (http://portal.volkswagenstiftung.de/search/projectPDF.do?projectId=8722)

My paper deals with sociological and educational aspects as to how working and learning is influenced. Its aim is to outline a critical research program which:

- Clarifies more general questions concerning the scientification of work,
- Is empirically based research on pedagogical aspects as to how learning and teaching critical thinking can contribute to a critical practice with models, and
- Discusses risks and potentials of further developments, e.g. how we want to live and how democracy can be realized within socio-technological projects such as the energy transition.

2 Scientification of work and its relation to the energy transition project

Scientification is understood as a rather precarious process of the non-simultaneous and non-linear *individual and cultural* human development, often entangled with many contradictions (cf. Langemeyer, 2015; 2017; 2019). One aspect of this is the world-changing character of scientific inventions such as artificial intelligence, through which more and more dimensions of societal life become dependent on scientifically invented technologies. Its world-changing character does not concern the built environment only. However, with regard to the planned energy transition, 'smart' grids, 'smart' houses and 'smart' cities are major visions to solve the problems of great variabilities in energy production and energy consumption.

A concomitant aspect of this transition is the development of labor. Regarding demands to qualification, the scientification process is not necessarily clear or unambiguous: There is no automatism and no guarantee that the individual worker becomes a scientist just because technologies are produced scientifically. However, depending on the digitalization and the automation of processes that formerly required manual labor, main aspects of the scientification of work lie in the intellectualization of processes and procedures (i.e. relevant intervention into digitalized processes is possible only via using computers and scientific methods etc.).

'Scientification' concerns the numerous relations that individuals as well as organisations need to maintain with scientific knowledge, as it contributes to higher productivity or creates new societal uses.

Institutions like the university and higher education play an important role in the long-term societal process of scientification which changes e.g. the mode of production and the entire societal exchange. Thus, two sides of science co-evolve: Scientification is, on the one hand, a material process to institutionalize certain scientific practices affirming certain pieces of approved knowledge as achievements to objective truth, certainty, and common acknowledgement of expectations (such as accepted standards). In sum, this means that these stores of knowledge become societally relevant, applicable or usable by a relevant quantity of worker and, last but not least, usable for different purposes. The 'institutionalization' of science is not only important within the societal organization to further scientific research. It contributes also to stability and efficacy in society, to the development of forces of production, and, reciprocally, to the reputation of scientific institutions, titles, proficiency and expertise. In other words, this process is simultaneously about forming societal practice through scientific expertise. It supports the relevance and the influence of universities as well as research institutions. Scientists who belong to this science system participate in organizing the disposal over resources as well as opportunities to influence people's opinions and the formation of their worldview(s).

However, on the other hand, the process of scientification must be understood as a process of radically doubting and criticizing, and thus even as an effort of breaking away from

established forms of scientific societal practice, technologies, ethics, worldviews, paradigms and, of reorganizing science and the field of power structures (Langemeyer, 2015, ch. 4).

With regard to the planned energy transition, both aspects, the institutionalization of science and the radical critique of the scientification tendency become relevant. Replacing the old, basically nuclear energy supply by a renewable and sustainable energy supply means a radical critique of established forms and standards, given infrastructures and long-time beliefs.

But at the same time new models, standards, beliefs and infrastructures must be established. This necessarily entangles greater tensions and struggles of power over resources in the science system and beyond. As the industry and other sectors of the economy play a major role for the energy transition project, the interdependence between the science system and the economy comes to the fore. Joint ventures of research institutions and private companies with subsidies by the government are often the basis for development.

3 Empirical research into the scientification of work

Before I give a summary of insights gained by interviews with researchers at the KIT, I report how the scientification of work can be studied empirically and more generally by socio-demographic and socio-economic statistics. The labor market changed in the past decades. A study by the IAB (German institute for labor market and vocation related research) shows that vocations and professions are changing.

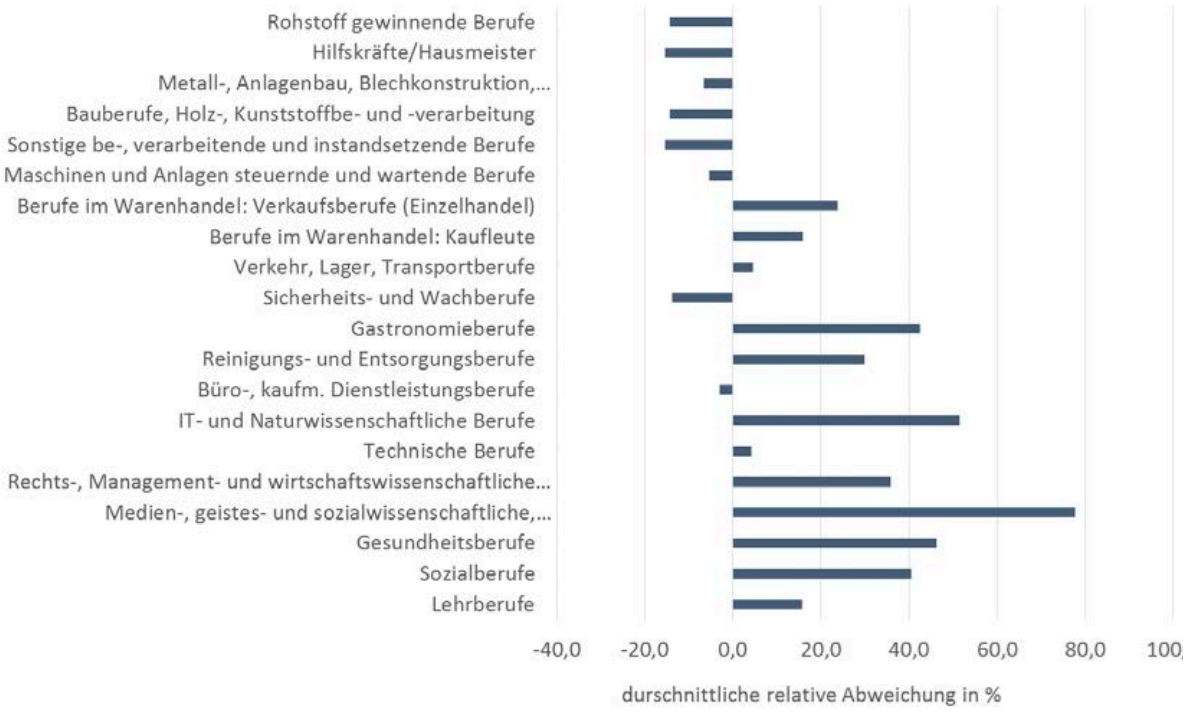

Figure 1 Increase and decrease in jobs in different sectors of the German economy from 1996 until 2013 (Wolter et al., 2016

The future prospects predicted in this study by Wolter et al. (2016) consider major changes in levels of qualification demands. Low-skilled jobs with ancillary activities ("Helfertätigkeiten") as well as technical or functional jobs ("fachliche Tätigkeiten") will diminish while complex work activities ("komplexe Tätigkeiten") and highly complex work activities ("hochkomplexe Tätigkeiten") will likely increase (see fig. 2).

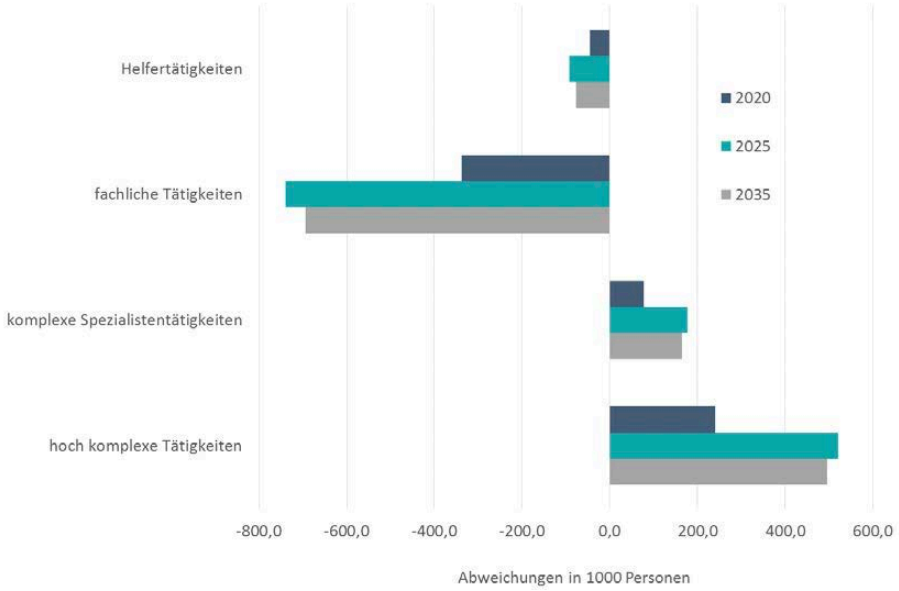

Figure 2 Increase and decrease in future qualification levels (Wolter et al., 2016)

The analysis (fig. 1) gives evidence that a larger increase of jobs occurred in the sector of health care, IT-work and natural science-related professions, and especially in the sector of media, humanities and social sciences-related professions while the number of jobs in non-skilled or low-skilled sectors decreased and will probably continue to decrease (fig. 2). Against this background, I conducted together with my colleague, Andreas Martin, research on the basis of the German microcensus (Langemeyer/Martin, 2018). The microcensus-data allows running a cluster analysis on job characteristics. By distinguishing between the frequency of academic titles/degrees and the density of disciplines in the various vocational domains, the following seven clusters can be identified:

