

# Can You Escape? Creating an Escape Room to Facilitate Active Learning

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Nursing professional development practitioners have the responsibility to find creative and innovative ways to teach and provide learners with the education needed to practice safely in the hospital setting. This article describes an interactive game-based learning experience as a way to engage and empower both nurse residents and experienced nurses.

The escape room experience was created as a way to integrate gaming technology and adult learning principles. Participants of a traditional escape room are given a scenario and must solve puzzles and use clues to complete all tasks and “escape” the room, usually within 60 minutes. Nurse residents were asked to participate in the experience to help demonstrate their knowledge and understanding of the learning objectives of the nurse residency program (NRP).

The concept for this escape room was to incorporate critical thinking and teamwork and to utilize communication skills into an active learning strategy for adult learners. Nurse residents within the organization provided feedback that lectures were not effective or engaging. One objective of this experience was to change the format of how nurses are trained from a passive approach, with lecture and slides, to an active learning approach incorporating game-based learning. The second objective was to evaluate if nurse residents retained the information received during the yearlong residency seminars. This was measured during the interactive escape room activity.

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## REVIEW OF LITERATURE

Strickland and Kaylor (2016) suggest that by using game-based learning participants can partake in an experiential experience that enhances and facilitates learning and interest through the active learning environment. They also suggest that by using game-based learning students can take control over their learning environment by incorporating teamwork, critical thinking, prior knowledge, time management, and creativity. Another study suggest that through gaming simulation participants are able to identify their strengths and weaknesses, increase their motivation for learning, and receive real-time feedback to enhance their knowledge (Mawhirter & Garofalo, 2016).

Escape rooms are inspired by video games. The early escape rooms began in 2007 in Japan and moved to the United States in 2012 (French, 2015). Escape rooms require critical thinking and teamwork. Teams should include a variety of personalities and thinkers to replicate realistic professional teams. In addition, communication is necessary and helpful for the distribution of tasks and makes effective use of time (Galbraith, 2016).

Kolb (1984) stated, “Gaming requires students to be active participants in learning, reflect on their performance while considering their strengths and weaknesses, and plan future actions accordingly” (as cited in Strickland and Kaylor, 2016, p. 101). Mawhirter and Garofalo (2016) conducted a study using game-based simulation. They designed the games to target the unexpected experiences a nurse could face at the bedside and allowed the nurse to face his or her fears in a controlled environment. The intention of their project was to use an active learning strategy to engage and encourage nurses. The results were noteworthy. Both experienced nurses and nurse residents reported that the learning strategies were beneficial, decreased their fears, and kept them engaged. All the participants reported an increased readiness for their clinical settings as a result of the simulation experience. There are many benefits to simulation-based games, including reduced stress, increased engagement, identification of student’s strengths and opportunities, motivating a student to learn, providing outcomes and ongoing feedback, and enhancing knowledge of self-awareness (Mawhirter & Garofalo, 2016).

An active learning approach is critical for adult learners, and it is essential to consider the resources needed to

implement such a practice change. Posey and Pintz (2017) report planning, time, and resources as the three main components in developing blended learning activities. Barriers identified by Boctor (2013) included the following: students may find competition threatening when using a game-based learning strategy, students may prefer a more passive role in their learning, and the challenges instructors will experience when planning for the activity. Strickland and Kaylor (2016) identified additional barriers including time-consuming in-depth planning, reinventing the wheel to obtain resources, purchase of specific supplies, space and layout of rooms, and faculty resources to help with the lesson. Fahlberg, Rice, Muehrer, and Brey (2014) identified providing peer feedback, holding peers accountable, and participating in conflict resolution as skills that were new and challenging to students.

