

Section 3

Chapter 13 - Assessment in Videogames and Educational Apps Based Learning In Tertiary Education

Exemplary case 1

Title: **Portal 2 application for problem solving and experimentation**

Description:

Portal 2 is the first-person puzzle game. The goal of the game is to escape the laboratory setting, controlled by supercomputer, while going through many rooms. Every room is a logical puzzle that requires player to come up with the sequence of actions that open the door to escape the room. Player has to figure out how the tools provided to them are working and come up with complex problem solving plans. The game also includes cooperative mode that requires two players cooperatively solve the puzzles. In addition to usual single and coop play mode the online game platform gives an opportunity to design the puzzle rooms and challenges and share with other players with Portal 2 Puzzle maker

Integration into learning plan

The game story and content is not directly related to any subject, however, game itself works well as environment to practice problem solving and execute experiments. Online teacher community “Teach with Portals” shares lesson plans for physics and math experiments and collaboration training activities using Puzzle maker or the Portal 2 game itself. Teacher should start explaining the science concepts and the experiment that students are going to design. Organise students in groups and start designing and building experiments in Portal game. Prepared experiments sheets

and protocols will help students to capture their observations. After the experimentation time, discuss results from different teams with the class and try to understand the differences and why they appear. Each lesson example is designed for 45-60 min. given that students already understand the how to play Portal 2.

Learning assessment

For the above described lesson example assessment could be designed in two ways. One is having a test experiment session when students have to perform experiment individually and provide answers to test sheet. Teacher can design the test chamber for performing specific experiment and completing challenges using the Puzzle maker and present students with the test requirements. The other way would be to have students designing the test chamber for performing an experiment they have learned, following the requirements. This way, the room designed by a student is the product of the applied knowledge. For example, students were performing gravity experiments in the classroom using Portal game. During the assessment they are asked to design the experiment room so that a certain gravity application conditions would be possible.

Access for school

Portal 2 game is a commercial game available for purchase through Steam platform. Free Portal 2 Puzzle maker is available upon request through this form ([Foundly10](#)).