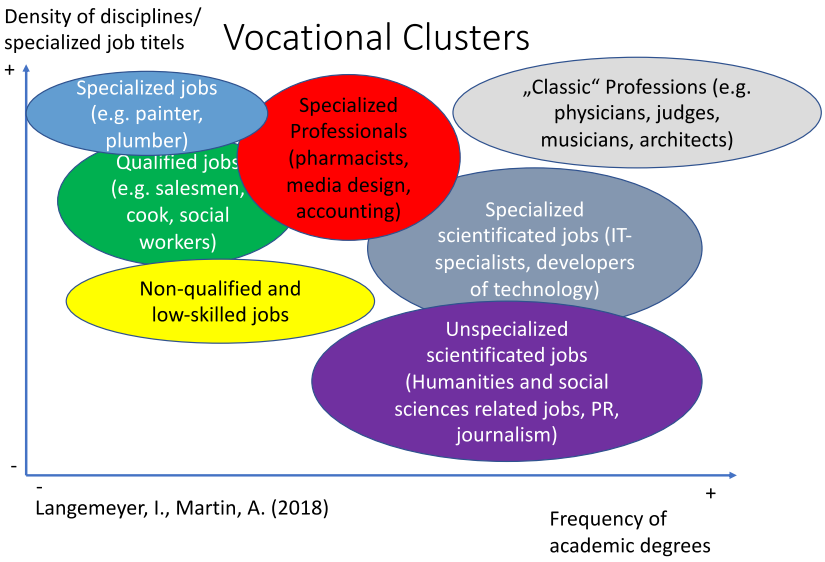

Figure 3 Cluster-analysis of the academization in distinction to the scientification of the labor market in Germany, microcensus 2015 (Langemeyer/Martin, 2018)

As one can see in fig. 3 with this cluster analysis, it is important to differentiate the role of higher education for the labor market. There are vocational domains like the classic professions that strictly require certain academic degrees, e.g.: Becoming a physician is still a highly regulated career so that the density of people with medical education and the frequency of academic titles is both high. However, there are other areas of the labor market where employees dispose of an academic title but their education is not homogeneous. Instead, a variety of disciplines prevail in that area. This means that these careers are less regulated and that academic education is important because general capacities of scientific thinking are relevant. We assume that this indicates certain domains where problem solving or mediation between different disciplines and expertise have become a relevant aspect of working life (Langemeyer/Martin, 2018). This gives simultaneously evidence for the scientification of work. Analyses of workplace studies in the IT-sector and surgery provide further evidence that complex and even highly complex work activities have emerged (Langemeyer 2015; 2019).

4 Uncertainties concerning the energy transition – insights from an interview study

At the KIT, seven interviews for investigating the academic side of the energy transition were conducted with researchers from different fields. More interviews are planned. Insights to this research are summarized as follows:

The energy transition project is huge and complex process, but there are no detailed descriptions and agreements of how and when solutions will be ready to hand and implemented in a secure and reasonable way.

Researchers (like those interviewed at the KIT) try to contribute with their research activities to solutions, mostly within predefined frameworks. But it is uncertain whether these frameworks and the research accomplished will be relevant and pathbreaking within the entire societal project. Decisions about setting up a certain framework depend e.g. on the data that is available or the time one can use to conduct research (as research funding ends within a certain period, as industry partners set up time-frames, or as doctoral students get a fixed-term contract).

The different uncertainties are thus not only research-driven (as knowledge production is always contingent). It is also due to the unclear goals to be reached and undefined criteria to be met. Another aspect of this uncertainty is that a change in the energy supply and the used infrastructure affects the entire society and international relations. The energy transition will be an all-encompassing restructuring of economic and political interdependencies. Public awareness for this aspect is probably still pretty low. There is no dissemination of information about what consequences the energy transition will possibly bring about to our way of life. Consequently, public discussions are rarely. Sufficient insight for the public is not provided.

However, this circumstance requires another type of research around the energy transition that is not merely technology-related. Especially, researchers with a special focus on economic aspects do not see the energy transition as a technological experiment only. They pay attention to political and societal problems that are entangled and unfold with changes of the energy sector as well. Questions arise about how markets will work when the electric power-trading is organized in more flexible ways. One concern is about how the population would react if more detailed information should be made available about their use of energy and their way of living, consuming and working. Another aspect is whether markets would work if people would advance from power consumers to power traders, since a greater part of the population might own solar energy plants and/or store temporarily energy in batteries, for example. Since the disposability of electric power could decrease depending on weather and consumption, solutions need to be modelled which energy use has priority and which has not. Especially this question of cutting and down-sizing energy use makes it clear that deep changes of societal life are likely and call for dealing with them in advance.

Large parts of the research in the energy sector is therefore based on modelling. However, the numerous models used are not compatible. Insights gained by using simulations and by calculating certain models cannot be accumulated. The question arises whether narratives told around modelling compensate the lack of coherence and rationality.

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Biographical notes

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Markowitsch, J. & Grollmann, P. (2019). The changing role of vocational education and training in Europe: Concepts and Models. In F. Marhuenda & M.J. Chisvert-Tarazona (Eds.), *Pedagogical concerns and market demands in VET. Proceedings of the 3rd Crossing Boundaries in VET conference, Vocational Education and Training Network (VETNET)* (pp.390-395) https://doi.org/10.5281/zenodo.2641816

The changing role of vocational education and training in Europe: Concepts and Models

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Abstract

The article presents a synopsis of key concepts and models developed in the course of a comprehensive comparative research project carried out for Cedefop which analysed changes of vocational education and training systems between 1995 and 2015 in the EU-28, Iceland and Norway. We sketch a framework of descriptors used to analyse national conceptions of Vocational education. Building upon this framework we introduce a two-dimensional model to describe trajectories of national VET systems. The German-speaking and Nordic countries are used as examples to illustrate the model. The aim of the contribution is to discuss the potential of these new methods and models for comparative VET research.

Keywords

vocational education; international comparison; models; scenarios

1 Introduction

Due to similar challenges (e.g. technological change, migration) and the common influence of European policies (e.g. EQF, Bologna process) comparable developments of national vocational education and training (VET) systems in Europe can be expected. Indeed, we see profound changes in the nature of vocational education in many countries, such as the growth of VET programmes at higher levels, the blurring of boundaries between initial and continuing VET or the shift towards learning outcomes. However, looking into more detail different trajectories of VET systems reveal. The aim of this paper is to present new concepts and models which have been developed to describe major changes of VET systems in a comparative way. The two key questions which we address and would like to discuss further are: How has a comparative research approach specific to VET have to look like? How can the complex changes in VET be simplified in such a way that a comparative analysis is still meaningful and the 'big picture' becomes comprehensible?

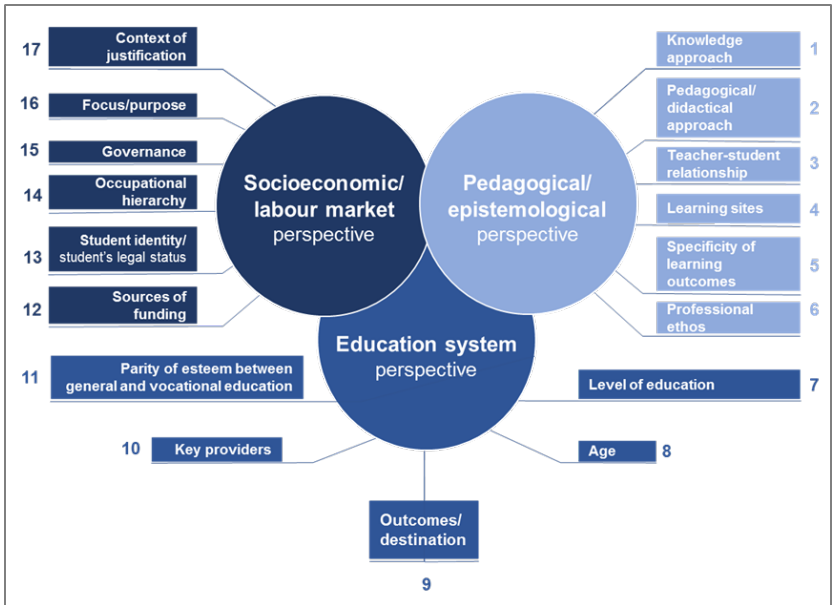
Findings presented are based on the Cedefop project 'The changing role and nature of the VET' which was carried out between 2015-2018[1]. The project applied a combination of different research methods (e.g. case studies, expert surveys, statistical analysis), disciplinary approaches and involved around 100 researchers in Europe.

[1] http://www.cedefop.europa.eu/en/events-and-projects/projects/changing-nature-and-role-vocational-education-and-training-vet-europe (accessed 15.01.2019)

First, we argue that a comprehensive research approach to VET requires the combination of different perspectives. We present a framework which allows to determine and compare different conceptions of VET. Building upon this framework, we introduce a model, which aims to describe major changes in the positioning and character of national VET systems. We illustrate this by taking the Nordic countries and German-speaking countries as examples. Finally, we discuss the limitations of the model and provide an outlook on further research needed.

2 A multi-perspective approach to VET

The diversity of VET systems has been dealt with by different authors from different angles, resulting in a range of different typologies of national VET and education systems. For excellent overviews on these approaches see for instance Rageth and Renold (2017), Gonon (2016) or Bosch (2016). Most approaches focus on governance, economic or labour-market perspectives, sometimes on the education system. Neither do justice to the subtle differences between allegedly similar VET systems. They are all rooted in specific disciplinary traditions and do hardly cover the multifaceted aspects of VET. A VET-specific approach has to combine different perspectives. Instead of applying a pre-defined country typology we therefore have developed an analytical tool to describe concepts and changes in VET between countries from three different, partly overlapping perspectives: an epistemological/pedagogical perspective, an education system perspective and a socioeconomic or labour market perspective (Cedefop, 2017a, 2017b).



Source: Cedefop (2017a)

Figure 1 A conceptual framework to characterise VET

In the **epistemological or pedagogical perspective**, it can be argued that vocational education's identity is rooted in distinctive knowledge production, representation, use and transfer, which can be associated with distinctive ways of teaching and learning. VET emphasises tacit as distinct from cognitive knowledge and learning through practical experience and socialisation in communities of practice.

With an **education system perspective**, the variety of forms of VET, types of providers, levels and funding sources and mechanisms, i.e. the system structures come to the fore. An education system perspective looks at the way VET as an institution has evolved and contin-

ues to evolve over time. It would consider such issues as whether the state or employers are the main VET providers, the age and status of learners (e.g. students, apprentices or employers), parity of esteem between vocational and general education and the like.

Using a **socioeconomic or labour market** perspective the wider functions of VET are considered, such as the ways in which it contributes to social stratification by providing access to particular career pathways and to the skills, competences and attitudes required by companies and their work systems.

This instrument which distinguishes three perspectives, 17 dimensions and almost 50 characteristics was used by country researchers to portrait national conceptions of VET. This way we could group countries according to a few main patterns (Cedefop, 2017b) without concealing the differences between countries within one group. Based on this approach and the data gathered we have developed a model that allows for the comparison of developments in a multitude of countries at a glance.

