



## MEETING OF DIRECTORS-GENERAL FOR VOCATIONAL EDUCATION AND TRAINING (DGVT)

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Janez Damjan, CPI, Slovenia: Digitalization in VET: transforming Work-based Learning  
Transcript of the speech/presentation at DGVT meeting via Zoom, Monday, Oct. 4<sup>th</sup>, 2021

A presentation slide with a dark blue background. The title 'Digitalization in VET: transforming WBL' is at the top. Below it is the name 'Janez Damjan' and the logo of CPI (Institute of the Republic of Slovenia for Vocational Education and Training). A central box contains a numbered list of three points. On the right side, there are social media icons for Facebook, Twitter, and LinkedIn, and a small number '1' at the bottom.

# Digitalization in VET: transforming WBL

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1. Work-based learning in Slovenia before COVID time
2. Challenges for WBL during COVID times bring opportunities for advancements in digitalization of VET
3. Ideas and directions to develop WBL after COVID time

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Dear ladies and gentlemen, dear colleagues, thank you for the opportunity to share some facts, experiences and thoughts about digitalization in education, focusing on Vocational education and Training and Work based Learning.

I am speaking here in my role of a director of CPI, Institute of the Republic of Slovenia for Vocational Education and Training. The CPI acts as a link between ministries, schools and social partners. It is responsible for research and development, it monitors and guides the development of VET in Slovenia and provides in-service teacher training and VET curricula.

Before sharing my presentation let me shortly introduce myself. My first teaching experience goes back to my last year of studying psychology, almost 40 years ago. I had been teaching ever since, often parallel to my other jobs as researcher and manager. Lacking formal pedagogical education I was forced to improvise and innovate in classroom from day one. It became a life-long learning process for me since I continued teaching at different educational level, students from various social and cultural backgrounds. Through the years I have learned two things:

1. First, it is fundamental to establish personal connection with students, no matter how long or short is the hour. Closing the gap between “them” and “me/ the teacher” brings safety and stability to any audience, and that is a condition for genuine interaction in a classroom.
2. Second, one must bring an element of surprise into every hour, to challenge students, to motivate them and to make them eager to discover. Advanced technology, new digital solutions are great tools to do so.

Exactly 20 years ago, after switching between teaching psychology, communication and marketing, I became brave enough to develop course in Electronic marketing for international students in Faculty of Economics in Ljubljana. For ten years I enjoyed lecturing about digital marketing and using it's tools in classroom. But then happened an “incident”. At the end of semester during evaluation one student said to me: *“I enjoyed the class and you are a great teacher. It is just I have expected digital marketing would teach somebody younger”*.

Adding this comment to some other life events I realized at the age of fifty+ it is time to switch my career. I became a school director at the Higher vocational Tourism School in Bled, and then, two years ago, I started my present position. In both roles I have had a chance to support digitalization in VET and transformation of Work based learning. I became true believer of digitalization in education, which is happening constantly, but in my opinion not fast enough.

I my slides I want to explain that further.

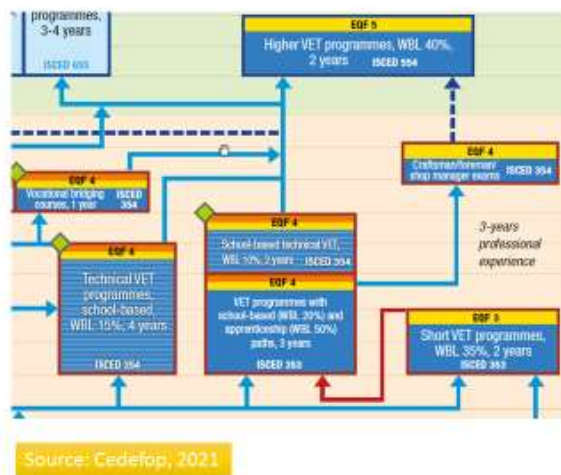
First, I will shortly cover work-based learning in Slovenia before COVID time.

Then I will describe challenges for WBL during COVID times, which in my opinion bring great opportunities for advancements in digitalization of VET

At the end, I want to share some ideas and directions to develop WBL after COVID time.

Distinction between BC period, that is before Covid and After Covid should not blurr the fact of continuum in technological and social development. Virus has just brought acceleration in acceptance of digital technology and that creates challenges. But they could be turned into opportunities for present working generation and for students.

