Axis 3. The most common eLearning platforms and tools

Learning outcomes

Knowledge	Skills	Attitudes
K3.1. Identify platforms and tools used in HEIs for eLearning purposes	S3.1. Select appropriate tools and implement pedagogical models of learning	A.3.1. Collaborate with colleagues to share best practices and experiences
K3.2. Explain the principles and features of technologies used in higher education	S3.2. Apply tools and platforms for the delivery of eLearning content	A.3.2. Independently define criteria to help find, evaluate and apply appropriate educational technology
K3.3. Explain the criteria used to select platforms and tools for the development, deliver, and maintenance of the course	S3.3. Assess and improve digital competences	A.3.3. Share their digital competences with colleagues

Topic1: The meaning of technology in education

In this topic we introduce learners to the concept and use of technology used to design, develop and manage digital innovative courses.

When we talk about tools that are used in the process of teaching and learning, we usually think and talk about technologies in education. The most commonly used terms are as follow:

- ✓ educational technology - the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources (Richey, 2008).
- ✓ learning technology - refer theory and practice of design, development, management and evaluation of the processes and resources in order to achieve better teaching and learning results (Ivanova, 2020).
- ✓ instructional technology - eLearning technologies aim to deliver rich learning experience and optimize knowledge transferred to learners (Ivanova, 2020).

In the case of higher educational institutions, we usually mention the term "educational technologies" that include information technologies, research technologies for scientific and education information, technologies for the computer processing of educational information, technologies for organizing the professional training of students, and technologies for the execution and defence of the graduation project or academic works (Cabaleiro-Cerviño and Vera, 2020). The use of technologies depends on the framework of pedagogical practice. The goal of all technologies used in education is the improvement of effectiveness and quality of teaching and learning in an innovative way.

Certain technologies, used alone or in combination, are designed to enrich the content of studies, others to organise distance teaching and learning, and still others for blended learning. Almost most traditional teaching tools (textbooks, manuals, printed material., etc.), can be integrated into eLearning, however, e.learning context includes interactive technologies.

According the Digital Educational Action Plan (2021-2027) the digital technologies play a major role in distance and blended learning, which are the hot topics of today.

The main key of eLearning is a learning environment used as a set of interactive technologies, services and software that provides learner access to data, resources to support his/her learning process. Virtual learning environments are commonly used to design and develop the learning process. The main two types of e.Learning environment are as follow: virtual environment realized as free software and virtual environment as commercial or proprietary software.

Free software environments are used to provide open training at no cost. Some of these, not all, environments are open source which means the software with source code that

Erasmus+ KA2 Project, Cooperation for innovation and the exchange of good practices, KA226 - Partnerships for Digital Education Readiness. Project Number: 2020-1-RO01-KA226-HE-095434

onlineHE

Co-funded by the Erasmus+ Programme of the European Union

anyone can inspect, modify, and enhance. The reasons to use open-source software cover control, training, security, stability, community[1]. Moodle, ATutor, Claroline are examples of open-source virtual environment. Open-source programs work under the terms of the General Public License. More details on the General public License can be found here: https://en.wikipedia.org/wiki/GNU_General_Public_License.

Commercial software is developed for sale or that serves commercial purposes. Commercial software can be proprietary software or free and open-source software. (https://en.wikipedia.org/wiki/Commercial_software). Most popular licensed environment WebCT, LearningSpace, Blackboard, Docent.

Educational institutions prefer free and open-source software due to the possibility to contribute to their improvement and development by everyone and adapt to the need of the institution.

It is important to consider the following criteria when choosing technologies for eLearning: accessibility, cost, didactic learning characteristics, interactivity support, user-friendliness, organizational needs, novelty, speed (Bates & Sangra, 2011). Teaching and learning content are developed in keeping with the didactic principles of teaching and learning content and the implementation of open, flexible and innovative learning opportunities.

Topic2: Categories of eLearning technologies

In this topic trainer introduces categories of technologies by purpose of use, functionality, provide examples of popular tools/platforms.

