Innovative Pedagogies in Higher Education: Using a Smart Game App and Videos to Teach Provisions, Contingent Liabilities, and Assets

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ABSTRACT

Gamification, game-based learning (GBL), and video-based learning (VBL) are three innovative teaching strategies that are increasingly regarded as effective pedagogies in higher education. This study investigates the use of the MFRS 137 Smart Game App and VBL as a dynamic teaching approach to improve university students' understanding of key accounting concepts, specifically provisions, contingent liabilities, and contingent assets, as outlined in the Malaysian Financial Reporting Standards (MFRS 137). Designed as a self-directed learning aid, the app provides learners with interactive components and multimedia content that reinforce difficult accounting procedures in a simple, engaging manner. A survey was done with 252 diploma-level accounting students from University Technology MARA, Perak Branch, to investigate their attitudes toward digital learning tools. The descriptive study found that students strongly preferred the use of GBL and VBL, rating these methods as more effective, accessible, and fun than standard printed materials. When students used gamified learning tools, they reported greater comprehension and motivation. Given its immersive features and user-friendly design, the combination of the MFRS 137 Smart Game App with VBL holds great promise as a preferred educational technique in accounting education. Future research should consider additional motivational elements such as student backgrounds, learning environments, and personal experiences in order to improve the application of gamified learning in higher education settings.

Keywords: MFRS 137; Gamification; Game-based learning; Video-based learning; Accounting Education.

INTRODUCTION

In recent years, higher education has seen a considerable movement toward embracing new teaching practices to improve student engagement and learning outcomes. Among these solutions, gamification has received a lot of attention across disciplines, including accounting education (Roodt & Ryklief, 2019). Gamification is the application of game design features in non-game environments, such as education, to produce more engaging and participatory experiences (Westera, 2019). This strategy has been credited with altering traditional classroom dynamics by increasing motivation and learner engagement. According to research, gamification has the ability to help students improve critical thinking, cooperation, and decision-making abilities.

Game-based learning (GBL), a subtype of gamification, focuses on the use of actual games or simulations as instructional tools. Chen et al. (2019) define GBL as a teaching strategy that promotes active learning, enthusiasm, and a deeper conceptual grasp. GBL design often involves goal setting, interactivity, competition, and problem-solving, all of which promote learner motivation and engagement. Research has shown that GBL enhances not just academic performance but also creativity, resilience, and self-esteem (Jääskä et al., 2022; Almuntsr et al., 2024). Furthermore, GBL is excellent in addressing common learning issues such as declining attention spans and lack of excitement, particularly in content-heavy areas like accounting (Sri Maryani et al., 2023; Dahalan, Alias, & Shaharom, 2024).

Another popular instructional style in higher education is video-based learning (VBL), which has proven to be

a versatile complement to traditional teaching approaches. Kay (2012) claims that VBL promotes knowledge retention, improves study habits, and provides flexible access to learning materials. When used with textbooks, video lectures can help students learn complicated topics more clearly and rapidly (Turan & Cetintas, 2020). VBL enables teachers to provide practical demonstrations or simulations, including virtual lab activities and accounting walkthroughs (Sablić et al., 2020; Surgenor et al., 2017). More recently, Lee and Kim (2025) shown that incorporating gamified aspects into educational videos boosts student achievement by improving intrinsic motivation and cognitive engagement.

The Malaysian Financial Reporting Standard (MFRS) 137 on provisions, contingent liabilities, and contingent assets is a particularly difficult topic for many accounting students to grasp. The standard's language, recognition criteria, and measurement procedures are often so complex that learners struggle to grasp the ideas. To solve this issue, the MFRS 137 Smart Game App was created as a GBL tool to help students learn the material in a more accessible and interesting manner. The software incorporates VBL capabilities to provide explanations, examples, and practice questions that enhance learning in an interactive setting. This instructional technique strives to clarify complicated ideas, facilitate self-paced learning, and improve the entire accounting education experience.

