



DIGITAL FACTSHEET JANUARY 2018

DIGITAL SKILLS AND ONLINE LEARNING IN THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA



DIGITAL SKILLS FOR VET STUDENTS

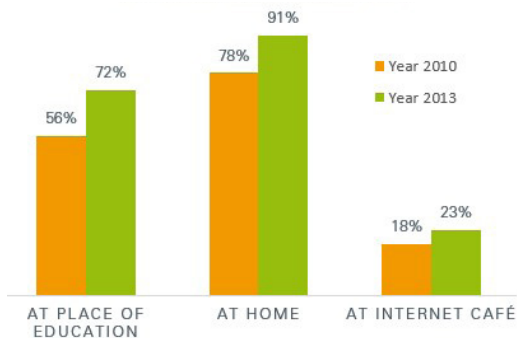
Vision and policy

The former Yugoslav Republic of Macedonia (MK) has had a digital agenda led by the Ministry of Information Society and Administration since 2008. The key players in the development of digital skills in vocational education and training (VET) are the Ministry of Education and Science, the Centre for Vocational Education and Training (VET Centre), the Centre for Adult Education, the Bureau for the Development of Education and the State Education Inspectorate.

The VET Strategy 2013–2020¹ and subsequent Action Plan 'Better skills for better tomorrow' highlight the value of ICT in teaching and learning for developing digital skills among VET students. Law and curricula reforms promote digital skills as a key competence for lifelong learning. The Law on Upper Secondary Education² introduced ICT as a separate subject in the upper-secondary VET curriculum. In addition, VET students who wish to continue to higher education can opt for ICT as an elective subject in the national matura examination. An external examination in ICT is also part of the student assessment conducted at the end of each year by the State Examination Centre³.

There is no formal framework or monitoring system for measuring student attainment in digital skills against the relevant national strategy and policies. Nonetheless, the e-content development strategy recommends six standards developed by ISTE⁴, as a framework for measuring students' ICT abilities.

Percentage of students having internet access



Facts

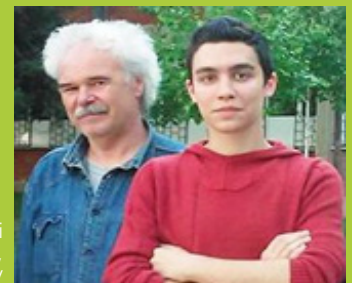
- According to Eurostat⁵, 72% of students had internet access in their place of education in 2013, up from 56% in 2010.
- The corresponding figures for the European Union (EU28) are 76% and 69% respectively.

Smartphones in class

Filip Tashevski studies at the Kole Nedelkovski-Veles vocational school. He has won several awards in national competitions and gained a State scholarship. 'None of this would have been possible [...] if I hadn't been allowed to use my smartphone or internet in class,' he says. The first part of each class is usually reserved for internet research.

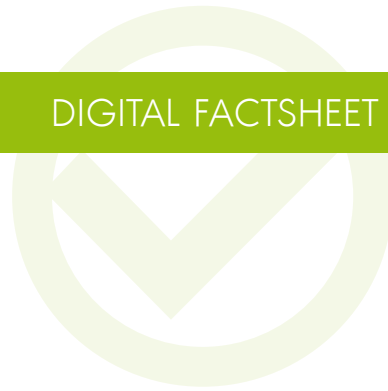
His teacher, Simon Majstorov, explains: 'At the beginning I did not look favourably on the use of mobile phones and internet during classes, and now I have become a passionate promoter of the concept.'

'I think that I contributed to that,' adds Filip. 'Nowadays I would say that most of the teachers in my school make use of personal ICT devices during classes. Several years ago, almost no teacher favoured that idea,' he concludes.



Filip Tashevski and his teacher, Simon Majstorov

¹ www.csoo.edu.mk/images/vet%20strategy_mac%20-%20final.pdf
² <http://mon.gov.mk>
³ www.dic.edu.mk
⁴ International Society for Technology in Education, <http://cnets.iste.org>
⁵ <http://ec.europa.eu/eurostat/data/database>



DIGITAL SKILLS FOR VET TEACHERS AND TRAINERS

Vision and policy

As outlined in the VET Strategy 2013–2020, upper-secondary VET teachers and trainers should acquire digital skills through continuing professional development (CPD). Initial training of VET teachers and trainers, in most cases, does not include digital skills as a compulsory subject.

The Centre for Vocational Education and Training and the Bureau for the Development of Education are responsible for organising CPD for teachers and trainers, including digital skills.

