Escape Rooms to Mentor and Educate Community/Public Health Nursing and Undergraduate Educators

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ABSTRACT

This article builds from the Research in Action Model published in the Association of Community/public Health Nursing Education (ACHNE) Research Priorities 2020 (McElroy, Stalter, Smith, 2020). As a result of the COVID pandemic, the ACHNE Research Committee offered a virtually-based, interactive plenary for attendees (N=59) of their Annual Institute. The plenary began with five big research affinity groups (BRAGS) sharing fast-paced storytelling presentations. These presentations served to orient attendees to an innovative focal point: a virtual escape room. To debrief escapees, two co-moderators guided a panel of BRAG experts using four questions and action steps to advance research mentorship using BRAGS. The action steps directed members towards generating ideas, measuring outcomes, and translating evidence into community/public health nursing education. Post-COVID, the escape room was modified to teach faculty (N=25) from an American Association of Colleges of Nursing (AACN) *Competency-Based Education for Practice-Ready Nurse Graduates (2022) p*ilot school, foundational knowledge about the new *Essentials* (AACN, 2021) and curriculum mapping. Pre/post test results validated that learning increased due to both escape rooms. This article provides readers with a plenary overview, escape room planning, an exemplar, modifications for educating faculty on new AACN Essentials (2021) and key steps in escape room development.

Plenary Overview

Plenary planners wanted to offset the cognitive overload often experienced during annual conferences by engaging the learners through innovative storytelling approaches, varied practice strategies, and gaming so that encoded lessons would be retrieved from long-term memory

(Hacke, 2019). With this intent, the 90-minute plenary was organized into five parts: introduction, fast-paced storytelling presentations, escape room activity, and a panel debriefing discussion. The 10-minute introduction and five fast-paced storytelling presentations (10-minutes each) were pre-recorded and shared with attendees synchronously in a secure videoconferencing platform. After each presentation, the varied practice strategy employed was a quizzing poll to confirm presentation topics and key lessons were learned. At the end of the last fast-paced storytelling presentation, attendees were randomly assigned to breakout rooms where BRAG experts facilitated with navigating an escape room.

Escape Room Planning

Escape Room planning involved the use of a template as described by Taurelli (2020). The planning template identifies specific learning objectives, content, links to education standards and competencies. The planning template also contains steps for participants to successfully navigate the room, solve clues and eventually escape. Since the purpose of the escape room was to actively engage attendees with retrieval of information learned during the fast-paced storytelling presentations, the steps on the template pertained to clues that led to those topics. Table 1 provides an example of the planning template for clue development and solving. Figure 1 offers a storyboard aligned with Table 1. Both the template and story board highlight an example of Door #1 of the escape room which will be described in more detail throughout the article. Finally, the plan established a one-hour timeframe in that participants were given 30 minutes to escape. The last 30 minutes were designated to the moderated panel discussion designed to debrief learners, reinforce lessons, and to provide attendees with the opportunity to form a BRAG.

Escape Rooms

Table 1. Escape Room planning template, example for Door #1

Learning objective	Learners will be able to successfully apply critical thinking and problem-solving strategies to a variety of tasks and accurately describe pertinent lessons for forming a BRAG.
Content	Scholarship of teaching and learning in community/public health nursing, BRAG formation
Standards	Not available; AACN Certification for community/public health nursing education is obsolete
Competencies for Academic Nurse Educators	National League for Nursing 1. Facilitate Learning; 3. Use Assessment and Evaluation Strategies; and 7. Engage in Scholarship

Step	Topic/Message	Clue	Details	Answer Key
1	Door 1	Riddle	Move from hand to star, then to lightbulb	Directional

