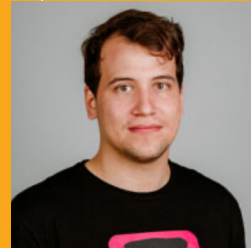


Choosing the Right Tool: Board and Digital Games in Education

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Ing. Vajk Pomichal has operated at FMK UCM in Trnava as a full-time PhD student since 2021. He received his engineering degree in intelligent software systems at the Faculty of Informatics and Information Technologies at STU in Bratislava. His research focuses on developing critical thinking skills using educational games, especially in the context of fake news and hoaxes, which nowadays have a significant impact on public opinion. The goal of his research is to develop game mechanics that can teach players to think critically in a fun way and measurably increase the players' resilience to fake news.

Games have long been recognized as valuable tools for engaging and educating students in any age group.¹ There are already a number of board games and digital games that have been created with an educational purpose and which are successfully used for education. Examples include learning a foreign language², developing problem-solving skills³, helping children with ADHD⁴, improving social sensitivity⁵ or developing critical thinking skills.⁶

Game-based learning is experiencing a surge in popularity across formal and informal educational settings, primarily due to several key advantages it offers.⁷ Firstly, game-based learning fosters high levels of engagement among players.⁸ The interactive and immersive nature of games captivates students' attention, motivating them to actively participate in the learning process.

Additionally, game-based learning provides a safe environment for students to explore and experiment with different solutions to given problems.⁹ This freedom to make mistakes and learn from them encourages critical thinking, problem-solving, and creativity, as players can iterate and refine their strategies within the game.

Another advantage of game-based learning is its ability to shift a portion of the teaching process from the teacher to the students' interaction with the game itself. Games become facilitators of learning, allowing students to take ownership of their education. This shift empowers students, promoting their inner motivation to learn and discover.¹⁰

These advantages apply to both board and digital games. However digital games have gained more popularity in education, often being the go-to choice for incorporating gaming into learning experiences. The interactive and immersive nature of digital games, coupled with their ability to adapt to individual learners' needs, has made them a favoured tool among educators. However, it is important to recognize that board games have also demonstrated effectiveness in educational settings.¹¹ In recent years, there has been a notable surge in the popularity of modern board games, starting in the early 2000s's with classics like *Settlers of Catan*.¹² The global quarantine measures during the COVID-19

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- 1 SEELHAMMER, C., NIEGEMANN, M.: Playing Games to Learn – Does it actually work?. In KONG, S. C. et al. (eds.): *Proceedings of the 17th International Conference on Computers in Education*. Hong Kong : Asia-Pacific Society for Computers in Education, 2009, p. 676-677.
 - 2 YUKSELTURK, E., ALTIOK, S., BAŞER, Z.: Using Game-Based Learning with Kinect Technology in Foreign Language Education Course. In *Journal of Educational Technology & Society*, 2018, Vol. 21, No. 3. p. 159.
 - 3 MATHEW, R., MALIK, S. I., TAWAFK, R. M.: Teaching Problem Solving Skills using an Educational Game in a Computer Programming Course. In *Informatics in Education*, 2019, Vol. 18, No. 2, p. 359.
 - 4 RANIYAH, Q., SYAMSUDIN, A.: Centerred Concentration for ADHD Children via Educational Game. In AZIZAH, N. et al. (eds): *Proceedings of the International Conference on Special and Inclusive Education (ICSIE 2018)*. Zhengzhou: Atlantis Press, 2019, p. 422.
 - 5 GREITEMEYER, T., OSWALD, S.: Effects of prosocial video games on prosocial behavior. In *Journal of Personality and Social Psychology*, 2010, Vol. 98, No. 2, p. 221.
 - 6 ROOZENBEEK, J., VAN DER LINDEN, S.: Fake news game confers psychological resistance against online misinformation. In *Humanities and Social Sciences Communication*, 2019, Vol. 5, No. 1, p. 6. [online]. [2023-05-23]. Available at: <<https://doi.org/10.1057/s41599-019-0279-9>>.
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 - 8 POHL, M., RESTER, M., JUDMAIER, P.: Interactive Game Based Learning: Advantages and Disadvantages. In STEPHANIDIS, C. (ed.): *Universal Access in Human-Computer Interaction. Applications and Services. Part III*. Berlin, Heidelberg, New York, NY : Springer, 2009, p. 94.
 - 9 WHITTON, N.: The Place of Game-Based Learning in an Age of Austerity. In *Electronic Journal of e-Learning*, 2012, Vol. 10, No. 2, p. 252-253.
 - 10 FULYA EYUOGLU, T., NIETFELD, J. L.: Intrinsic Motivation in Game-Based Learning Environments. In IFENTHALER, D., KIM, Y. J. (eds.): *Game-Based Assessment Revisited*. Berlin, Heidelberg, New York, NY : Springer, 2019, p. 88-89.
 - 11 NODA, S., SHIROTSUKI, K., NAKAO, M.: The effectiveness of intervention with board games: a systematic review. In *BioPsychoSocial Medicine*, 2019, Vol. 13, No. 22, p. 12-13. [online]. [2023-05-23]. Available at: <<https://doi.org/10.1186%2Fs13030-019-0164-1>>.
 - 12 SOUSA, M., BERNARDO, E.: Back in the Game. In ZAGALO, N. et al. (eds.): *Videogame Sciences and Arts: 11th International Conference*. Berlin, Heidelberg, New York, NY : Springer, 2019, p. 75.

pandemic further bolstered the popularity of board games, as people sought at-home entertainment.¹³ This increased interest in board games as a recreational activity can also translate into their recognition as effective educational tools.

Multiple studies have compared the tabletop and digital versions of different games, revealing interesting insights resulting in the superiority of tabletop versions in engagement.¹⁴ However, it is worth noting that the digitalized versions of board games are not always adequately reworked to suit the digital environment. As a result, the experience of playing these digitalized versions often falls short compared to the engaging and immersive experience offered by the physical counterparts.¹⁵

This raises an essential question worth further research: What are the key differences between games designed specifically for the digital environment and those originally designed as board games? Understanding the differences between these types of games allows educators and game designers to make informed decisions when selecting or creating games for educational purposes. Both types of games have their strengths and disadvantages, and the choice between them depends on the desired learning outcomes, available resources, and the preferences and needs of the learners.

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