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Supporting Ukrainian VET Teachers' Competency Development: Online Teacher Training as a Part of Ukrainian VET Reform

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Abstract: The landscape of Ukrainian vocational education and training (VET) is changing, as is the new need for VET teachers' competencies. VET reform in Ukraine aims to improve the quality of VET teaching and change it to a competency-based system. Ukraine's VET education has been criticized for its old-fashioned methods, content that does not meet the needs of the labor market and outdated teaching methods. Poor VET teacher training has been seen as part of the reason for this. This study aimed to improve VET teachers' competencies in connection with vocational education reform. First, it determined the current state and needs of VET teachers' competencies through a literature review and survey. Second, the aim was to improve VET teachers' competencies to support Ukraine's VET reform. The study defined a VET teacher competency framework and used it to create training programs for Ukrainian teacher trainers and VET teachers.

Introduction

Ukraine's vocational education and training (VET) system has been developed for years, but it falls short of meeting workforce demands and lacks appeal. The Ukrainian school-based VET system originated from the Soviet Union era, which did not prioritize responding to labor market demands and promptly providing graduates with new skills (Deissinger & Melnyk 2019). The Ukrainian VET system has improved significantly in recent years. The Ukrainian government has made changes to VET policies. The state introduced the "New Ukrainian School" policy concept for reforming general secondary education until 2029 (CMU 2016). It introduced the concept of dual-based training of specialists (CMU 2018). "Modern Occupational and Vocational Education for the Period up to 2027" is a concept for implementing state policy in VET (CMU 2019). The Law on Education (COE 2017) aimed to update education content, develop competency-based training, create a new educational environment, motivate teachers, improve management, and enhance inclusive education. The Torino Process of 2018–2020 shows improvements in Ukrainian education from 2016 to 2019 (ETF 2019). Efforts to improve the attractiveness of the VET system for students and the labor market have not prevented a decline in the number of VET institutions, students, and teachers. Ukraine is working on improving the autonomy and accountability of VET schools in managing finances and pedagogy (Arribas 2022).

The Ukrainian VET teacher training needs to support high-quality vocational education with student-centered, competency-based, and modern pedagogical solutions for both contact and digital education. No clear regulations exist for the qualifications of Ukrainian VET teachers (Deissinger & Melnyk 2019). Universities offering vocational teacher training programs struggle to attract students due to the unappealing nature and poor financial prospects of the VET teaching profession. Demotivated VET teachers decrease student interest in vocational careers, leading to fewer VET education applications. The low motivation among VET teachers is caused by both low salaries and a lack of professional development opportunities (ETF 2019). Simultaneously, VET teachers' competency requirements have increased. CEU (2020) recommends learner-centered VET programs that offer both face-to-face and digital or blended learning options. The European Union Council stresses the need for VET teachers to deliver quality training, foster technical and digital skills, and use innovative methods, including virtual teaching, in line with modern pedagogy. The ability to work with digital learning tools in diverse, multicultural environments is necessary. Ukraine needs to improve education quality, but teachers are hesitant to implement it (Kovalchuk & Vorotnykova

2017). Traditional teaching methods and reluctance to use new pedagogical technologies are obstacles to Ukrainian education meeting European standards (Bagmet & Liakhovets 2017). Only a continuous increase in the digital competencies of future vocational teacher trainers allows them to respond promptly and adequately to the requirements of future professional activities (Kovalchuk & Sheludko 2019).