The MFRS 137 Smart Game App provides students with various benefits in addition to standard lecture notes and accounting texts. Gamified assignments and rapid feedback systems help students learn accounting treatments more efficiently and accurately. The VBL component improves this by allowing students to revisit information several times and learn at any time, from any location as long as they have internet connectivity. This flexibility is especially useful for encouraging self-directed learning and preparing students for formative and summative exams. As Phillips and Graeff (2014) noted, such tools can boost student confidence and contribute to a more positive perspective of accounting.

Preliminary observations from University Technology MARA (UiTM) show that many diploma-level accounting students struggle with MFRS 137 test problems. Specifically, a high proportion of students score less than 50% on questions about provisions and contingencies, indicating a gap in comprehension and application. This learning gap is partly due to the difficulties of remembering technical vocabulary and applying accounting treatments during exam conditions. Students' feedback indicates that digital learning tools such as the Smart Game App are useful in clarifying these challenging ideas. The app's interactive nature not only enhances classroom education but also allows students to practice and remember accounting information.

With the creation of the MFRS 137 Smart Game App and its integration with VBL, students may now interact with difficult accounting standards in a customizable, personalized, and user-friendly way. Learners can access the app whenever they choose, using smartphones, tablets, or laptops, and use it as a revision tool for assignments and final exams. The combination of gamification and multimedia instruction shows great potential for solving chronic learning difficulties in higher education. As technology continues to change educational practices, such creative pedagogies will undoubtedly play an important role in boosting student comprehension and academic success. This study aims to assess the efficacy of this integrated strategy and its potential for further application in accounting education and beyond.

LITERATURE REVIEW

Higher education institutions are increasingly using novel pedagogical techniques to increase student engagement and learning results (Almusaed et al., 2023). Traditional teaching approaches, particularly in technical disciplines like accounting, frequently fail to keep students engaged and build deep comprehension. Using digital tools into the classroom may turn passive learning into active, student-centered participation. Gamification and video-based learning are examples of innovative pedagogies that are well-suited to the preferences of digital native learners. These strategies not only cater to various learning styles, but they also encourage autonomy and flexibility in the learning process.

Gamification is the use of game components like points, levels, badges, and incentives in non-game environments to increase motivation and involvement (Mauroner, 2019; Prasad, 2021). Kalogiannakis, Papadakis and Zourmpakis (2021) found that gamification can dramatically increase students' motivation to

study, particularly in disciplines considered as complicated or abstract. Gamification, which incorporates aspects of fun and competitiveness, helps students maintain their interest and attention over time. Angelelli et al. (2023) provide more evidence that gamified settings improve decision-making, teamwork, and critical thinking abilities. These advantages make gamification an effective approach for teaching and mastering accounting topics.

Game-based learning (GBL) differs from gamification in that it uses actual games with educational content as teaching aids. Pardede and Listiani (2024) argue that GBL enhances active learning by engaging students in problem-solving and interactive activities. According to Rye, Sousa and Sousa (2025), GBL can help pupils prepare for real-world settings by encouraging adaptation and resilience. According to research, GBL boosts motivation, improves retention, and leads to a better knowledge, especially in professions that require high levels of accuracy and critical thinking. Accounting requires decision-making under uncertainty, hence GBL is ideally suited to simulating such circumstances in an educational setting.

Video-based learning (VBL) has developed as an effective adjunct to traditional classroom training. Rajpopat (2023) discovered that educational films boost understanding and memory, particularly when utilized as supplements to lecture materials. According to Robinson and Persky (2020), videos provide learners choice over the pace of their studies, allowing for individualized and self-directed learning experiences. VBL is extremely effective for visual learners and may be played again to improve comprehension. In accounting education, video demonstrations of case studies and financial treatments assist to simplify complicated rules and processes, making abstract concepts more concrete.