3 A model to describe long-term changes in VET

The two-dimensional model uses at the one hand the position of VET within overall education systems and, as such, mainly its relation to general education (i.e. on the horizontal line we are asking: will we see academic or vocational drift?). On the other hand, the model refers to the changing characteristics of VET. For this vertical dimension we distinguish between two major developments we have identified: the strengthening of VET leading to what we called *distinctive VET* and the diversification of VET leading to what we called *pluralistic VET*. However, these two dimensions are not independent of each other; on the contrary, the more pluralistic an education system becomes, the more the line between vocational and general education will be blurred. Thus, moving up the vertical line results in a blending of vocational and general education (compare Figure 2). Below, we very briefly discuss examples of qualitative and quantitative indicators we have used to sketch the countries' trajectories along these two dimensions according to the three perspectives (Cedefop, forthcoming).

3.1 Academic and vocational drift

From an epistemological perspective, vocational drift means the appreciation of vocational, practical, tacit or professional knowledge at the expense of the esteem of academic, theoretical, abstract or disciplinary knowledge. From a pedagogical perspective, indications could be the recruitment of teachers with work experience from business and industries or increasing work-based elements in school-based VET (e.g. more students taking part in internships and apprenticeships or more practice-based, case-based or project-oriented learning).

In terms of the education system perspective, the share of enrolment in vocational education at upper-secondary level is perhaps the most reliable indicator to measure vocational or academic drift. The increasing relative enrolment in professional higher education in relation to traditional universities is certainly also an indicator of vocational drift of higher education.

From a labour market perspective, the strengthening of the role of social partners or increasing power of employers over content would be an indicator of vocational drift. Improving the responsiveness of education to the labour market (e.g. faster update of curricula) or other measures that bring education closer to the world of work are also signs of vocational drift.

3.2 Strengthening and diversifying VET

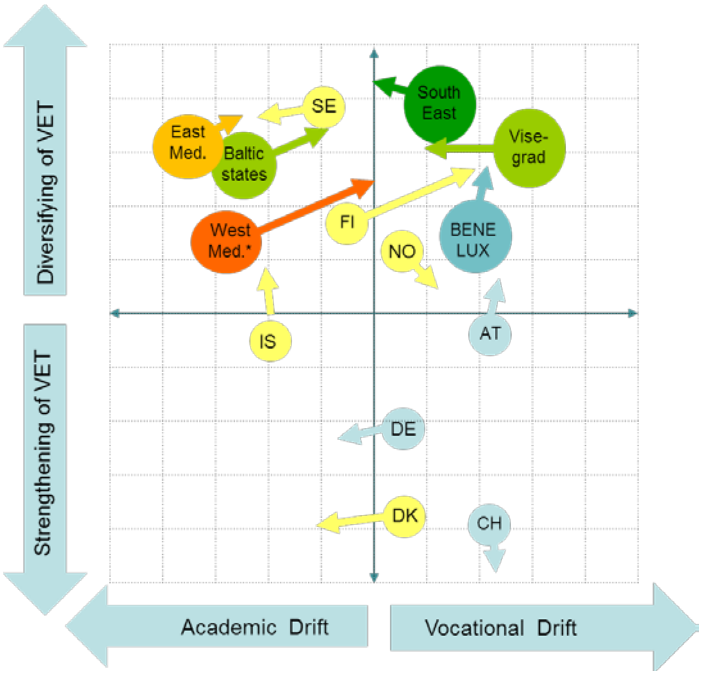
The vertical axis of the above model is less intuitive. One way of looking at it is in terms of heterogeneity of VET and whether there is a small set of characteristics and a narrow definition of VET (e.g. VET at a particular level, serving a particular purpose and taking a particu-

lar form) or a broad set of characteristics (e.g. multi-purpose VET, VET at several levels and taking various forms).

From a pedagogical perspective, signs of distinctive VET are a preference for learning in real-life work environments and professional knowledge, the duality between practical and theoretical learning, and the vocation ('Beruf') as a key organising principle. A pluralistic view of VET acknowledges all this, but also accepts any other approach (e.g. disciplinary and professional knowledge are seen as equal; and so are narrowly on-the-job learning and comprehensive professional education).

From an education system perspective, a VET sector that is clearly separated at all educational levels from other education sectors is an obvious sign of distinctive VET. Expanding apprenticeships to lower and/or higher levels is also indicative of distinctive VET, but only to the degree VET principles are retained. An ambiguous sector of vocationally oriented higher education; increased crossing of boundaries between education sectors; and increasing diversification of VET providers, programmes, target groups or learning approaches are all unmistakable signs of VET becoming more pluralistic.

From a labour market perspective, the key purpose of VET is often described as education and training which prepares for particular occupations, and this is certainly also key for distinctive VET. A broadening of this aim (e.g. securing employability) and additional purposes (e.g. preparing for lifelong learning in general) certainly makes VET more pluralistic. The introduction or increase of double or hybrid-qualifications combining occupational and general qualification would also be a sign of more pluralistic VET.



Source: based on Cedefop (forthcoming)

Figure 2 Trajectories of VET systems for selected European countries and regions between 1995-2015

4 Examples: A snapshot on the D-A-CH region and the Nordic countries

In the 1980s the commonalities between countries in the **D-A-CH region** in terms of VET were striking. But despite similar challenges such as globalisation, Europeanisation or the trend towards higher education, the countries have taken different trajectories since then.

Focussing on upper-secondary level we find a stronger academic drift in Germany for the last two decades than in Switzerland or Austria. Furthermore, we find a strong trend towards school-based VET in Austria, and an opposite trend in Germany and Switzerland (Ebner & Nikolai, 2010). The latter may be explained by the exceptional case of VET colleges in Austria, which have no real equivalent in Germany, and comparable institutions in Switzerland were upgraded to universities of applied sciences in the 1990s. Also, the fact that in Austria active labour market policy is used extensively to sustain the apprenticeship systems marks a sharp contrast to Germany and Switzerland. The drawback of this and the simple existence of the higher VET colleges fosters a hierarchy within VET in which the apprenticeship system sits at the lower end in Austria. Consequently, a competition between the dual system and higher education (as can be seen from the German discourse on academisation) or between apprenticeship training and the *gymnasium* (general education) as in Switzerland is not comprehensible in Austria.

The **Nordic countries** - Denmark, Finland, Norway, Iceland, and Sweden - have for a long time been considered to be different from the rest of Europe in whatever classification of welfare states, industrial relations and labour market regimes or political systems has been applied and have often been referred to as the 'Nordic Model'. Nevertheless, when we look at VET a Nordic Model of VET is not visible (compare Figure 2). In the comparative literature on VET systems, Sweden and Denmark are discussed as archetypical exemplars of different VET systems (Jørgensen, Michelsen, Olofsson, & Thunqvist, 2014; Michelsen & Stenström, 2018). Denmark is described as a strong and well-functioning VET system based on apprenticeship and company-based learning, while Sweden has been considered as an example of a statist, egalitarian social-democratic school model, where upper-secondary VET is embedded in a comprehensively organised school system. While the other Nordic countries have taken steps to integrate vocational education at the upper-secondary level, Denmark has maintained a separate system of apprenticeship due to the strong interest of employers - with siginificant links to the employment system, but weak ties with general and higher education. In Sweden the state-led rise of the comprehensive school meant that firm-based apprentices' skill formation was threatened and eradicated, because employers were not strong enough (Michelsen, 2018, p. 14). In Finland, the employers consistently preferred school-based VET, also because there was simply no basis for the collective organisation of skills in industry. Furthermore, a statist preparatory school-based VET system with few connections to general education was preferred over an integration of VET and general education while apprenticeship has mainly developed as an option for adults (ibid.)

5 Outlook: Limitations, open questions and further research

We have aimed at incorporating the multiple functions of vocational education and training into one model. We consider this an innovation and a practical tool which goes beyond existing typologies. For us the model was also instrumental to the development of future scenarios of national VET systems. We have developed six scenarios for VET and claim that these scenarios are more effective for strategic discussions than the recurrent reference to "model-countries". As VET researchers we have given much more emphasis to concepts of education and learning than previous approaches. These often concentrate at only one of the manifold functions of VET. The ultimate aim of this model is not the explanation of effects of VET, but rather the reduction of the complexity with regard concepts and notions in use. Just like hard figures on the economics of VET such underlying concepts are another reality that needs to be taken into account by any attempt of understanding VET in its national contexts.

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A medium-range language to describe different VET systems

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Abstract

This paper proposes the British educational sociologist Basil Bernstein's theoretical concepts to develop medium-range languages of description for different VET systems. The conceptual tools used are 'classification' and 'framing' along with their 'recognition rules'. The central categories for analysis are the classificatory relations at the macro-social level, the 'pedagogic discourse' regulating space-time-discourse relations and projecting transmitters and acquirers, and the 'pedagogic practice' ('framing') at the micro-level of transmission. A research example shows macro-micro relations in Germany's dual system of VET according to these categories and with the conceptual instrument of 'framing'. The systematic and rule-related development of a medium-range 'second language of description' allows one to relate the concepts to different empirical contexts (such as schools and training companies) in a non-circular way. The discussion suggests the use of Bernstein's concepts for extending the current research to differently organised forms of vocational education, from school-based through regulated company transmission – as in Germany's dual system – to unregulated company transmission.[1]

Keywords

sociology of education; Basil Bernstein; macro-micro-relations; educational governance; dual system of VET

1 Introduction

Today, problems of educational governance research include multilevel systems, numerous actors, and coordination of action; in short, interrelations between macro-sociological actions and interactions at the micro-level of transmission (cf., e.g. Altrichter 2010, Altrichter & Maag Merki, 2016). As a step toward a solution, Altrichter & Maag Merki (2016, p. 9f) consider the development of medium-range languages of description. This points in the direction of social realism (cf., e.g. Bhaskar, 1975; Sayer, 1992). Here, a central assumption is the primacy of theory over empiry; yet a gap remains since a theory, model, or concept can never completely depict empiry. Thus, the researcher's task is to bridge this gap, for instance, with a medium-range language of description.

Basil Bernstein (1990, 2000), the British educational sociologist, is a theorist in the tradition of social realism (with Durkheimian roots). To bridge the gap between his theoretical (first) language and the empirical world, Bernstein provides clear recognition rules for his highly abstract concepts, and calls for the systematic and rule-related development of 'second

[1] This paper is a slightly amended and highly abridged version of Höhns, G., & Sertl, M. (2019).

languages of description' through an iterative dialogue between the 'recognition rules' of the theory and the data rather than by abstraction from empirical observations (content analysis) (cf. Moss 2001, Morais & Neves 2010).