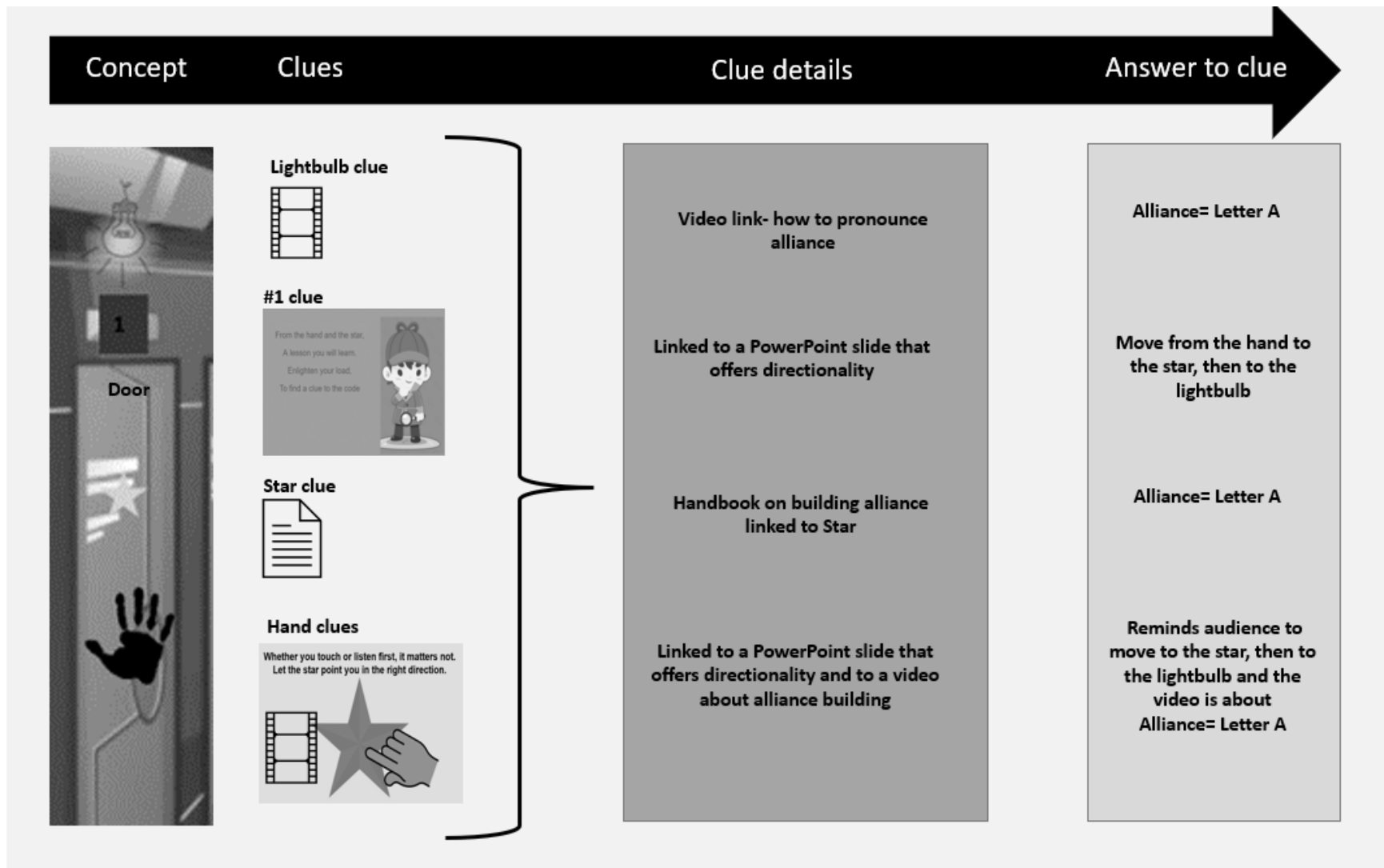| Step	Topic/Message	Clue	Details	Answer Key
2	Create alliance	Hand- alliance video	Video linked to handprint	Directional and the letter A
3	Building alliance	Star- alliance handbook	Document linked to star	The letter A
4	Alliance	Lightbulb- alliance pronunciation	Video linked to lightbulb	The letter A

