CLINICAL PRACTICE

Teamwork and clinical judgment unlocked: Elevating health assessment with an escape room experience

Genell Stites, Dena Banta Corona*

Colorado Mesa University, Grand Junction, CO, United States

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ABSTRACT

Background: In the ever-changing health care field, a solid foundation of assessing clients is imperative. The standard method of performance based head-to-toe is limited in assessing students critical thinking and clinical judgement. An escape room utilizes innovative methods through gamification allowing students a collaborative approach to traditional learning strategies. The objectives were to promoting engagement, enhance teamwork, critical thinking and clinical judgment during performance-based checkoffs.
Methods: The process for the escape room was determined by the purpose, and objectives. The steps included designing the escape room, writing the scenario, formulating the clues and puzzles.
Results: A health assessment escape room was an effective modality fostering collaboration and student engagement during the final performance check-off. This innovation was well received based on evaluations and input by students and facility.
Conclusions: A health assessment escape room enhances clinical judgement during performance checkoffs.

Key Words: Clinical judgment model, Escape room, Gamification, Health assessment

1. BACKGROUND

Health Assessment is an essential nursing class where students gather data to make decisions regarding potential health concerns. Recognition of abnormal was difficult for the students; they lacked the ability to apply the concepts outside of the classroom. Often students memorized the assessment of each system which hindered the identification of abnormal. National Council of State Boards of Nursing (NCSBN)[1] states knowledge is essential but, is not enough for safe clinical practice; "having content knowledge does not always translate to having clinical judgment skills." The NCSBN[2] clinical judgement measurement model is an evidence-based tool utilizing cues, analyzes, prioritizes hypotheses, generates solutions, and takes actions that incorporate nursing knowledge as well as the ability to maintain a safe client environment. Recognizing cues through assessment is the foundation to all other steps in the clinical judgement measurement model.[3]

Tired of the memorization tactic during their head-to-toe final health assessment checkoff, faculty knew change was necessary. The discussion derived around how to implement teamwork, integrative learning and fun all while enhancing critical thinking and clinical judgement.[4,5] A typical escape room is an experience where a group of people are "locked" into a themed room and work together to solve puzzles, riddles and find hidden clues, using logic and teamwork to "escape" within a set time limit. The challenge was creating a non-traditional escape room focusing on integrating teaching/learning principles based on client interviews and

*Correspondence: Dena Banta Corona; Email: dbantacorona@coloradomesa.edu; Address: Colorado Mesa University, Grand Junction, CO, United States.

physical assessments. When researching game-based learning Pit et al.,[6] emphasized escape rooms rely on experiential learning aiming to make memories instead of memorizing. The elements of an escape room help with preparation for judgement, communication, knowledge and confidence to deliver safe patient care.[7] The objectives were to promote engagement, enhance teamwork, critical thinking and clinical judgment during performance-based checkoffs. The purpose of this paper is to describe an innovated pedagogical strategy that successfully bridges the gap between knowledge and clinical education. Utilizing an escape room as an immersive experience students solved puzzles and found hidden clues creating an intriguing experience that challenged participants to use decision making and critical reasoning skills.[8–10]

2. METHODS

This innovative learning activity sought to address the gap between didactic, lab, and clinical practice by utilizing critical thinking within a team approach. The health assessment class occurs in the first semester in a licensed practical nursing to baccalaureate of science in nursing (LPN-BSN) program, enrolling 50 students per year. Two faculty members and simulation support staff began working on the escape room concept in spring of 2023. Faculty meet for two hours each week over a nine-week period to formulate, design and pilot assessment criteria. The team identified the primary systems for assessment would include neurological, heart, lungs, abdominal, musculoskeletal, and skin. Prior to the building process faculty needed to determine how students would move through each assessment within the allotted time frame, while ensuring system assessments followed a faculty designed rubric. Using a Mardi Gras theme, four symbols and three-room colors were chosen to help coordinate rooms and lockboxes. Three rooms ran simultaneously; thus, each room was assigned a specific color to help organize equipment. Each system assessment (heart, lung, neuro, skin and abdomen) was assigned a unique symbol to help students recognize the cues for progression. A scenario was chosen and included traditional escape room features such as boxes, programable combination locks, QR codes, poem, puzzles, and clues. Each of the boxes presented clues to the next assessment and tasks needed to be completed as the students worked in a team to "escape". The clues correlated to each individual locked box, which were associated with different puzzles and assessment components. Students were asked to do all assessments on each other. The codes for each system assessment, for example, neuro was 6,711, chosen to clue students to assess the six cardinal gazes, 7th and 11th cranial nerves. For example, the neuro assessment, Mardi Gras masks were hidden around the room. Each of the masks depicted one of the six cardinal gazes, guiding students to the fill-in-the blank puzzle, when solved, spelled out the number seven. The number 11 was hidden on a "channel 11" news report within the room.