After explaining relevant concepts and categories, this paper illustrates the development of such a medium-range 'second language' to describe pedagogic interaction in regulated German in-company VET, und unten and focuses on findings that contradict the 'recognition rules', which Bernstein derived from research in schools. An analysis in a system context that contrasts with the well-researched scholastic system context reveals context-specific macro-micro relations.

2 Central concepts: Classification and framing, recontextualisation and pedagogic discourse

The appropriateness of 'classification' and 'framing' for analyses in school contexts (from the macro to meso to micro levels in the classroom) has been proven extensively in the seminal work by Morais and others of the Portuguese research group (cf. http://essa.ie.ulisboa.pt/). 'Classification' is Bernstein's term to conceptualise boundaries, which, for him, result from power struggles in the social division of labour. 'Framing' is about control over the interaction within these boundaries. In pedagogic interaction, framing refers to the selection, sequencing, pacing, and evaluation of learning content, and to the hierarchy in the transmitter-acquirer relationship. Both concepts can have different modalities or strengths (stronger or weaker).

The famous 'code', to which Bernstein ascribes pupils' differential school success, is a function of classification and framing. Pedagogic codes position learners to knowledge and within a community of knowers. Codes are context-specific; contexts, as well as the interaction within them, are regulated in a non-determinative way by an underlying discourse. The classification between the two system contexts of education and production is deemed 'the fundamental classificatory relation of education' (Bernstein, 1990, p. 215). The school code's strong classification to other contexts is weakened by different degrees for children who do not accept their positioning through the school code.

Bernstein conceives macro-micro relations as being the movement of a discourse from one social context to another. Bernstein's 'three fundamental contexts of European educational systems' (1990, p. 193) include a primary context, where texts are produced; a recontextualising context, where these texts are selected and refocused, and a secondary context for the transmission of recontextualised texts. However, these three contexts are socially arbitrary (cf. Swope, 1992; Höhns, e.g. 2016). In the macro-social recontextualising context for scholastic learning, agents/agencies are the state and pedagogic field, as opposed to the social partners in Germany's dual system (employers' and employees' representations, together with the state), who simultaneously produce the discourse (cf. Höhns 2016).

The outcome of power struggles within a recontextualising context is the production of a pedagogic discourse (PD); namely, its 'what' (and 'what not' - classifications) and 'how' (eventually the locus of control over legitimate interaction - framing). The PD underlies and regulates legitimate pedagogic interaction (i.e. the framing relations at the micro-level of transmission). Bernstein & Diaz (1984, pp. 201 ff.) identified at least four levels of recontextualising, which all imply power struggles leading to ideological changes or even distortions of the discourse. Yet, macro-social power relations are invisibly transmitted in the classroom (or its equivalent; for instance, a training company, which in Germany's 'dual system' of VET is the dominant transmission site).

PD creates imaginary subjects in the dominant recontextualiser's projections of who transmitters and acquirers are and should become, and it creates specific relations of space,

time, and discourse. At the macro-social level, the PD materialises as official pedagogic discourse in policy documents and curricula. As different agents/agencies expectedly create different modalities of PD, the PD created for schools may well differ from that created in Germany's dual system of VET, for example.

Indeed, for Germany's dual system, a documentary analysis of legal documents (Höhns 2016) revealed specific characteristics of a macro-social PD, which clearly differ from those for scholastic transmission as Bernstein and Diaz (1984) described them. For instance, the temporal relation implies that time becomes individualised, as opposed to the homogenisation of acquirers over time in scholastic transmission. The spatial relation implies that the first transmission site is the company with an obligatory second site, the VET school, and optional others. The framework curricula for in-company transmission only contain minimum requirements. This means that the transmitted discourse, a *Beruf*, is or can be more than what is transmitted in one company. The projected learners (apprentices/trainees) seek an alternative to scholastic education and cope with tasks better when following the principle of the complete act. In the world of work, which they enter for learning, they are projected as weak and in need of protection. Briefly, they are viewed as different from pupils and experienced workers. Transmitters (trainers in companies) are projected as being able to transmit not only the skills necessary to complete work tasks in the company, but also the 'complex relationships between company, trainees/apprentices, employee's representative organs and competent body' (Höhns, 2016, p. 216, referring to the Trainer Aptitude Regulation).

3 Macro-micro relations in Germany's regulated VET

In the study presented here, macro-level classificatory features of educational reproduction (i.e. transmission and system contexts, extra-discourse and intra-discourse relations [cf. Bernstein, 1990, p. 27]) were kept equal. Only graduates from the dual system and no other workplace learners were included. Data were gathered from 30 problem-centred interviews about training experiences. Following Morais and Neves (e.g. 2010), a second language of description – taking the form of sets of typologies with indicators and descriptors, by which different strengths (modalities) of classification and framing appear in the data – was developed to uncover framing relations in regulated in-company transmission. These findings were published in detail elsewhere (Höhns, 2015, 2018a, 2018b). This paper presents them with a gloss on the realisation of categories in contrast to school-based transmission, and the relation to macro-social provisions (see also Höhns & Sertl, 2019).

Bernstein's recognition rule for framing states that the transmitter only grants acquirers apparent control over the pedagogic interaction. In this study, however, the respondents not only spoke about different strengths of trainers' control, but also about their own active control-taking over the different elements of 'framing'. For instance, a legal assistant explicitly claimed to have taken control over the expected time of acquisition ('pacing') by reducing the overall training time (transcript line 360). Other respondents also made comments regarding when they applied with their respective chamber to have their training time shortened, as well as when they did not. Still others claimed to have taken control over their learning speed by 'often asking colleagues in-between, what was what' (Management Assistant in Wholesale and Foreign Trade, line 48), or by going to the company on Saturdays (though they were not obligated to do so) to study for the examination (printer, line 302; car mechatronic, line 97). We, a two-person team, decided that these (and other) claims of taking control over the pacing were legitimate in view of the temporal provisions in the macro-social regulations of Germany's VET. The possibility of reducing or prolonging training time was an important – though not the only – argument for the assertion that in the dual system, time is individualised (as opposed to the homogenisation of learners over time [cf. Höhns, 2016]).

Similarly, we considered acquirers' control-taking over the selection and sequencing of learning content to be plausible, since, once again, we found a relationship to the macro-social PD. The provision that the framework curriculum for transmission in companies contains minimum requirements seems to allow companies to offer special knowledge and acquirers to take control of the selection and sequencing of learning.

The projection that acquirers in the dual system seek an alternative to scholastic learning and learn better according to the 'principle of the complete act' prompted us to also trust respondents' narratives about their control-taking over the evaluative criteria. The literature on action regulation research defines the construct of a 'complete act' in different ways (cf. Bauer, Munz, Schrode, & Wagner, 2011, for an overview), but definitions tend to include a phase of evaluation or self-control. Thus, a trainee's active control-taking over the criteria for evaluating task performance at the company seems to be a normative effect of German in-company training.

Although interviewers did not specifically raise this issue, six out of 30 respondents mentioned that in the company, they also trained others. These narrations came about naturally. A cook said explicitly, 'that's actually the case in every business, that the trainees in the second and third training year always help the ones in the first training year' (line 135). When trainees/apprentices change their role and train others, the hierarchy between trainers and trainees/apprentices flattens, and the trainees/apprentices take control over the hierarchical rule of framing (cf.also Höhns, 2018b).

In sum, the research showed that at the micro-level of transmission in the company, acquirers take control over all elements of framing. This counters Bernstein's theoretical postulate that transmitters are always in control, and that acquirers' control-taking should be deemed illegitimate. Yet the relations to macro-social provisions provide ground to assume that this control-taking is a legitimate effect of Germany's regulated in-company VET, its specific PD, and specific macro-social power relations.

4 Discussion

The study showed the aptness of Bernsteinian concepts and systematically developed medium-range 'second languages', taking the form of typologies, to describe and compare differently organised VET. These typologies can be located on a continuum of rising abstraction at a medium level between empirical reality and highly abstract 'classification' and 'framing'. Their development across all 30 interviews with graduates from the dual system led to unexpected findings: respondents' narrations about their active control-taking over the framing. This became explainable in an abductive move by relating these findings to the specificities of the dual system's macro-social PD, specific space-time discourse relations, and subject projections. This move offers a solution to the problem of educational governance research for pinpointing macro-micro relations.

Apparently, a pivotal difference between scholastic transmission and Germany's regulated company VET are assumptions about who learners are and who they want to (or should) become: academically strong, or better learners when following the principle of the complete act. From this, different macro-social space-time-discourse relations and micro-social transmitter-acquirer relations – particularly, learners' active control-taking over pedagogic interaction – become understandable.

The dual system's macro-social PD, which also projects trainees/apprentices as vulnerable in the world of work, may lead to different modalities of pedagogic interaction compared to the modalities that can be found in unregulated company learning, where an explicit macro-social pedagogic discourse is lacking. There, the pedagogic discourse may well be a matter of negotiation or struggle between transmitters (experienced workers) and acquirers (novices)

(cf. Höhns, 2018a). Nevertheless, code modalities of framing and underlying dominant agents' projections of imaginary subjects – as along with specific relations of space, time, and discourse – should also be traceable in unregulated company transmission. A comparison between regulated and unregulated company learning should be conducted in future studies, as well as research into the transmission of VET with other dominant agents/agencies and other projected acquirers (e.g. in-company internships under the supervision of schoolteachers).

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Biographical notes

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Paul, E. & Gåfvels, C. (2019). Apprenticeship education vs. school-based vocational programmes in the Swedish upper secondary school – different paths to the same goal? In F. Marhuenda & M.J. Chisvert-Tarazona (Eds.), *Pedagogical concerns and market demands in VET. Proceedings of the 3rd Crossing Boundaries in VET conference, Vocational Education and Training Network (VETNET)* (pp.402-408) https://doi.org/10.5281/zenodo.2641871

Apprenticeship Education vs. School-based Vocational Programmes in the Swedish Upper Secondary School – different paths to the same goal?

