



Using an Escape Room-Style Activity vs a Traditional Lecture in an pre-licensure pediatric nursing course

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BACKGROUND

Interactive and experiential learning is replacing traditional lectures in many fields in higher education including in nursing programs. Critical thinking and problem-solving skills are important aspects of nursing. Teaching nurses to think critically helps ensure that students provide quality patient care (Carvalho et al., 2017). Research has demonstrated that students who are actively engaged in learning retain more knowledge (Kas-Osoka et al., 2018). One new method for actively engaging students with content is using elements of escape rooms. Escape rooms are a setting in which participants are confined and must work together to solve a series of puzzles to escape the place in a given amount of time (Merriam-Webster, n.d.). Escape rooms have demonstrated the ability “to increase student content knowledge [and] immerse students in learning” (Morrell and Eukel, 2020, p.2) as well as nurture “critical thinking, prioritization, problem-solving, and collaboration” (Kubin, 2020, p.56). Escape rooms have been used successfully in undergraduate nursing programs at Texas Woman’s University (Kubin, 2020) and at the University of Indianapolis (Morrell and Eukel, 2020). Both of those programs reported on the creation, implementation, knowledge retention, and student satisfaction with the escape rooms. This research project aims to compare head-to-head a traditional lecture with students taking notes and an escape room in the same graduate pre-licensure nursing program during the same academic term.

PURPOSE

The purpose of this study is to compare two pediatric nursing courses teaching the same content through two different instructional methods: a traditional lecture-based class and an escape room style class in the same graduate pre-licensure nursing program during the same academic term.

METHODS

One course was taught using a traditional lecture format with power-point slides. The other course was taught in an escape-room style format where the students had to work in small groups (4-5 students per group) in order to solve a series of seven puzzles using the week’s content. The content chosen for this study was traumatic brain injuries, focusing on concussions & seizures, which are common in a pediatric population.

Each student completed a pre-test, was taught the content by one of two methods, and completed a post-test. All data was anonymized once the pre-test & post-test scores were matched; that is each case was assigned a number in lieu of the students’ names. This study was reviewed and approved by the authors’ university. Data was collected from four pre-licensure cohorts from January to June 2023. The lecture cohorts were taught on one campus and the escape room on another.

Puzzle #2 – Home care concussion advice- KEY

Directions: Review the attached materials. Then complete the chart below to give the parent good home care advice for a concussion. Check off the advice you would give the parent. Then add up the total in each column. If you have completed it correctly, you will get a 3-digit code to your next puzzle.

Dear Parent,
Your child sustained a head injury today in gym class at 2 pm. Your child was evaluated by the school nurse. After resting for 30 minutes in the nurse’s office, your child showed no concerning signs of a concussion and returned to class. However, additional signs and symptoms of a concussion may appear later and may take a few days to weeks to resolve. Below are some tips to help with your child’s recovery.

Sincerely, the school nurse

Check	Symptoms	Column A	Column B	Column C
✓	Allow your child to rest tonight	5	2	0
✓	Do not return to sports	3	2	4
✓	Recognize that child might need more time to complete homework	-2	3	2
	Do not allow your child to nap	0	4	-2
✓	Call provider if child has a severe headache, vomiting, or other new or worsening symptoms	1	0	3
✓	Reduce screen time	2	-3	1
✓	Use a cold pack for small bumps & pain	-2	1	-3
	Wake child every 2 hours to check LOC for 1 st 24 hours	1	4	0
	Child should be NPO for 6 hours in case of vomiting	-2	0	3
	Expect child to have some confusion	3	2	1
✓	Go to the emergency room if child has unequal pupils	2	2	1

Column Totals:

9 7 8

Sample puzzle

Research Questions:

