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Individualizing Workplace Learning with Digital Technologies. New Learning Cultures in Swiss Apprenticeship Training

Keller, Anna

anna.keller@ehb.swiss, Eidgenössische Hochschule Institut für Berufsbildung EHB

Barabasch, Antje

antje.barabasch@ehb.swiss, Eidgenössische Hochschule Institut für Berufsbildung EHB

Abstract

Digital technology integration or adoption has become crucial not only for communication, administration and management, but it is also a meaningful asset to support learning and teaching in VET. Modern learning cultures take approaches to successfully integrating technologies in their internal processes and, in this way, support autonomy and flexibility in work and learning, lifelong learning as much as intergenerational learning. Based on three in-depth case studies in the Swiss enterprises Swisscom, Login and Post, results on the usage and impact of digital technologies in VET will be presented. Data were collected by means of semi-structured interviews with apprentices, workplace trainers, coaches and VET management.

Keywords

technologies in VET, individualization, apprenticeship, workplace learning, digitalization

1 Introduction

The use of digital technologies in vocational education and training (VET) in Switzerland has been reinforced by the 2020 Corona crisis. Although, education at all levels and research had strongly focused on a wide variety of issues related to digitalization (SBFI, 2020), the requirement to competently work with a number of digital tools became even stronger now. Digital technology integration or adoption has become crucial not only for communication, administration and management, but it is also a meaningful asset to support learning and teaching in VET. Modern learning cultures take approaches to successfully integrating technologies in their internal processes, and in this way support autonomy and flexibility in work and learning, lifelong learning as much as intergenerational learning. They further contribute to connecting different learning sites, such as school, workplace and intercompany-training course (branch-course). While digital technology is promising to facilitate such connections, today the facilitation of the connection of the learning sites by digital technologies is not a general standard (Schwendimann et al., 2018).

The enterprises Swisscom, Login and Post in Switzerland have integrated various digital technologies in their apprenticeship training. These technologies ease administration of work hours, work tasks, evaluations or log book remarks; they support communication with peers, co-workers and trainers; and they come in handy for idea development and creative work. Over-

arching trends in terms of changing learning cultures in apprenticeship training, such as individualization, flexibilization, self-organized learning, project work, or coaching support the introduction of these technologies and also benefit from them (Barabasz & Keller, 2019; Barabasz et al., 2019). Based on three in-depth case studies (Yin, 2014) in these three Swiss enterprises, results on the usage and impact of digital technologies will be presented. Data were collected by means of semi-structured interviews with apprentices, workplace trainers, coaches and VET management.

The paper addresses the following research questions: Which digital tools are used in workplace training? What are potential benefits and extended justifications for the use of digital tools? How are modern learning cultures impacting the use of digital tools? We will outline how and where digital technologies are used at the workplace in apprenticeship training, why management has introduced them and how apprentices and their trainers benefit from it. Based on our findings we will draw conclusions about how learning cultures are influencing the use of technologies and vice versa how the introduction of these technologies shapes innovative learning cultures in VET.

2 Theoretical framework

Digital technologies usually rise up in different contexts and for different aims that are not necessarily educational ones. Most of the times, they are then adapted for educational purposes (Januszewski & Molenda, 2008). At this time digital technologies have entered workplace learning in many different forms, especially as production or design tools (e.g. numerical control machines, electronic measurement devices, and computer-aided design software), but their use as a training tool within VET remains under-exploited. The usage of media in vocational education and training can take various forms, for example, the usage of presentation media, exchanges among students in group learning, or self-study in digital learning environments (Euler & Wilbers, 2020). A quite common use of technologies is to develop learning platforms or collaborative online learning spaces (Sonntag et al., 2004). Within these environments, apprentices can experience, practice, reflect and improve their ability to work with various forms of learning.

3 Method

Three case studies (Yin, 2014; Yin & Davis, 2007) in Swiss enterprises that train apprentices in an innovative manner have been conducted. Participants in the case studies represent the main stakeholders in workplace training at the three enterprises: Apprentices, workplace trainers, personnel that directly works with apprentices such as coaches, as well as persons representing different levels of VET management. The main data source were semi-structured interviews with persons representing all groups of people involved in workplace training (case one 25, case two 60, case three 60). Furthermore, site visits at different working (and learning) venues were conducted (case one 7, case two 18, case three 18). Data collection was completed by document analysis of VET-related documents of the enterprises.