Figure 1. Storyboard, Planning for Door #1 of the Escape Room

Introduction to the Plenary

Using video technology, the introduction began with the plenary group spokesperson taking on the role of a lore master. This approach was done to provide relaxed alertness as the topic of research can be intimidating for some academicians. Next, the lore master orchestrated immersion by incorporating a galaxy theme and backdrop to engage the audience into the session. Then, lore master used brain based educational approaches including instructional designs consistent with neuroscientific evidence for integrating graphics and audio. For example, when speaking about the research in action model (McElroy, Stalter, & Smith, 2020) moving in warp speed, a full blurred image of an automatic train moving inside a tunnel in Tokyo was presented. Another example was asking the audience to answer a riddle and playing a familiar game show theme song (arousal). Finally, anticipatory guidance was used to provoke interest in how pearls, seeds, ants, hedgehogs, a cowboy, grit, and determination (storytelling presentation themes) provide nurses with challenges and solutions for developing BRAGS designed to build the bridge between community/public health nursing education and practice. This approach was used so that the learner was aware that active processing of information would be forthcoming.

Fast-paced Storytelling Presentations

Five fast-paced storytelling presentations were presented by BRAGs. The fast-paced storytelling presentations required that 20 slides be shown over approximately 7 minutes, designating about 35 seconds per slide. The slides and comments were to tell a story about the project that the BRAG completed. Also, the presentation was to reinforce a lesson that the BRAG learned so that participants interested in starting a BRAG would know and understand what the BRAG has discovered about being successful and yielding planned outcomes. After each presentation, a two-item poll was posed for participants to validate the understanding of the

topic of the BRAG project and of the key lesson the BRAG learned from the project. Data

obtained from the poll is presented in Table 2. The level of difficulty for lessons increased across

presentations. The poll results suggest that both engagement and understanding increased over

the course of storytelling.

Table 2. Data obtained from the poll posed after each of the five presentations.

Presentation	N	Response rate	Topic understood	Key lesson understood
1	59	72.9%	98%	63%
2	59	100%	98%	88%
3	59	88.1%	98%	90%
4	59	84.7%	86%	82%
5	59	100%	100%	98%

The first presentation told a story was about how six BRAG members, community health

nurse educators from across the United States, created an alliance when studying the use of

Eppich and Cheng's (2015) PEARLS Debriefing Model to teach clinical simulations pertaining

to community/public health nursing. A pearls of wisdom theme was used to explain steps for

how to create an alliance were strategically placed in their story. Of the 59 attendees, 43 (72.9%

response rate) responded to the poll indicating that 98% understood that the topic of the BRAG

project was related to debriefing community health clinical experiences and 63% realized the message that creating an alliance was important about being in or forming a BRAG.

The second presentation used an ants on a rubber tree theme to describe how four BRAG members faced unique challenges amid the Covid pandemic and the goal the BRAG established to measure grit using Duckworth and Quinn's (2009) GRIT-S Scale. The group used black eye patches from the Hollywood movie, *True Grit* starring John Wayne, and the song *High Hopes* sang by Frank Sinatra, to reinforce that overcoming challenges and accomplishing goals takes perseverance and passion. Of the 59 attendees, 100% responded to the poll indicating that 98% understood that the topic of the BRAG project was related to measuring grit using the Grit-S scale and 88% realized the message that overcoming challenges was important about being in or forming a BRAG.

The BRAG members presenting the third story explained their scholarship journey as being from hardship to hope. They described their primary obstacle as COVID and used key words that started with the letter "H." The presentation conveyed a journey of discovery in that they wanted to help students find ways to express their COVID experience. The BRAG creatively used hedgehogs and a gameboard to describe future research plans. The BRAG plans to empower students using Wang and Burris' (1997) Photovoice, a visual methodology qualitative process where students will document their feelings about college life before, during and after the pandemic using photographs. Of the 59 attendees, 52 (88.1%) responded to the poll indicating that 98% understood that the topic of the BRAG project and 90% realized the message that BRAG members should know which methodology they want to use in order to carry out a project.