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Abstract

Apprenticeship education is formally a part of the Swedish upper secondary school VET. Half of the time in apprenticeship education is workplace-based, compared to a minimum of approximately 12,5 percent in the regular VET-programmes. However, the apprenticeship education follows the same curriculum as the school-based VET. This way of organizing the apprenticeship education seems to build upon a failure to recognize differences in ways of knowing, such as *knowing that* and *knowing how*, or that the situated character of learning in two different practices, school and workplaces, probably will lead to development of different aspects of vocational knowing. The purpose of this article is to explore differences in the vocational knowing afforded in the Swedish apprenticeship education compared to school-based VET in the Child and recreation programme.

Keywords

apprenticeship education; school-based VET; vocational knowing; Child and Recreation Programme

1 Introduction

Since 2011, apprenticeship education is part of Swedish upper secondary school's vocational education. An explicit purpose of the apprenticeship education is to offer an alternative for both students and employers to the regular VET programmes by providing ample opportunities to develop vocational knowing "in practice". A difference between the regular VET programmes and the apprenticeship education is that students in apprenticeship education spend more than half of their educational time at one or several workplaces, compared to approximately 12,5 percent of workplace-based training in the regular VET-programmes.

However, a potential hindrance for the apprenticeship education is that the curriculum is the same as for the school-based VET. Thus, apprenticeship education is subordinated to school-based education, and instead of offering an alternative pathway there is a risk that the apprenticeship education becomes a form of work-based school education (Berglund & Lindberg 2012, Berglund et al. 2017).

This way of organizing the apprenticeship education seems to build upon a notion that *reading about* leads to the development of the same vocational knowing as *learning-in-practice*, i.e. there is a failure to recognize different dimensions of knowing, such as *knowing that* and *knowing how* (Ryle 1949), as well as a failure to recognize how activities at school and workplaces form different practices with different goals (cf. Lave & Wenger 1991). As a

consequence, the aforementioned subordination in relation to regular VET is framing how apprenticeship education is understood. This means for instance that vocational theory is seen as foreshadowing vocational practice, which in its' turn is perceived as applied theory (Carlgren 2015, 2017). In addition, there also seems to be a common belief that apprenticeship education is particularly suitable for "practically minded" persons (Berglund 2009, Berglund & Henning Loeb 2013, c.f. CEDEFOP 2017 of attitudes in Sweden to VET education), who learn by doing and not by thinking or reading – as if thinking or reading were not embedded within the "doings" of vocational tasks (cf. Karlsson 2006, Schön 1983).

In this paper, we will explore differences in vocational knowing afforded in school and work tasks in the apprenticeship education compared to the school-based VET in the Child and recreation programme in Swedish upper secondary school.

2 Theoretical framework

In vocational activities, knowing is embedded in various actions (Schön 1986). To "learn in practice" means that the students are provided opportunities to develop vocational knowing by gradually expanding their ability to participate in workplace-specific actions and thereby becoming increasingly more experienced and capable in participating in the workplace practices (Lave & Wenger 1991). A large part of vocational knowing is tacit (Polanyi 2013). By contrast, at school, students become more capable in participating in the school practice and develop vocational knowing in relation to what is afforded in and by the tasks in school, whether they are school tasks, vocational tasks or simulated tasks (Carlgren 2015, Lindberg 2003). Traditionally school knowing is to a higher degree acknowledging propositional knowing, i.e. knowing-that, rather than knowing how (Ryle 1949). For instance, the complexities of vocational knowing developed during workplace-based learning is often reduced to propositional knowing when written school tasks of the work-based education are assessed on the basis of written school tasks (Wyszynska Johansson 2015).

3 Methods

The Child and recreation (CR) programme orientated towards pedagogical work is investigated in this paper. School and work tasks that the students participate in and how these are described by participants is explored. The data comes from two small-scale case studies of ethnographic character, one of which is still ongoing. Both studies are financed by the Swedish National Agency for Education.

All participating students are in their second year of the three-year education. In the first study, vocational knowing in workplace-based learning in three different VET-programmes in the apprenticeship education was explored (Gåfvels & Paul forthcoming). The material from the CR programme consists of observations and films following an apprenticeship-student during two days at her workplace, as well as interviews with the supervisor, the VET-teacher and the student using film elicitation (El Guindi 2004). The second study is ongoing, with the aim of comparing vocational knowing developed at school-based VET and apprenticeship education in two different VET-programmes. The data for this paper consists of participatory observation at school and during the workplace-based part of the education in the CR programme. Semi-structured interviews with students, teachers and supervisors have also been conducted.

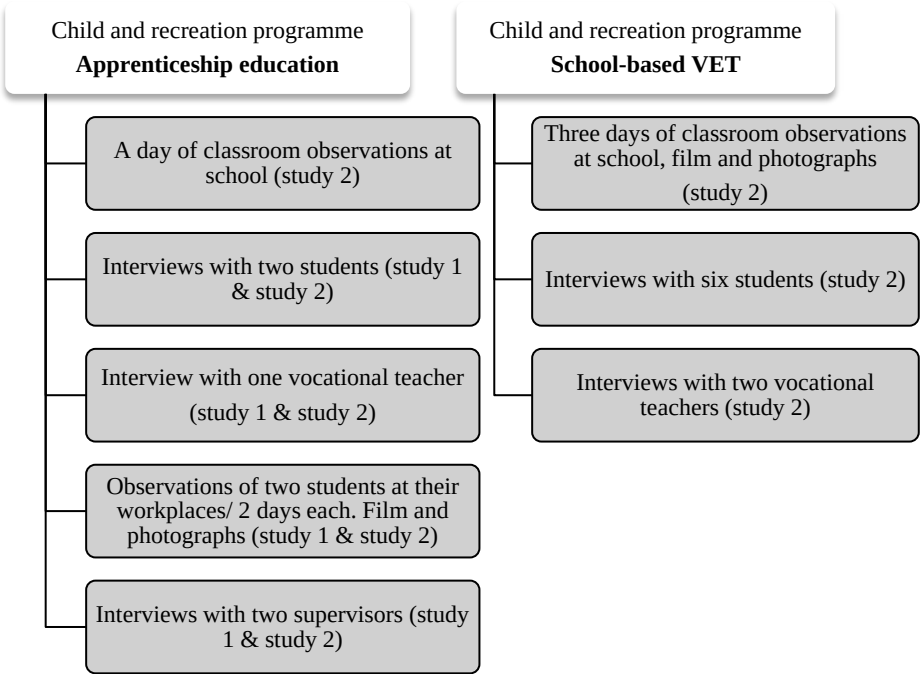

Figure 1 Data production.

4 Findings

In both the school-based VET and the apprenticeship education students, teachers and supervisors describe a perceived division between theory and practice in relation to school tasks vs. work tasks. School tasks were by the students talked about as "theory" and associated with characteristics such as "sit and listen", "reading in books", "writing". Teachers and supervisors portrayed school tasks as promoting reflection and deeper understanding. Work tasks were described as "doings" by the students, and associated with for instance "experiencing", "interaction [with children]" and "taking responsibility". Sara, an apprenticeship-student, explains: "Here [at the workplace] we don't talk about children's development and such. […] But I can see it here in another way than by reading in a school book." The teachers and supervisors talked about participating in work tasks as giving access to experiences by which the students could develop "a gaze", know-how and become more autonomous.

Differences between the two forms of education were mainly found in assigned school tasks during the work-based learning part. The school tasks for the school-based VET students are introduced during school weeks by lectures on a topic in a specific course. In relation to the work-based training the students are asked to collect information on a topic at their workplaces, which is then to be written about in a report. The written report is formed as a typical school text and it is central for assessment of the workplace-based part. The teachers in the school-based VET emphasized recurrently the academic basis of CR programme and the goal of providing the students with a good basis for future academic studies.

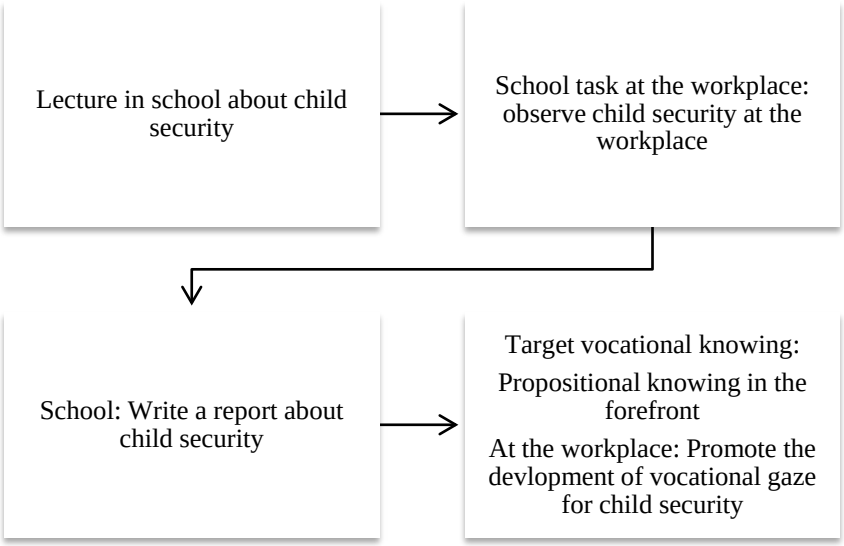

Figure 2 School practices foreshadowing how child security as a vocational knowing is assessed in school-based VET.

The figure (2) above, illustrates how in the school-based VET school tasks focusing on propositional knowing foregrounds practical knowing, but also how the vocational gaze and vocational judgment that might be develop in practice in regards to child safety, is to be presented in an academic form. In conversations with students it became evident that without this particular of observing child-safety the topic would not have come up at their workplaces.

The apprenticeship-students also have school tasks in relation to their work-based education. Their assignments typically involve planning activities for the children within a specific area, for instance physical movement for children. They have to write a plan, lead the activity with a group of children at the workplace, and then write an evaluation and a reflection about it. The planning of the activity is to be conducted in relation to the pre-school curriculum. These plans and evaluations resemble the kind of pedagogical planning that are common texts in pre-schools. The apprenticeship-students explain that their supervisors can ask about their school tasks and that they together plan how they are to be executed. But some aspects were seldom or never discussed with the supervisors, such as how to link the activity to the pre-school curriculum.

