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GAME-BASED TEACHING IN OPHTHALMOLOGY: A PILOT EXPERIMENT

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ABSTRACT

Aim: To evaluate effectiveness and usefulness of game-based learning in ophthalmology teaching hospital. **Methods:** This is a retrospective evaluation of an experiment of game-based learning. It was applied in the department of ophthalmology at King Hussein Medical City in Amman/Jordan. Adopted competitive group game and modified to fit the target of the trial. One week after, a survey was sent anonymously to the attendants. The results were analyzed and expressed in percentages. **Results:** The number of attendees were 100 ophthalmologists, 65% were ophthalmology residents. Three teams were formed, with four residents in each. The respondents were 44 in number: a quarter were senior residents; another quarter were juniors. More than 80% gave a score of 5 (very enjoyable), The attention during the whole period of the event scores were 81.8% replied by "more than 80% of the time". The remaining 18.2% replied by "50% -70%". The responses described the trial as "informative" (76%), "fun" (77.3%), while 2.3% was given to "stressful". Hundred percent of responders asked for the trial to be repeated. Compared to a lecture format, 81.8% responded that the competition was a better way to retain information. **Conclusion:** Game-based teaching trial was considered a very informative source of information yet highly enjoyable. We believe it is a needed teaching model, especially in highly competitive and stressful workplace.

KEYWORDS: Game-based teaching, lectures, attention span, ophthalmology.

INTRODUCTION

In our hospitals at the Royal Medical Services, the ophthalmology residents' and fellows' teaching program includes training in clinical and surgical skills. Furthermore, didactic lectures are integral activities that emphasize core components of the curriculu m.

Although multiple teaching modalities are used in the program, knowledge gaps in practice and theory, not confined to a specific subspecialty, have been identified. In response, the scientific committee designed a game-based learning approach to efficiently convey the information to ophthalmologists in an interactive and engaging manner.

METHODS

This is a retrospective evaluation of an experiment of game-based learning. It was applied in the department of ophthalmology at King Hussein Medical City in Amman/Jordan. The targeted participants were the junior and senior residents as well as specialists. A *Jeopardy!* game template was adopted with modifications to allow for teamwork and audience participation. Questions were created from information the scientific committee labeled as "crucial, but not fully mastered" and were categorized according to relevance. The categories were: Anterior Segment, Glaucoma, Neuro-ophthalmology, Retina and Uveitis, and Oculoplasty. Furthermore, general trivia was included to add fun to the competition. Three teams, each with four residents, were formed from volunteers. An electronic buzzer was provided for each team. Teams were allowed to consult the audience for three questions. The duration of the competition was one hour of lecture time. At the end of the week, an anonymous questionnaire was sent to each attendant via WhatsApp to evaluate the event.

RESULTS

One hundred ophthalmologists attended the event. Most attendees were ophthalmology residents (65%), while the remaining were ophthalmology fellows, specialists or consultants. After the event, 44 attendees responded to the survey: one quarter were senior residents, another quarter were junior residents, 27% were specialists, 13.6% were consultants and 9.1% were residents who participated on a team.

More than 80% of survey participants rated the activity as "very enjoyable", while the rest of the respondents found the activity "enjoyable". In addition, 81.8% of

respondents indicated the event held their attention "more than 80%" of the time and 18.2% replied that it held their attention "50% -70%" of the time. Most respondents described the trial as "informative" (76%) and "fun" (77.3%), while 2.3% found the experience "stressful". Zero respondents indicated that the event was "embarrassing" or a "waste of time". All respondents asked for the trial to be repeated and 14% requested modifications.

Compared to a lecture format, 81.8% believed competition was a better way to retain information. Six respondents (13.6%) found game-based learning equivalent to a lecture, while only two respondents (a consultant and a specialist) thought lectures were a better way to retain information. Finally, half of the respondents believed participating on a team would be more beneficial, while the other half thought being in the audience would be a better experience.

DISCUSSION

Globally, the collective attention span is decreasing. Online teaching and learning highlighted this phenomenon.[1] Research indicates that students' attention during lectures declines after 10 to 15 minutes.[2] Variation in students' attention has been associated with the instructor rather than the teaching format.[2] In addition, interaction is an effective teaching tool that keeps an audience from being distracted.[3] Based on these findings, novel and interactive teaching formats designed to improve attention and limit distractions should be explored.

In our pilot study, the *Jeopardy!* game format was chosen for easy application and suitability for our auditorium. In order to meet our educational goals, the adopted template was filled with categorized questions about the management of emergency and critical ophthalmology cases in various subspecialties, as well as general scientific facts. The questions concentrated on knowledge, approach and problem-solving. We also included a few trivia questions about ophthalmology and added team and audience participation to increase the ophthalmologists' interest and engagement.

Interest in game-based learning has significantly increased since the COVID era.[4] The majority of studies describe game-based learning as positive and fruitful. In a trial in France, 96% of students liked game-based learning and all recommended it to others.[4] This finding is similar to our experience where 100% of our survey participants considered game-based learning enjoyable. In addition, a similar game format used in Saudi Arabia had favorable feedback from participants and also found a greater retention of information when using game-based learning compared to a conventional lecture format.[5]

Although audience stress during game-based learning has not been addressed in the literature, a minority of our participants (2.3%) reported stress. This finding is not unusual for highly competitive learners. Overall, limited data suggest most participants do not experience high levels of stress when learning through games.

Subjectively, we noticed that game-based learning requires greater preparation and different teaching skills than lecture-based instruction. Furthermore, modified gamification is needed for different clinical fields to achieve the desired result. Finally, a game-based format is not suitable for all types of clinical teaching, as certain skills, such as bedside teaching and examinations, may not be amenable to simple games and competitions.

CONCLUSION

Evidence suggests that game-based learning can be a powerful educational tool, more engaging and efficient than conventional teaching methods. Additional efforts should focus on identifying the best games for each clinical field, as well as training teachers on the communication skills necessary to conduct game-based learning.

REFERENCES

1. Balan, Anna & Montemayor, Thomas & Dalisay, Jill. (2021). The Influence of Online Learning towards the Attention Span and Motivation of College Students.
2. Bradbury NA. Attention span during lectures: 8 seconds, 10 minutes, or more? Adv Physiol Educ, 2016 Dec 1; 40(4): 509-513. doi: 10.1152/advan.00109.2016. PMID: 28145268.
3. Rush BR, Hafen M Jr, Biller DS, Davis EG, Klimek JA, Kukanich B, Larson RL, Roush JK, Schermerhorn T, Wilkerson MJ, White BJ. The effect of differing Audience Response System question types on student attention in the veterinary medical classroom. J Vet Med Educ, 2010 Summer; 37(2): 145-53. doi: 10.3138/jvme.37.2.145. PMID: 20576903.
4. u M, Luo Y, Zhang Y, Xia R, Qian H, Zou X. Game-based learning in medical education. Front Public Health, 2023 Mar 3; 11: 1113682. doi: 10.3389/fpubh.2023.1113682. PMID: 36935696; PMCID: PMC10020233.
5. M Khan, A Telmesani, A Alkhotani, A Elzouki, B Edrees, M H. Alsulimani. Comparison of jeopardy game format versus traditional lecture format as a teaching methodology in medical education. Saudi Med J, 2011; 32(11): www.smj.org.sa.