JNPD Journal for Nurses in Professional Development • Volume 36, Number 5, 271–276 • Copyright © 2020 Wolters Kluwer Health, Inc. All rights reserved.

Will You Escape?

Validating Practice While Fostering Engagement Through an Escape Room

CE 1.5 ANCC Contact Hours

Julie A. Gates, MSN, RN, CMSRN ❍ Michelle Youngberg-Campos, PMC, MSN, RN-BC

In the financial flux of the healthcare industry, resources for education and onboarding are ever dwindling. Nursing professional development specialists are frequently tasked with validating knowledge and skill application in a creative way. The article discusses the use of an escape room format to rapidly validate new graduate nurses' knowledge and skills, as well as decrease the number of education days for the organization.

As we begin to see more millennials in the nursing workforce, it is important to utilize innovative teaching modalities to captivate the learners (Brown et al., 2019; Connelly et al., 2018; Kotz, 2016). With organizations looking to decrease costs of onboarding new staff, nursing professional development (NPD) specialists are frequently tasked with educating creatively, while still being effective. Implementing an escape room for rapid competency validation of nursing skills is beneficial to new graduate nursing hires and allows for decreased education days. Utilization of nontraditional game-based education enhances the learner's creative reasoning and promotes engagement and persistence to task (Eukel et al., 2017). Prior to implementation of an escape room as a validation tool, previous evaluations of new graduate nurses solicited results favoring hands-on opportunities and interaction and avoidance of lengthy lectures. As NPD specialists, there was a need to move the learner from passive spectator to active contributor, allowing the participants to learn from the experience. Authors proposed escape rooms could be used in nursing settings for application of knowledge, but the review of the literature returned paucity related to utilization of escape room for competency validation. Initially, the NPD specialists implemented an escape room as part of the onboarding curriculum for new nursing hires. After much success, the room was expanded to immerse experienced nurses into the process.

This article will describe the educational design process used for the development of an escape room for new graduate knowledge and skill validation, explain how to keep the project costs at a minimum, and decrease length of educational time in a nurse residency program.

LITERATURE REVIEW

Millennials, or anyone born between the early 1980s and early 1990s, are entering the workforce at a rapid rate. Currently, this age group represents 28%–35% of the workforce (Fallen, 2018; Gómez-Urquiza et al., 2019). Projections estimate 60%–65% of nurses entering the profession are millennials (Fallen, 2018; French & Shaw, 2015). Millennials crave instant gratification and active engagement and prefer learning that is creative and takes a multimodal approach to learning (Brown et al., 2019; Gómez-Urquiza et al., 2019; Jambhekar et al., 2020; Kotz, 2016). Educators are encouraged to use a variety of teaching strategies to cater to a diverse group of people that span across multigenerations (Connelly et al., 2018; Kotz, 2016).

Escape rooms, originally starting in Japan, are gaining popularity throughout the world as a way of providing an immersive learning atmosphere to its participants (Zhang et al., 2018). Inexpensive, interactive adventures allow participants to solve puzzles, look for clues, and collaborate with others to escape before the clock runs out. Although most escape rooms are typically utilized for recreational purposes, they are gaining notoriety for utilization in educational settings. A great deal of literature supports gamification strategies for learner engagement, but only in the last few years have medical and nursing journals began to publish articles related to deployment of escape rooms. Escape rooms in the medical settings are utilized to promote professionalism, delegation of tasks, team building, and encouragement of collaboration while performing under pressure (Adams et al., 2018; Billings & Hallstead, 2016; Diesing, 2016; Eukel et al., 2017; Fallen, 2018; French & Shaw, 2015; Gómez-Urquiza et al., 2019; Hermanns et al., 2018). Teamwork can often be difficult to teach; therefore, providing educational offerings that allow members to collaborate in real-life situations can be beneficial.

Not only is the layout of the escape room important, debriefing is a critical component to transforming the escape room into an effective teaching modality (Fallen, 2018; Jambhekar et al., 2020; Kinio et al., 2019; Kotz, 2016;

Julie A. Gates, MSN, RN, CMSRN, is a Nursing Professional Development Specialist at SwedishAmerican, A Division of UW Health, Rockford, Illinois.

Michelle Youngberg-Campos, PMC, MSN, RN-BC, is a Nursing Professional Development Specialist at SwedishAmerican, A Division of UW Health, Rockford, Illinois.

The authors have no significant relationships with, or financial interest in, any commercial companies pertaining to this article.

