OnlineHE-CARDET

Axis 5: Design and develop activities for e-Learning

Theoretical part

Learning outcomes

Knowledge	Skills	Attitudes
K5.1. define the process of designing eLearning activities	S5.1. design eLearning activities, following a consistent process	A.5.1. plan the development of eLearning activities
K5.2. identify the most common types of eLearning activities used in HE	S5.2. select suitable tech tools to develop eLearning activities	A.5.2. share ideas regarding the creation of eLearning activities
K5.3. explain the criteria used to select tech tools for eLearning activities	S5.3. create eLearning activities using selected tech tools	A.5.3. collaborate with colleagues to create eLearning activities

Topic 1: Overview of design and preparation process

In this topic, we will explore the process we can follow when designing learning activities. Similar to course planning for a face-to-face instruction, the elements that you need to consider and define are the following:

#1: educational objectives and learning outcomes. What do you want to achieve when implementing this activity?

a) The educational objective refers to the overall aim of an activity. For example, you may need to present new content, revise previous topics, assess students' progress, etc. Based on what you want to achieve, there are mainly three categories of learning activities:

● **warm up/pre instructional**: at the beginning of a lesson/course, you need to find out what the students already know or believe about a topic or concept, before presenting it. This way, you can link the new content to their background knowledge and find potential misconceptions they have. This is especially important for (young) adult learners, who come into the classroom having their own experiences, ideas and opinions.

● **presentation of the learning content**: after an initial introduction, you can present the new topic/concept/skills that you want our students to learn and master. Presentation is not about lecturing, since its format can vary. Reading, video, demonstration, etc. are also possible.

● **activities for practice**: after students have engaged with the new learning content, you can provide them with ample opportunities to apply the newly acquired knowledge and skills. The practice activities need to be authentic: to resemble the real-life context where students will use and apply the acquired knowledge. Sustained feedback and reflection for students to think of what they know/have learned is crucial during practice.

b) The learning outcomes refer to the specific knowledge/skills that students will acquire through this activity. To define the outcomes, you can consult the course outline/syllabi/guide. Similarly to the beginning of a course, to write effective learning outcomes you can follow the A.B.C.D. method:

● **A**udience: who is asked to complete something? Who should exhibit a skill/knowledge/attitude?

● **B**ehaviour: what is the expected action a learner has to complete? Which task/behaviour should the students be able to do?

● **C**onditions: under which conditions should the students exhibit the behaviour (e.g., what kind of support tools, references, they can or cannot use)?

● **D**egree: how well the student should exhibit the behaviours (e..g, in terms of speed, accuracy, quality, etc.).

Example: By the time the students finish this tutorial, they should be able to successfully find relevant material in the university's e-library, on their own.

Extra tip: Do not forget to cultivate your students' digital literacy. Following the European Commission's [DigComp 2.1 framework](), digital competence consists of five areas with eight proficiency levels: (a) information and data literacy, (b) communication and collaboration, (c) digital content creation, (d) safety, and (e) problem solving.

#2: type of learning activity. What is the type of learning activity you will prepare to achieve the educational objective/learning outcome? There are many types (similar to face-to-face activities) such as case study, blogging, or interactive presentations.

#3: material and content. What is the content of the learning activity? You may prepare your own material from scratch or adapt material you find online (e.g., from OERs, trustworthy websites, previous courses, the same course in case it has already been delivered). Make sure you cite the recourses used, check the Creative Commons licensing and find copyright free material (e.g., images from Pixabay, Unsplash, etc.).

#4: mode of delivery. Will the activity be synchronous or asynchronous? Will the activity be individual or collaborative (pair/group work)? Will the activity be student or teacher-led?

- **Synchronous**: the participants (students, teachers) work together, at the same time (e.g., web conferencing, chatting).
- **Asynchronous**: the participants (students, teachers) work individually, at their own time (e.g., watching recorded lectures, email/forum communication).

Extra tip: Prepare activities that exploit the benefits of each mode. On the one hand, synchronous learning is the best for activities where two-way communication, explanation, clarification, and immediate feedback are crucial. On the other hand, asynchronous learning is the best for activities where reflection, individual and self-paced work are a priority.

#5: technology equipment and tools. Which equipment and technology tools will you need to prepare the learning activity? Which equipment and technology tools will the user need to complete the learning activity? The equipment refers to the devices (e.g., laptop, tablet, etc.). The technology tools are the software and applications (e.g., Learning Management System, a content creation tool etc.) for the creation of activities. Since there is a vast amount of tools available, later on, we will discuss the criteria you can use to select tools that are suitable to your needs and goals.

#6: time frame - length. How long will it take to complete this activity? Is the time frame feasible? Timing might be flexible (e.g., self-paced without deadlines), depend on deadlines or be specific in terms of minutes/hours.

