eVET

Questions & Answers in the context of the Webinar on ICT for Vocational Education and Training on September 24, 2019.

Urs Gröhbiel and Christoph Pimmer

Managing eVET projects, business model

Q The digital area evolves very dynamically. How to **ensure** that the introduction and use of new technologies - especially in developing countries - is **sustainable**?

A The aspect of sustainability is multi-faceted, as it concerns hardware, software, content and accompanying processes, such as continuing development of trainers, as well as questions regarding the context of use. The "decision matrix" can help us in structuring this question: The smooth integration of and the use of new technologies in your organisational context is pivotal. Possible questions: Do you have top-down support including political and resource-oriented support. Have you designed and planned for scale? Do you have training structures and a culture, which enables and encourages training and change? In the human resource context, you need to clarify for example the motivation of the key actors, their media skills. Regarding the technological context, you need to evaluate access to power and internet (including alternatives, such as solar power and offline content) and the lifecycle of the software application you intend to use (there are many examples of applications or IT-standards that have become obsolete, such as learning management applications that have lost the critical amount of users or "flash"-animations. However, there are several low-tech applications, platforms and hardware with a rather long life cycle. Just to give you one example from a software. The open source learning management system Moodle is supported by a strong community of developers who continuously improve and develop the platform further. However, it requires internet access and technical expertise to ensure customization, hosting and maintenance. Regarding hardware, in some contexts, learner- and teacher owned mobile devices can be leveraged for pedagogical purposes instead of providing new technology.

Q What **learnings from technology** can be used for professional trainings? **What works** / what does not work?

A We hope that the presentation of our "landscape" has helped to show the great variety of ICT that can help to achieve different learning goals. With the "decision matrix" you can evaluate, if the solutions identified in the landscape will work in your context. A particular feature of digital technology is that, in the context of professional development, it can support the application of knowledge from formal training in the context of work, for example by triggering reflective practice and fostering ad-hoc and ongoing peer and tutor support.

Organisational context

Q Which **models** are used to **invest** in IT infrastructure, especially in developing countries?
I would be interested to know about the business model of the VET organizations you will present.

A The investment can be made on different levels such as the national Ministry of Education (with mixed results, as critically reflected in research), NGO's or local schools. Funding can be managed as lump sum or in dependence of learning and teaching activities. In our webinar on the management of ICT projects we will discuss the cost structure of investments and (even more important) running cost.

Human resource context

Q How to **motivate** schools/teachers to use/experiment the new tools?

A Another key aspect for innovation projects! We do not believe that we can "motivate" or convince anyone. We need to identify existing motivation of teachers, school directors, students etc. and create an environment, in which this motivation can be cultivated. Nourishing motivation which is coming from inside an organisation is much more powerful than enforcing it through external experts. One approach is to start with a group of motivated actors and pilot certain activities. These local actors can then act as "champions". In particular in innovation projects, we try to identify a small group of teachers, decision makers and administrative staff, who are keen on experimenting, willing to invest more time and take the risk of making mistakes (quite a challenge in many cultures!). It is, however, helpful that in many schools, the introduction of ICT-tools is a motivation in itself, because teachers and learners want to use "new gadgets" or because they can say that they accomplish requirements of ICT-strategies of the Ministry. However, this will not be a sufficient basis for a successful ICT project and the key is to maintain the motivation after the first novelty effect has disappeared.

Technological context and design

Q Open resources vs. products with costs? Pros and cons of using open resources resp. payed applications, platforms etc?

A A simple question that requires a complex answer and philosophical discussion … ;). Three key criteria to start the discussion: the more dynamic the community which stands behind open source software (OSS) is, the more expertise your organisation has to handle OSS and the more general the educational need is (e.g. teaching mathematics, physics etc.) the more likely a successful incorporation of existing open educational resources will be. However, in any case you should consider efforts needed from your organisation to customize the content to your (curricular) needs.

Q Is it possible for VET schools to **keep up with technological developments** within professions in order to stay relevant?

A Good point! The more authentic the technology is, the better a school can prepare their students for practice. Of course, depending on school budgets, this can be a big challenge for schools in sectors with fast (information-)technological development. They lack IT infrastructure or work with outdated software and tools. In such cases, ICT innovation initiatives can not only help schools to purchase needed equipment, but can also foster the collaboration between companies, industry experts and schools - and improve access of schools to newest industry equipment. However, in view of the rapidly changing technological landscape, schools need to prepare students not only for handling specific/novel technological tools but enable them to learn how to appropriate new and upcoming technologies in a professional and responsible manner. This plays into the field of digital professional literacy.