1. Which teaching method helped students understand and retain content the best?

RESULTS

The data was analyzed with Microsoft Excel and IBM SPSS. The data was analyzed first as larger cohorts (that is all lecture vs all escape room participants) and then by small cohorts (i.e. WL vs WER and SL vs SER). In addition to descriptive statistics, McNemar Chi-square and Related-Samples McNemar Change tests were run. For the combined escape room cohorts (WER + SER), there were four questions which showed significant change on the McNemar Chi-square test (Table 1). In addition to comparing pre-test and post-test scores as individuals, as small cohorts, and as larger cohorts, four specific questions on the final exam assessed for content knowledge of topics covered in both classes (that is in both the lecture and the escape-room). While the escape-room cohorts did better on the post-test, the cohorts did nearly as well on the final exam questions. For two of the questions 100% of the participants answered correctly (see Table 2).

Table 1 McNemar Chi-Square Test results – Exact Sig. (2-sided)

Cohort	Post-test question 1 signs of a mild TBI	Post-test question 8 Seizure rescue meds	Post-test question 9 Return to ED	Post-test question 10 Parent teaching post-concussion
WER + SER	0.004	<0.001	<0.001	<0.001
WL + SL	0.219	0.012	1.000	0.219
WER	0.109	0.031	0.219	< 0.001
WL	0.625	0.125	1.000	0.625
SER	0.039	< 0.001	< 0.001	< 0.001
SL	0.500	0.125	1.000	0.500

WER = winter escape room; WL = winter lecture;
SER = spring escape room; SL = spring lecture cohort

Table 2 Final exam question results - % correct

Cohort	Exam question ADHD vs Absence seizure	Exam question which neurology patient to see first?	Exam Question seizure rescue medication	Exam question Concussion symptoms
WL	100%	100%	100%	77.8%
WER	100%	100%	94.7%	84.2%
SL	100%	100%	100%	100%
SER	100%	100%	96.2%	84.6%

WER = winter escape room; WL = winter lecture;
SER = spring escape room; SL = spring lecture cohort

DISCUSSION

While the lecture only cohorts had access to and the option to review the PowerPoints & course readings prior to class, the escape-room cohorts had a set of prep questions; the answers to which could be found in the PowerPoints and course readings. Therefore, the escape-room cohorts had two opportunities for active learning; that is engaging with the course material vs the mainly passive interactions with the course materials by the lecture cohorts. In the period immediately after the course material was presented, the escape room cohorts did significantly better on four questions on the post-test as noted in the results (Table 1). This data would support the theory that actively engaging students in learning through interactive activities such as the escape-rooms, does in fact improve student retention of the course material. However, when we review the results of the final course exam given approximately three weeks after the TBI content was delivered, the results do not favor the escape room cohorts (Table 2).

Additionally, the final course evaluations shed some light on how students felt about the escape rooms. Students’ comments on these anonymous evaluations both supported this active learning style and discussed that the presentation of the material was too rushed.

“I really enjoyed the 2 escape rooms that were conducted during class. The write ups were helpful in understanding the material and what to expect on preparing us to succeed.” - SER student

“Reformat or change the escape rooms. Right now, everyone does it as a race rather than to actually learn the material.” - SER Student

NURSING EDUCATION IMPLICATIONS

As higher education, and nursing specifically, move away from rote memorization to active learning with competency-based exams, escape rooms can prepare students for their future nursing careers by engaging them in learning. Escape rooms, like other forms of simulation, can help enhance students critical thinking and problem-solving skills if the puzzles reflect situations they may face in their roles as nurses such as giving home care advice for concussions.

LIMITAIONS

The main limitation was the relatively small sample size of 61 students at only one university.

CONCLUSION

This study compared two distinct teaching methods (traditional lecture vs escape room) head-to-head, that is in the same quarter in different sections of the same course in the same graduate pre-licensure nursing program. The escape-room puzzles forced the students to be actively engaged in applying the course material vs the students passively receiving the lecture on the course material. Results suggest that escape-room style classes can be effective active learning strategies for use in pre-licensure nursing courses supporting previous research on the topic.

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