In the observations of the apprenticeship-students at their respective workplaces the tacit dimensions of central vocational knowing that otherwise was difficult to verbalize became more apparent (cf. Gåfvels & Paul forthcoming). One example is when an apprenticeship-student, Elsa, was in the hallway, helping a child to undress his outerwear. In the film, Elsa takes off the child's warm sweater, talking in a kind voice to him about the color of his sweater, before putting it on the shelf and helping the child into the pre-school groups unit. In the film-elicitation the teacher pointed out that Elsa should not have undressed the child, but rather supported the child in undressing by himself. She stressed how they at school on many occasions have talked about the significance of supporting children in becoming more independent in their day-to-day lives. The supervisor, on the other hand, focused on the hallway as a stressful space where the apprenticeship-student needs to "have a feeling and be able to read how much one should help and how much time and space is there for one to stay in the hallway. Of course, the children should undress themselves but you have to see when it is a training-situation, and what is not a training-situation." The supervisor described the hallway like a hub where the flow of children in (or out) should go as quickly as possible due to time-

constraints depending on the pre-school schedule and the other groups wanting to use the hallway. In the film-elicitation of the hallway situation knowing how to support the child in becoming more independent, how to communicate with the child and being able to "see" and "read" the current situation as well as the child and his/her needs and the flow of the whole pre-school and colleagues, were emphasized. Also, knowing what to prioritize was highlighted. These aspects of vocational knowing recurred also in other observed situations, and are termed as *day-to-day knowing*, *communicative knowing*, *vocational gaze and vocational judgement*. Of these the teacher and supervisor stressed that the two latter take the longest time to develop, but are crucial for becoming capable and independent.

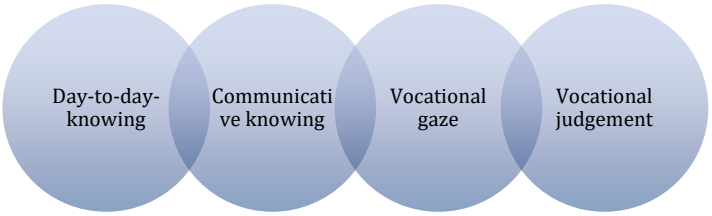

Figure 3 Some crucial aspects of vocational knowing at the pre-school

From the whole body of data vocational gaze involves three aspects: being able to interpret i) a situation in relation to the entire pre-schools activities, ii) a complete situation and iii) an individual's needs. The first one requires being conscious about worktimes, the flow in the entire pre-school and the schedule which in its turn is connected to time and take this in to consideration in one's actions. The second aspect deals with being attentive to the surrounding and any needs arisen nearby. The third involves seeing different needs such as other staff-members or children's needs. Vocational judgment is closely tied to vocational gaze and embedded within the other categories. It involves capability to decide in a qualified way what to do, when and how, such as being able to judge if being in the hallway with the child was a learning situation for the child or not.

5 Conclusions

There are several similarities in the two different educational paths and both set of students participate in school practice and workplace practices, and are thus provided opportunities to develop the knowing afforded in respective community of practice (Lave & Wenger 1991). At the workplaces, the vocational knowing involved developing a vocational gaze (Gåfvels 2016), which is tied to vocational judgement, whereas focus in school was mainly on propositional knowing. In this small-scale case study, it is not possible to draw broader conclusions on differences in vocational knowing developed in apprenticeship education vs. school-based VET. But one difference that has been identified involves the school tasks that students are assigned to do while at the workplace. As in previous research of CR programme workplace-based learning in the school-based VET was assessed mainly through the academic form of writing a report and not based on (talk about) the students' actions at the workplaces or observations at the workplaces (Wyszynzka Johansson 2015). The school tasks in the school-based VET had more significance for school educational practices than bearing vocational significance, i.e. showcasing possible academic drift (cf. Edwards & Miller 2008). The school-tasks in the apprenticeship education in turn resembled text genres possible to find at pre-schools, as well as involving typical work tasks such as leading different events for the children.

It can be questioned if Swedish apprenticeship education is an *alternative* way of developing vocational knowing compared to traditional Swedish school-based VET. Swedish

apprenticeship education can be considered a work-based school education (Berglund & Lindberg 2012, Berglund et al. 2017).

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Dual vocational training for work: First experiences in Ecuador

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Abstract

This research addresses the first practical, conceptual and methodological experiences on the implementation of the dual vocational training in Ecuador. The main objective is to analyse the implementation of the Dual vocational training model of the "Comprehensive Child Development" degree offered by public technical and technological higher education institutes. The methodological approach is qualitative, and from the case study selected the paradigms of the actor-network theory and the grounded theory are combined. The preliminary results of this first evaluation process represent a paradigmatic change of traditional Ecuadorian higher education. We may say that the Ecuadorian dual training approach breaks with the conservative principle of the German dual model 'student-institute-company', as it looks for the professionalization of human talent in relation to the social programs of the government.

Keywords

dual training; professionalization; higher education; professional skills; comprehensive child development

1 Introduction

This research addresses the first conceptual and methodological experiences on the implementation of the dual vocational training in Ecuador on 2013. The public higher education system in Ecuador, at both technical and technological levels, has developed and implemented a new model of alternative education based on competencies called "Dual vocational training" (Homs, 2016), which aims to create better job opportunities for Ecuadorians. This model represents a paradigm shift from the traditional training in public technical and technological institutes, more than 30 years ago.

The main objective is to analyse the implementation of the Dual vocational training model of the "Comprehensive Child Development" degree offered by public technical and technological higher education institutes. The model was implemented for competency-based training, as part of the Project to Restructure Public Higher Technical and Technological Education in Ecuador.

This research is based on a qualitative and quantitative methodological approach. The case study combines ideas of the Actor-Network Theory, and the Grounded Theory. This study makes use of empirical research techniques such as triangulation for the analysis of information. This method will be based on comparing and interpreting areas of agreement and discrepancies among these sources about dual vocational training and competencies professional for work. The basic data collection instruments are semi-structured interviews, focus groups protocols and digital questionnaire.

The epistemic mapping of studies within the educational models of dual vocational training based on competencies in the Ecuadorian context represents a test-trial process, by which the best international practices are chosen for implementation. During the first stage, which

focused on information gathering and analysis, a holistic approach to the socio-technical construction of the Dual model was made.

The evidence provided by the first interviewees was then analysed. They agree that the Dual methodological process, has barely been introduced into the higher education system, and has not properly followed the German principles of the relationship "student – institute – company". The implementation the "Comprehensive Child Development" degree rather breaks the principle of this German vocational training, by replacing the "company", with government programs that are financed and managed by the government itself. A first approximation to the skills and competencies he or she has actually obtained, are the appraisal of results and assessment which the students apply it in the process of Dual vocational training

These Dual vocational programmes often respond to the government's own educational, social and economic objectives, especially addressing the need for professionals specialised in early childhood care.

To conclude, a new form of investigative analysis which is proposed, combined the assumptions of the Grounded Theory (Strauss and Corbin, 2002) and the Actor-Network Theory (Latour, 1996) to understand the symbolic path of Dual vocational training in Ecuador. This analysis begins with the implementation of an academic degree that pursues the high quality of life, socially and productively, from a new teaching perspective: Dual learning, which seeks to improve people's skills and their employability in work environments emphasising their specialisation and professionalization.

2 The dual vocational training as a new model inside the public higher education system in Ecuador

2.1 Exploratory phase: social and technical approaches of the dual model

Global demands invite us to re-think and provide a diagnosis of the subject-object practices from the context of modern thinking. Educational models in the area of dual training are no exception and posit us to reflect on from the academic field, in order to understand the reason why such models are accepted and implemented within the higher education systems. It can be argued that paradigmatic changes in terms of educational mobility, scholarships, science transmission and interchange, technology, and innovation in higher education have dynamized cooperation networks, while at the same time they have strengthened human talent in Latin America. One of such paradigmatic changes has been achieved in Ecuador.

For the last decade, the Ecuadorian government has invested in human talent training and specialization in different areas of knowledge. To this end, public policies aimed at quality and academic excellence were revised, modified and established in 2008. In 2010 a comprehensive reform of the Education law was made in order to assure equality, equity and free access to higher education, not only at the university level, but also including technical and technology institutes. Hence, technical, administrative, academic and research components of public and private institutions were reinforced.

Along with the higher education legislation reform, different higher education programs and projects were boosted, always taking into account the needs of the productive matrix of the country. In 2014 the National Secretariat for Higher Education, Science, Technology and Innovation (SENESCYT, for its acronym in Spanish) launched a project called 'Reconversion of public sector technical and technological education.' One of the main components of the project was the design of the dual training model, aimed at promoting theoretical and practical education for future professionals.

In 2015, as the reconversion project was on course, the Higher Education Council (CES, for its acronym in Spanish) approved the new rules of procedure for institutes and conserva-

toires, by its resolution RPC-SO-35-No.457-2015. For the first time in the higher education system of Ecuador the 'Rule for careers and programs in dual modality' was inscribed in 2016, according to resolution RPC-SO -31-No.585-2016.

In that same year, the National Assembly of Ecuador approved the 'Organic Code of Social Economy of Knowledges, Creativity and Innovation.' This new law reinforced and promoted the dual training by providing economic incentives, such as tax reductions for those public or private organizations that hired dual training students for their productive and service activities.

This socio-technical trajectory, from its basic notion of co-construction related to learning processes, rationalities, policies, and different actors' strategies (Thomas, 2011), began to be regulated from a kind of public policy that unifies academic, social, economic and productive aspects. All of this was made under the support of the central government and the head of the government, who in particular, aimed at boosting the technical and technological dual professional training. Precisely, at that time a dual training proposal for the design of a technical career in Comprehensive Child Development (TDII, for its acronym in Spanish) was made; its objective was to specialize the human talent for care and education of early childhood.

2.2 Methodology

The methodological approach is qualitative, and from the case study selected the paradigms of the actor-network theory and the grounded theory are combined. From a theoretical and sensitive outlook, academic texts which include the principles of the systems and models of dual training were analyzed. This facilitated the elaboration of a questionnaire used in the semi-structured interview. This whole process was made under the validation and supervision of experts in theory and methodology.

Prior to the interviews, a mapping of key actors was carried out. It is important to mention that such actors do not only represent individuals or power groups (Tapella, 2007:3), but they were chosen by their chronological participation in the dual training proposal. In order to locate these actors, three aspects were taken into consideration: professional profile, decision-making level, and their direct involvement in the development and implementation of the dual proposal. A group of 12 people were selected, all of them belong to public and private organizations. The information that was collected coincides with two different moments: the reconversion project and the design of the technical career in TDII.