Learning technologies - tools, platforms, systems - can be categorised according to the selected criteria. For example, Craig et al. (2012) summarized eLearning technologies used by teachers in order to deliver rich learning experience and optimize knowledge transferred to learners, as follow:

- ✓ Assessment and Survey Applications – tools for formative and summative assessment (Survey Monkey, Quiz Builder, StudyMate, Respondus).
- ✓ Synchronous Communication Tools (Google Talk, iChat, Skype, ICQ, MSN/Yahoo messenger).
- ✓ Asynchronous Communication tools used one-to-one or one-to-many online communication (Email, Announcements, SMS, Discussion forum).
- ✓ Digital Repositories – content management systems and search engines that index them (Google Scholar, ePortfolio, Youtube).

[1] https://opensource.com/resources/what-open-source (accessed 2022 03 20)

Erasmus+ KA2 Project, Cooperation for innovation and the exchange of good practices, KA226 - Partnerships for Digital Education Readiness. Project Number: 2020-1-RO01-KA226-HE-095434

onlineHE

Co-funded by the Erasmus+ Programme of the European Union

- ✓ Management and Administration tools used for teaching and the management of students and their learning such as administration of students' grades, tracking their progress, plagiarism detection tools (Turnitin, Gradebook, iGoogle, myYahoo).
- ✓ Photosharing websites (Flickr, Gallery2, Zoomr, Picasa, Photobucket).
- ✓ Podcasts and Streaming (Podcast, iLecture, iTunesU, MyPod, ePodcast). The podcast is audio or video file that can be created and available for download. Streamed files contain "data sent in a compressed format that is played in real time at the destination" (p. 33).
- ✓ Shared Documents – collaboration applications that provide storing, editing, and reviewing of documents in a virtual space (Google Docs, Zoho Writer, SlideShare, Elgg, Clearspace).
- ✓ Social Bookmarking – the practice of saving a link to a website as a public or private bookmark then tagging it with meaningful keywords (CiteULike, Simple, Diigo, Connotea, digg, reddit).
- ✓ Social Networking enable online communication, interests and activities sharing (Facebook, MySpace, Bebo, Ning, LinkedIn).
- ✓ Subscribed Content Delivery (Google Reader, Bloglines, RSS Feeds).
- ✓ Virtual Worlds – a simulated environment where users can interact individually or with others to use and create objects (Second Life (SL), Virtual Graffiti, eSimulations).
- ✓ Weblogs and Microblogs (Blogger, Wordpress, Twitter, RAMBLE, Yammer).
- ✓ Wiki is a collection of web pages designed to allow multiple authors to create, edit, and delete content (PBWorks, Wikispaces, MediaWiki, WikidPad, Zwiki).

What is your view of tools in education? How should they be chosen? Why are they important? For what purpose do you use them? Which ones do you choose most often? How does technology affect learners' learning outcomes?

Why is the virtual learning environment not mentioned in the list of categories?

a) Almost virtual learning environment is centrally maintained by universities and has all resources that compliant with pedagogical theories and practices.

b) The use of such systems is usually determined by the authority and educators do not have the possibility to refuse not to use them. Educators are free to choose and use the tools listed above in their practice (Craig et al. 2012).

Another example is the categorization presented by Pinto & Leite (2020). These categories are distinguished according to the use of technologies in higher education institutions and their purpose as mentioned in the literature. Digital technologies are integrated to the

Erasmus+ KA2 Project, Cooperation for innovation and the exchange of good practices, KA226 - Partnerships for Digital Education Readiness. Project Number: 2020-1-RO01-KA226-HE-095434

onlineHE

Co-funded by the Erasmus+ Programme of the European Union

process of teaching and learning in higher education as a set of technologies in order to integrate formal learning context and support student learning. Pinto & Leite (2020) note that "Digital technologies and learning environments have transformed the "time for learning", now learning is "all the time"" (p. 344).

