Digital Escape Room Learning Design Guide

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This guide can help you develop your module's digital escape room-based learning design. There are five steps for you to consider:

Step 1: Evaluate and reflect on your prior or similar curriculum design.

Step 2: Create milestones for learning progress checks.

Step 3: Develop and anchor educational objectives for students to achieve with the different milestones.

Step 4: Align digital tools with pedagogy to increase learners' engagement and interaction with the course content.

Step 5: Complete mapping the learning process with a detailed, sequential curriculum plan.

Overview

Application Guide

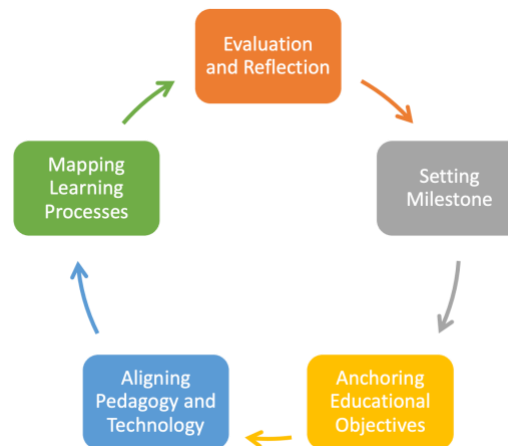**Digital Escape Room Learning Design Guide**

Overview

This guide aims to help faculty achieve their teaching objectives through a well-organized and user-friendly method. The core elements of the guide are the Fishbone digital learning design (FDLD) and Bloom's Taxonomy. Besides explaining these core elements, we have included examples of how we implemented these elements in EDS431- Designing Digital Education Curriculum. Using different aspects of the curriculum as examples, we hoped to demonstrate how theories that encourage more learner engagement can be used in designing the digital education curriculum, especially in developing digital escape rooms (DERs) for learning purposes.

Process and key concepts

The following flowchart shows the FDLD process. The design has five steps: evaluation and reflection, setting milestones, anchoring educational objectives, aligning pedagogy and technology, and mapping learning processes. Besides, the original Bloom's taxonomy consisted of six levels– remember, understand, apply, analyze, evaluate, and create. Moreover, in the new era of digital education, 'share' has been added as the next part after 'create'.

Step-By-Step Guide for Digital Escape Room Learning Design

This section will introduce an example module, EDS431- Designing Digital Education Curriculum, to help you better understand the learning design process.
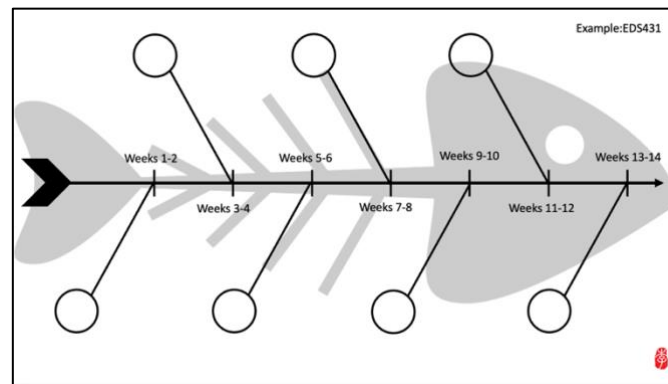
Step One: Evaluation and Reflection

Examples of guiding questions will be:

