


Motivation for learning? Students' perception of gamification experience in Physiotherapy Education

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Gamification, the use of game elements in non-game contexts, has become popular in higher education, with a major aim of enhancing learning motivation (Banfield & Wilkerson, 2014; Pedersen & Poulsen, 2016)

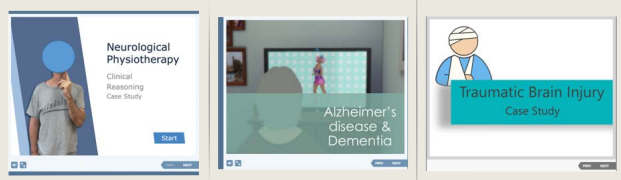
Yet, it is unknown how physiotherapy students perceive gamified education experience and better conceptualisations of gamification are needed.

Using gamified virtual patient case studies, this research explored

- Whether and how gamified education motivated physiotherapy students' learning
- How other factors such as class design and mechanics affected gamified experience

Methods

- This is a mixed-method study using focus group interviews and a survey to explore students' gamified learning experience.
- All students experienced six redesigned gamified case studies – 3 of which were built using iSpring and 3 were in traditional text-based format
- Participants were Year-3 physiotherapy students (n=100) enrolled in the Neurological Physiotherapy II subject.
- All students were invited to complete a 5-point Likert Scale survey and 10 students were purposefully selected to join one of the two focus group interviews.



Title pages of the three gamified virtual patient cases



Examples of gamified activities embedded in the "Traumatic Brain Injury" case study. Activities from left to right: Matching, hotspot, drag and drop for prioritisation.

Findings

Survey Items	% of agreed and strongly agreed
1. The instructions for the online virtual patient cases are clear.	93.75%
2. The case content is helpful to achieve the learning objectives	93.75%
3. The questions/activities are useful for assessing my level of understanding of the case content.	93.75%
4. The difficulty level of the questions/activities is appropriate.	90.625%
5. The length of the cases is appropriate.	93.75%
6. I have good understandings of the content after the cases.	84.5%
7. The online virtual patient cases are useful for enhancing my motivation.	90.625%
8. The questions/activities in the cases are engaging and interactive.	93.75%
9. The use of gamification (eg. narration storytelling, decision making for virtual patient) is useful.	93.75%
10. The use of multimedia (e.g. teaching videos, animation, pictures) in the online cases is effective.	90.625%
11. The feedback from the questions/activities are clear.	84.375%
12. Overall, I enjoyed the online virtual patient cases.	96.875%

- 32% of the class completed the survey: 96.875% of respondents agreed or strongly agreed that they enjoyed the gamification experience and 93.75% of them agreed or strongly agreed that the use of gamification in class was useful.
- Qualitative thematic analysis together with survey results revealed two major findings:
 1. Students perceived gamified education as motivating through satisfying **competence** and **social needs** as well as **enhancing self-efficacy**.
 2. **Authentic patient videos**, class activities that allowed conflict resolution and reflection, as well as the use of **leaderboards** are enablers in gamified education.

Score/Leaderboard

DATE	17/2	22/2	24/2	8/3	10/3	29/3
Group Number	MND	MS/GBS	Case Study 1-TBI	Ashwin's & Demen	Case Study 2	Clinical reasoning
1	AAAA	110	150	160	210	200
2	BBBB	70	220	180	160	250
3	CCCC	80	170	240	190	180
4	DDDD	50	150	160	200	230
Max score		160	200	200	160	200
Best of the day	AAAA	BBBB	CCCC	AAAA	BBBB	DDDD
Total Score:						4070

Ratings:
 Superior = 40
 Very good = 30
 Satisfactory = 20
 Needs improvement = 10

Engagement: Active? Respectful? Inclusive?
 Initiative - Ask/Questions? Clarify doubts? Summarize discussions?
 Response - Reflects knowledge/comprehensive and applications?
 Discussion - Willingness and can reflect analysis, synthesis and evaluation of findings?
 Team interaction(if applicable) - Constructivecomments and feedback to other teams?

Total Score: 4070

Conclusion

- Embedding gamification in physiotherapy education has its potential
- Virtual patient videos should be authentic and activities should facilitate controversial discussion
- Clear guidance and feedback from instructors are essential
- Leaderboard can potentially motivate learners; however, team dynamic needs to be fostered in order to achieve the optimal benefits of social interaction

Selected References

Banfield, J., & Wilkerson, B. (2014). Increasing Student Intrinsic Motivation And Self-Efficacy Through Gamification Pedagogy. *Contemporary Issues in Education Research (Online)*, 7(4), 291.

Pedersen, B. B. B., & Poulsen, M. L. (2016). A systematic review of gamification in education: Towards a more structured use of game mechanics. (MSc in Information Management), Aarhus University.

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