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Game-based Learning Effects on NCLEX-RN Perception of Preparedness and Pass Rates

by

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A project submitted to the faculty of
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in partial fulfillment of the requirements for the degree of
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Abstract

Background: The National Council Licensure Examination for Registered Nurses (NCLEX-RN) has been used to measure the quality of a nursing program's effectiveness in preparing nursing students to pass the exam since 1988. The combined average pass rate percentage for the Hunt School of Nursing (HSON) nursing programs for the year 2021 was 88%.

Method: Information on feelings of preparedness and time to test after graduation was collected via survey prior to the game-based learning (GBL) activity. This same information was collected post GBL and compared to the pre-survey results. NCLEX-RN pass rate data was collected 1 month after graduation.

Results: From the pre-game survey to the post-game survey, feelings of preparedness increased and the length of time to test decreased. The pass rate 1 month after graduation was 94%.

Conclusion: The use of GBL has a positive correlation to feelings of preparedness and pass rates.

Keywords: NCLEX-RN, Game-based learning activity (GBL), preparedness, pass rate

Introduction

Problem Description: The Hunt School of Nursing (HSON) at Gardner-Webb University has three pre-licensure nursing degree programs: the Associate of Science in Nursing (ASN); the Bachelor of Science in Nursing (BSN); and the Accelerated Bachelor of Science in Nursing (ABSIN). The number of seniors expected to graduate with the next graduating cohort is: 20 in the ASN program, 26 in the BSN program, and 33 in the ABSIN program. With the combined average of 88% for a first-time test taker pass rate for the past year, the HSON desires to find unique ways to assist students in improving their level of preparedness and first-time success in passing the NCLEX-RN.

Available Knowledge: The literature review on this topic yielded studies that: compared the learning performances of students using game-based learning to the learning performances of learners using other traditional methods (Chang et al., 2020); determined if gaming improved student outcomes on a final exam as opposed to not participating in a game (Kinder & Kurz, 2018); identified the effectiveness of serious gaming compared to traditional teaching strategies in improving learning outcomes of nursing students (Nascimento et al., 2021); “determine[d] the link gaming has on the development of decision-making, motivation, and other [potential] benefits” (Pront et al., 2018, p. 23); uncovered the learning outcomes linked to games in nursing education (Reed, 2020); revealed team-based gaming promoted student engagement (Wingo et al., 2019); reported gaming was viewed as fun and educational and provided learning in a non-stressful environment (Xu et al., 2021). In all of the literature reviewed, game-based learning was shown to be an effective method to improve learner performance, motivation, engagement, and outcomes.

Rationale: The Adult Learning Theory, a theory developed by Malcolm S. Knowles, describes the learning methods needed for adult education (andragogy) as opposed to the traditional learning methods used when teaching children (pedagogy). Based on this theory, adult learners need to know why they are learning and be involved in the learning process. This allows them to bring in their past experiences, another important concept of this theory (Pappas, 2013). This theory also suggests adult learners are more likely to learn when the content has a direct effect on their professional or personal lives (Pappas, 2013). The students in the HSON program at Gardner-Webb University are adult learners, thereby making use of Knowles' theory appropriate.

This project is intended to prepare prelicensure nursing students to pass their licensing exam and begin their professional career. This gives the learners the “why” as well as “how” it will help them in their personal and professional lives. The questions used for this project were based on applying information learned throughout the nursing program. Students needed to draw from previous experiences to answer real-life based type questions and scenarios.

Specific Aims: The purpose of this project was to increase the preparedness of pre-licensure nursing students and first-time pass rates using a combination of traditional and non-traditional methods. This project specifically focused on using the GBL activity to increase NCLEX-RN preparedness, as evidenced by an increase in the first-time NCLEX-RN pass rate for the Hunt School of Nursing (HSON). This project was not designed to provide curriculum revision, but instead to serve as an additional event to enhance student learning.

Methods

Context: The HSON programs have previously used and are currently using a commercial NCLEX review prior to graduation. With the Next Generation NCLEX (NGN) changes on the horizon, nursing faculty wanted to find a more innovative way to prepare their students for examination.

Interventions: The gameshow consisted of three rounds with each round consisting of 25 NCLEX-RN style questions. The question types used were multiple choice, multiple response, fill in the blank, graphic options, and a hotspot. For the hotspot question, the student was allowed to walk to the projector screen to point to the area of their choice. Rounds one and two began with three teams of two players randomly paired together. All six players were given handheld buzzers, so any member of the team had the ability to buzz in to answer a question. In the third round, all six players competed individually. There was one spectator at the event.

To be eligible to answer a question, a student could only buzz in after the question and all responses had been read. A correct response was worth one point and if the correct rationale was given, an additional point was awarded. If an incorrect answer or rationale was given, the other players were allowed to buzz in to answer.

Study of Interventions: Because this project was implemented to increase preparedness as well as first-time NCLEX-RN pass rates, a Quality Improvement Model was used to evaluate the outcomes for this objective. The Plan-Do-Study-Act (PDSA) model was used to understand the impact of the intervention. During the 'Plan' phase, preparation for the GBL activity was conducted. This included all aspects of the game including scoring, judging, questions, etc.

