

Educational Game as an Aid to Good Practices in Dentistry

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Abstract

The use of games may constitute an innovative strategy for training.

Objective: Develop an educational quiz type game, construct 60 assessment items and validate this content.

Methodology: Elaboration of the didactic-pedagogical project, development of the game, creation of the assessment items and validation of the content.

Results: the technical evaluation obtained a Content Validity Index (CVI) over 80%.

Conclusions: The game can be used as a tool for making information available, thus contributing to the democratization of knowledge.

Keywords:

Experimental games, dentistry, infection control.

Introduction

Provision of health care is always associated with occupational hazards related to work practice. In several studies, there is a lack of compliance with current legislation concerning biosafety norms, which draws attention to the need for professional training [1,2]. Several researches are proposing the use of Serious game as an interactive, playful object, as well as a learning facilitator and supporter [3,4]. This study aims to develop an educational game and validate, pedagogically and technically, the 60 assessment items to be used within the game, as an aid to educational practices on biosafety in Dentistry.

Methods

Elaboration of the Didactic-Pedagogical Project

The game, called “Biosafety in Dentistry”, consists of 60 assessment items created from the main theme and arranged in a database. This number of items allows the random use of 20 questions in each game. The defined target player involves dental surgeons, undergraduate and graduate students in Dentistry. The developed assessment items underwent pedagogical and technical validation.

Development of the Serious Game / Motivation strategies

The educational game uses a 2D interface. The technologies used to develop this tool are three (03): Unity3D®, the game engine, Adobe Illustrator CS6®, arts authoring tool and Ableton Live®, for background sound editing.

To develop the game, participation and interaction of several professionals was necessary, all from several areas such as: Pedagogy, Technology, Health, Graphic and Instructional Design.

This computational system was developed and registered at the National Institute of Industrial Property (Portuguese acronym INPI), through process nº 51 2017 000649 0, by the Federal University of Maranhão Foundation - UFMA.

Five (05) developmental scenes were created, which are listed below.



Figure 1- Game opening



Figure 2- Character selection



Figure 3- Tutorial



Figure 4- Gameplay

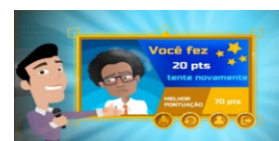


Figure 5- Final ranking

The game presents different tools and strategies: tutorials, scores, response time, opportunities to get tips and ranking, as well as the game topics, images and sounds, with characters in motion.

Creation of Assessment Items

The content is related to biosafety standards and hazard prevention.

Pedagogical Validation

It was carried out with the support of (02) evaluators of the Pedagogical Department of the Universidade Aberta do Sistema único de Saúde (UNA-SUS) and of the UFMA.

Technical Validation

The questions on the biosafety in Dentistry game were evaluated by (05) professionals of reference in biosafety, with expertise in the area.

Results

The 60 questions were submitted to the statistical analysis of data. For this analysis, the Content Validity Index (CVI) was used.

The concordance index between them was > 80%, referring to the criteria of textual clarity, practical relevance, suitability to the target player and response time.

Conclusions

At the end of this study, we conclude that the objectives of developing an educational quiz type game on biosafety and validating the 60 questions were pedagogically and technically achieved, with values over 80% for all the analysed criteria.

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