The combination of GBL and VBL results in a rich, multimodal learning experience that engages students along numerous sensory and cognitive pathways. Qiao et al. (2023) discovered that mixing gamification with video material dramatically increased students' cognitive engagement and intrinsic motivation. When students engage with both game challenges and video explanations, they obtain rapid feedback and contextual knowledge. This dual method reinforces constructivist learning concepts by allowing students to gain knowledge via active exploration and reflection. In the context of MFRS 137, combining GBL and VBL can help students understand accounting treatments linked to provisions and contingent items.

Accounting standards, such as MFRS 137, are sometimes too difficult for students to understand and apply. Silva, Rodrigues and Leal (2021) propose that innovative teaching techniques, such as educational games, promote deeper learning and better attitudes about accounting. GBL allows students to experience recognizing, measuring, and disclosing provisions and liabilities by modelling real-world circumstances. Video tutorials supplement these topics by graphically demonstrating techniques and ideas. Thus, integrating GBL with VBL provides a dynamic instructional strategy for teaching the technical material included in financial reporting standards.

An increasing corpus of research supports the use of technology-enhanced learning practices to improve results in higher education. However, more empirical study is needed to better understand the long-term effects of GBL and VBL on information retention and academic achievement. Chen and Wang (2021) suggest investigating how individual differences—such as learning preferences, cultural background, and technology access—affect the success of various pedagogical approaches. Future developments should also prioritize adaptive learning systems that tailor material and feedback based on student success. These findings can help instructors improve their teaching methods and create inclusive, effective learning environments for different student groups.

MATERIALS AND METHODS

This study used an online poll to determine students' preferences for effective learning aids, especially in the setting of accounting school. The poll sought to obtain information about the perceived utility of game-based and video-based learning techniques for comprehending complicated accounting topics such as MFRS 137. The poll involved 252 diploma-level accounting students from University Technology MARA's Perak Branch. The poll was conducted in year 2023 for students in semester 4. The students were chosen based on their participation in financial accounting courses covering provisions, contingent liabilities, and contingent assets. The collected data was evaluated using descriptive statistics to identify trends and general perceptions among respondents.

To supplement the survey results, a prototype of the MFRS 137 Smart Game App was created as an instructional innovation. The app was developed with a series of interactive games, each containing questions about certain subcategories of MFRS 137. These subcategories included recognition criteria, measurement standards, journal entries, and case-based scenarios modelled after real-world accounting methods. Each game level was designed to promote learning by posing more tough questions. This approach allowed students to practice decision-making in a simulated setting while learning theoretical ideas.

To aid with deeper comprehension, the app provided immediate feedback and detailed explanations for each correct response. This not only encouraged correct answers but also acted as a learning tool for pupils who chose incorrect options. Students who completed a level with the highest score were eligible for minor awards or exclusive presents from their instructors. This gamified incentive was designed to encourage participation and motivation throughout the learning process. The Smart Game App aimed to provide an interesting, student-centered learning experience that would supplement traditional teaching techniques by mixing interactivity and rewards.

RESULTS AND DISCUSSION

Figure 1 shows that a considerable proportion of accounting students (39%) picked educational games as their major learning medium, closely followed by video-based learning (32%). This substantial preference shows that students choose learning tools that are more engaging and interactive. Many students remarked that using these strategies simplifies complicated accounting topics, making them easier to learn and retain. The features of classification, recognition, measurement, presentation, and disclosure that are important to MFRS 137 might be intimidating when tackled via conventional approaches. However, when same topics were presented via gamification and videos, students considered them more approachable and less intimidating.

Students also reported that GBL and VBL were more convenient and effective than traditional printed materials or lengthy accounting rules. Interactive learning tools not only boost motivation, but they also promote a deeper and more practical comprehension of academic concepts. This enables the combination of instructional games and films into a single software, such as the MFRS 137 Smart Game software. Gamified components, such as competition, achievement awards, and problem solving, enhance and personalize the learning experience. As a result, the software becomes a useful and engaging resource for accounting students dealing with difficult standards such as MFRS 137.