#7: learning requirements/prerequisites. What knowledge and skills do students need to possess before engaging with the activity? This refers to digital, hard, and soft skills. For example, students may need to know how to use a specific tool and platform for research purposes (digital skill), a lesson-specific theory (hard skills), and manage their time (soft skills).

#8: feedback: How will the feedback be given? Feedback needs to be part of all activities, so that students know their knowledge/skill level and progress. Feedback can be given by other students (peer-to-peer feedback) or by you as a teacher. The technological tools can also be the medium for the provision of feedback (e.g., automated response to a multiple-choice quiz). Make sure that the students get feedback on time, with meaningful guidance. Highlight the positive things first, to increase motivation, and then provide them with recommendations for improvement.

#9 instructions and subtasks: What exactly do students need to know for the completion of the activity? What are the specific instructions? Are there sub-tasks that students need to do for the successful completion of the activity? Students may need to research, use books or read material. You need to give clear instructions from the very beginning. Many activities are a combination of tasks. First, draw the bigger picture of an activity (e.g., students will create a podcast) and then find the separate steps students need to take to successfully complete the activity (e.g., research material online, record audio etc.). In case you follow a problem-based approach, you can leave it open for your students to decide how to act to reach the final result. Even then, though, you need to present what is expected from them to deliver.

Keep in mind that these elements are not necessarily defined in a linear way.

Topic 2: Types of eLearning activities

In this topic, we will explore a collection of the most common learning activities you can prepare for your online courses. The activities we choose are the most suitable for university-level students. Many of them can be used in combination with each other (e.g., discussion as part of a case study). They are presented separately, though, to better understand what they are and how they are used for teaching and learning purposes.

Interactive presentations

presentations are the most frequently used way to provide students with (theoretical) knowledge and information about a topic/concept. In an online context, interactivity means that the students can interact with the technology (e.g., click a button for the next slide in a presentation) and the content given (e.g., answer a question that appears within a presentation). Presentations can be synchronous or asynchronous.

When to use:

- to present new information
- to revise information
- to track students' progress (e.g., quiz embedded)

Elements to integrate:

- simple language and sentences
- representative graphics/pictures (showing visually the text)
- questions or activities to check understanding or reflect (e.g., closed-ended, open-ended, polls)
- videos
- links/additional resources

Tools to use:

- interactive presentation software (e.g., Mentimeter, Genially, Prezi, Nearpod, H5P)
- authoring tools (e.g., adobe captivate, articulate storyline, ispring) that require more advanced skills

Examples: interactive presentation in Chemistry

Further reading: Video about how to create interactive presentations.

Discussions

discussions can be used as a standalone activity or can be part/subtask of other activities. They include a starting-point (e.g., a controversial topic, a question) that needs to be thoroughly discussed. Usually students are asked to share ideas and express their views critically, by commenting on others' points in a meaningful way (e.g., explain why they disagree and give another point of view). Discussions can be synchronous or asynchronous. For a real-life turn-taking experience, it is recommended that you establish some common rules with your students. For example, ask them to discuss a topic first by giving their opinion and then by commenting on the ideas of two other classmates.

When to use:

- for introduction/practice/revision
- to develop students' higher order thinking skills (analysis, synthesis, critical thinking)
- for reflection
- to develop students' collaboration and communication skills

Elements to integrate:

- open-ended questions with more than one answer correct
- debating format (teams justifying two different points of views)

Tools to use:

- forum in an LMS
- web conferencing tools (e.g., ZOOM, WebEx etc.)
- debate tools (e.g., Kialo, Tricider)

Examples:

a) Discussion in a forum: students have to read two research papers and discuss where the authors agree and disagree. What would they suggest as a further research question to investigate? They have to justify their answers based on the two papers and the weekly material given.
b) debate in a literature class

Simulations and Scenarios

simulations follow a "Watch-Try-Do" approach. First, you give students specific information about how to execute an operation. Then, you give them time to practice. Finally, they are able to do the specific operation on their own. Simulations work as a fail-safe environment for the students to experiment with procedures and tasks. Similarly, scenarios in an online context reprise a situation or environment. You can prepare scenarios activities using 3D//360 modelling/pictures. Both types of activities are mostly asynchronous.

When to use:

- for students to practice, learn specific skills (e.g., complex processes and procedures)
- for practice-oriented courses/subjects
- to provide opportunities for experiential learning
- to engage and motivate students

Elements to integrate:

- real life problems/situations
- tools and behaviours that resemble real life
- immersive audiovisual material (e.g., graphics, audio)

Tools to use:

- virtual STEAM laboratories (e.g., Virtual Labs by MERLOT/Phet interactive simulations, Virtual Labs by the Ministry of Education in India).
- 3D modelling/ 360 pictures creation tools (e.g., Thinglink)

Examples: students explore basic electricity relationships and build circuits from schematic drawings in [an online simulation lab](#). After experimentation, they draw circuits using the online editor tool [Chemix](#) to share their results.