## 1. Overview of WBL in the VET programmes



- 70.8% of all upper secondary students enrolled in VET programs.
- 14% of all tertiary students enrolled into higher VET schools.
- WBL represents an integral part of all types of VET programmes.

The scheme on the left gives an overview of VET programs in Slovenia's education and training system. Numbers on the right show very positive view of state of the VET in Slovenia, with almost 71 % of all upper secondary students enrolled in VET programs, and 14% of all tertiary students enrolled into higher VET schools. However, over half of the secondary students with vocational matura don't enter Slovenian labour market but enroll in tertiary programs.

WBL learning represents an integral part of all types of VET program, ranging from 50% in apprenticeship program to 15 % in Technical VET programs.

## 2. The quality of WBL remains a challenge\*

- WBL is divided between practical training in school facilities or intercompany training centres and agreement based workplace learning in companies.
- Practical work in schools is largely focused on training essential vocational competencies.
- Significant efforts for quality improvement were made through investing in new training facilities.
- Work placements limited to local companies, inside the region or school area.
- In companies mostly traditional work settings, limited space for innovations.
- The quality of WBL strongly depends on mentor involvement.
- Many projects have supported and developed excellent cases of advanced WBL in schools across the country.

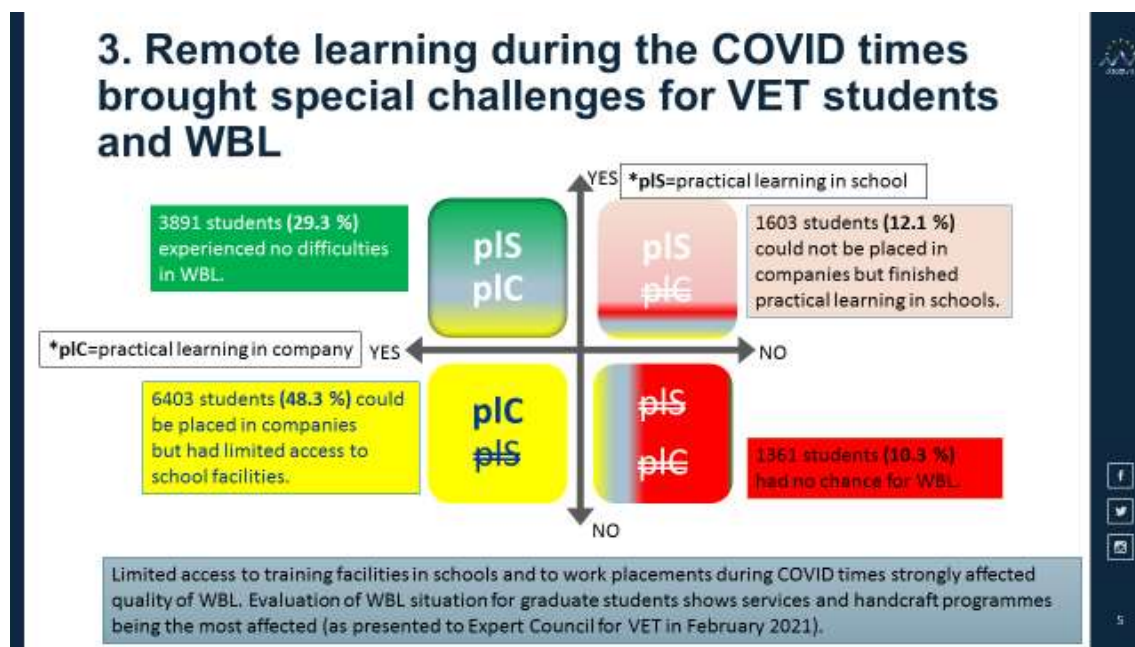
Source: ReferNet (CPI), MIZŠ, MDDSZ

High numbers and percentages speaks positively of our VET system, at least of it's quantity. However, the quality of VET systems varies strongly between industries, schools and regions. The latest CEDEFOP report on Slovenia stated „the quality of WBL remains a challenge“ and we must agree there is too much of a variety in quality of WBL.