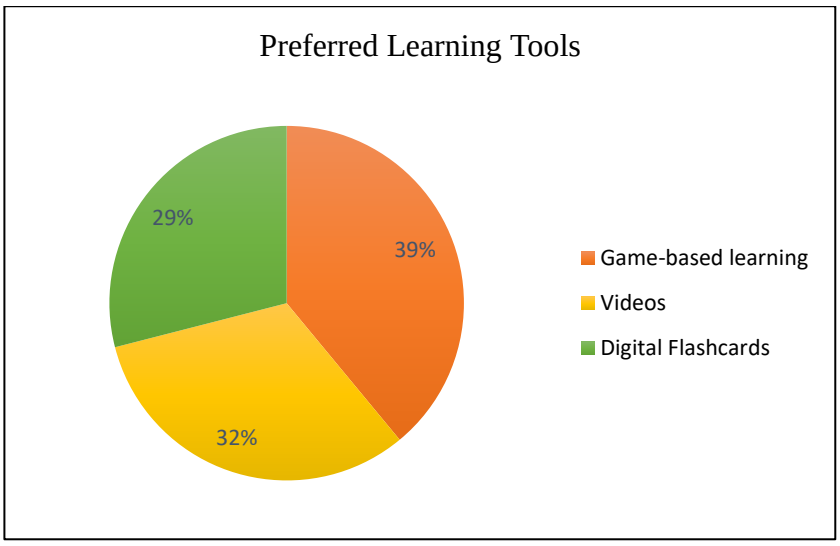

Figure 1. Analysis of Preferred Learning Tools

Table 1 shows that 86% of accounting students utilize mobile devices for gamified learning, with laptops coming in second place. The increased usage of smartphones emphasizes the value of mobile adaptability in educational app development. The MFRS 137 Smart Game App is well-suited to students' device choices because it runs smoothly on both mobile devices and laptop computers. This flexibility improves students' access to learning

resources at any time and from any location, in line with their digital habits and study routines. As a result of its versatility, the software has a good chance of becoming a popular tool in accounting teaching.

Table 1. Preferred Learning Devices for Gamification

Most commonly used devices by students for gamification	Frequency
Desktop	2.8%
Mobile	86%
Laptop	8.4%
None	2.8%

Figure 2 shows that 36.5% of students reported having adequate internet access, which is critical for the efficient use of online learning platforms. This conclusion emphasizes the necessity of having dependable internet connectivity while using digital instructional tools such as the MFRS 137 Smart Game App. Students with consistent internet connectivity may effortlessly browse the app's features, watch instructional videos, and complete interactive tasks without interruption. For educational technology to be effective, it must be accessible, and this research reveals that the majority of students have the infrastructure required to effectively utilize such platforms. As a result, this supports the case for incorporating online technologies into modern education, indicating that a sizable proportion of pupils are ready for digital learning.

Students with reliable internet access can participate in online activities that need real-time interactions, such as video material and live feedback. These features improve engagement since students may see instant outcomes and change their learning tactics accordingly. Real-time feedback, in particular, enables individuals to identify areas for development and remedy errors quickly, therefore strengthening learning retention. The ability to stream videos and utilize the MFRS 137 Smart Game App without any technological concerns contributes to a smooth and continuous learning experience. This ease of access allows students to be actively involved without being frustrated by connectivity challenges that impede their educational progress.

Stable internet connectivity also allows students in both urban and semi-urban settings to fully utilize online learning systems. While metropolitan students may have little issue obtaining high-speed internet, students in semi-urban or rural settings may have occasional difficulties. However, the high number of pupils with dependable connectivity in our survey implies that these problems are not prevalent. Given this, making instructional software available online, such as the MFRS 137 Smart Game App, becomes a realistic and effective option for a wide range of student demographics. This accessibility makes online education a viable and relevant tool for a diverse spectrum of students, bolstering its use in accounting curriculum.

