LEARNING GAME

TEACHER TRAINING MANUAL

MULTIMEDIA APPLICATIONS FOR EDUCATION

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Vilnius Pedagogical University (LT)

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PART FOUR/A

VIDEOGAME

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Chapter One
Videogames as possible learning environments

Vilnius Pedagogical University (LT)

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1 Videogames as unimedial applications

Contemporary virtual learning environments usually provide course material, communication and collaboration tools, assessment and access to resources. Editors of the contemporary videogames provide possibilities to change content of the games. That's why a game content can be converted to the part of curriculum content.

One can include some learning material (in a simple text or multimedia – text with images, animation, video format) that must be read for performing the game's tasks. The game can be designed for a group of players to solve tasks collaboratively. Resources are to be shared. Questions to ask and quizzes serves for assessment. Scores saved provide some feedback for evaluation of learning. In such a way, games can be a forum where learning arises as a result of tasks stimulated by the content of the games, knowledge is developed through the content of the game, and skills are developed as a result of playing the game. Collaborative problem solving is one of the most important elements of educational value of a game. Knowledge is gained inside an attractive for learners game environment.

Videogame as learning environment is based on challenge, reward, learning through doing and guided discovery, in contrast to the "tell and test" methods of traditional instruction. Designing the pedagogical process to the videogame provides immersion of a learner to the environment of videogame, and at the same time – immersion to the learning subject. Today's students who have grown-up with digital technology are especially poised to take advantage of such learning environments.

2 Brief history of videogames

The first known concept for an electronic game was a device called the ***Cathode-Ray Tube Amusement Device*** *patented in the United States* by Thomas T. Goldsmith Jr. and Estle Ray Mann in 1948. Spacewar, created in 1962 is credited as the first widely available and influential computer game. First video game in arcades - *Computer Space*, created in 1971, was not very successful, but started the history of arcade games. Arcade industry entered its greatest period of creativity and popularity in 1978 with many technically innovative and genre-defining games in the first few years of the decade. It was the beginning of the golden age of arcade games. ***Space Invaders, Atari Football*** had a great success. The golden age was remarkable not only for its game play advances, but also for its technical innovations. One of the most important was the implementation of vector graphics, created by an electron beam drawing lines on a black screen. The use of vector graphics allowed designers to animate many more objects on the screen at the same time at a sharper resolution than raster graphics allowed at the time as well as create better-defined shapes and even wire frame 3D models.

At this time, computer and video game development split to many areas, such as _arcade_ machines, university computers, _handhelds_, and home computers. While the fruit of development in early video games appeared mainly (for the consumer) in video arcades and home consoles, the rapidly evolving _home computers_ of the 1970s and 80s allowed their owners to program simple games.

With the increasing computing power and decreasing cost of processors as the _Intel 80386_, _Intel 80486_, and the _Motorola 68030_, the 1990s saw the rise of _3D graphics_, as well as "_multimedia_" capabilities through _sound cards_ and _CD-ROMs_. Early 3D games began with _flat-shaded graphics_, and then simplified forms of texture mapping (_Wolfenstein 3D_).

The 90s also saw the beginnings of Internet gaming. In 1992 the _real-time strategy_ game **Dune II** was released. **Alone in the Dark** (1992) planted the seeds of what would become known as the _survival horror_ genre. Adventure games continued to evolve, with _Sierra_'s _King's Quest_ series, and LucasFilms'/_LucasArts_' **Monkey Island** series bringing graphical interaction and the creation of the concept of "point-and-click" gaming.

3 Type and characteristics of videogames

There are seven **_major videogame categories_**:

o **_Puzzle_**. Puzzle games are almost never rated higher than 'E' (for everyone). They all take thinking and logic skills. A common puzzle game is Tetris. Many others are Tetris-like or involve color matching skills.

o **_Arcade_**. This category includes games that cover the entire spectrum of ratings. Many older arcade games have been updated and turned 3-D.

o **_Action_**. Action games may pit person against person or person against animal/alien, and tend to have a large amount of violence due to their fast-paced nature. This is the category that most "M" (mature-rated) games fall under which are inappropriate for children. Some games are milder but may contain suggestive themes.

o **_Driving_**. Driving games are most often racing, but some are also crash derby or mission-based. Players usually get a choice of car and get better and better cars over time.

o **_Adventure and Role Playing_**. Adventure and role playing games are usually less graphic than action games and typically have an element of surrealism and/or narrative fantasy. Many times these games are combined with a role playing element and allow the character to initiate dialogue.

o **_Strategy._** The content of many of these games can be appropriate for children but they tend to be difficult to play. Strategy games most often involve tactical movement of troops and/or players. These games may be warfare based or may be as simple as chess...

o **_Simulation_**. **_They facilitate a high degree of learner interaction_**. People learn best by doing. Simulations and learning games that use technology to create real-world feel-like-you're-there actions provide the opportunity to engage, have fun, and truly learn. Primary objective of simulation games is to teach the student how to deal with behaviors and attitudes of people. Situational simulations can include Role Play, decision-making and analysis, etc.

4.Integrated multimedia

Integrated media is targeted towards the user as an individual rather than a part of a mass audience. By integrating content from several sources into a database, the user is able to select a unique combination of content particles that fit his/her own interests.

Personalization is an efficient way to improve the usability of publications. Personalization of the content filters out excess information which the user does not need. Personalization of the appearance presents the content in a form at which best suits the user and the context of use. Integration and personalization of media content require a lot of conversions as the information flows from the content provider to the user terminal.

5 Virtual experience

History of videogames shows that technological advances are integrated to videogames very quickly, sometimes more quickly than to other spheres of human life. Education has to use these advantages. Nowadays technology provides possibilities to create the feeling of real environment and feeling of being inside. This feeling of *immersion in virtual* environment is very important for learning. *Virtual experience* affects learners, similarly as being in virtual museums or virtual historical environments affects visitors. It is very important to link these gaming features to learning goals.