Ukraine's VET system faces challenges such as financial constraints, inadequate teaching methods, lack of world of work connections, insufficient soft skills development, and gender-related issues. Ukrainian VET fails to meet labor market needs, with poor quality linked to inadequate teacher training, according to one-third of employers (Tsymbaliuk, Shkoda, & Artiushyna 2019). Ukrainian VET programs must teach graduates both professional competencies and soft skills to meet employer demands. Soft skills, such as problem solving, resilience, communication, collaboration, creativity, and critical thinking, are crucial for employees in a fast-changing society. Teachers need to have competencies to stimulate constructive critical thinking and develop students' creative abilities (Kovalchuk, Marynchenko, & Hrytsenko 2019). Therefore, the development of VET curricula and training programs is necessary. Financial problems also challenge VET education. Work-based learning has faced financing problems and a lack of relevant teaching tools (Radkevych, Romanova, Artiushyna, & Borodiyenko 2018). Gender issues are another challenge. The Strategic Framework for European Cooperation in Education and Training (2021–2030) prioritizes addressing gender gaps in education and training toward achieving the European Education Area and beyond (CR 2021). VET should promote equal opportunities and address stereotypes related to gender and other factors (CEU 2020).

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Study

The Haaga-Helia School of Vocational Teacher Education developed Ukraine's vocational teacher training in the EU4Skills project. The project aims to support Ukraine's VET system reform. This involves improving VET quality and relevance to the labor market by supporting modern teaching and learning conditions. Modernizing the VET system in Ukraine aims to promote sustainable and inclusive socio-economic development. Along with teacher competency development, projects are aimed at transforming the VET system from occupational standards and competence-based curricula. A subproject developed new qualifications and training for managers. This paper only examines the competence development and teacher training of VET teachers, excluding the rest of the project. This teacher training study aims to improve vocational education quality and teacher competency in connection with vocational education reform in Ukraine. Digitalizing VET education has been important in this work. The study's first phase involved a literature review and an online survey to investigate the needs and competencies of VET teachers. In the spring of 2021, 607 VET teachers responded to the survey. In the summer of 2021, the second phase defined the competency areas of Ukrainian VET teachers. The third phase developed an online training program for teacher trainers and teacher training programs, which were piloted in Ukraine from 2021–2022. An extra phase was added to the study because of the war. An online teacher training program was developed in fall 2022 for self-paced study during the war and for the period of peace after the war.

VET Teachers' Competencies

Vocational education is changing and therefore requires new competencies from teachers. The OECD (2021) recommends that teacher training programs prioritize the development of pedagogical, digital, and soft skills, as well as the vocational skills and knowledge needed by the labor market for future VET teachers. Cedefob's (2020) study found that improving responsiveness to labor market needs is one of the top growth prospects for the future of VET. This is highly related to the competencies of VET teachers as well. A Finnish study found that VET teachers need competencies, particularly in three categories: 1) teaching and learning relating to pedagogy, guidance and counseling, and interaction; 2) authentic learning and development referring to pedagogical leadership, partnership, and innovator competency; and 3) evaluation and monitoring associated with assessment (Tapani & Salonen 2019). When the competency areas of Ukrainian VET teachers in this study were defined, the European Framework for the Digital Competence of Educators (DigCompEdu) (Punie & Redecker 2017) existed. The Digital Competence Framework for Citizens (DigCOmp 2.2) (Vuorikari, Kluzer, & Punie 2022) was not available in 2021. The DigCompEdu outlines three competences for educators: professional, pedagogical, and facilitating students' digital competences. Pedagogical competencies include digital resources, teaching, learning, assessment, and empowering learners.

Professional development and digital competencies are also important for future VET teachers. For example, the OECD (2021) emphasizes the necessity of supporting teachers in their professional development. In addition, digitalization is important for education in Ukraine and Europe (e.g. Digital Education Action Plan, ECR 2020).

VET Teacher Online Survey

Because the literature review had left several unanswered questions, the study required a survey. The aim of the survey was to obtain a comprehensive overview of the possible challenges and perceptions of the reform from the Ukrainian VET teachers' point of view. The survey covered the following categories: 1) background (gender, age, education, pedagogical qualification, work experience, teaching institution, specialization of teaching program, and position); 2) available digital devices in the institution; 3) teaching and tutoring (time used in different activities, used digital devices, activities included in work;, and learning management system (LMS) use); 4) collaboration among teachers; 5) impact of teaching on students' skills and competencies; and 6) importance of teachers' different competencies in the next five years.

