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Quality of Initial Vocational Education and Training: Perceptions of Disenchanted, Enthusiastic, Moderate and Fluctuating Apprentices

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Abstract

This paper studies apprentices' perceptions of initial vocational education and training quality at school and at the training company. Are there any patterns in the way apprentices capture IVET quality? Are there differences regarding perceptions of IVET quality at school or at the training company? By using data from a survey of 333 apprentices in the retail and commercial employees' fields, we performed a cluster analysis. The aim was to identify natural groupings and explore the association of these clusters with outputs of IVET quality, such as self-efficacy and engagement at school and at the training company, and with sociodemographic variables. We identified four clusters of apprentices: "disenchanted", "enthusiastic", "moderate" and "fluctuating", each with a different pattern of IVET quality perception. Apprentices in the "enthusiastic" cluster had higher scores in IVET quality compared to the other three clusters. Conversely, "disenchanted" apprentices had lower scores. "Moderate" apprentices had very centred scores, while "fluctuating" apprentices showed varied patterns.

Keywords

IVET quality, apprentices, cluster analysis

1 Introduction

The quality of dual initial vocational education and training (IVET) is gaining importance in the Swiss context (Gonon, 2017). In dual IVET programmes, the characteristics of IVET quality can vary considerably depending on the learning location, the stakeholders, or the professional field. Indeed, studies that attempted to measure IVET quality highlighted how this concept is multifaced by including school- and work-related aspects and formal and informal teaching (Böhn & Deutscher, 2020; Ebbinghaus et al., 2010; Stalder & Carigiet Reinhard, 2014). Fillettaz (2012) proposed a framework to show how effective learning can result from various configurations that combine expansive-restrictive learning environments (Fuller & Unwin, 2003) and situational-personal resources (Billett, 2009). In expansive learning environments,



apprentices are supported by teachers or trainers in the development of their expertise; they are recognized as “learners” and benefit from a certain autonomy. On the contrary, in restrictive environments, apprentices are less supported by their entourage, they are considered more as “workers”, and they are expected to execute the assigned tasks without much possibility of development (Fuller & Unwin, 2003). A learning environment can also provide situational resources, such as guidance and feedback from teachers, supervisors, and colleagues, or work on varied and challenging tasks, in addition to individual resources that are specific to the apprentice (e.g., prior experience, motivation; Billett, 2009).

This framework is interesting for studying dual IVET contexts because it entails multiple learning environments as well as interactions between those environments. Several IVET quality models have shown that besides aspects related to school (e.g., teaching practices) or training company (e.g., task diversity), there exist aspects related to both school and training company (e.g., connection between school- and workplace-based learning; Ebbinghaus et al., 2010; Stalder & Carigiet Reinhard, 2014). Such aspects were also found to be important for apprentices’ satisfaction and engagement (Nägele, 2013).

Accordingly, we were interested in examining potential patterns in terms of how IVET quality is perceived by apprentices in two professional fields: commercial employees and retail. We decided to apply cluster analysis to our data about apprentices’ perceptions of IVET quality to delineate natural groupings and explore the association of these clusters with outputs of quality, such as self-efficacy and engagement at school and at the training company. Considering that IVET quality is multidimensional, many patterns of apprentices’ perceptions could be expected.

2 Research Questions

This study was driven by two research questions:

- 1) How many profiles reflect apprentices’ perceptions of IVET quality, and how are they characterised in terms of IVET quality outputs?
- 2) How do these profiles differ in terms of sociodemographic composition?

3 Methods

3.1 Participants

The sample consisted of 333 apprentices enrolled in a Swiss dual IVET program ($M_{age} = 18.8$; $SD = 3.5$) in two occupational fields: commercial employees ($n = 195$, 67.2% women) and retail ($n = 138$, 51.5% women). Apprentices were in their first ($n = 146$), second ($n = 101$), and third ($n = 86$) years of training.

3.2 Instruments

The apprentices completed a paper survey for 45 minutes under the supervision of a research team member. Participation was voluntary. The survey included the following instruments:

Characteristics of perceived IVET quality were measured with 47 items developed during the prior stages of the research (Sauli et al., in press) and related to school, training company, and both school and training company. Answers were provided on a 6-point Likert-type scale.

Potential outputs of perceived quality were measured with validated scales: *self-efficacy at school* (four items; Losier et al., 1993), *self-efficacy at work* (seven items; Rigotti et al., 2008), *engagement at school* (13 items; Skinner et al., 2008; Simons et al., 2004), and *engagement at work* (nine items; Schaufeli et al., 2006).

Sociodemographic variables, such as age, sex, or school year.

