Saving student interaction by saving the Starks

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Why was the idea necessary? (What was the problem?)

The pharmacology of antibacterials can be a tricky topic to lecture to students at any level.[1] The cohort that we have is comprised of first-year medical students in their second semester, and teaching antibacterials at this point can be quite a challenge. The students have little exposure to biomedical science modules such as microbiology in their first semester, meaning that they have not yet built adequate foundational knowledge to understand the mechanisms of antibacterial drugs. A proper understanding of antimicrobial mechanisms and resistance is crucial from early on in a medical student's education, to circumvent gaps in knowledge and lack of confidence observed with prescription of antibiotics.[2] In a large-group class where face-to-face interaction is possible, I perform continuous diagnostic assessment to test prior knowledge and to assess understanding of newly introduced concepts, thereby consolidating acquired knowledge. This is usually done by presenting case studies or by asking short probing questions, which allows for the visual assessment of student comprehension and for provision of 'on-the-spot' remediation measures.[3] The loss of face-to-face contact sessions meant the absence of the initial visual diagnostic assessment, and limited the opportunities to consolidate acquired knowledge in real time.

In my experience, the initial transition to online learning at the beginning of the pandemic still allowed teaching and learning to continue, with lecturers attempting different ways to maintain interaction. Participant reactivity to most activities put forward on the online platform was high and the voluntary learning opportunities were very well utilised. For most modules, the learning management system allowed students to download and listen to narrated lectures. This was followed by, if the lecturer felt the need to do so, a voluntary virtual session during the allocated lecture slots. As the year progressed and these practices became the 'new norm', we experienced a decline in student interest and engagement, and observed an 'online fatigue'. This was echoed across other disciplines and by other lecturers and educators, and the term 'zoom fatigue' was coined.[4] The lack of face-to-face contact sessions, compounded by the lack of interest by students to interact, established a need for creative solutions that would motivate students to make use of the voluntary online platforms.

What was tried? (Intervention)

To circumvent the difficulties experienced, *Saving the Starks* was born. *Saving the Starks* is a case study-based interactive game adapted from a popular television series, *Game of Thrones*. In an attempt to create a truly immersive experience, the game was developed using a Microsoft PowerPoint format with animated triggers and audio files from the soundtrack of *Game of Thrones*. This is similar to an interactive television show where the viewer decides the fate of the character in a scenario-branched televised show, such as those found on popular streaming networks like Netflix.

The game is called *Saving the Starks,* as it is centred around a group of characters in the series called the Stark family, and the aim of the game is to rescue the family members from bacterial infections using the knowledge acquired during the antibacterials narrated lecture. The game consists of three scenarios. In each scenario, different characters find themselves in a dramatised situation requiring treatment with antibacterials. The player (medical student) is asked a series of multiple-choice questions about the treatment regimen that the character must receive. Their decisions will determine the outcome of the Stark family member in the scenario. The player must select the correct option, or they will not progress to the next question. Answering all the questions correctly will result in success in saving the Stark family member in the scenario.

Players were asked to time themselves and post their times on their learning management systems' discussion board. The player with the fastest completion time was named the winner. Students were informed in advance that the game link would be made available to them only during the allocated lecture time, after which they could no longer download and play the game. By doing this, students were encouraged to go through the study notes and watch the narrated lecture beforehand or during the lecture slot to enable them to play the game. This resulted in interaction on the discussion board from more than half of the class during the lecture slot. A definite increase in student engagement was observed. *Saving the Starks* was very well received by the students, based on the overwhelmingly positive response on the discussion board. As evidenced by the video, it can be seen that the students were grateful for the fun activity. The module feedback report highlighted this; for example, one participant said, 'It's great to have lecturers who take the time to make classes more fun and interesting', while others expressed thanks for the effort and the experience. Quantitative feedback in the module reports also indicated this, with a high score for the lecturer's session (9.08 out of 10). These results show that most students rated the learning opportunity as above average, which corroborated the positive responses observed on the discussion board.

The lessons learnt

Gamification is a useful tool to enhance student interest and increase student interaction in a fun and engaging way. It creates formative learning opportunities for students in a way that is non-threatening and promotes 'graceful failure', with a promise to try harder next time.[5] The possibilities of its use are widespread, especially in a time when lecturers have to continuously find ways to keep students motivated to use online platforms. Creating interest in subject matter is a powerful motivator and can contribute to a more engaged learning experience for students.[6]

A lesson learnt from the implementation of this activity is that students are very appreciative of the effort made by their lecturers to relate to them, especially by using popular culture references. This format further engaged them in the content, while stimulating interest in the subject matter, and

also encouraged students to open dialogue with their lecturer. Many of the comments from students were about the theme of the game, and one student commented that they 'felt like a doctor in a movie'. The use of popular culture as a teaching tool can aid in stimulating students and developing their excitement about a specific topic. It can also help educators to ground content in a way that is more relatable and accessible to students.[7]

What will I keep in my practice?

I will continue to use gamification in my lectures as, I believe that it increases student engagement and makes them excited about the content. The competitive aspect creates enthusiasm within the learning environment and among peers.[5] Elements such as leader boards allow students to see where they stand in comparison with their peers, which motivates them to try harder.[5] This platform also allows me to engage with my students on a more congenial level, making it more enjoyable for me as the lecturer.

Things I would do differently

An element that was lacking was the provision of feedback for incorrect responses. In subsequent versions, a response system will be included that will enable students to understand why the option they selected was correct/incorrect. The feedback would allow consolidation of knowledge and real-time remediation. Another element was the strength of the questions used in the scenarios. Certain questions were contextualised and were true application questions, while others were rote questions or application-type questions without contextualisation. This is an area for improvement in subsequent versions of the game. Questions will be modified to highly contextualised application-type questions to improve contextualisation for students. A link to the discussion board at the end of the game would also be included or ideally a system that can be integrated with the online learning system, such as H5P or similar, would be used, to automate the loading of scores at the end of the game, as students may have attempted the game but not posted their time on the discussion board. This will also allow moderation of players and ensure fairness to all students.

Evidence of innovation

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