The fourth presentation portrayed a gardening themed story about using a modified version of Phillips et al. (2016) system awareness model to guide future nursing workforce development amidst COVID. The BRAG group referred to project planning (soil preparation), asking the research question (planting seeds), using a framework to guide survey development (fostering growth), establishing IRB and agency permissions (promoting a strong root system), snowball recruitment (hardiness zone map), strengths of research (tomato cage), weaknesses and limitations (wilting plants), data collection (harvesting), data analysis (variety of fruits, vegetables, and flowers), and conclusion (evidence of growth). They concluded their story with three key lessons plan with results (harvest) in mind, involve students whenever possible (closed garden gate limits access), and use research priorities to guide significance (pathway though garden). Of the 59 attendees, 50 (84.7%) responded to the poll indicating that 86% understood the topic of the BRAG project and 82% understood the message that members should adhere to scientific processes when being in or forming a BRAG.

The last presentation used a *Wizard of Oz* theme to describe their project which focused on use of Crisis Standards of Care (CSC) in nursing education. Parallels between parts of the movie and the research process were creatively applied. For example, the happy Kansas farm life interrupted by the tornado was compared using colorful pre pandemic and COVID virus photos. The yellow brick road was the research process, the wicked witch of the west was the lack of proper implementation of CSC in nursing education, conversely Glinda the good witch represented the positive synergy that developed among the BRAG members. In addition, the flying monkeys represented the adversity of not receiving a reasonable response rate for a survey. The Emerald City symbolized the evidence gained from the project. Of the 59 attendees, responding to the poll 100% indicated that they understood that the topic of the BRAG project

was surveying knowledge about CSC in community/public health nursing education and 98%
understood the message that when being in or forming a BRAG, evidence informs
community/public health nursing education.

Code Gray Announcement

Consistent with escape room design literature, creating a sense of urgency and risk should
be maintained throughout the activity to generate an impassioned participation. At the end of the
last fast-paced storytelling presentation, the virtual support team hired by the professional
organization interrupted the plenary session with the following announcement: "Code Gray -
Code Gray-- Code Gray! An intergalactic virus has attacked Earth's clinical constellation! All
available community/public health nurse educators are placed on immediate alert for an out of
this world assignment!" The announcement was repeated three times. There was a background
code alarm sounding during the announcement. After a short pause, the virtual support team
presented another pre-recorded video. The video was referred to as the escape room gripper.

The Escape Room Gripper

Grippers are contextual in nature and set the tone for participants to immerse themselves
into original storylines, peaking genuine interest and the desire to play and complete an escape
room challenge (Clark et al., 2017; Tauriello, 2020). Grippers are similar to movie trailers as
they are used to get audiences excited about upcoming attractions. The gripper for this activity
was developed as an .mp4 file subsequent to using the picture of a star filled outer space as a
PowerPoint background then adding a scrolling animation to a text box along a theme song from
the original Star Trek series (free domain). The words were read by the lore master as a means of
connecting the Code Gray urgency for community/public health nurse educators' response to an

intergalactic threat in preparation for an out of this world assignment. The mission was posed for

attendees to "explore clues, through teamwork and collaboration, and to escape from the

Starship's Academic Bridge. To boldly return to Earth and take community/public health nursing

education and research where it has never gone before!" As soon as the gripper video was over,

the virtual support team randomly assigned plenary conference attendees to five breakout rooms

where they were met by BRAG presenters.

Facilitator Script

The familiar presenters introduced themselves and read a script explaining what the

escape room would entail. Each facilitator described his/her role as screen sharing, navigating

room, and activating buttons. To engage participants facilitators asked that participants use their

microphones, name their group, and assign a scribe to take notes as clues were read and solved.

Escape room literature emphasizes the need for designers to develop clear objectives and gaming

rules so that once participants are in escape rooms they can begin working to escape. To that end,

each facilitator explained that: "When I open the escape room, the clock will start. It begins at 30

minutes and counts down to zero… If we run out of time, we will be administratively sent back

to the Plenary Session."