- WBL in Slovenia is divided between practical training in school facilities or intercompany training centres and agreement based workplace learning in companies. The later are often in short supply, forcing schools to compromise in placements.
- Practical work in schools, even when they have modern facilities and equipment, is largely focused on training essential vocational competencies. Large schools with intercompany training centers and stronger ties with companies are somewhat in better position, being able to imitate real working environment.
- Significant efforts for quality improvement were made through investing in new training facilities but shortage of skilled mentors with experience from real world stays a problem. Skilled workforce is in short supply in general, and school pay is no incentive for them to switch career into education.
- Work placements is limited to local companies, inside immediate region or school area, so students in different schools are not in equal positions.
- In companies students mostly work in traditional settings. Due to limited amount of time at companies students rarely get involved in more complex projects or innovations.
- The quality of WBL strongly depends on mentor involvement, and his dedication to role of a mentor. Most mentors get no material incentive for an extra work, though many do understand their mission.

To ease a critical note, I want to emphasize there have been a number of projects which supported and developed excellent cases of advanced WBL in schools across the country. At CPI we work with enthusiastic mentors and students which have created innovative WBL experiences.

Let's just mention one example, project called RAY, Regional Alliances for Youth, in which school center in Nova Gorica cooperated with Finish and Danish partners and neighbouring international company Mahle, automotive parts producer. WBL for students was not measured in time spent in the company but on results achieved in a team of mentors in the company and in school. Very demanding on all participants, taking a lot of extra time but with very good results.



In the past school year, 2020-21, schools in Slovenia were closed about 2/3 of the time, forcing students and teachers to remote learning. The situation brought challenges for everybody, but students in VET programs were specially affected. Limited access to training facilities in schools and to work placements during COVID times further erode quality of WBL.

CPI monitored what was going on in regard to WBL in Slovene schools and presented an evaluation of WBL situation for graduate students in higher secondary schools for National Expert Council. We developed a matrix with vertical axis showing level of realisation of practical learning in schools and horizontal axis indicating level of realization of working in companies.

The matrix shows our evaluation of the situation in early February 2021, halfway through the school year. It was our estimate only one third of the students experienced none or little difficulties in WBL, mostly in technical programs. Others were strongly affected, and one 1/5 of the students got none or very limited WBL experiences.

The above talks only about the quantity of the WBL which in the end has been satisfactory covered or at least recognized as such. But we are concerned with the quality of WBL in the past school year which clearly could not match previous levels in many programs. We are working with social partners to recognize such outcomes and develop appropriate measures to close gaps in students qualifications.

In my opinion, summer camps, organized in cooperation with local communities and companies could deliver good results.

## 4. Schools with better digital skills and infrastructure have developed more advanced WBL solutions\*

- Teachers produced video materials of technological procedures and the use of equipment and also shared them with teachers in other schools.
- Companies shared their presentation materials and internal sites to enable students working/practicing at home.
- Multimedia study materials were produced by student teams and shared on social networks.
- Remote access to simulator and CNC technology in school facilities
- Development and use of virtual reality (e.g. bee hive) and artificial intelligence (tRSiCA virtual learning environment).

\*Inspiring solutions to help students with learning and WBL were detected in most of the schools!

Six months later it is our general observation that schools with better digital skills and infrastructure have developed more advanced solutions for WBL though we have detected inspiring solutions in many of the schools. They managed to organize teacher's work successfully so they could support students in the following ways.

- Teachers produced video materials of technological procedures, the use of equipment and **shared them among themselves, with teachers in other schools.**
- Companies shared their presentation materials and internal sites to enable students working/practicing at home.
- Multimedia study materials were produced by student teams and shared on social networks.
- Remote access to simulator and CNC technology in school facilities was given students in selected schools.
- Development and use of virtual reality (e.g. bee hive) and artificial intelligence (tRSiCA virtual learning environment) has been supported at the most advanced schools.

Unfortunately, service sector and handicrafts do not allow such use of technology, at least not on the short run. But there are great stories of enthusiastic teachers who personally delivered cooking items to student's doors for a next day exercises, then examined videos to evaluate students work and provide feedback via zoom.

In my opinion, past school year proved how resilient and innovative teachers and students can be, and many gained life-experience in adapting to changing environment. But many did not and we must strive for systemic support to VET schools and for standard quality WBL.





## 5. Good practices are supporting the 2020 Council Recommendation and open further questions

- The speed of digitalization has been accelerated in all fields, including services and traditional crafts, forcing VET and WBL to adapt.
- Teachers and schools with well developed digital skills could respond immediately to challenges brought by COVID situation and develop new teaching and training methods.
- There is a need for continuous support to teachers to strengthen their digital skills and to develop new teaching and training methods which cross traditional boundaries of school and work environment.
- Special attention is necessary to control the gap between the more advanced and the most vulnerable groups, which should be provided with additional support to develop their digital competencies.

