



Situation-based VET Using Virtual Reality

Submitted by SFIVET, Switzerland

BILT Innovation and Learning Practice

Digitalization in TVET

4.0

As TVET prepares students for their professional life, it should reflect the digitalization of work through vocational education that includes exposure to authentic activities encountered in the workplace. In this context, the Swiss Federal Institute for Vocational Education and Training (SFIVET) explores how virtual reality can be utilized as part of the teaching process to provide situation-based education and training for various professions. One example showcases how horticultural teachers use Virtual Reality Glasses to allow students to plan gardens with the help of modern technology. Using virtual reality technology allows students the opportunity to create and implement landscaping designs, including placement of trees, shrubs, and plants, and to simulate different seasonal effects for their virtual landscape.

- Start date: 01/2019
- Type of implementing institution: Governmental Organization or affiliated
- Target group: TVET teachers and students

SFIVET, Switzerland

The Swiss Federal Institute for Vocational Education and Training (SFIVET) is Switzerland's professional organization for vocational education and training (VET). It offers basic and continuing training to VET professionals, conducts VET research, contributes to the development of occupations, and supports international cooperation in vocational and professional education and training. It has regional campuses in Zollikofen near Bern (main campus), Lausanne and Lugano as well as off-campus space in Olten and Zurich.

Description of activities

The major goal of technical and vocational education and training is to prepare students for their future work. What students learn should therefore be immediately relatable and transferable to their subsequent work life. Vocational teachers may achieve this goal by asking students to accomplish learning tasks that are based on examples of work-life situations. Inside a classroom, this may be accomplished in a naturalistic and thereby practice-oriented manner by simulating a work-life situation in Virtual Reality. This is particularly relevant for work situations involving environmental planning due to the expectation that Virtual Reality facilitates such a task. In the project presented here, activities therefore focus on the horticultural sector. This situated vocational education and training is accomplished using immersive Virtual Reality technology, *i.e.* Virtual Reality Glasses. This project contributes towards research on the usefulness of immersive Virtual Reality as a tool to enable students to practise skills in the workplace.

Added value

What current challenges does your initiative address?

TVET must reflect the reality of new and emerging professions, as well as those impacted by technology. This initiative addresses the alignment of vocational education and training with the ongoing digital transformation of work life by digital technologies. By incorporating advanced technology into TVET training and curricula, students can complement their learning via the adoption of such methods and enhance their digital skills in the process.

Why is this initiative a success?

Situation-based vocational education with immersive virtual reality advances the use of digital technologies in vocational education and training, so that it is more closely aligned with the ongoing digital transformation of work life. The use of digital technologies also serves as an element to make TVET programmes more attractive to learners.

What is the added value of this example?

The value of this example is that it demonstrates the successful use of an emerging technology as part of the TVET teaching process. The use of immersive virtual reality can be applied to a range of situation-based education and training for various professions in multiple sectors, including physical building modelling, and designing and vending products. The example is also suggesting that immersive virtual reality may serve for the measurement and examination of various skills and competencies. An additional value of this is the attractiveness for students to utilize such technology in their training and develop skills that can make them more employable.

Impact on curricula

What implications does this example have for current or future curricula?

The use of virtual reality simulations to provide situation-based learning can be an effective and efficient pedagogical tool, allowing students to directly apply the theory learned in the classroom. This can lead to more effective learning and potentially shorter training periods.

How does this example impact TVET systems?

This example has the potential for a system-wide impact for vocational education and training, affecting industry, institutions, and learners.

How does this example respond to industry and social demands?

Situation-based education with virtual reality can serve to connect or merge the school-based education of vocational students with the work life for which they are trained. For industry, the ability to practise the use of technology and understand specific tasks ahead of time is very positive. For learners, the opportunity to practise and utilize digital skills not only serves their professional and personal lives, but also increases their attractiveness to employers.

Transferability

Which components of this practice may have practical value to other UNEVOC Centres/TVET institutions?

The process of integrating technology into curricula for classroom use, and the implementation of virtual reality to simulate work situations can be useful for others to follow.