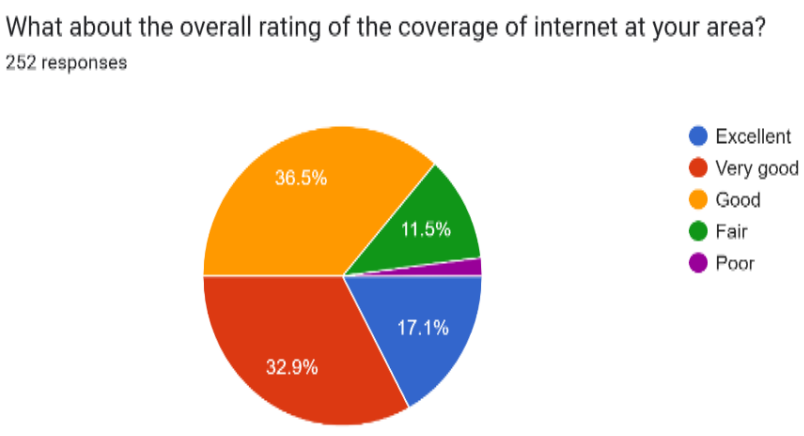

Figure 2. Internet Coverage

Table 2 shows that 37.1% of accounting students spend at least one hour per day interacting with gamified learning content. This demonstrates students' great desire to explore novel teaching resources beyond traditional lectures and textbooks. The time investment indicates that students appreciate interactive techniques, particularly when dealing with complicated accounting concepts. Gamified platforms provide a more interesting and instructive alternative, allowing students to reinforce their learning via repetition and practice. Such regularity in usage indicates how gamification may become an essential component of students' learning regimens.

The instant feedback and obvious success provided by gamified learning technologies are potential motivators for their continued usage. Students are generally more motivated when they can measure their progress and earn acknowledgment for their accomplishments, whether through digital incentives or levels. This reinforcement approach promotes persistence and increases comprehension of essential accounting concepts such as those outlined in MFRS 137. Unlike passive learning, gamification encourages active engagement by forcing students to think critically and apply concepts in real time. These elements contribute to student attention and prevent cognitive weariness, which is frequently connected with stringent financial demands.

Students' continued involvement with gamified materials demonstrates that they respect this approach's practicality and relevance. It enables individuals to interact with material in a more open-ended and exploratory manner. When applied to technical topics such as provisions, contingent liabilities, and contingent assets, gamification simplifies complicated concepts through real-world simulations and problem-solving exercises. This method not only improves conceptual clarity, but it also increases student retention and confidence in implementing standards. As a result, adding gamification into accounting instruction can improve academic achievements and increase student satisfaction.

Table 2. Average time spent for gamification

Average time spent on gamification every day	**Frequency**
At least three hours	15.4%
About two hours	19.6%
At least an hour	37.1%
Less than 30 minutes	18.9%
None at all	9%

CONCLUSION

The MFRS 137 Smart Game App has shown to be an extremely useful interactive tool for teaching and improving comprehension of complicated accounting concepts. By concentrating on provisions, contingent liabilities, and contingent assets, the app turns standard training into an exciting, student-centered experience. The addition of video-based learning (VBL) offers a new layer, allowing students to absorb material visually and review classes at their own speed. This combination encourages active learning and accommodates a variety of learning styles among university students. As a result, the MFRS 137 Smart Game App is set to become a valuable resource in the current accounting education scene.

From a pedagogical standpoint, the utilization of novel technologies such as the MFRS 137 Smart Game App demonstrates a trend toward more student-centered teaching practices. It illustrates how adding gamification and multimedia features may increase student engagement, comprehension, and satisfaction. Educators gain from adopting this technology because it supplements lectures, encourages individual learning, and offers instant feedback on student performance. Furthermore, such technologies serve to bridge the gap between theoretical knowledge and practical application, which is sometimes a barrier in accounting education. As a result, embracing these new pedagogies can significantly improve the efficacy of teaching and learning in higher education.