4 Findings

Next to major online platforms that will be introduced, each enterprise operates with a number of applications throughout their apprenticeships. Apprentices use “Real Time Management RTM, SAP” to report working hours and absences or survey tools, such as “Forms” or “360 Feedback”. “Office 365” is frequently used, with programs, such as “Word”, “Excel”, “One-Note”, “SharePoint”, “Planner”, and “PowerPoint”, for data storage, exchange of information and planning purposes. The following table provides an overview about the most common digital tools used in apprenticeships at the three enterprises.

Table 1

Digital tools used at Swisscom, Login and Post in Switzerland

Swisscom	Login	Post
Marketplace	Time2Learn (sometimes also	Moodle
eNex	Konvink)	SAP Solutions
Word	Real Time Management RTM	Word
Excel	Word	Excel
Power Point	Excel	PowerPoint
Outlook Mail & Calendar	PowerPoint	Outlook Mail & Calendar
Teams (Chat function in Slack today	Outlook Mail & Calendar	SharePoint
has replaced Slack, which was earlier	Teams	Confluence
in use)	OneNote	Starmind
Planer	Yammer	Skype (for Business)
OneNote	Planner	Telepresence-Rooms
OneDrive	SharePoint	360 Feedback
SharePoint		Azure Defops
Skype for Business		Jira
Telepresence-Rooms		Status Meeting Tool
https://ch.linkedin.com/learning		Wiki
MyImpact		
MyContribution		
Microsoft Forms		

Digital technologies facilitate and structure forms of communication in the enterprises. Chat functions are used for rapid informal exchanges (“Whats up”) among apprentices and between apprentices and their coaches or trainers, or for official communication (“Skype for Business”, “Teams”). Emails (“Outlook”) is still used, although participants at Swisscom state, that mail is continuously being replaced internally by “Teams”. Call- and video tools (skype or “telepresence”-rooms) enable conferences and help to save on travelling. In “telepresence-rooms”, the communication resembles face to face interaction due to the use of large displays, differentiated cameras and high-end microphones. It also became obvious, that there are no enforced restrictions as to which tools need to be used for communication. Apprentices can flexibly contact their trainers and coaches via phone, email, or just placing an appointment for a coffee break in their calendar. Due to these spontaneous interactions, trainers and coaches can react timely and provide the support needed. However, for the trainers, the communication with different tools can be challenging since one needs to keep track of the communications and requests on the different channels.

Internal IT departments are keeping up these tools, take care of upgrades and of data security. The latter can be a constraint for the usage of certain tools. For example, in the enterprise Post the VET department is part of the human resource department and due to the sensitivity of the information processed and issues around data protection related to “Teams”, this program cannot be used there. A member of the organization of the training for ICT apprentices stated:

We would really like to include them (the apprentices) in using Teams, but until know, this is not possible, because Teams is out in the cloud... That’s difficult in our department regarding collaboration. (VET manager ICT, Post)

The example shows how internal organizational processes are not digitalized due to the lack of data safeguarding. The challenge may prevent the theoretical possible ease of communication and collaboration expected by the usage of these tools.

Above and beyond these internal complications, when it comes to the collaboration between vocational schools and enterprises via digital tools, developments are slow. Too often,

information on absences of students or behavioural issues are reported in paper booklets, which apprentices, trainers and teachers have to sign. The organization and usage of digital tools is either a question of individual schools or the organization of the canton in Switzerland. While it can be expected that the current Covid-19 crisis may speed up developments, the likelihood of enterprises reaching out to schools in their interest to ease processes, is just as high.

One of the conclusions from the analysis is that working with digital tools throughout an apprenticeship offers a number of advantages. Among them is a higher flexibility in terms of time and space. Many apprentices, especially in the fields of informatics and mediamatics in the three firms have flexible working hours; some also have the opportunity to work at different company locations, in co-working spaces, hubs or even from home. This supports their autonomy in the way they organize themselves, requests from them to work independently, structured and self-organized and manage their flexibility wisely to be productive.

Based on the findings from the three case studies it becomes evident that enterprises are encouraging the use of technologies at all levels. VET schools are also responsive to digital trends and need to quickly learn how to work with different tools due to the Corona crisis. Further research is required to investigate the state of teacher preparation for working with new tools, new approaches to teaching and learning as well as to connecting the learning between different learning sites.

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Biographical notes

Anna Keller is junior researcher and Ph.D. student in the research field “Learning cultures and didactics” at the Swiss Federal Institute for Vocational Education and Training (SFIVET). She works in the project “Dimensions of learning cultures: case studies on workplace learning in innovative companies”.

Prof. Dr **Antje Barabasch** is head of the research axe “teaching and learning in vocational education and training” and head of the research field “Learning cultures and didactics” at the Swiss Federal Institute for Vocational Education and Training (SFIVET).