(Interactive) video-based activity

video-based activities require students to watch and absorb information explained to them in an audiovisual way. The information is presented in a linear way, based on a sequence that you, as an instructor, have chosen. Video-based activities are mostly asynchronous. To enhance interactivity and engage students , you can prepare videos where short questions are embedded. They are often used to check students' understanding. You can make your own videos by recording your screen and voice (with or without showing your face) or using animated graphics. Alternatively, you can use ready made videos and modify them. Either way, you can take the video and embed questions for your students to answer, using relevant software for interactive video creation (see below).

When to use:

- to present new information
- to present a tutorial of a procedure
- to revise information
- to track students' progress (e.g., if quiz is embedded)
- for students to self -reflect (e.g., if quiz is embedded)

Elements to integrate:

- simple language and sentences
- less text, more oral explanation
- representative graphics/pictures (showing visually what you talk about)
- reflective questions (e.g., closed-ended, open-ended)
- engaging voice and tone
- if possible, break the content into bite-sized videos or sections within a video

Tools to use:

- *video recorder (e.g., [Panopto](#))
- screen recorder (e.g., [Screen-cast-o-matic](#))
- audio recorder and editor (e.g., [Audacity](#))
- video editor (e.g., [VSDC](#))
- animated video creation (e.g., [Powtoon](#), [Animoto](#))
- interactive video creation (e.g., [EdPuzzle](#), [H5P](#))

Example: an [interactive video](#) for medical students about medical terminology developed with EdPuzzle.

Extra tip: Apart from you creating an interactive video, you can ask your students to prepare their own videos (or podcasts), based on the objectives set (e.g., present research results on a specific topic).

*many tools combine various features such as screen, audio recording and video editing

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WebQuests

WebQuests are inquiry-based activities where students solve a task by exploring a collection of specific Internet-based resources given to them. To create a webquest, you prepare step-by-step guidelines that include a description of the task (what students have to answer, produce), the process (the steps they will have to take), the resources (links to online, multiple media resources), the evaluation (the ways their performance will be assessed) and a final conclusion (reflection and further steps).

When to use:

- for presentation/practice
- to develop students' higher order thinking skills (evaluation, analysis, synthesis, critical thinking, problem-solving, creation)
- for students to self-reflect

Elements to integrate:

- real life tasks (open-ended responses)
- innovative tasks (to be engaging and smart)
- clear instructions
- good resources

Tools:

- site development tools (e.g., wordpress, google sites)
- simple word processing tools (e.g., google docs)

Example: webquests about Financial Literacy

Quizzes/Closed-ended activities

these activities can take multiple formats. They can be multiple-choice, true/false, multiple-response, drag and drop, fill-in-the-gaps and/or matching. They can be synchronous or asynchronous.

When to use:

- for practice/revision/assessment
- for students to self-reflect
- mostly for lower-order thinking skills (remember, recall information)

Elements to integrate:

- not too-easy-to-guess options (e.g., avoid the None/All of the above in multiple choice and sentences taken directly for the material students have read)
- to the point questions
- to the point automatic feedback

Tools:

- quiz creation (e.g., H5P, Quizizz, Kahoot)

Example: a quiz set with H5P, a quiz set with Kahoot! in Biology

Extra tip: tools such as Kahoot! and Quizizz can make your quizzes gamified; they use elements found in games such as points, leaderboards, levels, to make the activity fun and engaging.

Additional, good-to-know activities:

- **icebreakers/team-building:** to "set the scene" and make your students feel comfortable. students usually work on a general topic to get to know each other. Therefore, the content is irrelevant to the learning material. Read this article with some extra ideas.
- **mindmapping:** for presentation or practice/revision. Either you (for presentation) or the students (for practice/revision) can make mind maps to summarise content, draw conclusions, make connections between ideas/concepts. Example tools: Mindmeister.
- **interactive worksheets:** to transform the traditional worksheet exercises into interactive, online papers. Example tools: Topworksheets.
- **infographic creation**: for presentation or practice/revision. Either you (for presentation) or the students (for practice/revision) can create graphic, visual representations of information, data, or knowledge quickly and clearly. Example tools: Canva
- **(micro)blogging**: to self-reflect, present ideas/projects, share good practices and communicate. Similar to real life, students can either post something online in an LMS or web site they host. Microblogging refers to the posting of short texts (e.g., 3-4 sentences) similar to social media posting (e.g. Twitter, Facebook). Example tools: wix for website creation, wakelet for knowledge sharing, chat in an LMS.