Facilitators also explained that:

> "Upon entry to the room, quickly scan the Bridge. Notice that the front of the
> Bridge is the Earth Entrance way, or Portal. The perimeter of the room has a series
> of doors numbered 1-6. The ship's computer, transporters, and passengers are
> located within the Bridge's main cabin. There will be an Access to Care Keypad.
> Our job is to find the access code which is a five letter code, all capital letters. We
> will start with Door #1 to solve the clues contained within it. We will read and
> solve the clues together. One door is a dupe. Other animations in the room provide
> insight about public health nursing research and education. To make good use of
> the time, we (will) work the periphery of the room first. After we figure out the
> Access Code, I will enter it into the Access to Care Key Pad."

The Exemplar: Escape Room

The escape room, entitled the Starship's Academic Bridge, was created using PowerPoint as a substrate and adding a purchased iStock image by Ignor Nelson as a backdrop (Figure 2). The backdrop image was enhanced by inserting PowerPoint icons and Google images designated as free public domain and transparent. Once the enhancements were complete, the images were all grouped together, and the newly created image was saved as a .pdf file. Next, the image was uploaded to a blank Google Slide. The Google Slide was then edited by adding clues in the form of video links, sound files, and additional slides. When additional slides were used, they were created using a video technology platform.

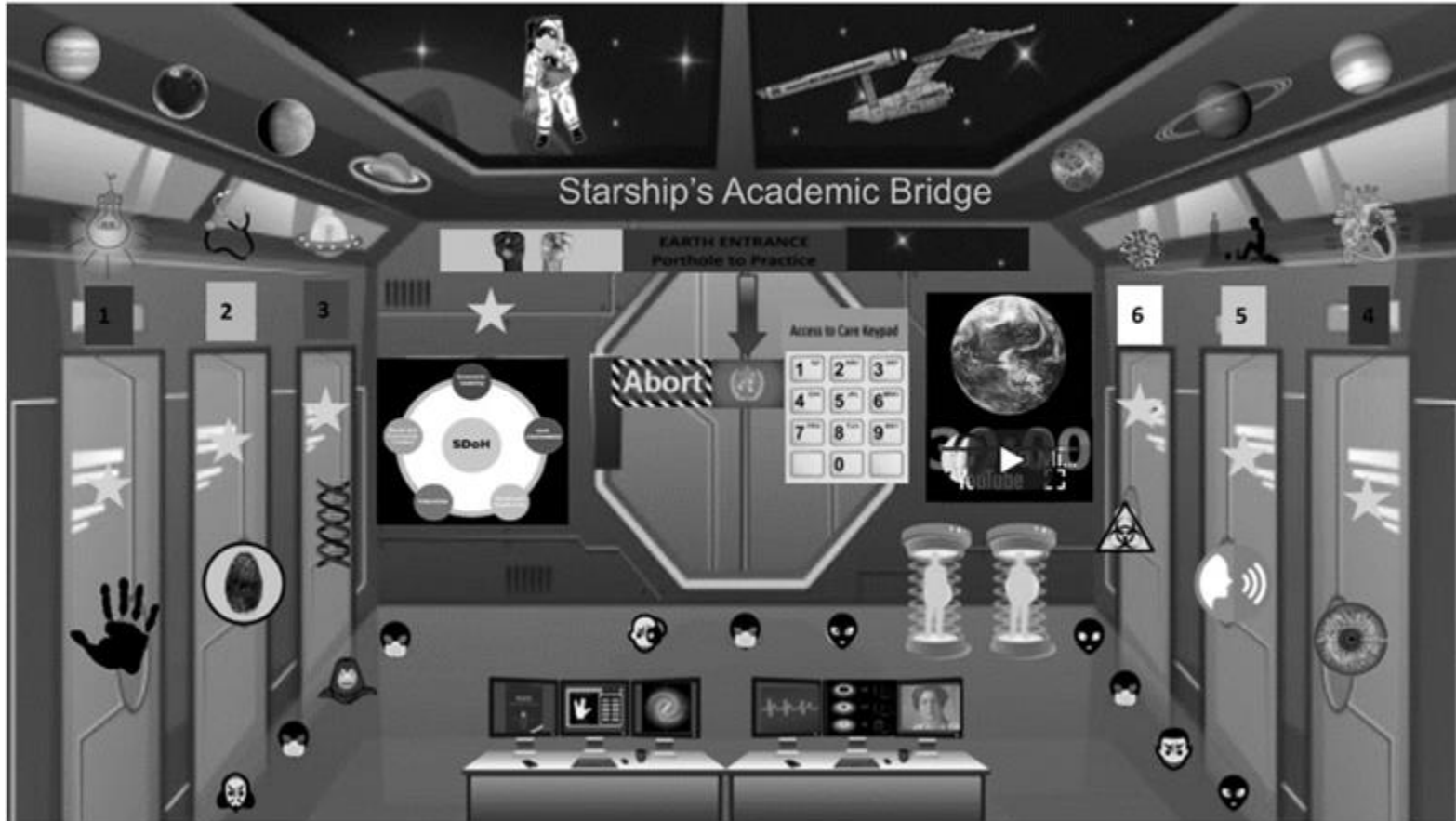Figure 2. The Starship's Academic Bridge Escape Room