Figure 1 details escape room mock-up. To help ensure the escape room would run smoothly and could be accomplished within the allotted time frame, faculty piloted and recorded the innovation. Gaps were identified in the flow of the escape room, so modifications were implemented. Changes included adding more detail to puzzles and connecting clues from lock boxes to those found in the room. The second pilot involved participation of different colleagues, to iron out timing, assessments and clues. There were no further changes needed, and the Mardi Gras Escape room was ready to launch with the students.

Prior to the Mardi Gras escape room, an invitation was emailed to students as a pre-brief providing tips, instructions, and expectations. On the day of the event three groups of four randomly selected students were welcomed into Mardi Gras room with a 45-minute escape time. Faculty read the scenario (pre-brief), followed by students reading a news clipping, which highlighted letters throughout the article directing students to unscramble the word "neuro" setting the stage for the first assessment. During the assessment, clues lead them to a code unlocking the first box. Students discovered a fictitious poem highlighting the components of a musculoskeletal assessment giving the students clues and cues moving them forward to box two. After completing the four musculoskeletal assessments, the puzzles lead them to box three, heart and lungs. The code for box three was associated with each of the heart and lung assessment, which included puzzle pieces hidden in envelopes with a bead draped on the envelope. During the skin and abdomen assessment a QR code for the final box, four was discovered under a saturated dressing on the manikin, leading them to a police report. Inside box four, a blank crossword puzzle once solved allowed them to escape. All 12 students were debriefed for 15 minutes using an abbreviated Tanner's model. Table 1 lists the escape room assessment content in detail.

3. LESSONS LEARNED/MODIFICATIONS MADE

After watching students navigate the escape room, a realistic time frame and pre-briefing are needed to enhance the process to improve clarity and understanding for all participants. Additionally, a fifth box was added for future cohorts due to the skin assessment being overlooked because it was combined with the abdominal assessment. The final crossword puzzle was updated to facilitate an effective exit process by making the puzzle state "congratulations you have escaped". Completing a mockup and walkthrough prior to running the escape room each year is essential.