Q How can technologies enhance learning, especially in **remote/ hard to reach areas**.

A In remote areas offline-content and local networks can support learning in a variety of ways. Local servers and mobile devices can for example provide access to learning content and courses. Mobile phones can help to access a variety of SMS-solutions or social mobile media with the rapidly growing 3G and 4G coverage in remote areas. For example, WhatsApp can be used to support apprentices in placements or new graduates when they transition into their new job.

Q Off-the-shelf ICT solutions versus contextualizing/developing new ICT tools for VET: How much copy-pasting is possible/realistic?

A This is a very wide area of discussion, related to software, learning content, learning design etc. As a rule of thumb, we suggest spending enough time with evaluating existing solutions. There is a great variety of tools that help to achieve every possible goal you can think of, applying a great variety of learning designs. Therefore, we are very reluctant to develop new tools. This is often not necessary, more expensive and much less sustainable. Although there is a lot of learning content available, locally relevant content has to be complemented.

General questions and examples

Q What is **specific of ICT use in VET** compared to ICT use in Education in general? Is vocational training enough? Or great idea better to go beyond the training e.g. job placement etc?

A We see a very high potential of ICT in bringing together learning in the classroom and in the workplace, as well as supporting learning specifically in the workplace, which can be regarded as a "VET-specific" aspects. Project-based learning, review and reflection during placements or exercises preparing learners for practice and motivating them to putting theory into practice during placements can serve as examples. There is a wide range of tools that support these approaches, such as animation and simulations to prepare practical exercises, social media or collaborative tools to support communication during placements among student peers and between learners and educators, or projects or e-portfolios to support self-reflection or assessment.
In our literature review and the projects, we are directly involved with, we often focus on areas such as placements or work-based training. In addition to all these areas, VET also benefits from ICT-supported learning in the classroom, which is the same as in other areas of education.

Q How to make TEL solutions more **inclusive** and accessible for all?

A This is a wide and challenging field in our eyes. This is related to project costs and needs to be considered in planning. There are, for example, several approaches to tackle this by lowering the tablet – student ratio (e.g. 1:12 instead 1:1), organizing pools of devices at school or using them in group work. A related issue is the cost-comparison with other media. We have seen in our own projects that also literacy, age and gender can inhibit inclusion and every project should identify at-risk groups and develop particular measures to include these groups at the very beginning. At the end, an e-learning solution has to be cheaper or offer additional benefits to justify costs in comparison with alternative solutions.

Q I would be interested in knowing in what **SDC projects** we do already have experiences with ICT in VET and what are **good practice examples outside SDC**

A With the survey in the context of our webinar several projects have been collected which can be shared via ShareWeb. Our review will provide a systematic overview of many examples.

SNBI

Q Distance learning versus Technology Enhanced Learning: lessons learned, differences and new opportunities.

A Distance learning is a much older approach which has started out by sending paper-based educational materials for self-study. ICT has massively transformed paper-based distance learning, therefore the trend we observe is rather "Distance learning via the use of technology". We would need to specify the question to give a meaningful answer. Feel free to contact us via WhatsApp/Skype.

Q Are there experiences with **global initiatives** on VET with regionally/locally **contextualized content**?

A Not that we know of, sorry. Of course, global platforms seek to extend their content and involve educationalists from different contexts so that solutions can be used in different contexts. However, there is a huge variety of contextual specificities (languages, cultural practices) that cannot be addressed by global providers. Nevertheless, we encourage projects to consider the options that global initiatives offer to adapt their content to local contexts or the possibilities they provide to exchange content from different contexts.

Q Any experiences on **virtual reality** in e-learning in a developing context?

A We do not have first-hand experience but know of (older) pilot projects experimenting with SecondLife. In our review we also came across on an example of a virtual automotive air conditioning environment, or also related solutions in the area of augmented reality in healthcare with dummy patients. We will post our review on ShareWeb, once it is published.

Q Who is producing OER VET content? We have a mobile and adaptable multimedia learning platform. We would like to increase our VET job specific learning modules in English and French language.

A We suggest that we share such Information on ShareWeb and will discuss this with the Focal Points.

If you have further questions or desire more information, please feel free to contact urs.groehbiel@snbi.ch.