ADDRESS FOR CORRESPONDENCE: Julie A. Gates, SwedishAmerican Health System, 1401 East State Street, Rockford, IL 61104 (e-mail: jgates@swedishamerican.org).

DOI: 10.1097/NND.0000000000000653

Nicolson, 2015). Debriefing and analyzing what the participants experienced allow the content to be applied to future practice. Debriefing can be the cornerstone to the experiential learning process as escape rooms can be highly stressful and give an adrenaline rush to many of its participants. Nicolson (2015) surveyed 175 escape room facilities; 73% of respondents provide debriefing and felt it was imperative to incorporate into the experience.

THEORETICAL FRAMEWORK

The cognitive social theory provided the theoretical and conceptual frameworks for designing the escape room (Zhang et al., 2018). Learners were actively engaged by exploring the environment and processing information from previous experiences. By doing so, they developed a higher level of problem solving and searched for new information to synthesize knowledge (Aliakbari et al., 2015). The cognitive social theory was applied to the design of the escape room as it parallels learner-centered gaming strategies to encourage the synthesis of knowledge and promote memorization. Gaming and simulation motivated the learners and required cooperation and competitiveness to be successful (Bradshaw & Lowenstein, 2014). Participants of the escape room relied on previous knowledge gained in practice and during residency classes. The ability to mentally participate and transfer retained knowledge to process the clues, solve puzzles, and actively communicate with team members aligned with the theoretical framework of cognitive social theory.

DESIGN AND METHOD

Budget constraints forced revisions to the current nurse residency program, reducing classroom orientation days by three. With the reduction in education time, NPD specialists needed to develop a way to validate knowledge and skills and promote discussion of information. The creative strategy of using an escape room was researched and determined to be a possible modality to complete this validation. Therefore, the process of creating an escape room began by listing items that the nurses should be able to demonstrate either from nursing school or from education during the previous days of the residency program. Once items were determined, competency verification methods from the Donna Wright model were identified based on the knowledge or skill in the escape room (Wright, 2005).

After researching escape room designs, it was determined that there are two outlines to follow in order to create the room. A nonlinear or open design allowed for the clues to be found in any order as the participants progressed through the escape room. A linear or sequential design allowed the participants to move through clues in a predetermined order, such as one clue would lead to a specific next clue. Overall, a linear format was easier to conceptualize and design and was used in the creation of the room layout (Connelly et al., 2018). After determining the design type, the goal was to create the room on a limited budget of under $75.00. Our current simulation laboratory and supplies were used for the actual rooms. To contain cost, the Dollar Store was frequented to provide