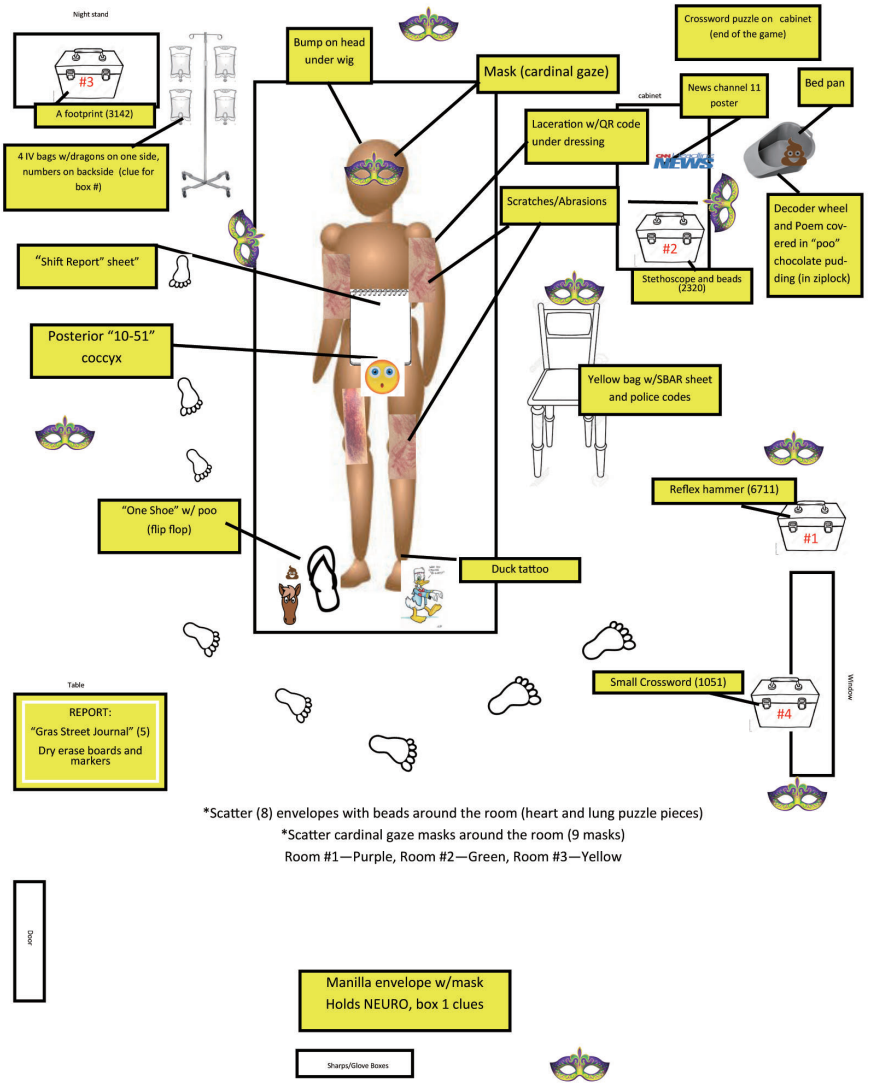

Figure 1. Escape room mock-up

Table 1. Escape room assessment content overview

Boxes	Gaming Tasks	Assessments	Clues and Distractors	Rubric Components
Box 1 Code 6711	Fill in the blank Hidden masks	Neuro Includes • General Appearance/LOC • Pupils • Cardinal Gaze (6) • Cranial nerve • (7) & (11)	• Scenario • Report sheet • 9 masks • Reflex hammer • Poem • Mask symbol	• Teamwork and Communication • Professionalism
Box 2 Code 2320	Poem	Musculoskeletal Includes • Reflexes (2) • Duck and Tandem Walk • Romberg (3) • Poop emoji (2) • Open smiley face emoji (0)	• Franken Duck Tattoo • Poop emojis • Hoo-Hoo smiley face • Dragon symbol • Yellow bag • Stethoscope • Beads	• Escaped in 45 minutes
Box 3 Code 3142	Crossword Puzzle Word Search Secret Decoder Wheel	Heart and Lungs Includes • Capillary Refill (3) • Auscultate Apex (1) • Auscultate Heart Values (4) • Check Pulses (2) • Auscultate Lung Fields	• 8 envelopes • Beads • Word puzzles • Footprint • Jester symbol	• Critical Thinking • Hints used
Box 4 Code 1051	QR Code Crossword Puzzle	Abdomen and Skin Includes • Inspect • Auscultate • Percuss • Palpate • Skin Assessment (10-51)	• Bedpan • Chux • Chocolate Pudding • Secret Decoder • Crossword • Fleur de lue	• All systems assessed

