The VTT-BOX, Pedagogical and Quality Considerations

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Abstract: The Virtual Teachers' Toolbox's (VTT-BOX.EU) aims to create a special virtual and sophisticated tool for teachers to guide them in developing open, online, flexible and technology enhanced education and learning (OOFAT). The paper presents the pedagogical and quality framework which embeds the Toolbox which refers to international frameworks that need to permute e-learning. Quality in pedagogy and technological provision focuses today more on developing the learner's autonomy, collaborative skills and self-evaluation. Technology is expected to create a well-fitting "learning offer" tailored to the typical behaviour and needs of the modern students.

1 INTRODUCTION

Blended learning is not the same as technology-rich instruction. It goes beyond one-to-one computers and high-tech gadgets. Blended learning involves leveraging the Internet to afford each student a more personalized learning experience, including increased student control over the time, place, path, and/or pace of learning. The definition of blended learning is a formal education program in which a student learns (Christiansens Institute, n.d):

- at least in part through online learning, with some element of student control over time, place, path, and/or pace;

- at least in part in a supervised brick-and-mortar location away from home;

- and the modalities along each student's learning path within a course or subject are connected to provide an integrated learning experience.

The efficacy of blended learning greatly depends on its specific implementation and the particular problem it is designed to solve.

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The paper explores a two-year EU funded project the Virtual Teachers' Toolbox (VTT-BOX.EU), which aims to create a special virtual toolbox for teachers as a sophisticated tool for developing open, online, flexible, blended and technology enhanced education, and learning (OOFAT). The project duration is 2017-2019.

The project bundles the experience, competences, and knowledge of five institutions in Europe, from different educational backgrounds and it consists strategic cooperation between formal and non-formal/informal educational providers.

Being in the almost final phase of the project period, most of the intellectual outcomes are developed, but not yet tested at scale, i.e. a toolbox and a MOOC aiming to innovate OOFAT and to make learners more successful, and to take the responsibilities for their own learning (Gutierrez, 2014; Liang, et al., 2008; Redecker and Punie, 2017). This will be achieved by innovative, motivating and self-evaluation methods, with an innovative and learner-centred pedagogical approach. The pedagogical approach is mainly based on heutagogy (self-directed learning) described by Hase and Kenyon (2000).

Furthermore, an all-encompassing quality enhancement framework described by Kear et al. (2016), in line with the 21st century demand, and the UNESCO sustainability goals on education (SDG 4) (UNESCO, 2015a; 2015b), serves as the foundation for the pedagogical and quality considerations. Teachers will hence be supported in course creation by an innovative web-based toolbox (VTT-Box). Accordingly, this will enhance teachers' professional development and support learners' acquisition of values, skills, and competences. In addition, within the project pilot courses as samples of proven praxis will be produced and be published as Open Educational Resources (OERs). The toolbox will assist teachers/trainers in the course creation by offering a pedagogical framework with a special learner's view, a quality enhancement framework, together with a self-evaluation technic, the mandala evaluation (Mazohl, et al., 2018). The project's target groups are:

- Teachers (School Education) teaching learners in the age of 13 -19 years and

- Learners, special focus on the age group of 15 - 19 years old.

Project results can even be used in Early Childhood Education (ECE), Primary Education (PrE), Adult Education (AE) and Higher Education (HE) as well, therefore trainers and educators in ECE, PrE, AE or HE are a secondary target group also. A transferability guide will provide the project's results for these groups.

In this paper, the pedagogical and quality framework will be elaborated.

2 METHOD

The method used is three-folded. First, a literature review has been conducted to form basis for the development of a state-of-the-art framework that corresponds to all current needs and trends in education. Second, previous experiences in the field by the partners have been shared and elaborated during an interactive five-day training event. Third, the pedagogical framework has been tested in practical setting, among some of the partners, but not yet at scale.

All the above were the subject of the teacher training event in February 2017, in which teachers from 3 different European high schools (Italy, Spain, and Austria) were trained to use the method, the materials and the tools of the Toolbox.

2.1 Tools and Materials

The project is using Moodle 3.2 as the learning platform for the development of the blended learning. Moreover, the teachers' toolbox also includes:

- A proposal of the course structure including pedagogical hints.

- A proposal for the quality criteria and valuable quality cycles.

- Checklists for teachers, which covers course preparation, course execution and assessments and evaluation of taught competencies.

- Materials for the course evaluation.

- A tool for the definition of competence-based course outcomes.

- A tool for using self-evaluation mandalas including the templates to define competence description.

- Various checklists such as checklist to evaluate the definition of competence-based course outcomes, checklist for the quality enhancement process in a course definition, checklist for learner-centered activities in courses.

- A selection of possible interactive eTivities (following the concept of Salmon (2007)), with a special focus on collaboration between students, a complete description of each eTivity with instructional design hints and possible assignment methods (if applicable for the eTivity).

New courses were created on the basis of this framework and tested in real classrooms to test the validity and practicality of the framework. Three major challenges of this implementation were addressed:

(a) increased students' autonomy (heutagogy),

(b) increased collaborative tasks as opposed to individual work, which was a well-established practice in the past, and

(c) boosting the culture of self-assessment through the use of the Mandala tool.

3 RESULTS

The project is its final stage, most deliverables and intellectual outcomes are almost finalized. Overall the results are encouraging. In the first pilot environment, the Mandala self-evaluation was performed and evaluated (in a small case study). The sample group covered a high school class (24 students) at an age of 16 years old.