3.3 Analysis

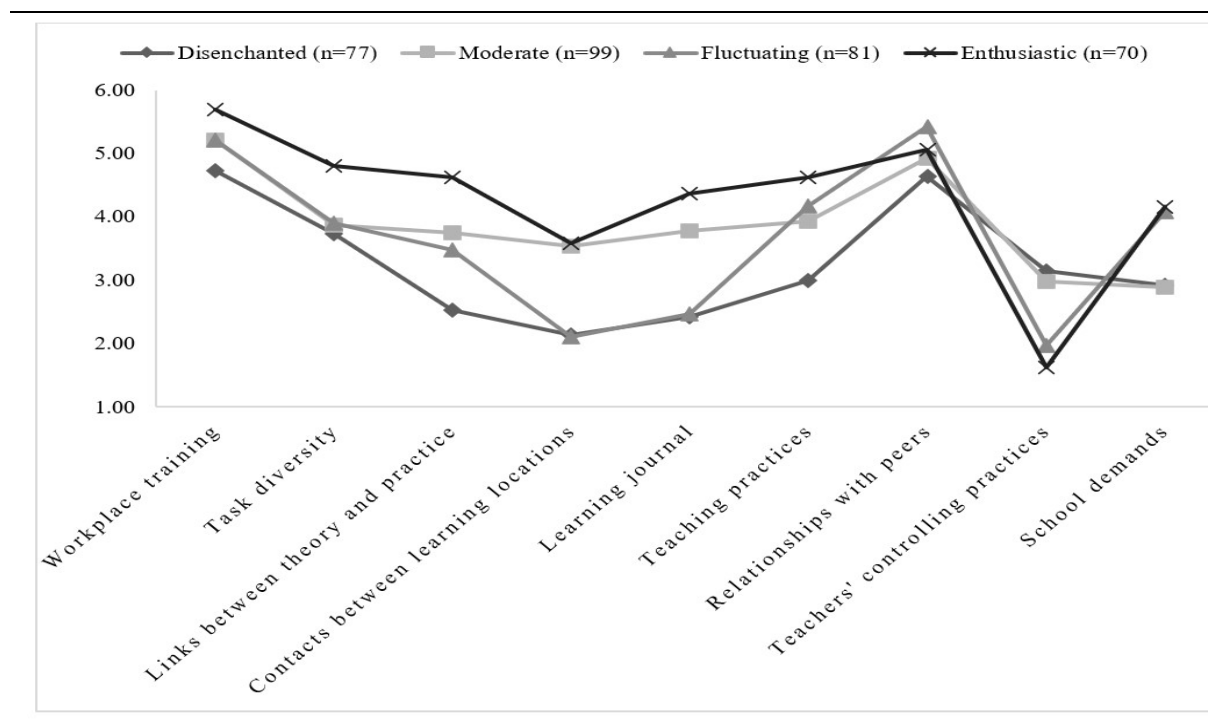
The data were analysed using SPSS software. First, an exploratory factor analysis (EFA) of IVET quality dimensions allowed for distinguishing nine factors: four related to school (*Teaching practices, Teachers' controlling practices, Relationships with peers, School demands*), two to training company (*Workplace training, Task diversity*) and three to both school and training company (*Links between theory and practice, Contacts between learning locations, Learning journal*). Confirmatory factor analysis was performed on the scales about the outputs of perceived quality to verify their validity in this sample. Second, a two-step cluster analysis using Schwarz's Bayesian Criterion (BIC) was applied based on the IVET quality factors derived from the EFA. Lastly, ANOVA and chi-square analysis were used to test for statistically significant differences between clusters.

4 Findings

Four clusters of apprentices were identified among the 327 valid cases (Figure 1). The clusters were compared with regard to the consequences of quality (Research Question 1) and sociodemographic variables (Research Question 2).

Figure 1

Cluster analysis of perceived characteristics of IVET quality – Mean scores



The “disenchanted apprentices” cluster ($n = 77$, 23.5%) reported the lowest scores in almost all characteristics of IVET quality. Compared to the other clusters, these apprentices reported the lowest levels of school and workplace self-efficacy and school and workplace engagement (Table 1). In this cluster, third-year apprentices were overrepresented, and first- and second-year apprentices were underrepresented ($\chi^2_{(6)} = 25.03$, $p < .001$, $V = .20$). Moreover, apprentices who achieved mandatory education without the opportunity to access gymnasium were overrepresented ($\chi^2_{(3)} = 18.37$, $p < .001$, $V = .25$).

Table 1
ANOVAs for IVET quality outputs

	Disenchanted		Moderate		Fluctuating		Enthusiastic		F	η^2_p
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Self-efficacy at school	3.81	0.94	4.07	0.82	4.44	0.84	4.68	0.92	14.46***	.12
Engagement at school	3.82	0.86	4.25	0.68	4.26	0.72	4.87	0.61	26.30***	.20
Self-efficacy at work	4.20	0.83	4.37	0.74	4.33	0.75	4.80	0.81	8.04***	.07
Engagement at work	3.49	1.32	4.21	0.87	3.96	1.10	4.85	0.77	22.21***	.17

*** $p < .001$

The “enthusiastic apprentices” cluster ($n = 70$, 21.4%) was largely opposite to the disenchanted cluster, with high scores in almost all IVET quality characteristics. Compared to the other clusters, individuals reported the highest levels of school and workplace self-efficacy and school and workplace engagement (Table 1). In this cluster, first-year and high-achievement apprentices (at the end of compulsory schooling) were overrepresented (see the chi-square results above).