As the goal of the breakout assignment was to reinforce plenary session learning among attendees, the aim of the exercise was to promote teamwork and collaboration while motivating attendees to become more actively engaged in professional scholarship through a BRAG. By design, the room contained many organized features to enhance active learning about community/public health nursing education, practice, and research. Specific areas of the room were planets along the upper corridor, space external to the bridge, the front of the bridge, the floor of the bridge, and Doors 1-6.

Planets. The planets represent those in the Milky Way Galaxy, excluding Earth. For the most part the planets contained links to videos and documents pertaining to historical and current perspectives related to community/public health nursing. Examples included: 1) a video emphasizing the significant influence Mary Eliza Mahoney made on eliminating racial discrimination among registered nurses (WGBH Educational Foundation, 2021); 2) a video highlighting the impact Mary Breckenridge made on reducing infant and maternal mortality among impoverished Appalachian families in Kentucky (Dye, 1983); 3) the Future of Nursing 2020-2030 report; 4) Association of American Medical Colleges' (AAMC) frequently asked questions for Counsel on COVID-19 Crisis Standards of Care (AAMC.org); and 5) Characteristics of Academic Health Departments.

Space. The space external to the bridge contained two items: an astronaut and a spaceship. Each were strategically placed for learners to select as escape alternatives. Both images were linked to computerized voice messages deflecting a pathway out of the bridge. For example, the spaceship link announced: "Proximity alert! Vessel approaching! This vessel is embargoed." Humor was used as a strategy to have learners return to the bridge to solve clues.

Bridge front. The bridge front contained several areas particular to community/public health nursing which included an orbiting model of the social determinants of health which linked to a video about how Lillian Wald founded the Henry Street Settlement in New York City and was a social justice activist for children, women, suffrage, racial integration, and school nurses (Coss, 1989). Also, there were links to the Council of Public Health Nursing Organizations and International Council of Nurses websites, and a video of a World Health Organization representative reading article 25 of the Universal Declaration of Human Rights to the European Union. The Porthole to Practice was linked to a Yale School of Medicine video which explained how community participatory action-based research was presented as a priority for informing community/public health, nursing, education, and practice. On the bridge front, two escape room features were visible to players: The Timeclock and Access to Care Keypad. The Timeclock was depicted as a rotating earth and was preset with a non-alarmed 30-minute countdown. The Timeclock was created using directions offered by Dill (May 17, 2020). The Access to Care Keypad gave two explicit hints for escaping. The Access to Care Keypad was developed using Google Forms according to directions offered by Dill (July 9, 2020).