- ✓ Virtual learning environment: Moodle, Blackboard, WebCT, Platforms supporting online courses, etc.
- ✓ Publish and Share tools: Blogs, Wikis, Flickr, YouTube, Podcast, Social Bookmarking, ePortfolio, Digital storytelling, e-books, Video lectures, etc.
- ✓ Collaborative systems: Google Docs, Social Bookmarking, Mind Maps, Wikis, Blogs, etc.
- ✓ Social networking: Facebook, Twitter, Hi5, LinkedIn, Ning, Academia.edu, etc.
- ✓ Interpersonal Communication tools: email, MSN, Skype, Forums, Video-conferencing, etc.
- ✓ Content Aggregation tools: RSS feeds, NetVibes, Google Reader, etc.
- ✓ 3D Virtual Worlds: Second Life, Habbo, Augmented reality, Games, Virtual labs, etc.
- ✓ Assessment and Feedback systems: Electronic marking, Clickers, Audio feedback, Computer note taking, etc.
- ✓ Mobile tools: mobile applications internet based.
- ✓ Information and Communication Technologies: software or applications internet based (a set of technologies)

Some of these tools may belong to different categories depending on the teaching and learning objectives. For example, Wiki can be used for publishing and sharing of content, supporting collaborative work.

Pinto & Leite (2020) note that virtual learning environment, information and communication technologies, publishing and sharing tools are the most target in the publications as „being used by students in support of their learning" (p. 346).

We can see that the categorization of technologies depends on how they are used and in what way. Most importantly, these tools should enable content to be created, transferred and shared.

Let's discuss virtual learning environment, information and communication technologies, and publishing and sharing tools in more detail.

Virtual learning environment

Let's discuss virtual learning environment in more detail.

The term of virtual learning environment is ambiguous and can be understood as:

Erasmus+ KA2 Project, Cooperation for innovation and the exchange of good practices, KA226 - Partnerships for Digital Education Readiness. Project Number: 2020-1-RO01-KA226-HE-095434

onlineHE

Co-funded by the Erasmus+ Programme of the European Union

- ✓ Learning Management System is used to manage the administration of training. Typically, includes functionality for administration, assignment, tracking and accessing learning content, but it is not designed to create or manage content resources.
- ✓ Learning Content Management System aims to enable content creators to create learning activities, collaborate and reuse learning resources more efficiently.
- ✓ Course Management System act as a content storage. CMS allows teacher to develop a training course without using a programming language and make the course material and other learning-related information available on a computer network.
- ✓ Computer Supported Collaborative Learning Environment enables learning and work in groups. It is based on the cognitive methods and knowledge construction principles.
- ✓ Content Management System is designed to create and modify a digital content. It gives the teacher the flexibility to organise the learning material: create new modules, take information from other sources, reorganise it and present it in different ways. Managed Learning Environment covers all information systems and processes of an institution that have directly or indirectly affecting education and its management (Targamadze, A. 2011)

The most well-known systems are as follow: Moodle, Blackboard, ATutor, Sakai.

The features and capabilities of virtual learning environment can be divided into learner tools, support tools, and technical tools (Al-Ajlan, 2012). Communication, productivity, and student involvement tools are allocated to the group of tools for learner. Support tools include tools for administration, course delivery, curriculum design. Technical tools cover hardware and software, specification of pricing and licensing.

Watch the video: https://www.youtube.com/watch?v=3ORsUGVNxGs (*Creative Commons license*). Do you know more examples of virtual learning environments? What are their advantages and disadvantages? Which virtual environment tools do you use most and why? Share your ideas.

Information and communication technologies

eLearning is based on the use of information and communication technologies (ICTs), that are widely used by educational institutions for different purposes. Technologies used to develop digital competencies in the learning processes, e. g. create videos (Wondows Movie Maker, iMovie), presentations (Prezi, PowerPoint, Emaze), concept maps (Creately), create and analyze surveys (Google Forms), provide real-time questions and answers (Socrative), share knowledge through active methodologies (Kahoot), etc. (Cueava and Inga, 2022). Certain technologies, used alone or in combination, are designed to enrich

Erasmus+ KA2 Project, Cooperation for innovation and the exchange of good practices, KA226 - Partnerships for Digital Education Readiness. Project Number: 2020-1-RO01-KA226-HE-095434

onlineHE

Co-funded by the Erasmus+ Programme of the European Union

the content of studies, others to organise distance teaching and learning, and still others for blended learning. ICTs are the set of technological tools and resources used for communication, creation, dissemination, storage and management of information.