The study has far-reaching ramifications for university students. The availability of a mobile-friendly, interactive

software allows students to take charge of their education. It provides flexibility in terms of timing and place, which is very useful in today's increasingly digital and distant learning contexts. Learning that is engaging and individualized is more likely to keep students engaged and retain knowledge. This, in turn, can improve academic achievement and prepare students for professional practice.

Despite its virtues, the current study has certain drawbacks. The sample size was limited to accounting students at University Technology MARA (UiTM) Tapah, which may not reflect the whole student body. As a result, future study should involve a broader, more diversified sample of students from other higher education institutions in Malaysia and even outside. More widespread engagement would produce more generalizable and informative results. Furthermore, additional research might look into variances in learning outcomes depending on demographic factors such age, gender, academic background, and learning styles. This might result in more focused and inclusive approaches to gamified learning design.

Future studies should look at additional factors that might impact student involvement and motivation. Parenting methods, cultural backgrounds, and financial level, for example, may all have an impact on how pupils respond to game- and video-based learning. Understanding these factors might help to build more inclusive educational tools that address the requirements of varied learners. Longitudinal studies might also investigate how consistent usage of the MFRS 137 Smart Game App improves knowledge retention and long-term academic achievement. Such information would be extremely useful for educators and policymakers looking to adopt scalable, meaningful educational reforms.

In conclusion, the MFRS 137 Smart Game App, enhanced with video-based learning, offers a promising advancement in the field of accounting education. It not only improves students' understanding of technical topics but also aligns with modern pedagogical trends that prioritize engagement, accessibility, and learner autonomy. The results from this study provide a strong foundation for future work on educational gamification, particularly within accounting and finance programs. By integrating interactive technology into teaching practices, educators can create richer learning experiences and better equipped students for academic and professional success. As the educational landscape continues to evolve, such innovations will play a critical role in shaping effective and inclusive learning environments.

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REFERENCES

1. Almuntsr, N. M., Muhamad, H. B., San, O. T., & Shah, S. M. (2024). Using gamification in accounting education: A systematic literature review (2017–2023). International Journal of Academic Research in Business and Social Sciences, 14(2), 1119-1134.
2. Almusaed, A., Almssad, A., Yitmen, I., & Homod, R. Z. (2023). Enhancing student engagement: Harnessing “AIED”’s power in hybrid education—A review analysis. Education Sciences, 13(7), 632.
3. Angelelli, C. V., de Campos Ribeiro, G. M., Severino, M. R., Johnstone, E., Borzenkova, G., & da Silva, D. C. O. (2023). Developing critical thinking skills through gamification. Thinking Skills and Creativity, 49, 101354.
4. Chen, S. Y., & Wang, J. H. (2021). Individual differences and personalized learning: a review and appraisal. Universal Access in the Information Society, 20(4), 833-849.
5. Chen, S.-W., Yang, C.-H., Huang, K.-S., & Fu, S.-L. (2019). Digital games for learning energy conservation: A study of impacts on motivation, attention, and learning outcomes. Innovations in Education and Teaching International, 56(1), 66–76. https://doi.org/10.1080/14703297.2017. 1348960
6. Dahalan, F., Alias, N., & Shaharom, M. S. N. (2024). Gamification and game-based learning for vocational education and training: A systematic literature review. Education and Information Technologies, 29(2), 1279-1317.
7. Felekidou, K., & Λ Lenakakis, A. (2022). Gamification in Education: A Literature Review. Education Sciences, (2), 225–250. https://doi.org/10.26248/.v2022i2.1612