Several government and donor initiatives have addressed the quality and relevance of CPD initiatives for digital skills. For example, in 2004–11, the World Bank funded the Education Modernisation project⁶, aimed at developing an accreditation system to ensure that all providers of CPD, including digital skills for teaching, met the appropriate training quality standards.

Another example is the E-school initiative (www.digitalschool.mk). Supported by the European Training Foundation (ETF), it aims to help vocational teachers to make use of digital instructional tools in their teaching. In 2016 (phase 1), a web domain and hosting for digitalschool.mk were bought and a Moodle platform was set up. Teachers from three schools were trained in the development of digital materials, who then trained and mentored other teachers in their own schools. In 2017 (phase 2), the scheme was extended to a further seven schools across the country and to different vocational subjects. In December 2017, the Moodle platform counted 2 897 active users (out of 5 119 registered), 702 courses, 13 205 assignments and 10 564 quiz questions. The main challenges today are the lack of adequate ICT equipment in some schools and the extra time and effort required to master new skills.



Tatijana Zafirovska,
physics teacher at OSTU
Gostivar vocational school

Facts

According to an ETF 2015 survey on CPD activities for VET teachers and trainers⁷:

- 54% of the VET teachers surveyed undertook a training on digital skills for teaching in the preceding 12 months, 88% of whom reported a more or less positive impact.
- 16.5% of the VET teachers surveyed expressed a strong need for further development in digital skills for teaching, 32.4% a moderate need, 23.3% a slight need and only 27.8% declared not having any need.

Virtual labs

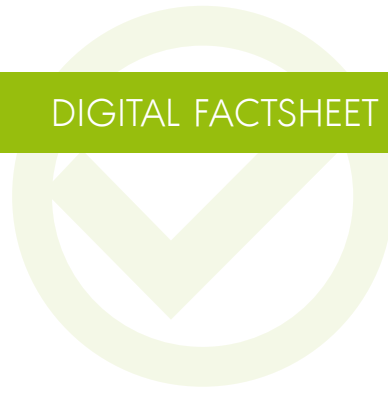
Tatijana Zafirovska is a physics teacher at OSTU Gostivar vocational school. Not having enough teaching aids for laboratory experiments is not a problem as she uses PhET animations (<https://phet.colorado.edu/>) and various websites for virtual labs, demonstrations and research experiments. Virtual labs arouse interest among students and increase their engagement. Initial conditions can be changed, allowing complete control over the experiment and a visual representation of phenomena.

Tatijana uses her blog as an e-book for students (<http://tanjafizika.blogspot.mk>). It contains animations, simulations, excerpts from movies, pictures, tasks, etc. At the end of each chapter there are links leading to other web pages for students who want to learn more.

The resources are often in English, but sometimes there are links to peers and sites. Tatijana uses social networks, such as facebook or google+ for faster communication when tracking homework activities.

⁶ www.erisee.org/downloads/2013/2/Education%20Modernization%20Project%202011%20ENG.pdf

⁷ www.etf.europa.eu/web.nsf/pages/CPD_former_Yugoslav_Republic_of_Macedonia



DIGITAL AND ONLINE LEARNING IN INITIAL VET

Vision and policy

The government project 'A computer for every child', part of the 'Education and training for everyone' initiative (2005–15)⁸, opened the way for digital and online learning in primary and secondary schools, including initial VET.

Digital learning is promoted in VET schools mainly through policy and legislation. The Law on Primary and Secondary Schools⁹ requires teachers to deliver at least 30% of teaching and learning content digitally. The State Education Inspectorate is the authority responsible for ensuring this rule is applied through regular evaluations.

Despite positive reports, it would appear that VET teachers are not using digital and online learning on a regular basis. The gap between reporting and reality emerges in the interpretation of what 30% of ICT use in teaching means.

The following web portals are available to support digital learning:

- a digital library¹⁰ developed by the Ministry of Education and Science in 2009 by converting textbooks into e-books;
- a website¹¹ providing self-testing and interactive simulation tools for maths, physics, chemistry and biology developed by the Ministry of Information Society and Administration and the Bureau for the Development of Education, in cooperation with Intel[®];
- a platform for educational video content¹² produced by teachers and checked by the Ministry of Education and Science.

Percentage of students having internet access in their place of education



Source: Eurostat

Facts

- The Ministry of Education and Science has procured internet services for all primary and secondary schools, including VET schools.
- Over 95% of VET schools have internet access at speeds varying from 1–8 Mbps to 0.25–1 Mbps in rural areas.
- Since 2008, the country has made substantial progress on internet access for students in their place of education.