The pre-readiness survey was distributed to the pre-licensure students that were participating in the event. Spectators of the event were also given the opportunity to complete the pre-readiness survey before viewing the event. During the 'Do' phase, the GBL was implemented, and the post-readiness survey was distributed to the participants as well as the spectator. The 'Study' phase reviewed both the pre- and post-surveys to determine the effects on preparedness. The monitoring and analysis of the NCLEX-RN pass rate results of those participating in the GBL began the day after graduation with data expected within 2 months. The 'Act' phase determined the changes necessary for the GBLs continued success.

Measures: The post-game survey was used to measure the preparedness of participants and the spectators, as well as the quality of the GBL activity itself. There was a total of eight responses for the post-survey; five were participants and two indicated they were not in attendance of the activity. The two student responses not in attendance did not give any data for qualitative analysis and are therefore not included in the results.

Based on the post survey results, the participants enjoyed using the GBL activity as a study method over using traditional teaching/studying methods alone. In addition, all participants that completed the survey felt the GBL activity increased their confidence in passing the NCLEX-RN on the first attempt. This was evident by the shortened length of time students indicated they planned to take the NCLEX-RN after participation in the GBL activity versus before the GBL activity. The one spectator did not provide any data for qualitative analysis.

The pre-game survey was completed by eight students. Prior to the GBL activity, 37.5% of students surveyed rated their level of preparedness at 26% - 50%. Another

37.5% rated their level at 51% - 75%. Only 25% of students rated their preparedness at 75% - 85%. None of the participants felt more than 85% prepared to take the NCLEX-RN. See Table 1 and Table 2.

Table 1

Pre-survey Perception of Preparedness to take NCLEX-RN

Preparedness	Count	Percent of Responses
0-25%	0	0
26-50%	3	37.5
51-75%	3	37.5
76-85%	2	25
86-95%	0	0
96-100%	0	0

Table 2

Post-survey Perception of Preparedness to take NCLEX-RN

Preparedness	Count	Percent of Responses
0-25%	0	0
26-50%	0	0
51-75%	2	40
76-85%	2	40
86-95%	1	20
96-100%	0	0

Ethical Considerations: Safeguards included in this study to protect the rights and welfare of all subjects were review by the Evidence-based and Research Council.

Participants received informed consent detailing that participation in this project was voluntary, and participation in the activity was non-punitive. There were no potential conflicts of interest as the authors were not instructors for the students who were invited to participate in the project.

Results: Based on the outcomes of the event, very few modifications were implemented. One highly recommended modification was to add an additional round of questioning. This would bring the activity to a total of 4 rounds. It was also suggested to have students assigned randomly to teams if the number of participants were increased.

Discussion

Summary: As with Knowles' Adult Learning Theory, "adults are most interested in learning subjects that have immediate relevance and impact to their job or personal life" (Pappas, 2013, para. 13). The Syringe Bowl GBL activity was a direct representation of what the students will have to face when sitting for their NCLEX-RN. The amount of motivation to answer questions and provide rationales for the answers gave the participants the opportunity to be involved in the evaluation of their participation, with the immediate feedback of correct and incorrect answers.

Interpretation: The desired outcome of this project was to adequately prepare students for the NCLEX-RN and increase pass rates. The nature of the outcome showed a positive correlation to the desired outcome as well as the expected outcome of providing additional practice for clinical judgement in a fun environment. This outcome is

supported by the study conducted by Zehler and Musallam (2021) which found GBLs to be an effective way to increase clinical judgement.

The participants were extremely engaged during the game-based learning activity with all the participants answering questions. Using the team-based approach during the first two rounds was proven to be an effective way of engaging students in the GBL activity. This outcome was line with Wingo et al. (2020) who found learners were more engaged when a competitive team-based approach was used. Although the final results are pending, the pass rate one month after graduation was 94%.

At the conclusion of the activity, the participants left the gameshow with verbalization of feeling more confident and motivated to take and pass the NCLEX-RN on the first attempt. As with the finding in the literature review, the results of this study showed a positive correlation of perception of preparedness.

Limitations: The gameshow setup was initially to have a total of six teams consisting of three players, with each program (ASN, BSN, and ABSN) having two teams, resulting in a total of 18 participants. An immediate threat notified was determining the date to hold the event that would allow the greatest opportunity for student participation. Given the timeline, the event could only be held nearer to the end of the semester close to exam time. This posed the threat of low student participation due to their preparation for final exams. As a result, the barrier of low student participation decreased the number of participants from 18 to six. All six students were from the BSN program. Also, students gave their perception of preparedness, which may not be a true reflection of their actual preparedness.

Conclusion: With the NCLEX-RN preparing to become the NGN, which increases its clinical judgement component, it is imperative for nursing programs to adequately prepare nursing students for success. Implementation of GBL into nursing education is an effective way to increase clinical judgement and other positive learning outcomes. With the use of GBL in nursing education, programs can provide innovative, fun, and non-stressful ways to increase clinical judgement, while increasing feelings of preparedness, motivation, and engagement. This results in a high pass rate percentage while at the same time, allowing nursing programs to maintain accreditation. An increase in first time pass rates will also allow nurses to enter the workforce without delay; a benefit for the potential hiring organizations as well.

Because this gameshow was based on the NCLEX-RN blueprint and nursing curriculum, it can be easily implemented at other schools of nursing. It could also take the form of a school-based competition where nursing programs from different colleges and universities compete against each other. The basic formatting of the gameshow could also be used in other healthcare and nonhealthcare programs to encourage critical thinking.

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