SPECIAL COMMUNICATION

E-gaming: An active learning pedagogy for engaging learners in a private university in Karachi, Pakistan

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Abstract

There is a radical shift in teaching and learning pedagogies to engage the learners in healthcare profession. It was a tough challenge for Pakistani educators of an esteemed university to motivate and assess the learners for concept absorption and critical reasoning using creative approaches.

Teaching and learning styles have changed fundamentally from conventional teacher centred to inquiry-based student-centred approach. Classroom teaching in recognised nursing and medical institutes in Pakistan have transformed to blended and entirely online methodologies with the integration of diverse active learning strategies. The educators grapple to engage the millennials and to encounter this, gaming technological platform was used to facilitate the learners for maximum integration, active participation, and create an exciting learning experience. Various e-gaming tools, such as Kahoot, Jamboard, Padlet Wall, Ed-Puzzle, Mentimeter, etc., were used in nursing and medical courses and were highly appreciated by the leaners to retain, review, and self-assess.

Keywords: E-gaming applications, Higher education, Engagement, Nursing and medical learners, Pakistan.

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Introduction

Games and Higher Education! An interesting, nevertheless a debatable, combination. Games connect us with fun and leisure activities that we used to engage in as children, and to associate it with formal teaching and learning seems like an outlier. Across the globe, educators have been using games such as crosswords, puzzles, match the column, and join the dots, etc. for decades. Yet, this area was still unchartered in health professional education such as nursing and medical education. In the last couple of years, especially with the advent of emergency remote online learning during the COVID era, a sudden rise in the shift from paper and pen-based worksheets to the integration of digital gaming tools for maximum student engagement, active learning, and retention of the concepts was seen. This paper aims to focus on the notion of gamification and its substantial impact on students' engagement in learning. This will be followed by the application of gaming tools like Kahoot,[1] Quizzez,[2] Jamboard,[3] EDPuzzle,[4] Coggle,[5] in various nursing and medical courses in higher education.

The notion of gamification

The term "Gamification" was first coined in 2002 by Nick Pelling[6] where he used features of gaming in teaching, learning, and assessment context. It is interesting to note that gaming as a teaching strategy was first initiated by nurse educators in early 1980,[7] though it took almost two decades for health professional educators to catch on to this engaging tool. Literature distinctly differentiates between educational games and gamification. Educational games are specifically designed for a particular course, whereas in gamification the features are integrated in certain parts of the course in traditional learning and blended learning environment.[8]

Why Gamification in Higher Education?

Immensely important issues have been raised by educationists across the globe about increasing lack of interest, engagement, and motivation amongst the student body.[9] Several studies have revealed that student-oriented instructional environment and non-traditional methods have proven to enhance motivation and engagement.[10-15] Hence, the toughest challenge for educators is how to engage and encourage the learner's involvement, motivation, and concentration as all that require a stimulus.[16] Games provide a medium that allows students to involve, interact, collaborate, and enrich their learning experience.[8] In higher education, it has proven to increase student involvement and satisfaction when incorporated in blended and online courses.[15]

Games and Millennials in Health Care Education

The dynamics of professional academic education are continuously varying with the transformation in the upcoming generation of students.[16] This generational

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diversity is also prevalent among undergraduate baccalaureate nursing students,[12] dental hygiene, and medical school learners.[17,18] Students of the millennial generation have distinctive educational needs and learning styles that are considered highly innovative, technology-oriented, and favours contemporary instructional pedagogies.[19] Generation-Y consider themselves more technology savvy and are comfortable in learning through online modalities.[20] Their attention span is short and they prefer to multi-task, hence they find it difficult to learn through traditional teaching methods.[21]

Games provide visual, auditory, and tactile stimulus for promoting interest and active participation, benefitting students of variant learning styles. Dale (1969) remarks that "people learn 10% of what they read, 20% of what they hear, 30% of what is demonstrated, but 90% when what is said and done is combined".[22] Visual learners absorb through videos, images, and diagrams, while kinesthetic/tactile learners acquire via case studies, hands on skills-based labs, and simulations. Likewise, global leaners grasp concept by working with peers and absorbing the discussions.[23,24] A recent example of the use of gamification in medical education is the use of Terminator tool to help students learn medical terminology; it is especially useful for the different levels of knowledge and changing learning behaviour of students.[25] Personal experience of the authors in implementing gamification in classes has been very effective in gauging learner interest and understanding. Students have also shared their preferences for attending lectures that incorporate gamification versus those which do not. Having said that, the biggest question that remains is how can gamification enhance deeper learning?

Gaming as an Instructional Pedagogy and Formative Assessment

Empirical studies have validated that non-traditional teaching pedagogies, including games, have countless benefits for the educators, learners, and their learning. Literature suggests that utilisation of gaming tools in courses supports active learning, inculcates critical thinking, and triggers rationalisation skills among the learners.[21-25] Fun-based games can help the learners to retain and reinforce previously learned knowledge as well as to revise it.[21] It allows a teacher to assess the concepts absorbed by the students with simultaneous engagement in a fun-based learning environment. It also provides an opportunity to educators to self-reflect on their teaching skills.[26,27]

Though this sounds quite appealing in theory, the biggest concern educators experience while considering gamification is spending time, energy, and resources on creating the content versus giving didactic lectures.[28] Though didactic lectures are less time-consuming, they obstruct inductive capacity and higher order learning skills of students.[16] Furthermore, teachers' engagement, inspiration, energy, and competency in designing and incorporating innovative technology and gaming elements are the crucial factors which influence students' learning.[27,28] If the facilitator is demotivated, incapacitated, or lacks resources to offer gamification flavour to their learners, then this area becomes a burden. Here, it is worth noting that whenever we speak of gamification, most people consider e-gamification as the only option with licensed software's, etc. Though these are great options that provide feasibility, multiple other options used during the in-class sessions, such as post it parade, think-pair-share, etc., can be easily converted to suit the online modality.