Respondents' Background

The VET teacher survey covered a wide range of themes and was conducted from May 18 to June 8, 2021. A total of 607 participants from 21 Ukraine's VET institutions replied to the survey; 54% of respondents were female, and 46% were male. The average age of the participants in the different institutions varied between 39 and 55 years. According to the results, 52% were VET teachers for theoretical subjects, 44% master VET teachers for practical subjects, and 4% were methodological staff. Furthermore, 49% had a specialist degree, 31% had a master's degree, 10% had a bachelor's degree, and 5% had completed secondary vocational education as the highest completed degree. Of those surveyed, 64% held formal pedagogical qualifications. Participants aged 31–45 had the highest frequency of pedagogical qualifications (see Figure 1). In total, 64% of the participants had pedagogical competence, but one-third lacked it.
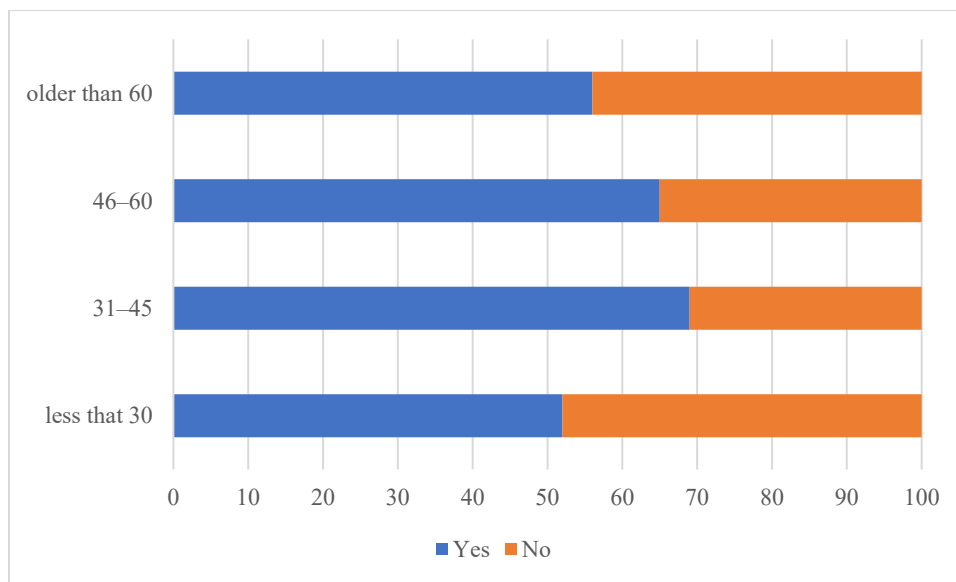

