Back to the Drawing Board: Rethinking Game Based Learning in Medical Education

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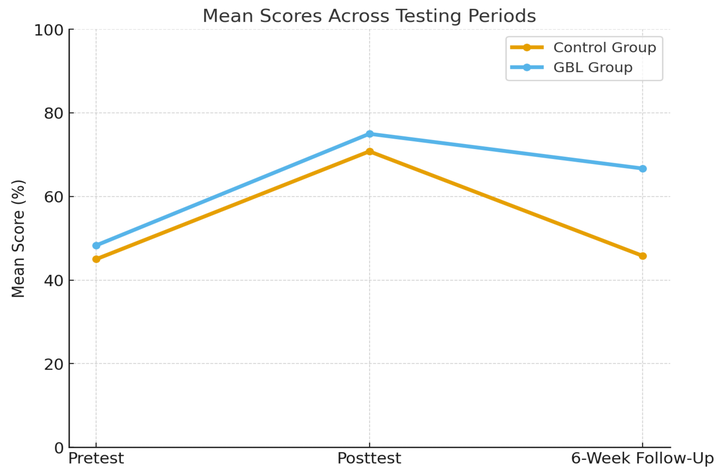
INTRODUCTION

- As voluntary attendance in medical school lectures continues to decline, educators are exploring more engaging teaching modalities to promote student participation.
- Game-based learning (GBL) has emerged as one such approach, with proponents arguing that interactive learning promotes long-term knowledge retention and appeals to a more diverse student population[1]
- Few if any studies have directly compared knowledge retention from GBL compared to traditional lecture over extended timeframes or analyzed characteristics of students who benefitted from this modality[2,3]

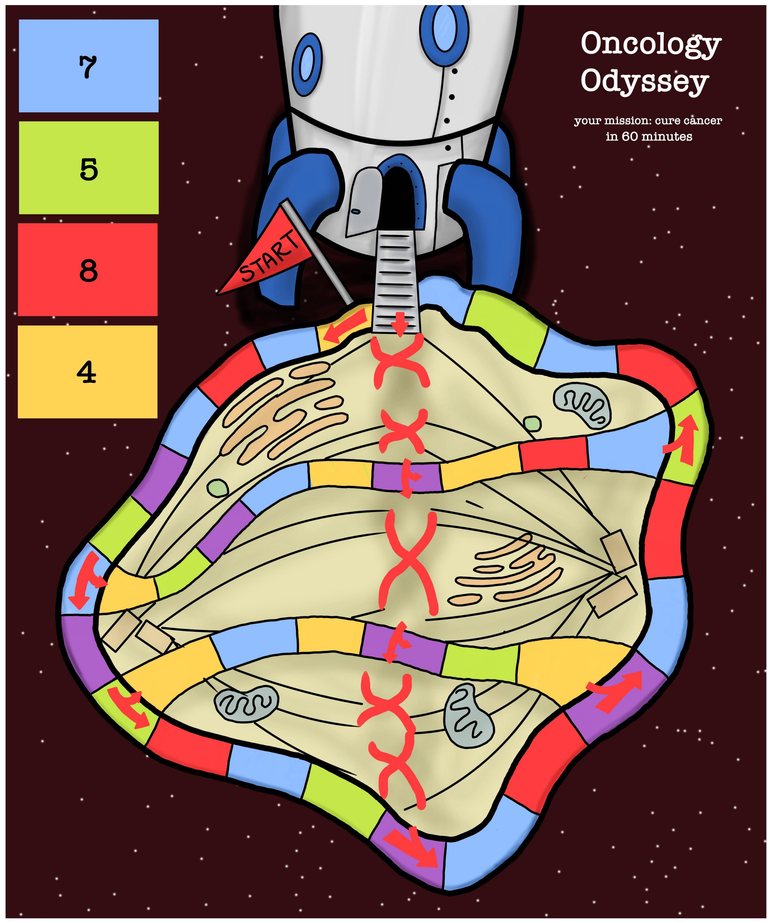
MATERIALS & METHODS

- In collaboration with subject matter experts, the authors designed a lecture series highlighting frequently tested concepts in oncology and antineoplastic pharmacology.
  - Based on this content, we created an educational boardgame designed to teach the same learning objectives
- First year medical students were recruited from Virginia Tech School of Medicine. Participants were randomly assigned to either the lecture (control) or GBL (experimental) condition.
- A 20-item psychometrically tested knowledge assessment was administered at baseline, immediately post-intervention, and again six weeks later to evaluate short- and long-term retention. Data were analyzed using repeated-measures ANOVA.

RESULTS



Line graph depicting differences between average scores for participants Mean scores in the control group were 45% on pretest, 70.8% on posttest, and 45.8% during their 6-week follow-up. Students in the GBL condition scored similarly, attaining 48.3% on pretest, 75% on posttest, and 66.7% during follow-up.
Pilot data collected from 9 student participants.



Pictured: *Oncology Odyssey: a medical GBL experience*

RESULTS (CONT.)

- Students in both conditions scored similarly on pretest with an average score difference of <1%.
  - Posttest scores show similar results with a mean difference of <5%
  - Long-term averages show a greater range, as the GBL group shows score averages 20% higher than those seen in the control
- Data collection ongoing to supplement pilot data and search for themes in student response patterns

CONCLUSION

- Preliminary data suggest comparable knowledge retention between the control and GBL groups. These findings potentially support the use of GBL and similar interactive modalities in medical education.
- As this study progresses, future analysis will focus on determining which individual characteristics predispose a student to preferring one learning modality over another
- Securely maintained recordings of student gameplay are being analyzed to assess for emergent themes and learning points facilitated by interpersonal discussion.

REFERENCES & ACKNOWLEDGEMENTS

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[2] Xu M, Luo Y, Zhang Y, Xia R, Qian H and Zou X (2023) Game-based learning in medical education. Front. Public Health 11:1113682. doi: 10.3389/fpubh.2023.1113682

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