Transformers, computer, aliens. Links to transformers, computer, and aliens employed iconic sounds from trekcore.com. The rationale for linking .mp3 files to the images was to employ humor as a strategy for returning learners to the doors to solve clues. Distracting learners with play (i.e., as using funny sounds) serves to intrinsically motivate learners to work together and get excited about learning (Niemic & Ryan, 2009). In this scenario, it served to help learners focus on clues as the sounds consumed the time that they needed to escape.

Doors 1-6. Each door was numbered 1-6 and contained four clues. The level of difficulty for solving problems increased sequentially with the door numbers. For example, Door 1 contained

the least difficult set of clues to solve. Door 1 focused on the key message conveyed in the first fast-paced storytelling presentation, creating an alliance important when being in or forming a BRAG. Door 2 centered on BRAGs needing to have grit to overcome challenges. Door 3 challenged learners with clues that integrated the answer to the clue using an online created jigsaw puzzle. The message that BRAG members should know which methodology they want to use in order to carry out a project was applied as a result of solving the clue. Door 4 required participants to retrieve knowledge that the topic of the BRAG project was nursing workforce and that members should adhere to scientific processes when being in or forming a BRAG. Door 5 embodied the essence of working together to solve clues. The solutions required that players use evidence to generate knowledge about being in and forming a BRAG, especially evidence such as employing Crisis Standards if Care informs community/public health nursing education. Door 6 was a dupe door that gave information about the COVID pandemic and its ill effect on man.

The last step of Escape Room planning was that once all the features were embedded, linked, and activated, The Gripper video and Google Slide presentation were uploaded and published onto a public Google Site. Publishing to a Google Site allows users to access the materials in a one stop, interactive location (Dill, July 9, 2020; Taurielli, 2020).

Panel Discussion and Action Steps

Upon completion of the Escape Room (30 minutes), participants reconvened in the plenary for a guided panel discussion. Two co-moderators led a panel of BRAG experts using the PEARLS Debriefing process. The first moderator made a general comment about forming a BRAG and then posed a question for panel members to offer rapid fire responses. Then, the second moderator summarized the panel responses and directed participants take action steps toward advancing scholarship through BRAGS. This sequence of events was repeated four times.

Table 3 provides the four comments, questions, summaries, and action steps that were

implemented.

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Table 3. Sequence of discussion panel events

Moderator 1 Comment	Question posed to Panel members	Rapid Fire Replies	Moderator 2 Summary	Action steps
BRAGs are public/community health nurse educators who share common interests, mentorship, and publication needs who work together to develop scholarly projects.	How did your group come together?	• We attended research committee meetings • We made a commitment to one another to support our scholarship • We shared common interests	BRAGs are works in progress.	Place in the chat • Something you are curious about • If you have a need for mentorship in scholarship • If you have an immediate need for publication for faculty progression versus another research goal

Moderator 1 Comment	Question posed to Panel members	Rapid Fire Replies	Moderator 2 Summary	Action steps
				Rank these in order of priority as 1-3
BRAGs form for different reasons, but once they have an idea, they must see what the literature says about it.	How did your group decide on a topic?	• We were curious about our project • We shared a passion • We wanted to know more • One of our members needed another publication for promotion and tenure	Scholarship requires adherence to scientific process such as completing a review of he literature	Review the chat for colleagues with: • Similar interests • Who might have a reciprocal need such as mentor-mentee • An urgency to produce scholarship or

Moderator 1 Comment	Question posed to Panel members	Rapid Fire Replies	Moderator 2 Summary	Action steps
				another long-term research goal
In general, BRAGs seek to either generate new knowledge OR translate what is known into practice. The challenges is understanding that we vary in perspectives and experiences, and we must collaborate to explore scholarly approaches	How did your group focus on scholarly approaches?	• We started with a research question • We reviewed the literature • We used a theoretical framework • We asked for help when we did not know	Everyone comes from different educational and experience backgrounds, respect the differences but follow the process.	In the chat identify: • Your educational background (MS, PhD, DNP, etc.) • Your specific expertise(s) in scholarly approaches (survey methods, CBPAR, Quality Improvement,