Figure 1. Existence of Pedagogical Qualifications

Internet Connections, LMS, Digital Tools, and Devices

According to the results, 93% of participants had a computer or laptop for teaching and tutoring (see below), while 76% owned smartphones and 73% had mobile internet connections. Only 59% had broadband internet, 56% had a webcam, and 49% had a microphone. 2% lacked devices or connections totally. 59% of respondents had broadband internet and 73% had mobile internet, showing that teachers use LMSs with both types of connections. Just over half of teachers have webcams. The absence of a webcam has a negative impact on teaching and tutoring, especially on interaction, dialogue, communication, and collaboration. Therefore, limited equipment and internet access impact blended and online learning in Ukrainian VET institutions.
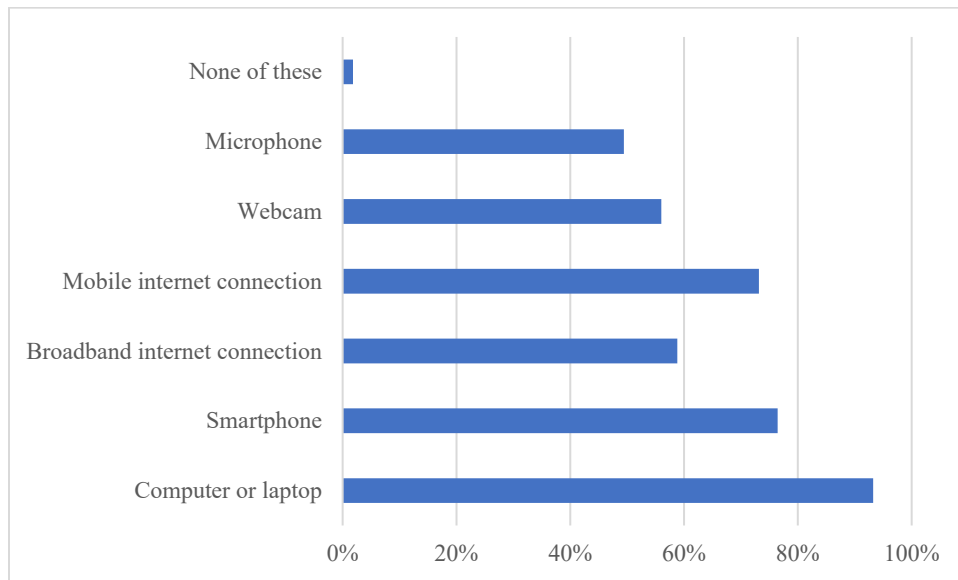
Figure 2. Available Teaching and Tutoring Devices

The figure below shows that Google Classroom is used by 68% of VET institutions, followed by Microsoft Teams at 50%, Moodle at 37%, Blackboard at 30%, and another LMS at 28%. Google Classroom is used by 74% of the participants and 38% used Microsoft Teams for teaching, while 24% used Moodle, 24% used Blackboard, and 27% used another LMS. Of those surveyed, 22% reported that their institutions lacked an LMS. The existence of an LMS does not equate to the fact that all teachers in an institution use it. Despite their availability in VET institutions, VET teachers underutilized Microsoft Teams, Moodle, and Blackboard. Google Classroom has a higher number of users than the number of LMSs available in institutions. Teachers may be using free Google services and labeling them as Google Classroom usage.
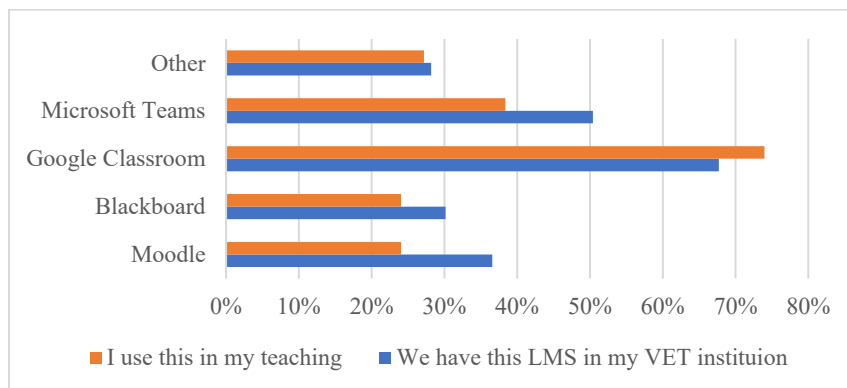