The “moderate apprentices” cluster ($n = 99$, 30.3%) showed generally average scores in several IVET quality aspects—especially those related to both school and workplace (e.g., *Contacts between learning locations*)—and in quality outcomes. They were also characterised by low self-efficacy at school (Table 1). Their perception of quality seems mainly related to the connection between school- and work-based learning.

The “fluctuating apprentices” cluster ($n = 81$, 24.8%) reported varying scores: high scores mainly in IVET quality characteristics related to school or training company, that is, *Teaching practices* and *Workplace training*, but low scores in IVET quality characteristics related to both school and training company. Individuals reported high self-efficacy at school and slightly lower engagement in the workplace (Table 1).

No significant differences between clusters were found in the distributions of sex, age, and professional field.

5 Discussion

Our analysis allowed us to identify four configurations of IVET quality perceptions. Among the four clusters, the “enthusiastic” and the “disenchanted” clusters could be considered as almost opposite of one another, with “moderate” in the middle, and “fluctuating” varying across the other three clusters. Indeed, the enthusiastic sub-group positively evaluated the training at school and at the workplace, while the disenchanted sub-group holds a more negative view. To explain these findings, we can put forward the interpretation of a decrease in motivation during apprenticeship: the “enthusiastic” cluster was over-represented among first-year students and the “disenchanted” cluster among last-year apprentices. Similar findings have been highlighted by other scholars in vocational education tracks (Gurtner et al., 2012; van der Veen & Peetsma, 2020). Based on their perceptions of IVET quality, we can hypothesize that enthusiastic apprentices perceive their learning environment as expansive with the provision of high situational resources, while disenchanted apprentices perceive restrictive and lower situational resources (Filliettaz, 2012). For example, “disenchanted apprentices” perceive an environment with more controlling practices, fewer connections between learning locations, and less support from teachers and trainers (and vice versa for “enthusiastic”).

Apprentices in the “moderate” cluster are the ones who showed less variability between the aspects of IVET quality; they can be situated between the “enthusiastic” and the “disenchanted”. They differ from the “fluctuating” apprentices mainly in the IVET quality aspects, referring to the connections between learning sites, revealing a better adaptation to IVET. The scores of the “moderate” cluster are more centred and less on the extremes. Such intermediate profiles provide less information and are therefore more difficult to interpret. We can hypothesise that they entail people who do not want to express their opinion or who do not have an opinion.

“Fluctuating” apprentices showed a more varied pattern, with both high scores in training company quality aspects and school quality aspects. With regard to IVET quality outcomes, “fluctuating” were opposite to “moderate”, with higher self-efficacy at school and lower engagement at the workplace, revealing an inclination towards the IVET school.

All four clusters followed the same global trend on IVET quality aspects related to the training company. With high scores, it seems that work-related aspects are considered of high quality (Ebbinghaus et al., 2010; Filliettaz, 2012; Negrini et al., 2016). *Relationships with peers at school* is another IVET quality aspect in which the scores were highly similar across all groups, perhaps showing that at school, apprentices can fulfil their need for relatedness and belonging to a community of peers (Baumeister & Leary, 1995).

The clusters differ mainly in aspects related to school or to both school and training company. IVET quality aspects in which there was more variation between groups were *Links between theory and practice* and *Teaching practices*. Both are essential in dual-vocational training, and yet they are often perceived as “problematic” (Berger et al., 2020; Mulder et al., 2015). In all groups, we also observed that aspects related to school had lower scores compared to those of the training company, suggesting a higher criticism of training at the vocational school (Gross et al., 2020). Indeed, at the workplace, apprentices can experience an environment that is more “expansive” (more autonomy, less controlled and structured, etc.), while at school, apprentices may feel more “restricted” and “infantilised” (Filliettaz, 2012).

6 Conclusion

We conducted an examination of IVET quality’s perceptions in a sample of apprentices in two professional fields. Four sub-groups of apprentices were identified: “disenchanted”, “enthusiastic”, “moderate” and “fluctuating” clusters. Based on a cluster analysis, we highlighted the extent to which perceptions of IVET quality among apprentices are heterogeneous. Clusters mainly differed on aspects related to school or aspects related both to school and training company. Aspects related to the training company only were evaluated in a more uniform manner, suggesting that this learning location was perceived more positively than school. *Workplace training* and *teaching practices*, which are the same aspect for training companies and for schools, were also evaluated differently, showing that school was perceived more negatively.

Considering the specific perceptions of apprentices can be helpful to adapt IVET. In future research, it would be interesting to verify whether similar clusters could be found in a sample of apprentices from other trades.

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