NRPs were developed to successfully transition the new graduate nurse to independent practice and decrease the high turnover rates noted in the new graduate population during the first year. In 2010, the Institute of Medicine report *The Future of Nursing: Leading Change, Advancing Health* provided many recommendations for the nursing profession. These recommendations included an endorsement for NRPs and a call for an increase in the number of NRPs (Institute of Medicine, 2010). NRPs for new graduate nurses are becoming the standard at hospitals to facilitate the new graduate nurse transition to practice as the role of the clinical nurse grows progressively more complex (Goode, ReidPonte, & Sullivan Havens, 2016). The NRP provides support to the new nurse and builds on the baseline education they received during nursing school. The University Health System Consortium and the American Association of Colleges of Nursing collaborated to develop a 1-year postbaccalaureate NRP program that ensures

compliance with evidence-based standards. American Association of Colleges of Nursing (2015) found nurse residents receive education relating to leadership, quality/patient outcomes, and professional development when following the standardized curriculum created by the University Health System Consortium and accredited through the Commission on Collegiate Nurse Education.

## SUBJECT AND SETTINGS

This experience was provided at a 700-bed, Magnet-designated, academic medical center in the Midwest. Nurse residents who participated had less than 18 months of practice experience at the time of the sessions. Experienced nurses had varied amounts of clinical practice time, all greater than 18 months. This quality improvement project was submitted and approved through the medical center's institutional review board.

## PROCEDURES

The escape room was created to incorporate 10 educational objectives from nurse residency seminars. These objectives included catheter-associated urinary tract infection prevention, central line-associated bloodstream infection prevention, critical lab reporting, fall prevention, general organization information, hospital-acquired pressure injury prevention, patient identification, and urinary catheter removal protocol. Insulin pens and medication calculations were also included based on patient safety risks identified by the hospital. A patient room was set up by the nursing professional development (NPD) team (see Figure 1). For selection of equipment to be used in the escape room, such as locks, lock boxes, puzzles, flash light, USB drive, and decoy items, the NPD practitioner evaluated each item on cost, durability, and adaptability. The NPD

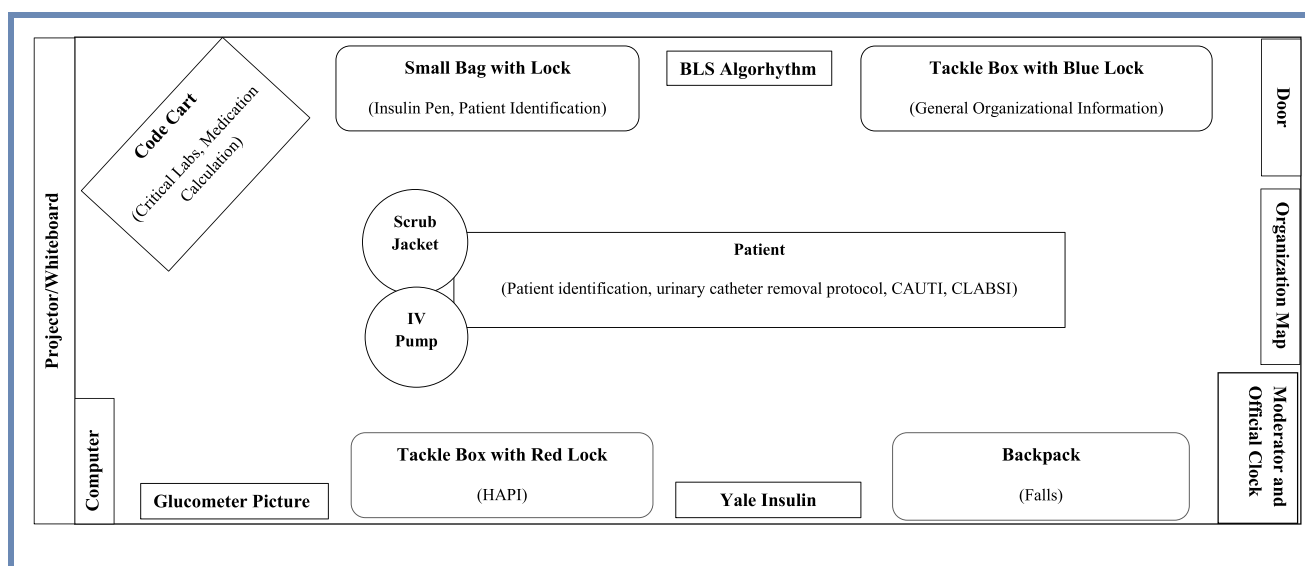


FIGURE 1 Room layout and location of items and clues within the experience.