Moderator 1 Comment	Question posed to Panel members	Rapid Fire Replies	Moderator 2 Summary	Action steps
				Qualitative, Statistical methods)
BRAGs recognize the current state of science and their topic's relevance to ACHNE research and EBP priorities.	How did your group decide on a question?	• After we visited the literature, we found a gap • We are still talking about it!	BRAGS are about helping one another to identify gaps in knowledge and filling that gap using scholarly approaches. Ultimately it is about addressing the priorities of our discipline through discovery, teaching, integration or	• Review your notes and the chat again • Find at least one person who you think you "connect with" • Send a private message in the chat offering your contact information and invite him/her to

Moderator 1 Comment	Question posed to Panel members	Rapid Fire Replies	Moderator 2 Summary	Action steps
			application. The goal is disseminating findings through peer reviewed venues.	connect to discuss a research topic. • Please note: Experienced scholars are strongly encouraged to reach out to those with immediate scholarship needs

Post-COVID Application and Modifications

Since the COVID-19 lockdown, professional organizations and institutions of higher learning have returned to face-to-face sessions, often offering hybrid meetings. Recently, an AACN Essentials Pilot school presented its faculty with a virtual workshop to teach them how to map their curriculum to the new Essentials. To that end, the aforementioned escape room was modified to introduce the AACN Essentials domains, descriptors, contexts, competencies, sub competencies and resources. Modifications were easily applied. Specific modifications were: 1) The objectives were realigned to the Essentials; 2) No storytelling presentations were offered; 2) The Gripper language was changed to entice faculty "to take curriculum where it has never gone before"; 3) All the community/public health lessons were deleted as the sun, moon, stars and planets were added to accommodate the 10 domains and eight concepts; 4) The four spheres of care were added to the transformers; 5) The social determinants of health image were replaced with a mapping model; and 6) Door clues were changed to identify a new access code.

Escape room development was consistently applied and Table 4 highlights the key steps for developing the escape rooms. The faculty (N=25, 100% response rate) were pretested and post tested for learning outcomes related to the escape room. Prior to the workshop 6.25% of faculty reported they had participated in a digital escape room to learn about the AACN Essentials and felt they were aware of the domains, descriptors, concepts, competencies, and sub-competencies for both entry and advanced levels of professional nursing education. Faculty (100%) reported that after participating in the digital escape room understanding of the AACN Essentials foundational elements and spheres of care related to nursing and its education was increased and they felt that they had an expanded awareness of the domains, descriptors,

concepts, competencies, and sub-competencies for entry and advanced levels of professional nursing education. This post-COVID application data suggests that using these development steps and application approaches positively impact learning at local and national levels and across varying topics.

Table 4. Key Steps for Developing an Escape Room

Steps	Development
1	Choose a theme to augment a greater topic and purpose
2	Select a PowerPoint^{TM} template and add objects to mimic the feel of the theme
3	Use Google Forms to develop the access code and escape directions
4	Design clues using assets such as puzzles, movie clips, audio files, and written documents.
5	Hyperlink clues using Google Slides so that the facilitator or participants can easily navigate from clues to the escape room.
6	Publish the escape room on a Google Site so that participants cannot open slides and look ahead. This also allows developers and users access to QR Codes for pre and post testing, as well as adding links, files or tools to foster participant learning.

Conclusion

This paper describes how an interactive research plenary for a community/public health nursing education professional organization annual conference provided members with

innovative learning opportunities during the COVID-19 crisis. The paper explains using fast-paced, creative storytelling video presentations as a means of teaching attendees about mentoring scholarship. It also describes how plenary planners employed best practices in education to develop an engaging virtual escape room. Technologies such as developing backdrops with images and adding in clues with linked slides, images, sounds, and puzzles were explained. The paper describes how an evidence based debriefing process was used to help members advance scholarship and mentorship using BRAGS and highlights action steps members could use to generate ideas, measure outcomes, and translate evidence into community/public health nursing education. Finally, a post-COVID application explains how an AACN pilot school used a modified version of the escape room to educate its faculty on the new Essentials. Keys steps in escape room development are provided.

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