The evaluation was done by a guided interview and focused on the feedback from the students describing the acceptance and the usability of the Mandala self-evaluation. The system was well-received and effective and the feedback was positive, and the students appreciated the quick visibility of learning success by comparing the two conducted mandalas (at start, and after training). This small case study had an impact already in the teaching and training session held

The development of the pedagogical and quality framework has been in progress, especially in autumn 2018, and its results have had an impact on active learning methods, the intense use of interactive multimedia material and engagement of learners in group work.

Without a doubt the use of multimedia is a promising way of teaching. Following the ideas of Jon Bergmann (2015, p. 29) the concept of activating students is integrated into the project. The idea is that students do not only watch a video or perform some interactive tasks, but they also learn something during the interaction. The open concept in teaching and learning is a promising strategy for the future. Using open educational resources (OER) enables students to select from a wide scope of educational offers and to decide on their own what they will use. This decision motivates students in self-directed learning. Most students are motivated by the self-evaluation Mandalas and enjoy seeing that they have increased their competences and, in each field, (knowledge, understanding, and skills, or in their behavior).

The current state of the project brings up the positive results and offers a promising preview to the final products. The selection of the used elements in the quality and pedagogical framework is finalized and shows up a practicable method of teaching. As the project is in its final phase, testing has not been possible at scale yet. Next the developed pedagogical and quality framework within the project is presented

3.1 Pedagogical and Quality Framework

This pedagogical and quality framework for course design have its foundation in current common research in the field. The epistemological base of the framework lies in social constructivism. Knowledge is perceived as constructed and negotiated with the socio-cultural environment; it is also situated and needs to include analyzing, evaluating and creating (Dumont, et al., 2010; Lombardi, 2007).

The pedagogical considerations also draw from work by researcher as Conole, Laurillard and Salmon (2005) and current experience and good praxis. Current research and experience show that todays' largest challenges are to make learning in the cyberspace as much interactive and communicative as possible, creating "high-level attractions and capacities in the area of recruitment and education for individuals and users in cyberspace" (Sadeghi, 2019, p. 16).

The quality considerations have their foundation on the work by the European Association of Distance Teaching Universities (EADTU), the E-xcellence quality label (Kear et al., 2016), and by work of Ossiannilsson, Williams, Camilleri, and Brown (2015). In the EADTU E-xcellence quality label there are in total 35 benchmarks covering six domains (strategic management, curricula design, course design, course delivery, student and staff support). VTT-Box's pedagogical and quality framework focuses especially on the benchmarks and indicators referring to course design that set the international guidelines and frameworks.

The indicators for course design are presented in Table 1 below. However, the table features, and indicators should be read and interpreted aligned with the benchmarks of theinterpreted aligned with the benchmarks of the EADTU Excellence guidelines which can be found in the Excellence Manual.

Table 1: Pedagogical and quality framework for courses within the VTT-BOX project.

Basic course elements	Pedagogical features, and quality indicators related to EADTU Course design
Present an explicit educational strategy	Decisions about the use of e-learning should be made on the basis of providing the most effective means of achieving the learning outcomes in particular contexts.
Describe the Course identity	The title of the course, and course number/date should be included. Details about the creator, and the profile of the creator should be given. The roles of tutors and mentors in e-learning must be defined as set by the EADTU Process management details as set by EADTU
	The course includes details about the language, the date of creation, and the last update of the course.
	Include details about the subject/topic(s)
	The course should contain a course outline Educational approach should be adequately explained. Blended learning models as for example. The rationale for the blend should be clearly communicated to students in course documentation. The course design process should also be defined.
	The course should contain details about the target group (primary or secondary school); the Grade; the Age-range.
	Relationship with curriculum -The course should describe how it links to the curriculum and other subjects
Include details about the subject content & learning outcomes	Content and its main dimensions Concepts should be clearly drawn out the and there should be a full course specification.
	The rationale and the learning outcomes should be comprehensively presented and the relationship with the whole curriculum should be drawn.
Provide well designed activities/ e-tivities	Provide resources, describe, where activities will take place. Describe how the following indicators: Independent learning materials.
Provide well designed activities/ e-tivities	Provide resources, describe, where activities will take place. Describe how the following indicators: Independent learning materials. Learning and content design. Materials and production design. Technical design. User interface. E-learning elements and activities. Open educational resources. Massive open online courses.
	Estimated length
	Prerequisites
	Stages (if any)
	Assessment Continuous format assessments and not just summative assessments
	Activities/e-tivities Interactivity (with peers, material and academics) and cross-actions should be secured.
	The course should contain collaborative tasks
	The examination process should be clearly defined. The course should contain assignments/ quizzes/other learning products
	Any other complementary information should be utilised.
Assessment/ Evaluation	Self-assessment, collaborative assessment (for learners), summative assessment Describe how assessment is used as learning and not just of or for learning
	Course evaluation and approval: Describe how it is conducted, by whom and when
Additional information, as learning resources Due to affordance and learning strategies it is recommended to use a variety of resources	Multimedia
	Bibliography
	Online resources
	Open educational resource
	Massive open online courses (MOOC)
	Social media
	Extension activities
	Games
Attachments/ mischelaneous resources could be added	Other complementary material

4 CONCLUSIONS

The pedagogical and quality framework for courses within the VTT-Box project builds on contemporary theories and principles or learning and uses up-to-date principles drawn from extensive research in e-learning.

The general aim is to help teachers build a learning environment in cyberspace, which is learner-centered, interactive, provocative and challenging but also supportive for the learners. It also aims to help educators build affordable, user-friendly and competitive education for their students.

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