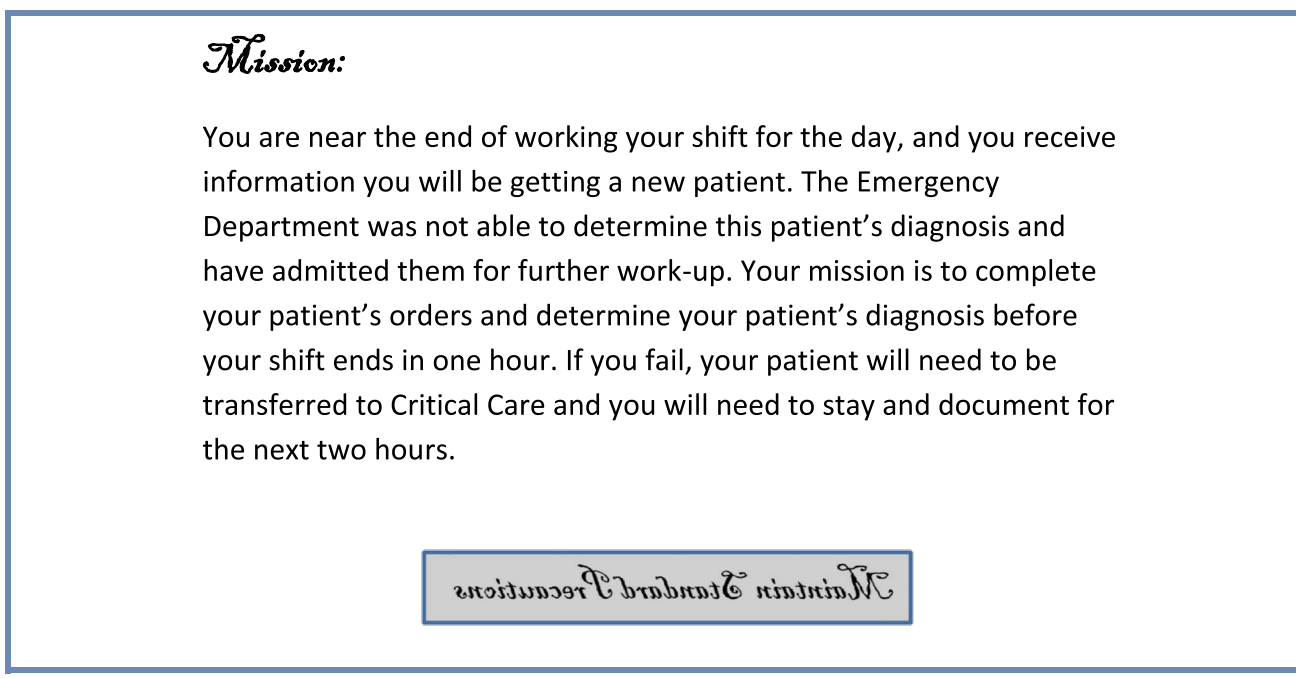

FIGURE 1. First clue in the escape room provided the scenario.

The abnormal labs will hold the key:

WBC	T
Hgb	R
HCT	V
Platelets	F
NA+	B
K+	E
Cl-	D
HCO3-	M
BUN	S
Creatinine	A
Glucose	C
Prothrombin time	H
INR	W
APTT	Z
CRP	G
D-dimer	I
CK-MB	O
Troponin T	J
BNP	L
Lactate	K

FIGURE 2. Cryptograph used to decode laboratory results.

gadgets for lock boxes and puzzles. Most of the budget was spent on locks that were secured through the contracted office supply carrier at a discount.

The escape room was designed in numerous sections. It began with a prebrief on what the escape room entails and a Sworn to Secrecy contract, which encouraged participants not to reveal any of the secrets of the room. Participants were given the first clue, the door opens, and the 1-hour time began. Participants searched the room to locate the scenario that will help guide the group through the clues (see Figure 1).

Participants were allowed two hints that they could use at any time while in the room. As the group moved through various puzzles and cryptographs, the participants enhanced team communication and clinical reasoning as several elements began to build upon one another. For example, the participants found a cryptograph that will help to decode the message behind abnormal laboratory values. However, in order to complete the task, they needed to locate the laboratory values in the room and understand which values were out of range (see Figure 2).

There were clues in the first room that lead the participants to open a lock to a second room and find additional clues to discover the diagnosis of the patient in order to escape. Evaluations were collected at the end of the experience, and a leader board was created to showcase each group that made it through the escape room (see Figure 3).

As part of the design process, the NPD specialists were all asked to go through the escape room as a pilot test. Small changes were made once the flow of the room was understood and the first group of new graduate nurse participants went through the room in July 2018.

Validation Strategies

The ultimate goal of the room was that the new graduate nurses would be able to discover the patient's medical diagnosis. With validation of nursing skills being the primary

FIGURE 3. Participants joined the leader board after escaping the room. This figure is available in color online (www.jnpdonline.com).

TABLE 1 Knowledge and Skills Performed in an Escape Room With Validation Methods

Knowledge/Skill	Validation Method
Nursing senior leadership recognition	Discussion
Physician orders	Return demonstration
Lab draw	Return demonstration
Medication waste	Discussion
Organizational enculturation	Test
Lab interpretation	Test
Intravenous pump operation	Return demonstration
Nurse-to-physician report	Return demonstration
Foley insertion	Return demonstration
Diagnosis	Discussion

focus of the room, the nurses worked together, just as they would on the unit to complete the tasks (see Table 1).

During the scenario, two NPD specialists were in the room with the learners, which ensured correct completion of tasks. The NPD specialists were also able to validate the knowledge and understanding of key concepts. When the participants had either completed all of the tasks or the time ran out, a full debriefing of the activity occurred.

During the designated debriefing time, the skills and knowledge used throughout the room were highlighted. The NPD specialists reviewed each of the skills completed while working through the various puzzles and tasks in the room, so the participants had an understanding of the items that were demonstrated. If the group did not escape in the allotted hour, time was taken to work through the remainder of the skills to ensure each item was completed and validated.

Specialty Expansion

After the success of the initial escape room for new graduate nurses, the positive response spread throughout the organization. The critical care unit (CCU) requested that the entire nursing staff go through the escape room as an education day activity. Because a few of the team members went through the room as part of the onboarding process, the NPD specialists were tasked with finding alternative activities for learners to validate competence.