The use of technologies can be based on 4 steps: search, select, sense making, share.

Which tool is most useful to promote student interest in the course content? Initiate a brainstorm.

The trainer asks participants to think about and demonstrate what they think is the best example of how to use a particular tool to present learning material or communicate/collaborate with students or assess their achievements. The trainer asks one or two learners to demonstrate the example to a whole audience.

Technologies for publishing and sharing

Technologies for publishing and sharing aims to support students learning, maintain communication and interaction between participants, engage them with learning materials and collaboration. The example of the most popular tools is video technologies used to provide videos of lectures or field experiences.

The trainer asks participants: What tools are used in your practice? What is the result of their use?

Topic3: Selection of tools and platforms

In this topic we explore the variety of information and communication technologies. In this part, participants share their experiences and the lecture formulated insights together with the learner.

Participants discuss the following questions in groups:

1. Which information and communication technologies (ICT) are used in teaching in your institution?

2. What tools and platforms do you use in your practice?

3. How do you apply these tools and platforms?

4. Which category do you think the tools, platforms used in your practice can be placed in and why?

5. What do you see as the advantages and disadvantages of the technologies used in your practice?

Erasmus+ KA2 Project, Cooperation for innovation and the exchange of good practices, KA226 - Partnerships for Digital Education Readiness. Project Number: 2020-1-RO01-KA226-HE-095434

onlineHE

Co-funded by the Erasmus+ Programme of the European Union

And notes their answers on the worksheet for this activity "ONLINEHE_Axis3_Worksheet1.docx".

In the next step, participants should identify tools or platforms used in their practice as basic, what tools they use to create course content.

In conclusion, the trainer should point out that the choice and use of tools has an impact on the development of digital competence.

It is noticeable that participants will identify the tools mentioned at the beginning of the lecture and use these tools for different purposes.

Literature

Aguilar-Peña, J.D., Rus-Casas, C., Eliche-Quesada, D., Muñoz-Rodríguez, F.J., La Rubia, M.D. (2022). Content Curation in E-Learning: A Case of Study with Spanish Engineering Students. Appl. Sci. 12, 3188. https://doi.org/10.3390/app12063188

Al-Ajlan, A.S (2012). A Comparative Study Between E-Learning Features.

Bates, A., Sangrà, A. (2011). Managing Technology in Higher Education: Strategies for Transforming Teaching and Learning. San Francisco: Jossey-Bass/John Wiley & Co.

Craig, A., Coldwell-Nelson, J., Goold, A., & Beekhuyzen, J.P. (2012). A Review of E-Technologies: Challenges and Opportunities for Teaching and Learning Online. CSEDU 2012.

Cueva, A., & Inga, E. (2022). Information and Communication Technologies for Education Considering the Flipped Learning Model. Education Sciences.

Ivanova, M. (2020). eLearning Informatics: From Automation of Educational Activities to Intelligent Solutions Building. Informatics Educ., 19, 257-282.

Pinto, M., & Leite, C. (2020). Digital technologies in support of students learning in Higher Education: literature review. Digital Education Review, 343-360.

Richey, R.C. (2008). Reflections on the 2008 AECT Definitions of the Field. TechTrends, 52, 24-25.

Targamadze, A. (2011). Technologijomis grįsto mokymosi priemonės ir sistemos.

Erasmus+ KA2 Project, Cooperation for innovation and the exchange of good practices, KA226 - Partnerships for Digital Education Readiness. Project Number: 2020-1-RO01-KA226-HE-095434

onlineHE

Co-funded by the Erasmus+ Programme of the European Union