

Gonon, P. & Kessler, S. (2019). The disruptive potential of digitalisation- the current Swiss VET landscape. 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.378-383) <https://doi.org/10.5281/zenodo.2641689>

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; Hawkrigde, 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 (Aeppli 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/adaptation). 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 led 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 borders

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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