8. Jääskä, E., Lehtinen, J., Kujala, J., & Kauppila, O. (2022). Game-based learning and students' motivation in project management education. Project Leadership and Society, 3, 100055.
9. Kalogiannakis, M., Papadakis, S., & Zourmpakis, A. I. (2021). Gamification in science education. A systematic review of the literature. Education sciences, 11(1), 22.
10. Kay, R. H. (2012). Exploring the use of video podcasts in education: A comprehensive review of the literature. Computers in Human Behavior, 28(3), 820–831. https://doi.org/10.1016/j.chb.2012.01.011
11. Lee, J., & Kim, D. (2025). Levelling up learning in higher education: Gamification of in-video components to supercharge student learning and achievement in video-based learning. British Journal of Educational Technology.
12. Mauroner, O. (2019). Gamification in management and other non-game contexts—understanding game elements, motivation, reward systems, and user types. Open Journal of Business and Management, 7(4), 1815-1830.
13. Pardede, A. A., & Listiani, T. (2024). Implementation of Game-Based Learning (GBL) with Kahoot! in Encouraging Active Learning on Statistics. Mathline: journal Matematika dan Pendidikan Matematika, 9(4).
14. Phillips, M. E., & Graeff, T. R. (2014). Using an in-class simulation in the first accounting class: Moving from surface to deep learning. Journal of Education for Business, 89(5), 241-247. https://doi.org/10.1080/08832323.2013.863751
15. Prasad, K. D. V. (2021). Gamification and its Applications. Journal of Business Strategy, Finance and Management, 2(2).
16. Qiao, S., Yeung, S. S. S., Zainuddin, Z., Ng, D. T. K., & Chu, S. K. W. (2023). Examining the effects of mixed and non-digital gamification on students' learning performance, cognitive engagement and course satisfaction. British Journal of Educational Technology, 54(1), 394-413.
17. Rajpopat, V. (2023). Use of film as a Teaching Resource: A literature review. International Journal of Emerging Knowledge Studies, 2(9), 225-233.
18. Robinson, J. D., & Persky, A. M. (2020). Developing self-directed learners. American journal of pharmaceutical education, 84(3), 847512.
19. Roodt, S, Ryklief, Y. (2019). Using digital game-based learning to improve the academic efficiency of vocational education students. International Journal of Game-Based Learning. 9(4):45–69. doi: 10.4018/IJGBL.2019100104.
20. Rye, S., Sousa, M., & Sousa, C. (2025). Beyond Scholastic Disciplines: The Need for Complex Game-Based Learning in a Complex World. In Transformative Learning Through Play: Analogue Games as Vehicles for Educational Innovation (pp. 1-27). Cham: Springer Nature Switzerland.
21. Sablić, M., Mirosavljević, A., & Škugor, A. (2020). Video-based learning (VBL)-past, present and future: An overview of the research published from 2008 to 2019. Technology, Knowledge and Learning, 1–17. https://doi.org/10.1007/s10758-020-09455-5
22. Saleem, A. N., Noori N. M., & Ozdamli, F. (2022). Gamification Applications in E-learning: A Literature Review. Technology, Knowledge and Learning. 7(1), 139–159. doi: 10.1007/s10758-020-09487-x
23. Silva, R., Rodrigues, R., & Leal, C. (2021). Games based learning in accounting education–which dimensions are the most relevant?. Accounting Education, 30(2), 159-187.
24. Srimaryani, S., Yuliyanto, R., & Andriyati, R. (2023). Sharpening accounting skills with games: A literature review on game-based accounting learning. Randwick International of Social Science Journal, 4(3), 687-698. https://doi.org/10.47175/rissj.v4i3.771
25. Surgenor, D., Hollywood, L., Furey, S., Lavelle, F., McGowan, L., Spence, M., Raats, M., McCloat, A., Mooney, E., Caraher, M., & Dean, M. (2017). The impact of video technology on learning: A cooking skills experiment. Appetite, 114, 306–312. https://doi.org/10.1016/j.appet.2017.03.037
26. Turan, Z., & Cetintas, H. B. (2020). Investigating university students' adoption of video lessons. Open Learning: The Journal of Open, Distance and e-Learning, 35(2), 122–139. https://doi.org/10.1080/02680513.2019.1691518
27. Westera, W. (2019). Why and how serious games can become far more effective: Accommodating productive learning experiences, learner motivation and the monitoring of learning gains. Journal of Educational Technology & Society, 22(1), 59–69.