The process of designing the specialty escape room began with listing items that critical care nurses should know within the first year of practice. Once all of the additional items were chosen, the flow of the room was determined. It was decided that staff members who previously participated in the new graduate escape room became the charge nurses for the specialty escape room. The charge nurse was able to earn the team two hints to use throughout the room. The charge nurse requested help from more seasoned staff members but could not assist the other participants in the room, because they had been through it before.

One of the concerns for the new design was timing. The group working through the original escape room content and the charge nurse needed to continue to progress through the separate skills in order to escape the room within the hour. The additional content was piloted and was deemed to be appropriate to use for the education day. The additional content was successful in demonstrating competency, allowing for unit teamwork, and creating a fun learning environment. It allowed CCU nurses to be in the room and work together. It also allowed an opportunity for the more seasoned nurses to help nurses new to the unit as they worked through charge nurse skills (see Table 2).

FINDINGS

Since inception, 104 new graduate nurses and 65 CCU nurses have entered the escape room, and the evaluations showed a favorable response. Results indicated a 4.704 score on a 5-point Likert scale when asked if the learner felt the escape room will impact current practice on the unit. The learners expressed increased confidence in nursing skills and team dynamics. The average success rates of most escape rooms were 36%–62%, but tend to vary by location and level of difficulty (Billings & Halstead, 2016; Bradshaw & Lowenstein, 2014; Hermanns et al., 2018). To date, 68% of our new graduate participants and 54% of the CCU nurses have successfully escaped and completed all tasks in the 60-minute time allotted. Zhang et al. (2018) discussed a connection between positive and negative behaviors, stating that positive behaviors led to successful escapes whereas negative behaviors led to failed escapes. Although difficult to prove, a correlation may exist between evaluation scores and unsuccessful escapes, where evaluation scores were lower. Participants in favor of the escape room stated, "The escape room was fun and educational and love that we can put what we have learned and have fun with it," and "I really enjoyed the escape room, it was

TABLE 2 Additional Knowledge and Skills Performed in a Critical Care Escape Room With Validation Methods

Knowledge/Skill	Validation Method
Hemodynamic monitoring	Return demonstration
Rhythm interpretation	Test
Diabetic ketoacidosis management	Return demonstration
Arterial blood gas interpretation	Test

fun and interactive, challenging our minds. Plus it made us work as a team and teamwork is what it is all about!"

LIMITATIONS

The escape room proved to be highly effective in restructuring validation practices. The major limitation identified in the process was the amount of time it took to initially produce the room. The process required numerous drafts of the linear outline of the room in order to determine a working model. In addition, creating the boxes and putting together all of the clues resulted in a large amount of time dedicated to the project.

LESSONS LEARNED

After having a few groups of participants complete the escape room, the NPD specialists determined there needed to be more time built into the full runtime of the escape room. Because groups were limited to five or six participants, often the other members in the nurse residency program were at other stations while one group was going through the escape room. The additional stations had no bearing on the success of the escape room, as the content covered was not included in the escape room. Initially, only 1 hour was allotted for each station before rotating. However, that did not allow for additional time for the prebrief before entering the room, the time to continue to work through the skills if they did not escape, and the time to turn around the space. Adjustments were then made to the schedule to ensure enough opportunity was given to complete all of the aspects of the activity.

Finally, the NPD specialists did have the issue of groups of current staff wanting to participate in the room as part of an event for the unit. However, most units had staff members who had already been through the room. Numerous scenarios were considered in order to allow repeat staff members to participate without giving away clues to the room. The result was to create an expansion of the original room to allow nurses who had previously participated to work alongside other nurses on the unit to escape. Ultimately, the additional content was very successful.

FIGURE 4. QR code for the escape room trailer. This figure is available in color online (www.jnpdonline.com).

IMPLICATIONS FOR NURSING EDUCATION

The use of an escape room for knowledge and skill validation is a valuable tool. It allows for information to be reviewed and demonstrated in a short amount of time. However, it is important to note that the items validated are those that are covered through nursing program education or previous days of orientation. The escape room serves as additional re-enforcement and validation of that knowledge. Since consolidating education days during the beginning of orientation, it has allowed for expansion of the education time for nurse residents later in the first year of practice.