1. Is this an existing module or a new module?
2. What were/will be the learning objectives (aligned with Bloom's taxonomy), learning activities and assessments of the module?
3. What works well in the existing module? What are the gaps in the existing module?
4. How were the student's prior learning experiences (e.g., engagement, performance) in the existing module?
5. What were/will be the challenges or problems in the learning design?
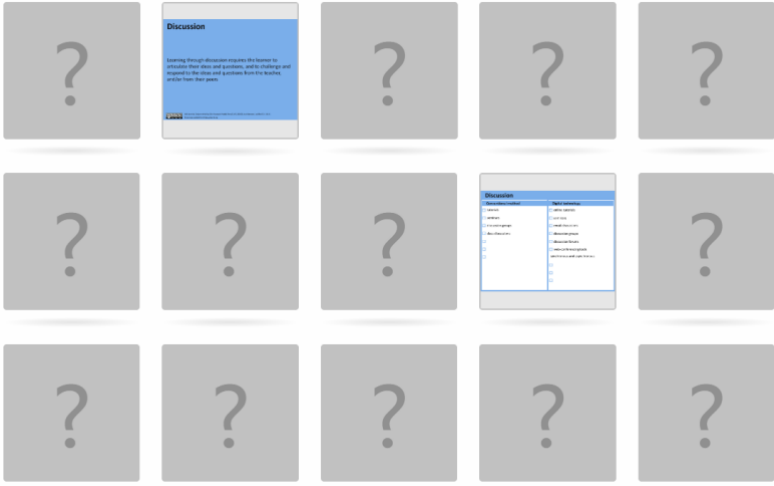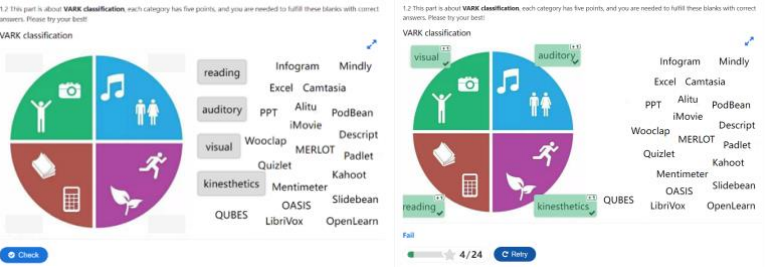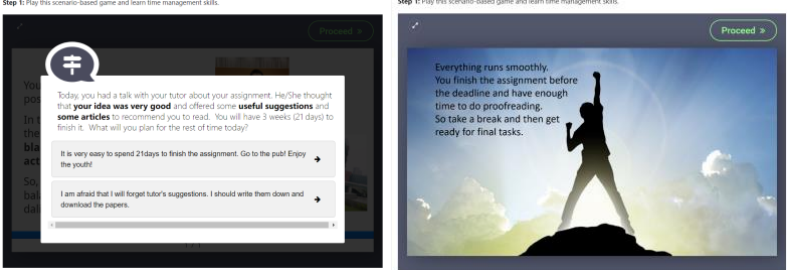
Step Two: Setting Milestones

In this step, you will be setting up a teaching plan. In your teaching plan, you can highlight the knowledge or skills students should learn in a certain period, which we refer to as a milestone. The following figure shows an example of a bi-weekly milestone for EDS431.
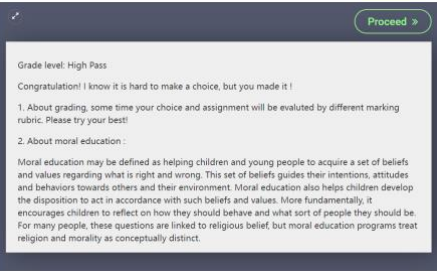
Step Three: Anchoring Educational Objectives

After setting the milestones, we shall consider the educational objectives linked to H5P activities. The following table displays Bloom's taxonomy and the corresponding H5P learning activities with examples (see Appendix A for more examples). In EDS431, we used a series of H5P activities in a unit to develop a digital escape room (DER). This table can also help teachers consider the different activities they can do for the different educational objectives. It is important to note that the different levels of Bloom's taxonomy can be used independently or combined with other levels for each milestone.

Level	Learning Activities	Examples	Game Elements
Remember	Students are required to identify learned knowledge through the H5P activities such as crossword game, flashcards, and memory game.	In one of the DERs, we used the H5P memory game to introduce pedagogical approaches that students can think of using in their learning design. By matching the description with the right approaches, the students can name the knowledge they need to acquire through this process. 	Feedback System (Learners can receive immediate feedback during the game playing. For example, if the student chooses the wrong card to match, both of the cards will turn back to blank to make the student choose again.) Scoring System (If the memory game is designed in an interactive book, the H5P will automatically record scores for each attempt.)
Understand	Students be able to classify, compare, or explain the knowledge by selected H5P activities such as, image pairing and drag and drop.	In another DER designed by student team A, one of the activities used H5P drag and drop to check student's understanding on what is VARK and what examples belong to which type.	Feedback and Scoring System, Progress Tracker (Student can check answers, earn scores and retry to practice their understanding. The level-up system will record and visualize the learning progress)

			Your EDS431 Learning Progress
			Level Four: Investigation 753ˣᵖ 47ˣᵖ to go Participate in the module to gain experience points and level up! RECENT REWARDS
Apply	Students can use learned knowledge and tools to design an educational course such as their own DER.	In one of the DERs, we used a H5P branching scenario game to introduce time management skills. By making different choices in a simulated storyline, students need to carry out their time management plan based on the game design.	Feedback System (Different choices lead to different endings.)