Figure 3. LMS Usage in VET Institutions and Among VET Teachers

Participants were asked about using other digital tools in teaching and tutoring. The following services were included most often: Google services, Zoom, Skype, Padlet, YouTube, Viber, MindMaps, Classtime, Telegram, Canva, Kahoot, and Instagram. The results reveal the following about digital tool use: instant messaging (Telegram and Viber) and video conferencing (Skype and Google) are used for teaching, tutoring, and messaging with students. Various tools aid collaboration and assignment completion (Padlet, MindMaps, Instagram, and Google tools) among students. Assessment (Classtime), gamification (Kahoot), learning material creation, and presentation (Google tools, YouTube, Canva, and Instagram) tools are also used.
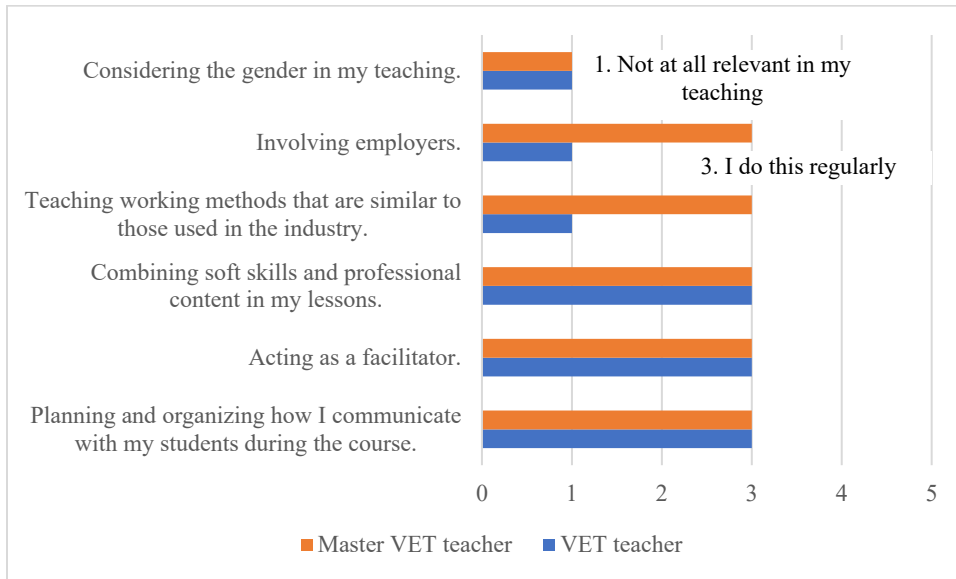
VET Teachers' Work

The teachers were asked about their job tasks. Participants selected from five options ranging from 1) Not at all relevant in my teaching, 2) Relevant, but I do this rarely, 3) I do this regularly, 4) I do this often, and 5) Is one of my main focuses to indicate the relevance of the topic to their teaching. Responses from VET teachers (teaching theoretical subjects) and master VET teachers (teaching practical subjects) were similar when asked about the extent of using different teaching modes (see Figure 4). Both groups often teach in a blended learning mode, and they also regularly teach synchronously and in various learning environments, including theoretical and practical classes. Asynchronous teaching is relevant to work, but it is not used often. There were no differences in job tasks between VET teachers and master VET teachers.
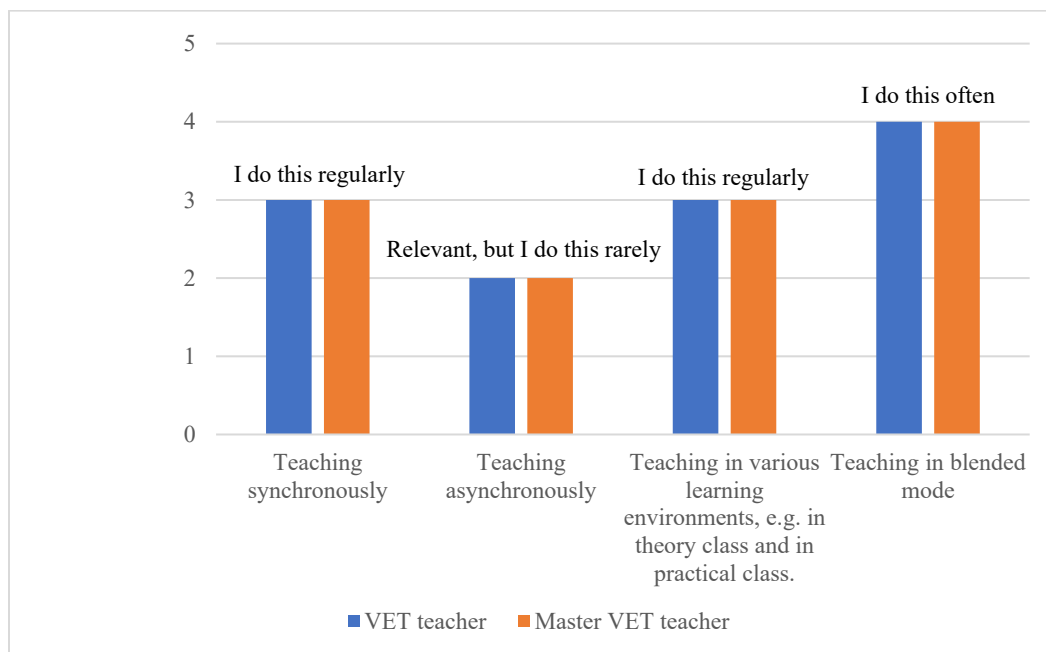

