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Virtual Reality Gaming: Reducing Student Anxiety and Increasing Skill Mastery

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VIRTUAL REALITY GAMING: REDUCING STUDENT ANXIETY AND INCREASING SKILL MASTERY

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Purpose

The purpose of this study is to evaluate the level of performance anxiety student's experience when participating in various learning modalities, and investigate student modality preference in practicing nursing skills.
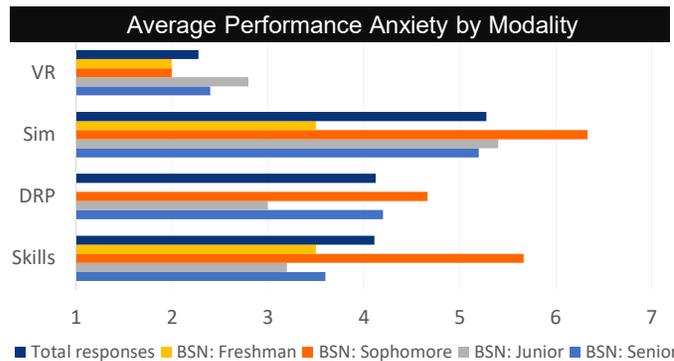
Rationale

Simulation is an integral part of nursing education programs. Research exists on the merits of this modality and its inclusion in nursing education, but the literature is scarce regarding student perceptions of participating in simulation scenarios. Evidence suggests that nursing students experience a high level of performance anxiety when participating in simulations, which may detract from the intended learning experience. Little information is available on how students prefer to practice skills outside the clinical setting.
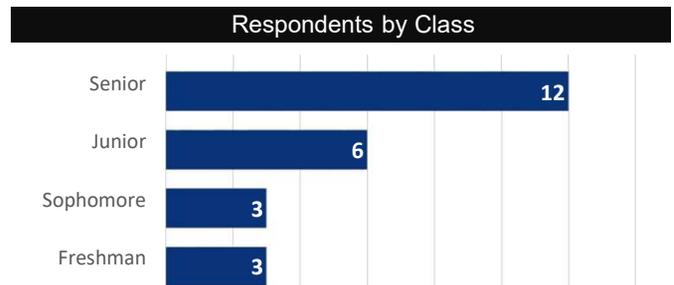
Methods

This research is part of a mixed methods study evaluating the usability of Virtual Reality in nursing education. Two questions were included as part of a post-test survey in which students were asked to:

1) Rate their level of performance anxiety using a Likert scale when participating in each of the four learning modalities used at the Boise State University School of Nursing: simulation, deliberate repetitive practice (DRP), skills lab, and virtual reality (VR). (1 = no anxiety, 7 = extremely high)

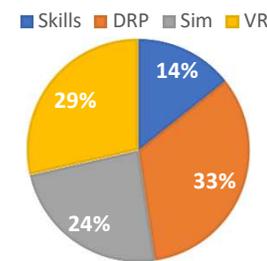2) Indicate their preferred modality to use when practicing nursing skills.

Results

Average Performance Anxiety by Modality

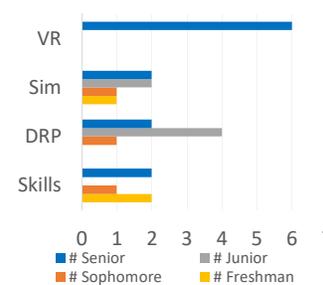■ Total responses ■ BSN: Freshman ■ BSN: Sophomore ■ BSN: Junior ■ BSN: Senior

Students, on average, reported highest anxiety when participating in simulations, and lowest using virtual reality. Students with experience in all four modalities prefer DRP over the other options followed by VR, simulation, and skills lab. When analyzed by class level, modality choice varied noticeably with Senior students preferring VR, and Junior students preferring DRP. Sophomore students did not have a clear preference. Data from the freshman students surveyed was not included in this analysis since they did not have experience with all four modalities.

Respondents by Class

Senior — 12
Junior — 6
Sophomore — 3
Freshman — 3

Overall Modality Preference

■ Skills ■ DRP ■ Sim ■ VR

14%
33%
24%
29%

Modality Preference by Class

0 1 2 3 4 5 6 7

■ # Senior ■ # Junior ■ # Sophomore ■ # Freshman

Clinical Relevance

Sarason, Pierce and Sarason's Cognitive Interference theory suggests that in high anxiety situations students experience decreased ability to utilize working memory and experience a decline in overall performance. Results of this small study indicate that students express highest levels of anxiety when participating in Simulation scenarios. Though some studies indicate learning is enhanced by heightened anxiety, there is a point at which learning is no longer possible.

Conclusions

Some limitations encountered in this study include small sample size (n=24), and technology challenges which may have negatively influenced modality preference results. Future research could include:

- Pre and post test evaluations of anxiety in simulation for students who have mastered a skill compared to those who have not
- Number of times students practice a skill in each modality in a set time frame