Topic 3: Selecting tech tools for eLearning activities

There are a lot of tools and applications available to use for educational purposes. Sometimes this is overwhelming. So, how do we choose which tools to use? Do we prefer the most famous ones, those who colleagues recommend or those with which we are already familiar? Let's highlight that technology is the medium to achieve our educational goals. Tools are supportive and we are not using them just for the sake of using them. It is not about how many tools you incorporate but rather how purposefully you incorporate them, to serve teaching, learning, and assessment purposes.

In this section, we will explore the criteria that you can use to evaluate the available software and select tools carefully.

Group activity to discuss the following:

How do you choose which tech tools to use for your eLearning activities?

Discuss and note down some selection criteria in this Padlet:
https://padlet.com/athinakonstantinidou/mowtvc81udvnvwib

1. **Objective**: Does the software meet the educational objective set (e.g., presentation, practice, revision, etc.)
2. **Thinking skills**: Which thinking skills can students develop through this? (e.g., lower-level such as recalling, remembering, or higher-order thinking skills such as creation, production etc.)
3. **Literacy skills**: Which literacy skills can students develop through this? (e.g., listening, speaking, writing, etc.)
4. **Digital literacy**: Which digital skills can students develop through this? (e.g., research, content creation, etc.)
5. **Interactivity**: How much can students interact with the tool and the content to be prepared?
6. **Accessibility**: Does the tool support accessibility? (e.g., navigation, easy-to-read graphics/links, fonts, accommodations for varied ability levels)
7. **Delivery mode**: Does the tool support synchronous/asynchronous collaboration and communication or both? Can you use it for individual and/or collaborative activities? Can you use it for teacher- or student-lead instruction?
8. **Assistance**: Is there assistance/support for instructor and students (e.g., chat support with technicians, links to external websites, additional material)
9. **Tracking and monitoring**: Does the tool track students' progress? Can the teacher access such details? (e.g., reports for what students see, how much time they spend, etc.)
10. **Feedback**: Can the teacher provide feedback? (in real-time or prepared in advance)
11. **Multimedia**: ARe there high-quality multimedia used (if applicable)?
12. **Adaptability**: Does the tool adapt to students' learning needs such as the speed, the acquired skills, etc.
13. **Required equipment**: Does the tool require advanced equipment beyond what is typically available to instructors and students (computer, internet connection, etc.)
14. **Required skills**: Do you or your students need advanced skills to use it? Can you learn it through tutorials, training or simple experimentation?
15. **Sharing options and LMS integration**: Can you insert the tool into the LMS/platform used by the university (if it is not a tool provided by the LMS) and/or there are sharing options available? (e.g., link of the final content created in the software environment)

It is not mandatory to check out all the above criteria. These are guidelines that you can mix and match based on your needs. You have to define which are crucial for the purposes of the elearning activities you are about to prepare. For example, let's say that you are about to create a collaborative activity where students need to co-write a text. To select a tool, you definitely need to check out if it supports the following:

- students can use and develop their writing skills
- users can collaborate and in what format (e.g., text and voice)
- other users can access the content and create feedback (e.g., teacher)
- users can share the work in progress or final results
- the tool is accessible (e.g., easiness to use etc)

Other than these, you can also assess other features such as the equipment and skills required to use, the tracking and monitoring degree to see who has contributed to the writing process and the type of assistance provided by the tool. You can use any additional criteria to compare and differentiate between two or more tools available.

Usually the cost is irrelevant to the quality of software. However, this can be a criterion when budget-restrictions come into effect. Fortunately, there are a lot of free/freeware tools (basic features for free and extra features available with pricing) that you can use, applying the above criteria.

Practical part-Scenario activity

Context

"The University where you are working will host a virtual conference entitled "Distance learning is here to stay: lessons learned in HE". The aim is to exchange good practice ideas for online learning which remains in the post-pandemic era. Practitioners from the academic and scientific community of the area such as instructors, teaching staff, learning designers, will attend the 1-day virtual event to exchange good practice ideas for online learning. You are asked to work with colleagues of yours, in groups, and prepare an eLearning activity that will be presented as a best practice example, for knowledge sharing and open discussion."

Sub-task 1: Design the learning activity.

a. explain briefly the process you will follow and the elements you will consider
b. write a short description of what this activity is about and what the participants are asked to do
c. justify why you have chosen the specific tech tools.

Sub-task 2: Develop/Create the learning activity with the chosen tool

You will present the final result (activity created) explaining

- the way you have worked to design the activity
- the reason(s) you have chosen the specific tools
- what this activity is about and what the end-user (students) are asked to do

For the trainer to give feedback.

Participants will be assessed based on

- **the quality of the content** (description of the design process for example, they have defined all elements such as the objective, etc., description of the activity, justification of tech tools
- **the quality of the activity** (supports the design process, for example it is in line with the objectives, learning outcomes, the mode of delivery, etc.)
- **the appropriateness of the tech tool**