Analyse	Students to organise and analyse the knowledge and skills through various H5P activities such as, image sequencing, mark the words, multiple choice, and branching scenario.	In one of the DER designed by student team A, H5P branching scenario was used to test student's analysis of moral situations. Students need to analyse based on the story and make their decision that leads to different endings. Part 3 Please be careful about your choice! Proceed » It seems that Kara has self-awareness! Is it a good thing? Do you want to let Kara live or let her die? Proceed » Grade level: High Pass Congratulation! I know it is hard to make a choice, but you made it ! 1. About grading, some time your choice and assignment will be evaluted by different marking rubric. Please try your best! 2. About moral education : Moral education may be defined as helping children and young people to acquire a set of beliefs and values regarding what is right and wrong. This set of beliefs guides their intentions, attitudes and behaviors towards others and their environment. Moral education also helps children develop the disposition to act in accordance with such beliefs and values. More fundamentally, it encourages children to reflect on how they should behave and what sort of people they should be. For many people, these questions are linked to religious belief, but moral education programs treat religion and morality as conceptually distinct.	Feedback System (After students made decisions in the DER, the H5P system will provide them with instant feedback accordingly.)
Create	Students to create a DER based on their knowledge and develop H5P activities. Students should also be able to explain their ideas to the target audience.	In EDS431, students were separated into several groups to create DERs collaboratively. The topic of each DER was various within the field of digital education, according to students' interest. Students used all kinds of H5P activities to setup learning activities and formative assessments.	Badges (The digital badges were designed to award students who complete certain learning tasks in the DERs)

Evaluate	Students to review peers' work from an end-user's point of view.	Students made a choice to decide which DER was more creative, and the vote results were linked to a leaderboard reward system.	Leaderboard The H5P timeline activity was used to visualize and record the weekly leaderboard rank.
Share	Students reflect on what they have learned in each DER and share their ideas in an online forum.	In one of the DERs, students can unlock the next DER by creating a forum post to share their reflections.	Feedback System (Students can receive peer feedback for dialogical peer learning)

Step3: Reflect on what you have learned. Think about this question **"what's the connection between time management and Bloom's Taxonomy"** and share your thoughts with your classmates.

You will need to create at least one discussion topic and reply to at least one post to share your experiences and reflection to answer the above question. Each post requires **at least 50 words.** You are encouraged to add hyperlinks or multimedia content.

Step4: Wait until the open time and then click Room 3. (This time, you are not required to input any password. Room 3 will be unlocked once you complete this forum task, which is (1) create a new discussion topic and (2) reply to another student's topic.)

This forum allows each person to start one discussion topic.

Grade users

Discussion	Started by	Last post ↓	Replies ✔	Subscribe
☆ 's reflection	29 Sep 2022	8 Oct 2022	1	⬤ ⋮
☆ p g's reflection	8 Oct 2022	8 Oct 2022	0	⬤ ⋮
☆ Ya g's reflection	30 Sep 2022	7 Oct 2022	1	⬤ ⋮

Badges
(In another module EDS433, we used the badge system to enhance the sharing activities.)

Welcome!

Welcome!

Step Four: Choose pedagogical approaches and appropriate technology

After evaluating your curriculum and setting the learning milestones and goals, the next step is to choose pedagogical approaches and appropriate technology. Appendix A provides some examples. There are several factors to be considered:

- **Understand your learners**: Gain a deep understanding of your target audience, including their age, prior knowledge, learning styles, preferences, and technological proficiency. This information will help you tailor your pedagogical approaches and technology choices to suit their needs.

- **Explore pedagogical approaches**: Familiarize yourself with different pedagogical approaches, such as traditional lectures, collaborative learning, project-based learning, experiential learning, flipped classrooms, or blended learning. Each approach has its strengths and weaknesses, and the choice should align with your learning goals and the characteristics of your learners. For example, we use game-based learning in DER to increase students' interest and engagement.

- **Consider the learning environment**: where the learning activities will take place? Will it be a physical classroom, an online platform, or a hybrid setting? The learning environment will influence the design of activities and the choice of appropriate technology. Take the DER for example. The entire activity could be completed by students online.

