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A Serious Game for Teaching Nursing Students Clinical Reasoning and Decision-Making Skills

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Abstract. The aim of this study was to design and pilot-test a serious game for teaching nursing students clinical reasoning and decision-making skills in caring for patients with chronic obstructive pulmonary disease. A video-based serious game prototype was developed. A purposeful sample of six participants tested and evaluated the prototype. Usability issues were identified regarding functionality and user-computer interface. However, overall the serious game was perceived to be useful, usable and likable to use.

Keywords. community health nursing, computer simulation, education, problembased learning, serious games, user-computer interface

1. Introduction

Simulation technologies embedded in 'serious games' have appeared in the educational games market [1]. Serious games (SGs) combine knowledge and skills development with video game playing aspects. SGs enable active, experiential, situated and problem-based learning. In nursing education, SGs provide nursing students with an opportunity to practice clinical reasoning and decision-making in a realistic and safe environment [2].

Despite a growing number of serious games developed for healthcare professionals, few serious games are video-based or address the domain of home health nursing.

2. Methods

A video-based SG prototype was developed. The project employed a unified framework of usability named TURF [3] and theory in SGs design [4] to ensure a usercentered design. The educational content and quiz-based tasks were based on the Clinical Decision-Making Model [5], Blooms taxonomy [6] and the curricula in the bachelor program in nursing at University of Agder. The objective of our SG was to increase nursing students clinical reasoning and decision-making skills in clinical situations related to patients with chronic obstructive pulmonary disease (COPD) living at home. To provide realistic situations from clinical practice, a registered nurse (RN) from home healthcare and a person with COPD participated as actors in the video-based scenarios.

A purposeful sample of six participants tested and evaluated the SG prototype in a usability laboratory. The usability evaluation methods included a cognitive walkthrough, a questionnaire and individual interviews. Content analysis was used.

3. Results

Our SG was perceived as realistic, clinically relevant, and easy to learn. However, several usability issues were identified such as: lack of demonstration of how to use embedded links and solve drag-and-drop tasks, desired functionality to view both wrong and right answers, and a limited range of navigation options to go back and forth in the game.

4. Discussion

A combination of different theoretical approaches in the design of our SG was experienced as an advantage. Issues identified regarding functionality and user-computer interface emphasize the importance of usability evaluation during the process of development of a SG before implementation.

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