Who is motivated to learn with digital badges? A pre-registration nursing case study for the use of digital badges in higher education



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Introduction

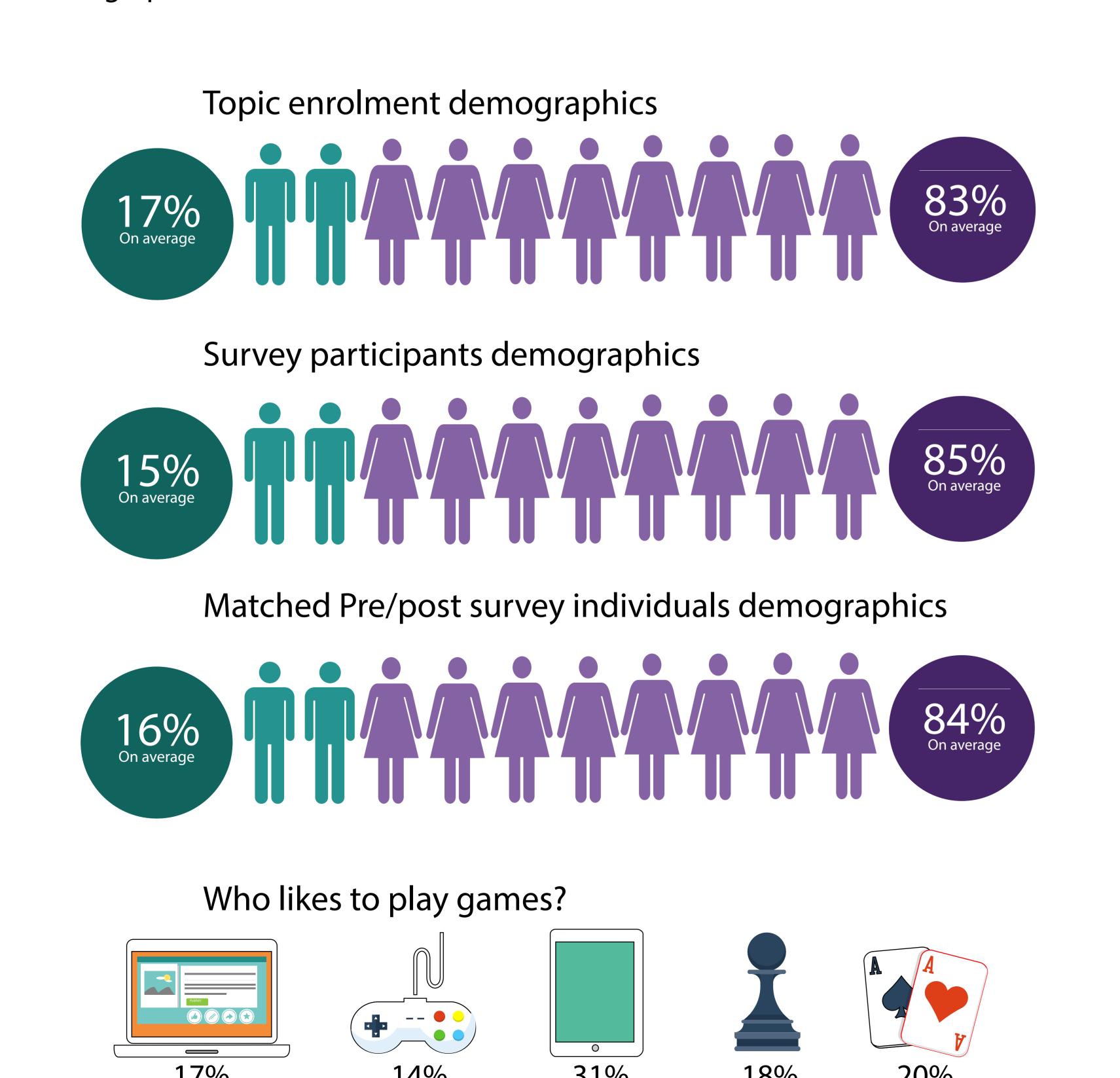
The project at Flinders University aimed to investigate whether game-elements in the weekly online study plan would increase the level of motivation of 400+ first-year pre-registration nursing students to complete preliminary study prior to undertaking weekly face-to-face classes. The study's findings and recommendations will enable university educators to consider how game-elements affect the motivation of their students, and how educators could design a game-like approach across subjects and within disciplines in the higher education sector.