### Patient Scenario

Mr. G is a 57yo male with a history of HTN, DM II, and COPD. This is day 3 of admission for a COPD exacerbation. He had one episode of nausea around 9 pm. Overnight he has been a real **PUZZLE** to deal with for the nursing staff as he has been getting up frequently and forgetting to ask for help. Good luck in **PIECING** together information in this room.

**FIGURE 2** Patient scenario represents the information given to participants prior to starting the experience. There is one clue embedded in this scenario, nine puzzle pieces, that will help the participants begin the experience.

practitioner chose to purchase high-quality equipment that would withstand long-term use with the goal to incorporate the escape room in all following cohorts. The initial cost for the escape room was \$200. The NPD practitioners were able to remain on budget by utilizing expired material or equipment within the organization. Other cost saving tactics used included incorporating a password-protected document on a USB drive or using a tablet rather than purchasing additional lock and box.

Nurse residents were assigned to groups ranging from 6 to 14 participants. Each group included nurses from a variety of practice specialties. Nurse residents were given a patient scenario (see Figure 2) with clues embedded and provided the rules (see Figure 3) prior to entering the escape room. A moderator was placed in the room with a step-by-step guide to assist teams with clues if needed. The moderator observed the skills and would not allow advancement in the room until the skill was performed accurately. In addition, the moderator could provide three “free” clues and additional clues. However, each clue after the third added 2 minutes to the final time. Data were collected regarding several individual tasks, for example, the time needed to solve each code, complete each task, escape the room, and the number of additional clues required by the team. The number of additional clues required by the

team was also measured. A timekeeper was present to record the time needed to complete each task. The timekeeper was used for data collection purposes only. Seventeen sessions were completed with nurse residents, and six sessions were completed with experience nurse groups. After completion of the escape experience, each participant was asked to fill out a survey about the experience.

### FINDINGS/RESULTS

A total of 213 nurses participated in the escape room. Of these participants, 167 nurse residents and 46 experienced nurses participated in the experience. All nurse resident and experienced nurse groups were able to escape the room successfully.

Table 1 compares the survey results from both groups of participants directly after completing the learning experience. Only 20% of nurse residents had participated in an escape room experience of any kind before, whereas 44% of experienced nurses had prior experience. Of the participants, 94% of experienced nurses and 80% of nurse residents either strongly agreed or agreed that this offering empowered them to improve their nursing practice. All of the experienced nurses and 91% of nurse residents either strongly agreed or agreed that this activity has provided an opportunity to demonstrate their knowledge. In addition,

### Rules of the Escape Room

Welcome to the Escape Room! Please keep the following information in mind:

- You have 60 minutes to breakout.
- Feel free to exit at any time; however, the clock will not stop.
- When you unlock an item please place the lock in the designated bucket.
- There will be a moderator present. This moderator will not talk. They will only communicate with you by writing.
- You can ask your moderator for 3 free clues.
- Every clue you ask for after that will cost you 2 minutes.
- Please do not force items open. If it is supposed to come off or unlock it will. If you try to force things you will break them.
- Remember to be efficient but accurate
- Ask yourself, how fast can I complete the room, by following all the appropriate steps?
- Do not skip over steps in order to breakout faster.
- No Cell Phones!

Good Luck

**FIGURE 3** Rules of the escape room represent the expectations reviewed with the participants prior to the start of the experience.

**TABLE 1** Escape Room Participant Survey Results

Survey Questions	Experienced (n = 46)	Nurse Residents (n = 167)
Participants that had participated in an escape room prior to this activity	44%	20%
Very satisfied or satisfied with the quality of the escape room experience	100%	97%
Strongly agree or agree that the offering has empowered them to improve their practice	94%	80%
Strongly agree or agree that this activity provided an opportunity for me to demonstrate my knowledge	100%	91%
Strongly agree or agree that I feel confident performing these skills accurately	100%	95%
Strongly agree or agree that I was able to escape from the room using bedside knowledge	100%	92%
<i>Note.</i> This indicates the postexperience survey results were broken down into experienced nurse (>18 months of experience) responses and new graduate nurse responses (<18 months of experience).		