Figure 4. Extent of Different Teaching Modes Used by the Two Teacher Groups

According to the results illustrated in Figure 5, both teacher groups regularly integrate soft skills and professional content, act as facilitators, and plan communication with students during the course. The results show that neither group of teachers considers gender issues relevant to their teaching. However, the two teacher groups differ in involving employers and teaching work methods similar to those used in the professional world. Master VET teachers teaching practical subjects regularly involve employers and use similar hands-on methods as the world of work, while those teaching theoretical subjects may not see its relevance. Theory and practical teaching do not support each other in developing students' working life skills and connections, which may result in two different worlds for students. Theoretical teaching disconnected from real-world work may not provide the necessary competencies for the workforce.

Figure 5. Extent of Different Tasks for Two Teacher Groups' Jobs

Figure 6 describes the usage of digital teaching activities. Both master VET teachers and VET teachers use electronic resources in teaching, but only VET teachers create them regularly. Master VET teachers recognize the importance of creating electronic resources for teaching but rarely do so themselves, frequently using diverse digital materials and mobile devices for teaching. Meanwhile, VET teachers also frequently use diverse digital resources and mobile devices for teaching. Both teacher groups use MS 365, Google Drive, or other platforms to collaborate with students on document creation and sharing.
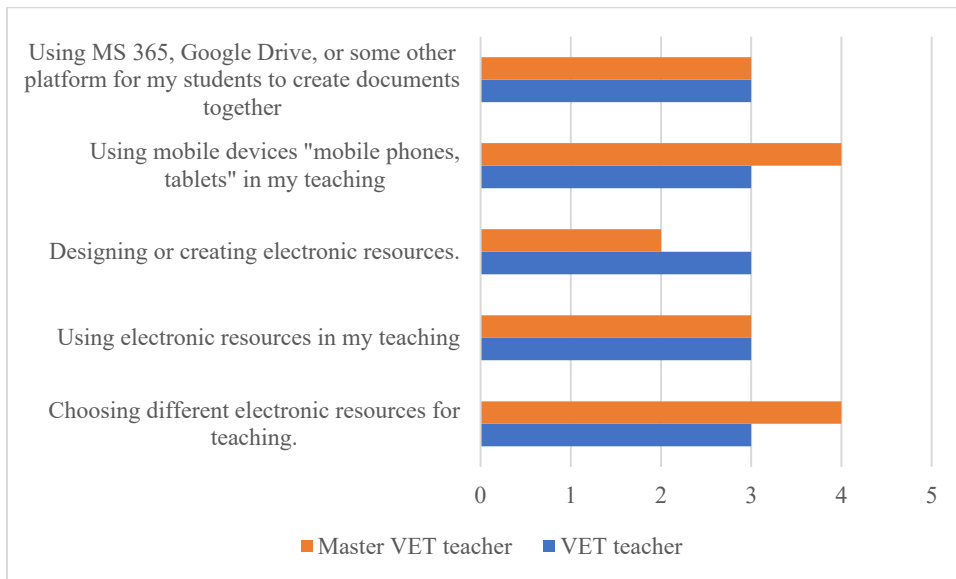
Figure 6. Extent of Digital Teaching Activities in the Two Teacher Groups