- **Technology Accessibility and Usability**: Evaluate the available technology tools and resources to support your pedagogical approach and enhance the learning experience. This may include Learning Management Systems (LMS), video conferencing tools, multimedia content creation tools, or online collaboration platforms. Accessibility and usability are crucial considerations. Ensure your chosen technology is user-friendly, intuitive, and accessible to all learners. The H5P used in the DER is an open tool for educators to design content based on educational needs.

- **Match technology to pedagogy**: Consider how the technology aligns with your pedagogical approach. For example, if you want your students to self-explore a course, book, or specific knowledge, you could design an interactive book using H5P and embed questions for formative assessment.

Step 5 Mapping the learning process

The below screenshot shows an example of the learning process mapping in Excel.

Learning process mapping for EDS431-2324-S1-Designing Digital Education Curriculum					
Week	**Date**	**Synchronous learning topic** **Lecture** **(Friday, 14:00 -16:00)**	**Synchronous learning activities** **Tutorial/Lab session** **(Friday,16:00 -17:00)**	**Asynchronous learning activities** **Tutorial/Lab session** **(Friday,17:00 -18:00)**	**Learning Outcomes** / **Educational Objectives**
Week 1	2023/9/15	Lecture 1 - Module introduction + Education 4.0	Tutorial 1 - Interpret key concepts of Education 4.0 , and **share** with other students in the **online glossary**.	Identify Education 4.0 examples and share with other students in the **digital escape room** 1	LO A — Remember and Share
		Formative assessment criteria *(The student will be able to:)*	(1) Add a new glossary entry including the information: the name of the key concept of Education 4.0; the definition of the concept; the reference (where did you find this value, e.g., a book, a journal article or a webpage). (2) Include a reference according to the APA (7th edition) format. (3) Comment on any of the glossary produced by your peers (including the information: do you agree with the	(1) Answer the quiz questions about Education 4.0 examples in the digital escape room 1. (2) Read the quiz feedback, solve the puzzles and get the correct password of digital escape room 1 to unlock escape room 2.	
Week 2	2023/9/22	Lecture 2 - Why does digital educational design matter?	Tutorial 2 - Identify and explain value of digital educational design, and share with other students in the **online glossary**.	Summariz the reasons why digital educational design matter and share with other students in the **online forum** within the **digital escape room** 2.	LO A — Remember, Understand and Share
		Formative assessment criteria *(The student will be able to:)*	(1) Add a new glossary entry including the information: the value of digital educational design; the reference (where did you find this value, e.g., a book, a journal article or a webpage). (2) Include a reference according to the APA (7th edition) format. (3) Discuss the meaning of the glossary entry with group members.	(1) Engage the interactive learning activities (e.g., interactive video, book) in the digital escape room 2. (2) Create a forum post on the reasons why digital education design matter. (note: by completing the forum task you can unlock room3.)	

- **Define learning outcomes**: Start by articulating the desired learning outcomes or goals. These outcomes should be specific, measurable, achievable, relevant, and time-bound (SMART goals). Identify the key milestones that learners should reach throughout the learning process.

- **Sequence the milestones**: Arrange them logically based on their complexity, dependency, or other relevant factors. Ensure each milestone builds upon the previous one, creating a coherent learning progression. You can use the fishbone diagram to help you organize

your milestones.

- **Create a timeline**: Develop a timeline or schedule that outlines the sequence of milestones, learning activities, assessments, and resources. Allocate sufficient time for each milestone, considering the complexity of the content and the time required for learners to engage with the activities effectively.

- **Determine learning activities**: Select appropriate learning activities that align with the desired outcomes for each milestone. Consider a variety of activities to cater to different learning preferences. Each colour stands for a level of Bloom's Taxonomy, a colour that appears on the top is the primary level that needs to be achieved in that stage. We recommend 1-2 activities for students to practice and play for each level. When designing a DER with H5P, you may consider leaving password hints in these learning activities for students to find and use the password to unlock more DERs.

- **Assessments and feedback**: Identify suitable assessments to measure learner progress and understanding at each milestone. You can plan formative assessments throughout the learning process to provide ongoing feedback, guide learners' understanding, and design summative assessments in specific milestones.

- **Adapt for learner needs**: Consider the different learners in your classrooms and their needs and preferences. Differentiate the learning activities, assessments, and resources to accommodate various learning preferences, abilities, and interests. Provide different options for learners or allow them to personalize their learning paths whenever possible.

- **Monitor and adjust**: Monitor learners' progress, engagement, and understanding. Collect data through assessments, formative feedback, and observations. Use this information to adjust the learning process, adapt instructional strategies, or provide additional support.