

Evaluation of a Virtual Simulation Game as a Means to Maintain Clinical Competency in Pediatric Nursing Practice

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Virtual Simulation

Virtual simulation games (VSGs) are a form of educational gamification which allows learners to apply knowledge in a virtual clinical environment. The player of the game assumes the nurse role in the scenario and completes a simulated clinical encounter where nursing skills are performed with the client and client outcomes based on the player's choices of decisions.

ADVANTAGES OF VIRTUAL SIMULATION GAMES IN NURSING

- VSGs support a psychologically safe environment. A psychologically safe environment is one that is learner-centered and that is built on respect, constructive feedback, comfort, and ultimately safety for the learner.
- Learners are provided with foundational activities (such as assigned key readings) to complete prior to engagement in the VSG to ensure they feel prepared and know what to expect. Often learners are provided with self assessment rubrics which can be reviewed prior to the game to also give context to the expected learning outcomes.
- Unlike in person simulations there does not have to be a reliance on trained facilitators to duplicate in-person simulated experiences multiple times as the game is pre-made and ready to go at anytime and in any place with access to the internet.
- Making incorrect decisions at critical points during the VSG does not result in emotional consequences such as embarrassment or feeling less than as these games are designed to be played independently. Most importantly there is no risk of harm to an actual client.
- The player can review and refine skills their critical thinking skills in real time as embedded rationales are immediately provided as to why their choice was correct or incorrect.
- It is a cost-effective way to ensure nurses are up to date with providing safe, competent care.
- VSGs present nurses with educational opportunities that may otherwise be unavailable as it can be difficult to obtain educational leave, or it may not be feasible to attend education sessions if there are travel costs associated.

Background

While a plethora of research exists around the use of simulation in undergraduate nursing education as well as in-person simulation in the pediatric setting, a gap exists with exploring the use of VSGs with nurses in practice.

Due to the geographic distribution of the population in Newfoundland and Labrador, timely access to the Janeway Children's Health and Rehabilitation Centre within the province is not always feasible. As a result, pediatric clients are often cared for in smaller clinics and hospitals throughout NL. As a result of low volumes of admitted pediatric clients in smaller centers, prolonged periods may occur where there is a lack of pediatric clients requiring nursing care. This may result in challenges with nurses maintaining their clinical competency in the provision of care of pediatric clients.

The main purpose of our research project is to create a VSG based on a skill/scenario identified as essential by pediatric nurses directly in practice on data from our needs assessment to explore whether this pedagogical approach is effective to meet their needs. This research project was made possible through the receipt of the Janeway Foundation Research Funding in the amount of \$ 14,950

Objectives

Design and Methods

- The purpose of the study is to evaluate nurses' learning experience using a pediatric VSG to maintain clinical competency. A descriptive mixed methods study will be used to obtain quantitative and qualitative data from nurses about using a VSG to maintain clinical competency in relation to caring for a pediatric client.
- The research study will be conducted with nurses who work in areas that may care for pediatric clients in Newfoundland and Labrador's four regional health authorities (RHAs). Purposeful sampling with a potential sample size of 80 nurses in practice (20 per RHA) will be utilized.
- Nurses will have a choice to participate in an individual interview following the completion of the VSG. The aim will be for 3-4 interviews with nurses from each RHA group. All nurses who work in areas that may care for pediatric clients in each RHA will be invited to answer two questions surrounding which skills or scenarios are perceived as difficult to maintain competency in a pediatric setting. This invitation will be extended using two methods.
- The answers from both methods will inform the creation of a virtual simulation game, created by the research team. Once created, all nurses who work in areas that may care for pediatric clients in each RHA will be invited to participate in the study. In accordance with the International Nursing Association for Clinical Simulation and Learning (INACSL) Standards of Best Practice (INACSL, 2016), the VSG will be developed based on learning outcomes.
- The VSG will be based on Self-Directed Learning Theories (Clapper, 2010), Cognitive Load Theory (Reedy, 2015), and adhere to accessibility standards.

Procedure

Online Surveys

The survey will provide the Letter of Information. Each anonymous survey will include multiple data collection tools

Individual Interviews

Following the completion of the survey, the participants will be invited to participate in a synchronous semi-structured interview with the Research Assistant at a future time which will be a question at the end of the VSG.

Outcome Measures

Data Analysis

The data will be analyzed using descriptive and inferential statistics with IBM SPSS version 24.0 (IBM Corp, Armonk, NY). Pre- and post-rubric assessment data will be further analyzed using repeated measures ANOVA. Content analysis of the qualitative data collected from the surveys and interviews..

Ethical Considerations

Ethical approval has been obtained from the Health Research Ethics Board (HREB) and the four regional health authorities.

Project Timeline

We are currently in the process of hiring a research assistant to facilitate data collection

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        A[Proposal and Funding] --> B[Ethical Approval]
        B --> C[Needs Assessment]
        D[Creation of VSG] --> E[Data Analysis]
        E --> F[Research Report]
    
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Conclusions

Due to the nature of the vast geographical spread of the population of children within NL, the limited availability of specialized care outside the Avalon region, and the increasing emphasis on continued education within health professions, a flexible approach to maintaining pediatric clinical competency is required. An approach of utilizing a VSG which would provide much needed education to both rural and urban nurses, is an avenue to address this need. Nurses across NL are required to provide care for children, however by nature of the town they may work in, may not have consistent experiences working with children in order to maintain competencies of certain skills. Providing nurses across the province access to VSGs that focus on pediatric clinical situations will afford nurses the opportunity to be better equipped and confident to care for pediatric clients. This can assist in improving pediatric client outcomes within Newfoundland and Labrador.

Future Research Implications

Opportunities for future research exist in relation to utilizing VSGs to maintain clinical competency in all practice settings and all disciplines.

Accessibility

The delivery of VSGs is an approach of implementing accessible opportunities for continued education across NL which are cost-effective. These games can be created or played in any setting whether it be at home or at work, as an individual or as a group activity. Future research can explore VSGs as a viable option to maintain clinical competency in these settings.

Cost Effectiveness

VSGs can also be useful as alternatives or as supplementation of existing in-person simulation. This is another research area that can be explored in relation to the use of VSGs in practice settings in NL.

Exploration of Alternative Practice Areas

Other opportunities for future research exist in relation to exploring the utilization of VSGs to maintain clinical competency in all practice settings and across all disciplines whether it is pediatric, adult, emergency care, medical surgical care or primary health care and across all health disciplines



References available upon request

Questions?

Please reach out!

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