We observe how the speed of digitalization has been accelerated in all fields of industry, including services and traditional crafts. So, the 2020 Council Recommendation on vocational education and training highlighted the important role of VET in equipping people with digital skills.

We must salute the call on Member states to support qualitative and effective digitalisation of VET provision in both school-based and work-based learning through promoting the use of European competence frameworks and self-assessment tools such as SELFIE

- Only teachers and trainers with well-developed digital skills could respond immediately to challenges brought by COVID situation and other changes in society and economy. Only such teachers can develop new teaching and training methods which will respond to students, who are more and more raised and shaped by social media and digital technology.
- Those teachers will need continuous support to strengthen their digital skills as well as in developing pedagogical approaches that embed digital learning. In my opinion new pedagogical approaches must cross traditional boundaries of school and work environment and we need to redefine homework concept.
- I would also like to emphasize special attention is necessary to control the gap between the more advanced and the most vulnerable groups. The later should be provided with additional support to develop their digital competencies which will allow them to develop more fully and turned them into resilient citizens.

Everything said is to support the council recommendations for development of digital technologies and competencies for resilient VET system.

## 6. Ideas and directions for WBL in AC time (after COVID)

- Developing specialised technological solutions such as simulators and artificial intelligence to enable remote WBL.
- Encouraging cooperation among schools for joint facilities with more advanced digital infrastructure and special equipment.
- Creating new/more flexible models of cooperation with local/regional companies regarding time and placement.
- Establishing remote connections for cross-regional work placements. School can connect with global/international employers.
- Developing WBL games/virtual realities to connect with students in a fun and motivating way to facilitate interest in VET.

In the 2021 Digital Education Action Plan, the European Commission particularly emphasizes the enhancement of digital skills and competences for the digital transformation. Digital competences improve participation in democratic life and access to the world of work. Computing education in schools, particularly in VET, enables students to acquire a solid understanding of the digital world and to more easily see the potential and limitations of digital technologies. It further says, Digital literacy has become essential to navigate in the digital world and to build resilience to information overload and disinformation. Everyone in Europe should acquire a sufficient understanding of new and emerging technologies and every student should be sufficiently acquainted with computing education and digital literacy.

**I believe we should embrace the 2021 Digital Education Action Plan in Slovene VET system since it is the way to respond to digital transformation and to further improve quality of education.**

But it will happen only if we change many existing practices and imaginary borders, which is never easy.

- Perhaps few would object to development of specialised technological solutions such as simulators and artificial intelligence to enable remote WBL.
- But encouraging cooperation among schools for joint facilities with more advanced digital infrastructure and special equipment is more than a technical challenge.
- Creating new models of cooperation with local/regional companies with more flexibility in schedule and placement will demand change in our model of financing schools and measuring teachers working time.
- Establishing remote connections between schools and global/international employers for cross-regional work placements could be even more difficult. Let's just consider the present size of our schools and already existing pressures on school staff responsible for WBL. Perhaps creating joint regional/national office for placement could be part of a solution.
- Developing WBL games/virtual realities to connect with students in a fun and motivating way to facilitate interest in VET goes beyond national boundaries. Such projects are feasible only on international level and with support from industry and policymakers.



Furthermore, even the concept of „my school“ could and should be changed. There is no need to understand my school only as physical place in a neighbourhood. I was an exchange student when such experience had been a rare privilege. Nowadays modern technology enables everybody to become virtual exchange student or to be part of international classroom. Every local school can become a bridge between a local community and any number of regions in Europe.

## 7. Final thoughts

Embracing the 2021 Digital Education Action Plan in the Slovene VET system is the way to respond to digital transformation and to further improve quality of education.

Equally important is to stay aware of remote learning limitations and continue developing social competencies, critical thinking, vocational identity etc.

To conclude, embracing the 2021 Digital Education Action Plan in the Slovene VET system is the way to respond to digital transformation and to further improve quality of education. At CPI we will strive to overcome obstacles on the way and we will try to focus on schools and teachers who are the frontrunners and can pull others to the future.

However, when saying digitalization is a must, let's not forget how important is social dimension of education, personal growth of students and teachers, vocational identity. We must stay aware of digital and hybrid education growth limitations and continue to develop social competencies, critical thinking, work ethics in a safe and stable school environment, with strong personal relationships.

Thank you for your attention!