The digital school

In ASUC Boro Petrushevski vocational school (www.asuc.edu.mk) each classroom is equipped with a projector and a computer connected to the internet. Four classrooms have smart boards.

In the teachers' common room there are computers supported by an IT engineer. The school's four heads of department each have their own platform, which they administer. These are used for communication, sharing information, posting materials, and discussion among teachers, parents and students.

Most teachers use digital learning in their classes. The students are advised to bring in any ICT tools that could be used during lessons.

Communication between students and teachers from different countries in the three international projects the school has been involved in was held via conference calls.

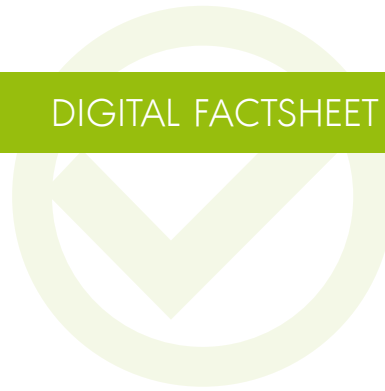
⁸ www.mio.gov.mk/?q=node/190

⁹ Article 15 of the Law on Primary and Secondary School Teachers

¹⁰ www.e-ucebnici.mon.gov.mk

¹¹ www.skool.mk

¹² <http://eduvideos.mon.gov.mk/>



DIGITAL AND ONLINE LEARNING IN CONTINUING VET

Vision and policy

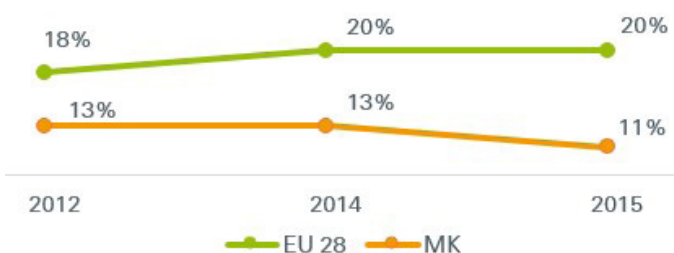
The VET Strategy 2013–2020 and the Law on Adult Education (2008) stress the value of digital technology in adult distance learning programmes.

Together with the relevant ministries, digital learning in continuing VET is supported by:

- the Adult Education Centre, an independent agency whose mission is to promote formal and non-formal adult education that is functional, modern and in line with EU standards;
- the Centre for Vocational Education and Training (VET Centre), an independent agency established by the government in 2006, which has a central role in the VET system. In particular, it is responsible for disseminating new ideas, including digital and online learning in initial and continuing VET.

The Adult Education Centre quality assures continuing VET programmes and the Ministry of Education and Science licenses continuing training providers.

Percentage of enterprises (10–249 employees or more) providing training to develop/upgrade staff ICT skills



Valentina Taseva,
CEO of SEMOS Education

Facts

While there are no accurate and reliable data on digital learning in continuing VET, there are some examples of good practice.

- Open civic universities for lifelong learning, formerly known as workers' universities, are implementing online courses for various occupations¹³. For example, the Josip Svestarot Strumica university offers online courses in management, ICT, languages, nursing, accounting and cookery¹⁴.
- In addition, private training centres provide digital solutions mainly for ICT, such as basic digital skills and specialised software packages¹⁵.

Since 2012, however, the percentage of enterprises providing ICT skills training for their staff has decreased slightly.

Flexible learning

SEMOS Education, a private ICT training centre (www.semosedu.com.mk/), introduced online learning for the first time in 2013, following extensive market research which considered the habits, potential and needs for online learning of citizens. Some 52.3% of respondents said they wanted to try learning online. After putting the technology in place, the company started offering free online classes on a promotional basis. Today it offers several ICT courses. Participants may take the lessons in the classroom or online in real time.

Digital courses combine high-quality video, reading, live hands-on labs and knowledge checks in a self-paced format to help build skills at one's own pace – all in one go or five minutes at a time.

SEMOS Education uses Metrics that Matter (MTM) to measure the quality of teaching.

¹³ <https://sites.google.com/site/rujssr/>

¹⁴ www.elektronskoucenje.mk

¹⁵ www.accountingacademy.mk/tipovi-obuki/otvoreni-obuki-i-treninzi/item/22-besplaten-softver-za-smetkovodstvo-za-sekoj-kandidat-