Table 2. Analysis of aggregated student evaluations

Category	Theme	Description	Representative Quotations
Overall Experience	Engagement and enjoyment	Participants consistently described the activity as enjoyable, engaging, and memorable.	"Absolutely loved it"; "It was a blast"; "Very fun and creative"
	Innovation in teaching	The escape room was perceived as a novel and effective alternative to traditional instructional methods.	"Creative way to tie everything together"; "Interactive and engaging"
	Reduced anxiety	Students reported decreased stress compared to traditional examinations.	"Not stressful like a final"; "Much more relaxed and enjoyable"
	Initial uncertainty	Some participants experienced confusion at the beginning, particularly those unfamiliar with escape rooms.	"Confusing at first"; "Took time to get the hang of it"
	Realism	Realistic elements enhanced immersion and clinical relevance.	"Impressed with realism (poop, tattoos, story)"
Evaluation of Learning	Promotion of critical thinking	The activity facilitated higher-level thinking and clinical reasoning.	"Helped with critical thinking more than tests"
	Knowledge retention	Students perceived improved retention of assessment skills.	"Skills will stick more because of it"
	Integration of assessment skills	The experience supported synthesis of knowledge across body systems.	"Helped piece everything together"
	Preference over traditional testing	Participants favored this approach over written or skills-based examinations.	"Awesome and fun way to evaluate skills"
	Need for increased complexity	A minority indicated the need for more advanced skill integration.	"Skills demonstrated were very basic"
Positive Aspects	Teamwork and collaboration	Team-based participation enhanced communication and shared problem-solving.	"Great team effort"; "Learned from each other"
	Clue design and structure	Clues were perceived as engaging and supportive of learning.	"Clever clues"; "Helped guide assessment"
	Storyline and engagement	The narrative component increased immersion and sustained engagement.	"Entertaining story"; "Engaged the entire time"
	Experiential learning	Hands-on participation reinforced practical application of knowledge.	"Real-life feel"; "Hands-on assessment practice"
	Equal participation	Most participants reported balanced involvement among team members.	"Everyone contributed equally"
Negative Aspects	Lack of initial orientation	Insufficient instructions contributed to early confusion for some students.	"Didn't know how to start"; "Needed more direction"
	Ambiguity of select clues	Certain elements lacked clarity, particularly the crossword and final clue.	"Crossword confusing"; "Final clue difficult"
	Imbalance between tasks	Some participants reported spending more time locating clues than performing assessments.	"More time searching than assessing"
	Variability in difficulty	A few students noted that some clues were overly simple or insufficiently challenging.	"Some clues too easy to find"
	Minor design issues	Formatting and readability concerns were identified.	"Symbols/numbers hard to read"
Demonstration of Skills	Demonstration of competence	Most students felt able to effectively demonstrate their knowledge and skills.	"It tied everything together well"
	Group facilitation of performance	The team structure supported shared demonstration of competencies.	"Everyone contributed and demonstrated skills"
	Limitations of group format	A minority expressed preference for individual assessment opportunities.	"Could demonstrate better individually"
Team-Based Learning	Enhancement of critical thinking	Collaboration fostered diverse perspectives and improved reasoning.	"Different perspectives helped problem solving"
	Communication development	The activity promoted verbalization of clinical reasoning processes.	"Bouncing ideas off each other helped"
	Reflection of clinical practice	The team-based format mirrored real-world healthcare environments.	"Real-world teamwork experience"
	Peer-supported learning	Team dynamics supported learners with lower confidence levels.	"Team helped when I felt unsure"
	Challenges in team assessment	Some difficulty was noted in collectively assessing specific skills.	"Hard to assess one system as a team"

4. Discussion

Outcomes Observed: The success of any educational project is determined by the overall satisfaction and application of gained knowledge by the students. All 50 students who participated completed a modified debriefing and an evaluation. Students initial feedback was overwhelmingly positive. The evaluation was a six-question short answer survey. Students were asked questions related to their experience, teamwork, approach, and how it enhanced clinical judgment. The evaluation confirmed that the innovative project met the objectives as planned. Faculty and learners alike concluded the escape room was successful and provided exceptional learning opportunities.

Some of the teams were more effective in navigating the escape room where others struggled to navigate group dynamics. Additionally, students who were familiar with escape rooms finished more quickly. The groups used the strengths of each other to maximize teamwork efforts. Students feared working in a group might lead to a team member monopolizing the time, and their own strengths would not be demonstrated. However, during debriefing and reading evaluations students reported the opposite, it added to a real-life experience at a fast pace.

Escape room student evaluation

Please complete this survey pertaining to the Mardi Gras Escape Room. This survey completion will count as 10% of your final grade.

1) Describe your opinion about the health assessment escape room.

2) Based on your experience today, how do you feel about the escape room being an evaluation tool for your assessment skills?

3) What do you think are the positive aspects of the escape room?

4) What are the negative aspects of the escape room?

5) Did the escape room allow you to demonstrate your knowledge and skill as efficiently as you would have hoped?

6) Expand on how the team approach contributed or hindered your ability to work together, critically think through the scenario and demonstrate assessment skills.

Table 2 is the aggregated data collected from the student evaluations.

5. Conclusion

In an ever-changing health care field educators are tasked to think outside the box to promote teamwork and enhance clinical judgment. Escape rooms are a beneficial, creative method to promote student learning. A health assessment escape room added a new twist to a health assessment final check-off. In spite of challenges, benefits of a health assessment escape room can be successful in promoting engagement, enhancing teamwork, critical thinking and clinical judgment.

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Authors contributions

Genell Stites, MSN, RNC, C-EFM and Dena Banta Corona, MSN, APRN, FNP-BC read and approved the final manuscript in which they equally contributed to the design, draft and revisions.

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Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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