An Educational 3D Maze Game
for Bulgarian Orthodox Iconography

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Abstract. Thanks to their specific characteristics, educational video games make game-based learning more effective than traditional teaching approaches with regard of students' motivation, engagement, and learning outcomes. This demonstrator presents an educational 3D maze video game introducing Bulgarian Orthodox iconography. The structure and learning content of the maze game are defined declaratively by applying several contemporary teaching methods and learning scenarios for Orthodox iconographic art study. Next, the game is generated by means of a special software platform for creation of customizable desktop video maze games for education. The demonstrator outlines both the game design and development processes and provides a tour through the generated educational maze rooms and tunnels. It shows how the game can be adapted according player's achievements, emotions and performance.

Keywords: Video Game, Maze, Iconography, Game-based Learning, Adaptive Games

Technology-enhanced learning applies video games as research, teaching or measurement tools helping teachers to stimulate learning by experiencing novelty, curiosity and challenge in development of various skills and competences. Until present, there were proposed many educational games providing high level of learner's engagement and contributing in great extent to the effectiveness of teaching process. However, teachers are still unable to build or customize games appropriately fitting the curriculum content.

This demonstrator presents an educational 3D maze video game generated by the ADAPTIMES software platform and integrated with other video game for assessment of player's knowledge and for ordering context-dependent images (Bontchev, 2015). The maze game introduces Bulgarian Orthodox iconographic arts by following specific learning methods for this domain. Game activities for studying Orthodox iconography aim at finding main trends in development of the domain, directions and dynamics of that development, factors and conditions that influenced the changes, degree and strength of the influence and, as well, direction of the changes and new trends. For realization of an effective game-based learning process, iconography teachers can define specific tasks such as an artistic analysis of the development of iconographical

objects and scenes in the different iconographical schools through time, tracing the iconographical technology development in different iconographical schools and time periods, technological analysis of a piece of art and restoration manipulations, tracing the authentication of an object, and analysis of the religious meaning of an icono-graphical image as the object of research (Paneva-Marinova et al., 2012). Main teaching methods involve project-based learning and understanding-by-design, learning-by-doing, learning-by-authoring and creative thinking practices, giving to students real painting tasks, which are based on their individual/independent iconographic art observation and analysis (Draganov et al., 2010).

The presented maze video game aims to present different images of Jesus Christ – from infant to adult, painted by iconographers from significant Bulgarian iconographic schools. The learning content objects are based on the iconographical materials of the "Virtual Encyclopedia of the Bulgarian Icons" multimedia digital library. The game labyrinth includes six main rooms connected with tunnels: Introductory room, Room 2: Jesus Christ depicted as a baby, Room 3: Jesus Christ depicted as a child, Room 4: Jesus Christ in images of worship, and Room 5: Jesus in scenes of his life. To give to the user a topic-related challenge every room has corresponding learning task. During the labyrinth passing, the player has to answer several questions, enigmas, puzzles and problems to finish the game and learn the content. Within the maze, the player can play two additional games: a 3D Quiz game for assessment of his/her current knowledge in the domain, and a 3D Zoom game for ordering context-related icons. Both the games can be adapted according player's emotional state and playing style following the ADAPTIMES player-centric adaptation model (Bontchev, 2016). The graphical learning content, incorporated in all the games, represents digital copies of rare Orthodox specimens and icons from difficult-to-access storages, distant churches, chapels, and monasteries, objects in a risk. The included texts describe main identification characteristics of the icons and their description part.

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