Once the interviews were made, they were transcribed and their content and elements were processed under the phases of categorization, coding, structuring and cross-checking the information. This was made with the purpose of formalizing the early approaches and interpretations that allow to establish theoretical and explanatory conclusions regarding the dual model, considering the implementation of the TDII career as a point of departure.

2.3 Analysis: results

The information collected acquires an inductive structural order for the interpretation of the results. The data was processed under a content analysis method in relation to the enunciation of the interviewee.

As an example, there are textual citation of the discursive references, which refer to the implementation of the dual professional training, departing from the TDII academic offer.

1. In the first theme block, the interviewees reveal an heterogenous enunciation in terms of their relation with the dual topic, as well as their participation in the design and implementation of the TDII career.

[…] I committed myself to the review of documents, even if that was not my work specialization […] so, the best I could do was that, to start reading, to start asking, researching […] in that way we could find out how to implement the dual training in Ecuador […] (IA6, 2017)

2. In the second theme block -the social and technical trajectory of the dual model- the interviewees present a unanimous discursive characteristic, in which the dual training is represented as an emergent demand through the reconversion project. Here, the early childhood care was a priority for the central government.

   […] This was framed in the social public policy, in fact the president always said […] that the best option, even in aspects related to childhood malnutrition […] was prevention. This could only be reached with trained human talent […] (IA1, 2017)

3. Finally, the third block points out that the design of the TDII career needs to be based on competencies for the potential implementation in public institutes. Here, the interviewees mention that:

   […] The TDII dual modality career aims at solving social problems, so it requires *trained personnel to be incorporated to the CIBV (Children's Centres for Good Living projects) …the workers to carry out their responsibilities based on the practice, but without academic foundations […] (IA9, 2017)*

   […] the competency-based design is fundamental, the approach given to this career […] even if it is important to know the concepts of childhood care, the competencies are much more based on practice. (IA9, 2017)

Every informant agreed to respond to the government demands, in terms of professionalization of human talent, under a technical and technological dual perspective.

3 Concluding remarks

To follow the actors and their actions in order to understand the reality of the dual model (Callon, 1986; Latour y Woolgar, 1997; Latour, 1996) represents a change of paradigm in relation to the traditional training model in Ecuador. In fact, the voice of the interviewees -actors- has provided with a network and social and technical ensemble (Wiebe Bijker, 1995) among those who are involved in the dual model according to level of involvement, consensus, and power relations, all of this in the face of the technical and technological public higher education of the country, particularly in the area of social services.

From this context, we may say that the Ecuadorian dual training approach breaks with the conservative principle of the German dual model 'student-institute-company', as it looks for the professionalization of human talent in relation to the social programs of the government. In response, the technical career in Comprehensive Child Development was designed. However, there is still much to do regarding the methodological alignment in the field of professional competencies.

Finally, it is important to stress that this initial research stage does not aim at identifying the causes and effects of the new dual model in the Ecuadorian context. To the contrary, it states a new form to carry out research analysis, by proposing new theoretical and explanatory approaches to the dual model, based on the grounded theory (Strauss y Corbin, 2002) and the actor-network theory (Latour, 1996).

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Potentials of Apprenticeship within School-Based VET Systems

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Abstract

Dual Vocational Education and Training (VET) or apprenticeship schemes as a promising approach to overcome economic crisis in south Europe and to adapt the handling of new technologies when these reach the "world of work" (and not yet VET-schools) is since years high on the agenda of European and national policies. Consequently a manifoldness of approaches and projects have been started to support Work-Based Learning (WBL) in all of its forms, for a comprehensive overview see for example WBL-toolkit (2018). However, being honest, most of these measures are rather far away from "real" apprenticeship schemes; most approaches are internships, learning projects, simulations, etc. In our current ERASMUS+ project "Integrating Companies in a Sustainable Apprenticeship System" (ICSAS 2017), we are focusing on the sector of industrial shoe production and are working on the question, whether an approach, being close to apprenticeship scheme in Germany, is of benefit within and for school-based VET-systems of Portugal (PT), Romania (RO), and Spain (ES).

Keywords

industrial shoe production; VET curricula; work-based learning (WBL); tutor training; sector qualification framework

1 Background

While southern European countries are coming through the economic crisis, industry 4.0 is increasingly settling in manufacturing sectors. Now the main concern of these countries is not only to achieve the economic upturn and provide as many workplaces as possible, but also to count on updated and highly qualified workforce. This new requirement has caused many countries to witness a shortage of skills in their human resources and an obsolescence of their national curricula, which prevents them to catch up with today's hectic technical evolution. As a result, new approaches for the learning process of future workers are arising in the form of VET-oriented projects that are already having an impact on the ways both training centres and companies are tackling the training of the workforce.

In line with this, one of the projects contributing to face the skills gap is the ERASMUS+ project "Integrating Companies in a Sustainable Apprenticeship System" (ICSAS), which mainly focuses on the high-added value of work-based learning (WBL), meaning a combined training provision shared between VET schools and actual companies. This training method brings about manifold advantages such as a faster and effective empirical consolidation of technical knowledge, a skills transfer from experienced workers to trainees or the access to complex and sophisticated production equipment and processes, among others.

In our project, apprentices are trained in real working environments and are supported by skilled workers for approximately one year. Our main criterion is being "close" to German (DE) apprenticeship scheme (being aware that there are many other criteria like legal preconditions, workshare between stakeholders, etc. – but those cannot be affected by an ERASMUS+ project). To such end we adhere to the following principles:

1 Length (piloting in RO and PT lasts 1 year);
2 Real work places: Learning takes mainly place in a real working environment, not in special departments like learners' workshops;
3 Daily contact persons of apprentices are be skilled workers; not educationally skilled staff;
4 Curriculum-driven: Differing from internships, where often the company decides in which departments placements are offered, spheres of activities (learning objectives of work-processes) chosen for our project are fully in-line with the VET-curricula of RO respective PT;
5 Duality: Learning Outcomes (LO) from WBL, which are often exemplarily, are complemented by structured lessons in VET-schools respective training centres.

Our main research question: "What are the main supporting and hindering factors of using the learning potentials of real work processes in countries with school-based VET-systems", has been operationalised in three pragmatic questions:

- What could be learnt in real work-processes?
- What should be learnt in real work-processes?
- How can learning be facilitated by tutors?

2 LSA

In order to identify what *could* be learnt in real work-processes, the 'LSA' (Learning Station Analysis) method was developed to support the training organisation at places of learning within a work process in an effective way, taking into regard business needs as well as work process requirements. Essentially, this analysis helps users to identify places of learning that are important both in terms of their significance for the business process and for the learning opportunities they provide. This approach emphasises the value of training taking place at work places where the most significant operations are being carried out.

The main features of the LSA (for details: cp. Saniter et al. (2016)) can be summarised as follows:

- The LSA method wass jointly developed by researchers and trainers and, ideally, a LSA is conducted by a skilled worker and an external colleague.
- Its primary objective is to evaluate learning potentials of work processes.
- It helps to set up training plans according to work processes, and fosters the acquisition of skills and competences by the learners.
- Evaluation and documentation of the analysis (the results serve for developing a training schedule respecting a logical sequence of progression through learning stations).
- The skilled workers involved in the interviews should proofread and give their approval for publication of the documentation of a LSA before further circulation.

- It should answer which skills and knowledge a trainee should already have acquired before entering a new learning station in order to achieve optimal learning outcomes.
- The manual for analysis should be used as a toolbox, not as a rigid rule.
- Findings are recommendations; concrete implementation might be affected by frame conditions (e. g. number of placements at a time).

In this project LSA has been carried out at the companies Gabor in Germany, Carité in Portugal and Papucei in Romania at all relevant Learning Stations (10-15 have been identified) in order to see which learning potentials can be found within work processes of these companies. Findings reveal, not very surprisingly, enormous and comparable learning potentials within shoe-producing companies from the three countries.

Each vocation can be described by a series of "spheres of activity". These spheres of activity describe the respective skilled work on the basis of purposeful and meaningful work contexts. Spheres cover a complete vocation and are typical for a particular *métier*. We identified 9 ICSAS-spheres, (5 core and 4 peripheral) describing the most common tasks of industrial shoemakers on a transnational level.

Table 1 Updated Spheres of Activity of industrial shoemaker according to findings of ICSAS-project.

Core spheres	Cutting	Stitching	Lasting	Assembly	Finishing
Peripheral spheres	Design	Technical development	Production planning		Quality assurance

3 Concept of the one-year pilot phase

Determining what *should* be learnt via WBL is based on a comparison of findings from LSA and the respective national curricula in PT and RO.

Currently (12.2018) we can report the implementation approaches of the WBL pilot phase that has already been initiated by our PT and RO colleagues (10.2018) and their first impressions and conclusions, which will be updated until our presentation in 05.2019.

The Romanian strategy was highly influenced by the current situation footwear companies are facing: A lack of qualified labour force and a poor VET offer for the footwear sector (on EQF levels 2-4). The solution was to use the degree programs (EQF 3) in the TCF sector (textiles, clothing, footwear) in order to implement WBL in the footwear sector. Within this curriculum there are a number of hours provided which are covered by the Locally Developed Curriculum (LDC). This LDC is a specific curriculum of each VET school and is developed in cooperation with economic operators. After the County School Inspectorate of Iasi approved the curriculum, the ICSAS apprenticeship-like scheme was implemented. RO project partners announced this program and they received a row of applications by interested students.

The Portuguese strategy aims at upgrading an existing level 2 curriculum to a level 4 curriculum by adding 6 months WBL training (35 hours per week). It will consist of 80% WBL (supervised by tutors) and 20% theoretical learning (taught by certified trainers from VET school); both components will be delivered in the company. PT partners delivered a proposal to competent bodies to create the job profile and qualification referential of the level 2 "Footwear Manufacturing Operator" into level 4 "Footwear Industrial Manufacturing Technician".

4 “Train the tutor” manuals

As regards the third question “how can learning be facilitated by tutors?” we have prepared 11 “train-the-tutor manuals” focused in the 9 spheres of activities identified in the project (4 peripheral spheres and 5 core spheres; 2 spheres with 2 manuals) related to each specific department or process in shoe manufacturing. These reinforce the role of skilled in-company personnel as tutors, offering sector-specific guidance. They follow established didactic principles to ensure the efficient knowledge transfer from tutor to apprentice, as they are not pedagogically specialised staff but subject matter experts. These manuals are available in EN, RO, PT, DE and ES languages, and are in the piloting.