As the functionality of technologies and access to digital resources and information increases, there is also an increase in the use of online resources to provide opportunities for students to effectively prepare before class (Chittleborough et al., 2007). But how can we motivate students to be prepared?

Students are encouraged to access the information and learning activities in a flexible manner, at any time and any place. Recent technological development is bridging the gap between learning platform and gaming. Gamification is the use of "game elements" in a non-game context, like education (Abramovich, Schunn, & Higashi, 2013). It is the choice of game elements in platforms such as Moodle that make gamification a reality in higher education. This pilot study applied game-elements to observe whether students would be motivated to prepare prior to face-to-face laboratories and tutorials.

Who are our students?

The topic enrolment, survey participants' and our matched pre-post student demographic data for 2015-2017 is as follows:



Three-year project background

Across the three-year project a total of 845 students completed the pre-topic survey, whereas 396 completed the post-topic survey. This data provides a measureable change to explore how the first-year topic which used digital badges has affected a students' motivation to be prepared for class.

What are digital badges?

Digital badges have a history founded in physical badges, such as those established by Baden-Powell with cub scouts. Individual cub scouts work towards different cloth badges by performing a task or displaying a skill. The end result was that each badge would be displayed on their uniform to help communicate this success amongst peers (Scouts Australia, 2017). More recently, digital badges have been integrated into mobile games and wearable fitness monitors like Apple Watch ™ and FitBit , and achievement structures have been built into gaming consoles, such as the Microsoft XBox™ (Davis and Singh 2015; Elliott, Clayton et al. 2014). These badges can be shared digitally amongst peers using social media.

How students earn digital badges?



"Week 1 gives you the opportunity to work towards your *Intro to Body badge* (pictured left) by completing the activities located in the checklist sections for both the laboratory practical and health assessment tutorials. The activities which are required to earn a weekly badge are marked by the dash check box on the right-hand side. However, you may be required to watch a video or read a textbook **chapter** before you attempt the activity like **quizzes** and **glossary** entries, as the activity is designed for you to check your understanding of the material before attending class. A full video explanation of how the badges and checklist features may assist you with study is available here."

Step-by-step: Earn your digital badge each week Design Digital badges were designed and integrated as weekly goals represented as ten anatomy themed badges and one final gold preparation badge Link Digital badges were linked to five key activities for each topic per week, including a knowledge check quiz, glossary entry, download laboratory and health assessment reports and a time-sensitive opt-in link **Earn** Digital badges were earned when all five key activities for each topic per week were automatically marked as complete, using completion tracking technology in Moodle, represented in progress bars Record Digital badges are saved automatically to a students' profile in Moodle. Some students opted to share their digital badges outside of Moodle, using a backpack system and social media

"Digital badges motivates me to "The badges in particular gave an do the preparation before classe. incentive to complete the pre class and I feel like I am rewarded activities and readings. It gave a for doing all these activities" "The badges gave an sense of completion and interesting, goal oriented satisfaction each week" focus to the work load."

"The digital badges stir a desire to I at least did some of the earn it as soon as possible." work for the week." 'I felt like I was

"The badges ensured that

What are the learning implications?

Why use them? What our students say...

Our findings indicate that the digital badges and connected progress bars overall have the potential to increase student motivation to complete their preliminary study prior to undertaking weekly practical classes, but different elements will appeal to different students. By increasing the diversity of tools being used, students will be motivated to meet the expectation of the staff prior to class. For students who remain undecided, by seeing the elements used in other topics may improve the game-elements' potential use for increasing motivation to be prepared for class.

Conclusion

"They're like medals

and trophies that I

earn after a hard

The results showed that when designing a blended subject with game elements, the overall design has the potential to enhance learners' motivation to academically prepare before attending face-to-face practical classes. Findings indicated that digital badges and progress bar/checklist overall have the potential to increase student motivation to complete their preliminary study prior to undertaking weekly practical classes, but ultimately different elements will appeal to different students. By increasing the diversity of tools being used, students may be more motivated to meet the expectation of the topic prior to attended face-to-face classes if they are motivated by a game element. For students who remain undecided by the value of game elements in their topic, by seeing the elements used in other topics or in their everyday life may improve the game elements potential use for increasing student motivation to prepare for class at university.

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