100% of experienced nurses and 95% of nurse residents either strongly agreed or agreed they felt confident in performing the skills within the experience accurately.

Table 2 compares the mean and median escape times and clues. These results did not vary widely between groups. Both groups required clues to uncover the hidden message written with ultraviolet ink on the glucometer. Of interest, nurse residents had to recheck the code cart and try the lock three times more often than the experienced nurses. Following the completion of each session of the escape room, the NPD practitioner led an immediate debriefing session that allowed learners to reflect on their experience. The NPD practitioner explained each step or clue to the participants to allow further reflection on each hospital initiative covered in the room. Through debriefing with learners, nurse residents identified they had not opened a combination lock before. Once the review was complete, the NPD practitioners asked which activity was

the most challenging and if there were any barriers in the room setup. When asked these questions, the nurse residents expressed that having smaller groups would allow each member to be more hands on with clues and immersed in the room.

## DISCUSSION

Development, design, and implementation of game-based learning were successful in providing nurses with an interactive learning experience and allowed the nurse residents to demonstrate their understanding of the 10 educational objectives. Creating this game-based active learning experience allowed the NPD practitioners to meet the objective of moving adult education away from a passive approach to an active learning style incorporating game-based learning. This escape room experience allows for several learning styles to be successful. Learners who prefer kinesthetic learning activities can learn and demonstrate knowledge through a hands-on approach that the experience allows. Visual cues and resources were used to assist learners who prefer visual learning activities. Hospital and national patient safety goals were incorporated, allowing the nurses to demonstrate their understanding of these concepts. During the interactive experience if nurses became stuck and unable to figure out the correct response, they could ask the moderator for a clue in order to help them progress. This facilitated critical thinking by the learners and allowed them to come to the correct response on their own by using resources available to them in their daily nursing practice.

Participants of the escape room were supportive of this learning experience as demonstrated by narrative responses:

- “The escape room was very fun and interactive. It allowed me to work together with other nurses to use our knowledge to solve problems. I think it will help me in my everyday practice when it comes to critically thinking. Because we had to think through each of the problems in order to break out.” (Experienced Nurse)

**TABLE 2** Mean and Median Escape Time and Number of Clues Provided

	Mean		Median	
	Escape Time	Number of Clues	Escape Time	Number of Clues
Nurse resident	34:33	2	31:52	1
Experienced nurse	34:38	3	37:51	2
<i>Note.</i> Mean and median escape time (minutes:seconds) and number of clues for nurse residents (<18 months of experience) and experienced nurses (>18 months of experience).				

- “It was awesome! Such a fun, unique way to apply hospital policies and procedures! I think everyone should try and do it.” (Nurse Resident)
- “Makes you realize it's important to pay attention to small details.” (Nurse Resident)

When the final escape times were revealed to the nurse residents, they expressed their excitement that they were able to escape the experience faster than the experienced nurse groups. This could be related to the fact that nurse residents had been presented with resources and education during nurse residency seminars, which addressed the learning objectives within the experience. In addition, nurse residents had been exposed to other active learning styles throughout their NRP, which possibly prepared them better for the experience.

## LIMITATIONS

Limitations included inconsistent group size in each offering. The larger groups may have prohibited some nurses from actively participating in the experience. The availability of supplies and space varied. Room assignment also varied, and some rooms required the NPD practitioner to adapt the setup. Experienced nurses may have struggled with some clues due to less recent review of concepts. Finally, some groups may have been informed about the clues or process if they participated later in the series of events.

## CONCLUSION

Development, design, and implementation of game-based learning were successful in providing nurses with interactive learning experiences. This escape room learning experience could be adjusted and replicated to meet the needs of other organizations. The NPD practitioners created a basic toolkit to assist managers and educators in developing their own escape experience. Positive reports from the

participants provide support for use of game-based learning and evaluation strategies for both new graduates and experienced nurses.

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