5 Conclusion

Shoe producing companies in Portugal, Germany, Romania, and Spain are facing the problem that it is getting harder to recruit skilled workers. Besides, in order to promote the employability of youngsters it is of utmost importance that they acquire a qualification that matches the companies’ needs to increase the opportunities of them entering the labour market. By implementing the work-based learning modality, on the one hand apprentices will develop the necessary skills trough a comprehensive learning shared by a VET school and a company, and on the other, companies will ensure their competitiveness by providing specifically sector-oriented training to the apprentices that will become tomorrow’s workforce.

The objective is to compare the experience and the legal framework of countries that have already implemented this system with those with traditionally school-based VET regimes. We do expect that there is the option of a step by step implementation of WBL into national VET programmes of shoe producers in Romania, Portugal, and Spain. This iterative approach is chosen not only due to legal restrictions (curricula); but also to have all (partial very critical) stakeholders on board. Moreover, a transparent implementation of (firstly) few elements of dual education minimises the risks of exploitation of VET learners and offers evidence for the fact, that apprentices are not cheap substitutes for skilled workers. The pilot phase already undertaken by PT and RO colleagues will help contrast the expected learning potentials with the experience of companies, apprentices, VET schools and institutions to agree on the best practices and prove the advantages of this method.

Our presentation will focus on the findings on hindering and supporting factors of the implementation of “apprenticeship-like” schemes in RO and PT – and on potential consequences for similar approaches in the school based VET-system in ES.

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Understanding creativity as an occupation specific competence

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Keywords

workplace learning; creativity; competence; vocational training; innovation

1 Inconceivable workplace changes with surmountable challenges to VET

Particularly relevant within vocational education and training (VET) in Switzerland is the acquisition of skills that support workers in seeking new solutions to workplace challenges, which means to think and act creatively. This new requirement is also reinforced by the development and introduction of new technologies, which will replace workers in some fields and will require new jobs in others. Switzerland is considered an innovation leader in the world with about 90% of innovation taking place within the industry (SWIR 2015). Its research infrastructure and strong apprenticeship system are guarantors for this success. In fact, more than 70% of each cohort complete a vocational education and training (VET) program at secondary II level (SBFI 2018a). Taking into consideration that many innovative ideas come from workers at the lower hierarchical levels within an enterprise it signals that this level of education is highly valued in the country and supports innovation (GAN, Accenture and ETH 2017). Accordingly, VET is particularly challenged to support the development of creative thinking skills and action competence, abilities that can be expected to support individuals in managing their careers successfully and advancing professionally through their creative contributions at the workplace.

Creativity is a very complex phenomenon, possibly a competence and not just the sum of various components. Erpenbeck, Sauter, and Werner (2016) argued that "competences are the skills to act in unpredicted, open-ended, sometimes chaotic situations creatively and self-organized." Caroff and Lubart (2012) have been specifically concerned with the psychological resources for creativity. They claim that individuals' capacity to be creative is a latent ability that can be solicited. Referring to Lubarts' and others earlier work (Lubart et al., 2003), various attributes necessary for creativity have been identified, which are a combination of cognitive, conative and environmental attributes.

According to the vocational competences model by Rauner, Heinemann and Maurer (2013) vocational competence is compiled of job- related, personal and social competence. The (holistic) completion of a vocational task requires a number of further competences, such as presentation/form/clarity, functionality, efficiency, sustainability, work- and process-knowledge, environmental compatibility, social acceptability and creativity. The authors conclude that apprentices need to be educated to acquire these competences.

Although, apprentices are learners who need to build up skills and competences, they are also a source of ideas that enterprises can build on when further developing their existing products or even working on radical innovations. Enterprises are increasingly discovering the creative potential of their staff and support new forms of work collaboration that help to unleash this potential and lead to innovations. Curricula frameworks for vocational training programs start to address creativity development as one competence development goal (Barabasch 2018a, 2018b). Amabile (1987) found a variety of skills that are relevant to pro-

duce work that is original, such as suspending judgment, self-discipline, perseverance and nonconformity. Also eagerness to work diligently is considered to be an essential component of high levels of creativity (Golann 1963). While productivity and effectiveness are driving forces at the workplace, it helps apprentices to be provided with room to explore and play either at school or a protected space at the workplace. Particularly supportive is the participation in teams that work creatively and develop innovations as much as the possibility to create individual projects with the provision of sufficient time and a realistic framework of expectations to realize them.

2 Creativity development in the professions

Conclusions from various studies on profession specific creativity development suggest the need to understand creativity and creative potential in a domain-specific perspective as differences emerge across the professional fields. Not much is known yet about creativity development within professions for which an apprenticeship would be the entry point. Similarly to the notion of competence, the ways in which individuals put in act their potential depends on various contextual factors including the required abilities related to each specific task. It is well known that different abilities are required in different job domains depending on particular work tasks that are typical of each domain.

There is a huge amount of scientific publications on creativity assessment and a multitude of instruments have been developed and well described in numerous review studies As reported by Barbot and colleagues (2011) instruments for creativity assessment can be differentiated in relation to the main research question on creativity they refer to, that are in turn related to the conceptual ideas on creativity. A first set of instruments explores creativity as exclusively related to giftedness or talent. Those instruments would address the question: Is this individual creative? Differently, authors adopting a componential approach are mainly interested in answering the question: How creative is this individual? A third approach relies on the main assumption that all individuals have a creative potential which is differently shaped and can be put in action depending on the contextual conditions. Also this potential can be identified and nurtured. This approach mainly focuses on the following question: “How is this student creative?” The question is strongly related to pedagogical questions being asked when designing classroom instruction in VET as well as didactical considerations in VET teacher training. It builds on the belief, that creativity can be taught and developed as well as on the assumption that creative performance is required in different ways in different professional domains.

3 The case of the telecommunication industry – understanding creativity in the context of work and learning

Since early 2018 a case study that inquires about innovative apprenticeship practice in the telecommunication industry has been underway. It focuses on how apprentices in initial vocational education are socialized within a new learning culture and how they acquire the competencies relevant for their working careers as well as for a specific occupation. A key issue in the study is how the creative potential of apprentices can be unleashed and incorporated into the development of innovations. Representatives of all groups involved in VET have been interviewed: coaches, supervisors, VET managers and apprentices. In total the presentation reports on the base of 20 semi-structured interviews with apprentices in various VET programmes at this enterprise lasting 30 to 60 minutes. They were conducted in three language regions (German, French and Italian).

Interviews partially were concerned with facts in respect to the learning experience and in addition, by asking open-ended questions, initiated narrations about individual experiences,

perceptions and ideas. The first part of the data interpretation was based on the documentary method according to Bohnsack (2003). Emerging themes and subthemes have been identified on the level of 'immanent sense making". It refers to consequently remaining on the relevance system of an individual as well as the group of apprentices. We looked for text sections in the transcripts that present a picture or are metaphorical. Based on these findings the team started a process of reflective interpretation.

The empirical base provides insights into the experiences of apprentices within a learning culture that supports creativity in various ways. The data further provide information about attitudes, values, beliefs and practices among all stakeholders within the company regarding the support of creativity at the workplace. Overall, the study intends to increase the understanding of the role of innovative learning cultures within the preparation of future workers at Swiss enterprises, taking apprenticeships and their creativity development in the focus of attention. The research was guided by the following questions:

- How is an innovation culture realized within apprenticeships?
- How are creativity, individuality and flexibility of the apprentices supported?
- Which challenges are faced in enterprises within the new learning culture (e.g. in respect to coaching, apprenticeship planning, management of place and time, media usage and development, communication and relationship management?)

Gathered data allowed the team of researchers to develop a list of measures that can be implemented within an apprenticeship to unleash the creative potential of apprentices and to gain insights how these measures function and act within a particular learning culture. This case study approach has rarely been applied within VET research and promises to provide new insights into the complexity of the functioning of the VET system. The theoretical foundations for studying the case are interdisciplinary and come from economics, organizational psychology, sociology as well as education.

4 Innovative learning cultures in VET and creativity support

Within the enterprise creative thinking and acting has been viewed as an important step towards innovation and the different work arrangements and projects often require creative work. Generally, creativity is viewed as a mental and social process to generate ideas, concepts and associations (Serrat 2017). A very important factor in acting creatively is risk taking behavior, which is relevant when developing new products and processes and which supports creative work (Sternberg et al. 1997). At the enterprise the willingness to take risk is supported by a transparent and constructive way of communicating. In regular meetings the apprentices receive feedback about their behavior and performance and have the possibility to speak about their concerns and difficulties. A trustful relationship with their coaches also enables a culture of mistakes, in which apprentices realize that making mistakes is an essential part of their learning process. The study provides numerous examples of apprentices making mistakes and how their coaches helped them to make sense of it and how to learn from their experience.

In the following areas creativity can be supported within the enterprise. A positive culture of encouraging and communicating about mistakes, trustful relationships and a communication at eye level reduce fear and insecurity and support self-efficacy and self-reflexivity. That making mistakes and experimentation is supported in the enterprise is also expressed by one apprentice:

„A mistake is... well, we have hang up a poster there. Making a mistake is better, than not doing anything. I only learn when I do something, when I try something out. If I make a

mistake, chances are that for about 90% I am not doing it again. Here at the company they say you better make a mistake than you never even try to do something."

Overall, the company is strongly supporting that apprentices have a large room for maneuver and can try out many different tasks and workplace situations. Through the market place at which they chose projects to work in, their learning pathway throughout the apprenticeship can be shaped in a very individualized way (see Barabasch 2019; Caldart & Barabasch 2019; an extension of this section is foreseen in the presentation and the final paper).

5 Conclusion

The findings of the study refer to a large range of measures that companies have or could have available to guarantee their students' creative work and the possibility to shape their learning pathway throughout their apprenticeship in a somewhat creative way. In an extension of the paper these measures will be explained and it will be shown what effect they have on apprentices competence development. Research says that transferal skills are increasingly important (Moraal, 2009) and personal competences (e.g. creativity and independence) as well. The telecommunication industry is because of its confrontation with technological changes constantly in a state of agility and continuously needs to update their approach to apprenticeship training as much as apprentice recruitment and approaches to social support.

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