Teachers were asked how often they collaborate with colleagues on different tasks. Five options were provided: 1) not at all, 2) every year, 3) monthly, 4) weekly, and 5) daily. The results show that VET teachers plan teaching yearly with colleagues, while master VET teachers plan work together either daily or weekly. Both groups collaborated daily with other teachers on teaching. Master VET teachers jointly evaluate learning outcomes and

improve teaching daily, while other VET teachers do so monthly. In sum, both teacher groups collaborate with peers, but master VET teachers do so daily, while VET teachers collaborate less often. Those VET teachers who teach theoretical subjects may be more independent than master VET teachers. When teaching practical subjects, master VET teachers naturally have more interaction with their colleagues than VET teachers.

Respondents explained their understanding of VET reform. The responses included descriptions, such as adopting the Law on Vocational Education, improving cooperation with employers, enhancing the qualifications of teaching staff, creating competency-based standards, establishing educational and practical centers, providing modern study and work conditions, producing skilled workers through quality training, increasing the prestige of VET institutions, connecting theory and practice, adopting modern approaches in teaching, establishing effective management and financing, providing comfortable conditions for studying, living, and leisure, decentralizing power to localities, improving the material and technical base, popularizing and creating a new image for VET, and acquiring new equipment and computer technology. Overall, responses to VET reform varied, with most providing only one or two viewpoints. However, a few answers were detailed descriptions spanning several sentences. If we compare the VET reform answers to the challenges of Ukrainian VET presented in the literature study, we notice an extensive similarity. The VET reform is seen by the respondents to solve the problems of Ukrainian VET education in funding, reputation, technology, teacher competence, and overall quality improvement of vocational education, while also promoting connections to the working world and competence-based education. One response summarized VET reform as improving vocational education quality and strengthening the connection with the labor market. In addition, the respondents identified Ukraine's current VET's biggest problems as those targeted by the VET reform.

Developing Teachers' Competencies in Online Training

Due to changes in vocational education in Ukraine and the world, the development of VET teacher competencies is based on four pillars: 1) promoting digital competences in VET, 2) shifting from traditional and subject-based teaching to competency-based teaching, 3) ensuring high-quality and equal vocational education and teacher training, and 4) adopting a learner-centered approach.

First, a VET teacher competencies framework was designed. The framework supports the Ukrainian VET reform, and the approach is competency-based. Prerequirement refers to existing professional competencies in teaching and tutoring subjects.

The framework has three main competency areas—pedagogy, development, and networking—with sub-areas within each. Pedagogy has subareas, such as teaching design, teaching and tutoring, assessment, modern teaching and learning theories, and digital competencies. The design competence area includes the following areas: designing learning in different learning environments, considering the learning needs of students and the world of work, personalized learning and soft skills, creating and using different resources and learning materials, and accessibility of teaching and learning. Teaching and tutoring cover student-centered and collaborative tutoring and teaching, work-based learning, career guidance, gender-responsive teaching and tutoring, special needs support, and team teaching. Assessment covers student-centered assessment, diverse assessment methods, and assessment in collaboration with colleagues and stakeholders. Development involves continuous improvement of competencies, development of curriculum and training together with colleagues and stakeholders, fostering workplace learning together with companies, promoting creativity and innovation, prioritizing well-being, and ensuring quality assurance. Networking involves competencies such as industry and specialty cooperation, peer learning in networks, interpersonal and communication skills, digital networking, and entrepreneurship.