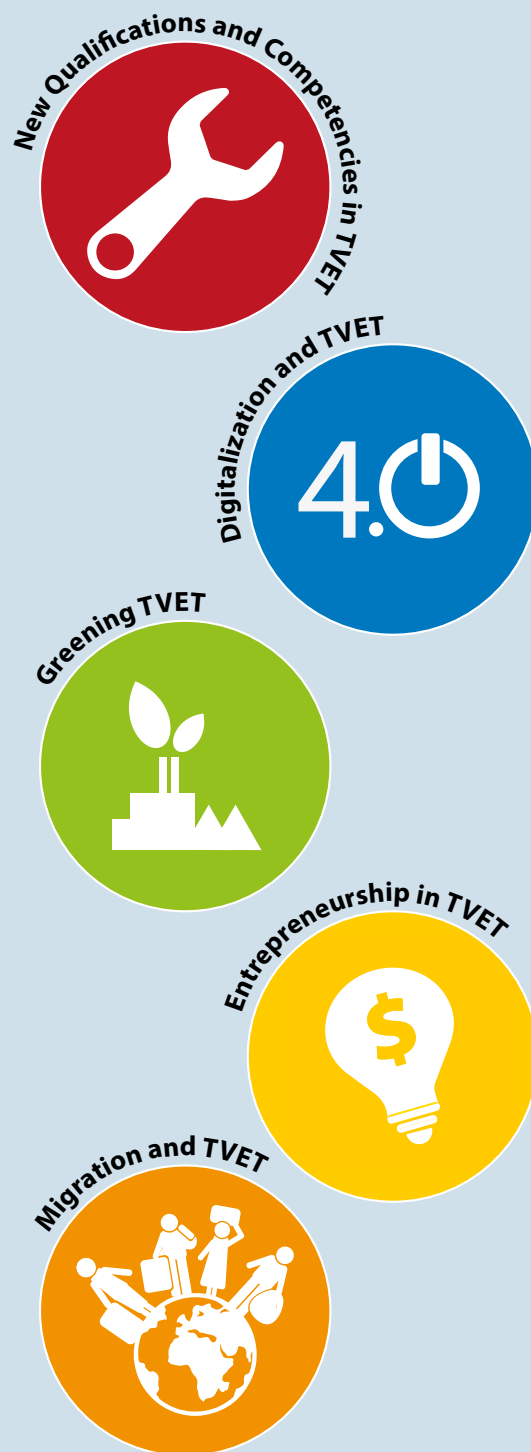
What challenges do you see if transferred to another context?

While in principle the use of virtual reality simulations can aid VET training, for it to be effective, realistic Virtual Reality simulations must be developed that reflect the many different professions and their local contexts. These must then be implemented and evaluated to assess their efficacy for each programme.

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 - For more information about this practice:
www.sfivet.swiss
www.youtube.com/watch?v=ivgi1b8IS7A

Part of the BILT project involves collecting Innovation and Learning Practices* that address systemic challenges within the five work streams of the project, with the purpose to understand what elements lead to their success and can be transferrable to other contexts.

Access more BILT Innovation and Learning practices in the thematic areas of:



*UNESCO-UNEVOC does not endorse any of the practices included in this database and is not responsible for their management or implementation.



The Bridging Innovation and Learning in TVET (BILT) project provides TVET stakeholders with a platform for exchange and supports them to address current challenges in TVET systems, which arise due to technological, social, environmental, and workplace changes.

Within BILT, the overarching thematic area is New Qualifications and Competencies in TVET, which is supported by four work streams:

- Digitalization and TVET,
- Greening TVET,
- Entrepreneurship in TVET, and
- Migration and TVET.

Through regular knowledge exchange, thematic project activities, and expert working groups, BILT offers opportunities for collaboration between UNEVOC Centres and TVET stakeholders in Europe, and a platform for bridging of innovation and learning between European UNEVOC Centers and TVET stakeholders in the Asia-Pacific and Africa regions.

The results of ongoing activities are accessible on BILT's web page and will be disseminated during a BILT Learning Forum.

The BILT project is carried out in collaboration with UNEVOC Network members, coordinated by UNESCO-UNEVOC with support of the German Federal Institute for Vocational Education and Training (BIBB), and sponsored by the German Federal Ministry of Education and Research (BMBF).

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