CONCLUSION

The NPD specialists identified instructional strategies and tools to successfully create, implement, and integrate an escape room for new graduate nurses into the current curriculum, with an expansion to the specialty units. The educational design strategy is effectively used to validate the knowledge and skills of nurses who participated in the room. The escape room is meant to supplement orientation on the units. The results of the evaluations are favorable, and nurses rated the implication to practice high. In addition, the escape room allows for quick and efficient validation of numerous skills, while still fostering team collaboration in an interactive and exciting way. Learning is a life-long process. By incorporating advancements in technology and using gamification, NPD specialists can further support the learning progression by providing educational structure that allows each nurse to travel on the journey of becoming a competent, expert nurse (see Figure 4).

References

Adams, V., Burger, S., Crawford, K., & Setter, R. (2018). Can you escape? Creating an escape room to facilitate active learning. *Journal for Nurses in Professional Development*, *34*(2), E1–E5. 10.1097/NND.0000000000000433

Aliakbari, F., Parvin, N., Heidari, M., & Haghani, F. (2015). Learning theories application in nursing education. *Journal of Education and Health Promotion*, *4*, 2. 10.4103/2277-9531.151867

Billings, D., & Halstead, J. (2016). *Teaching in nursing. A guide for faculty* (5th ed.). Elsevier.

Bradshaw, M., & Lowenstein, A. (2014). *Innovative teaching strategies in nursing and related health professions* (6th ed.). Jones and Bartlett.

Brown, N., Darby, W., & Coronel, H. (2019). An escape room as a simulation teaching strategy. *Clinical Simulation in Nursing*, *30*, 1–6. 10.1016/j.ecns.2019.02.002

Connelly, L., Burbach, B. E., Kennedy, C., & Walters, L. (2018). Escape room recruitment event: Description and lessons learned. *Journal of Nursing Education*, *57*(3), 184–187. 10.3928/01484834-20180221-12

Diesing, G. (2016). Millennials who they are, what they want, and why you need them. *Hospitals and Health Network*, *90*(11), 22–27.

Eukel, H. N., Frenzel, J. E., & Cernusca, D. (2017). Educational gaming for pharmacy students—Design and evaluation of a diabetes-themed escape room. *American Journal of Pharmaceutical Education*, *81*(7), 6265. 10.5688/ajpe8176265

Fallen, M. (2018). *National survey shows millennial nurses rewriting the rules*. https://www.beckershospitalreview.com/hospital-management-administration/national-survey-shows-millennial-nurses-rewriting-the-rules.html

French, S., & Shaw, J. (2015). The unbelievably lucrative business of escape rooms. *Market Watch*. http://www.marketwatch.com

Gómez-Urquiza, J. L., Gómez-Salgado, J., Albendín-García, L., Correa Rodríguez, M., González-Jiménez, E., & Cañadas-De la Fuente, G. A. (2019). The impact on nursing students' opinions and motivation of using a "nursing escape room" as a teaching game: A descriptive study. *Nurse Education Today*, *72*, 73–76. 10.1016/j.nedt.2018.10.018

Hermanns, M., Deal, B., Campbell, A., Hillhouse, S., Opella, B., Faigle, C., & Campbell, R. (2018). Using an "escape room" toolbox approach to enhance pharmacology education. *Journal of Nursing Education and Practice*, *8*(4), 89–95. 10.5430/jnep.v8n4p89

Jambhekar, K., Pahls, R. P., & Deloney, L. A. (2020). Benefits of an escape room as a novel educational activity for radiology residents. *Academic Radiology*, *27*(2), 276–283. 10.1016/j.acra.2019.04.021

Kinio, A. E., Dufresne, L., Brandys, T., & Jetty, P. (2019). Break out of the classroom: The use of escape rooms as an alternative teaching strategy in surgical education. *Journal of Surgical Education*, *76*(1), 134–139. 10.1016/j.jsurg.2018.06.030

Kotz, P. (2016). Reaching the millennial generation in the classroom. *Universal Journal of Educational Research*, *4*(5), 1163–1166. 10.13189/ujer.2016.040528

Nicolson, S. (2015). Peeking behind the locked door: A survey of escape room facilities. White Paper available at http://scottnicholson.com/pubs.erfacwhite.pdf

Wright, D. (2005). *The ultimate guide to competency assessment in health care* (3rd ed.). Creative Healthcare Management.

Zhang, X. C., Lee, H., Rodriguez, C., Rudner, J., Chan, T. M., & Papanagnou, D. (2018). Trapped as a group, escape as a team: Applying gamification to incorporate team-building skills through an 'escape room' experience. *Cureus*, *10*(3), e2256. 10.7759/cureus.2256