We designed and partially implemented a training program for future Ukrainian teacher trainers. The plan was for them to teach the program to Ukrainian teachers after completing their studies. The number of participants was 50. The program was planned to be delivered in three phases: online workshops, Ukrainian participants' training of VET teachers in Ukraine in line with coaching sessions with us, and a seminar showcasing best practices in Ukraine. The online workshops were held from September 14 to December 31, 2021. Weekly a 3-hour workshops were organized. Trainers spoke English on one Zoom channel, while interpreters translated into Ukrainian on the other. Participants could listen in English or Ukrainian. In addition, if participants' spoke Ukrainian, it was translated. All learning materials were translated into Ukrainian. In the second phase of the training program, each Ukrainian participant instructed 10 teachers in 21 VET schools across seven regions. The second phase began in early 2022 but

was interrupted by the war against Ukraine on February 24 of the same year. During the war, it was not possible to continue the program, and it was suspended.

We also started teacher training in the fall of 2021. The VET teacher competencies framework formed the basis for teacher training development. The training had three phases: 1) collaborative online workshops and online self-study, 2) teaching practice supported with coaching sessions, and 3) competence demonstration. The online workshops were organized for October 27 until December 31, 2021, but the war in Ukraine prevented the second and third phases.

Despite the war, the Ukrainian Ministry of Education wanted to continue collaborating to develop teachers' competencies. They wanted us to develop an online self-study teacher training program based on the created VET teacher competencies framework and the previously partially implemented teacher training program. The training was designed and produced in the fall of 2022. The training was condensed into a self-study teacher training program. It is available for Ukrainian VET teachers to be studied whenever they are able to.

Discussion

During the research, we witnessed sudden and unexpected global changes that we were not prepared for and that affected the study and teaching of the created programs. We started during the Covid-19 pandemic, which forced all education around the world online. Some Ukrainian educational institutions had an LMS in use, but not all. The survey found that even if an LMS was in use, the teachers did not consistently utilize it. However, the pandemic has forced teachers with poor online skills to teach online, but pedagogical solutions have often been inadequate. One of the solutions in the study was to offer online self-study teacher training programs that can also be used post-war.

The war against Ukraine has caused loss of life and migration abroad, but it has also destroyed a huge amount of infrastructure and educational institutions along with homes. This will also entail extensive reconstruction work in terms of vocational educational institutions and teacher training. However, before the war, VET was already facing many challenges. It was not considered an attractive option among students and teachers, and it did not produce the skills required by working life. There were also challenges in administration, management, and financing. For years, the development of VET has also been done through international cooperation. Vocational education reform was ongoing, and efforts were being made to reform education into a competency-based one, where students are at the center and working life receives the competencies it needs.

What practical applications can be derived from this study after the war? We now have a better understanding of teachers' competencies and development needs. We identified the framework for VET teacher competency areas in Ukraine and provided training to both theoretical and practical teachers whose competencies we can use in the future. It is important that employers are involved in developing the curricula and methods of vocational education to prepare students for the world of work. The involvement of all teachers in the curriculum work instead of individual persons enables the utilization of versatile competencies in development and teachers' commitment to and motivation for competency-based curricula and the changes it requires in the design and methods of teaching. In addition to professional competence, teachers need pedagogical competencies and the opportunity to regularly update their competencies in the future. In connection with the reform of vocational education, teachers need expertise in using competency-based curricula in their own teaching. It is important to understand what changes occur when teachers move from a subject-based and traditional curriculum to a competency-based curriculum and how to implement this change in their own teaching. Digitalization challenges vocational teachers, and especially pedagogical competency in online teaching is an important development target. It is important to know how to make versatile use of digital solutions and to support students in the development of their digital skills in accordance with the needs of the future. The development of soft skills and digital soft skills should be provided as part of VET.

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