Gamification is not only utilised as teaching and learning strategy, it is also applied in assessing the learners. Assessment is always central to determine the successful accomplishments of learning outcome and effectiveness of teaching. Use of gaming apps or tools in formative assessments provides instant and first-hand feedback on the concepts gained by the learner. Additionally, it provides an opportunity for an educator to screen individual and group emotional and behavioural traits and dynamics towards concept and learning.[29] Games that involve instant scoreboard, virtual ranking, and rewards act as a motivational stimulus resulting in behavioural change and engagement of the leaners.[28]

Application of Gaming Tools in Nursing and Medical Courses

The most interesting part for an educator is to select the application which can be a fix for bridging the topic, as a mid-session, or as a post class activity. The educator is responsible to plan and embed content in structured teaching to make the session more interactive, and formatively assess for its effectiveness.[29] Assigning and uploading a game pre-, mid- or post-class without connecting it with the learning outcomes will not serve the purpose. In a private nursing school in Karachi, Pakistan, digital tools like Kahoot and Padlet Wall were used to engage as well as formatively assess the learners' concepts. These apps were applied in theoretical courses, like Culture Health and Society (CHS), and clinic-based nursing courses such as Advance Concepts in Adult Health Nursing (ACAHN). In the ACAHN course, Kahoot was used to formatively assess the concepts retained while teaching "Early identification and treatment of Sepsis and Septic Shock" where 25 students participated in this activity. There were twenty Multiple-Choice Questions and ten True and False questions. Approximately, 80% of the students

considered "it an excellent strategy to review and retain concepts and evaluate learning". Instant results on scoreboard infused passion[30-33] and productive learning attitude, while the music acted as a catalyst that triggered enthusiasm, interest, and engagement among the learners and brought smiles and laughter in the classroom. Responses on the scoreboard after every question was discussed provided descriptive feedback. Additionally, the badges and emojis resulted in a competitive atmosphere among the learners and kept them engaged with the learning process.

In contrast, while Kahoot scoreboard and emojis, stimulated a fun-filled competitive learning environment, there were some learners in the classroom who remained passive till the end of the game. The possible reasons could be students with variant learning style and competition-induced anxiety. Bartfay and Bartfay[34] endorse that competition creates unnecessary anxiety and unhealthy learning atmosphere, also the competition might be perceived as a threat which can be destructive for a student's mindset and hamper their learning.

Padlet Wall was another application that was used in the Culture Health and Society course to teach an inquiry-based lesson on "Social Determinants of Health" and "Human Rights". Students integrated the given case study and posted their integrated responses in pairs on the virtual wall and their concepts were deliberated and assessed through timely and authentic feedback by the instructor.

Likewise, in medical school, gaming apps, like Kahoot, Mentimetre, Padlet, Jamboard, Coggle H5P, Ed-Puzzle, Quizizz, etc., were applied in neurosciences, endocrine, and reproduction modules for teaching physiology concepts such as nociception, learning and memory, foetal programming, metabolic syndrome, and obesity in both undergraduate and graduate classes. More than ninety percent students rated technology-supported assessment for learning as an "Excellent" opportunity to build concepts. Students also shared that "quizzes, concept maps, and video aids helped in summarising the concept and consolidation of essential content". Furthermore, around sixty percent of the students were happy that the gaming experience was anonymous, and learning was taking place without the fear of being bullied or singled out.[31,32] A similar approach was also applied for laboratory teaching for the concept of length tension relation of muscles in undergraduate medical education with a 95% student satisfaction rate.[35] Some challenges were also encountered during the implementation of e-gaming in health professional curriculum, such as lack of faculty and support staff training and comfort with the e-gaming application. Furthermore, slow internet speed and bandwidth, mischievous nick names, availability of gadget, and correct email IDs were some other challenges that were experienced.

Recommendation regarding E-gaming

Use of gamification softwares enhance students' learning and satisfaction. These should be incorporated into the curriculum specially to cater to diverse learner pool. Universities should seek institutional licenses for these software's and the software developers need to provide lowest possible subscription fee so that most institutes can benefit from these tools. The educators must share the plan of the class at least a week before regarding the topic to be taught and activity.

Limitations in using E-gaming

Some limitations were experienced during the application. The most significant was related to the availability of licensed software as most of the free versions provide limited features. Second, the cost of institutional licenses is very high and for faculties in low-middle income countries it becomes difficult to acquire, access, or use these tools. Some other minor issues can also be challenging especially for junior faculty and in a large class where the gaming environment brings lot of fun and excitement and makes classroom atmosphere non conducive, noisy, and disorganised. Another barrier was the lack of charged gadgets.

Conclusion

E-gaming has been proven to be a more productive source for the students, as it engages and motivates them to be more involved in the class. The new quiz apps and online testing software have also made exams more interesting for students. The thrill of being on the podium and leading encourages them beforehand in their learning. Although all this has a lot of benefits for the student body it may bring some challenges for the faculty, who might take some time to accept and learn these new tech-savvy teaching methodologies. It also takes a lot of time and creativity to design curriculum and courses in a way that they can involve these new learning methods, but all the coursework objectives are also covered. Considering everything has its pros and cons and education also evolves with time, we need to adjust with these changes to provide our students with the best type of learning. Slow and systematic changes would help both the student body and the faculty to absorb and grasp these changes and benefit to the maximum from them.

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