

Language Learning in the Digital Era: AI and Gamification

Noor Aileen Ibrahim*¹, Ahmad Muhyiddin B Yusof², Raihana Abu Hasan³, Haslinda Md. Nazri⁴,
Norasyikin Abdul Malik⁵, Nurul Munirah Azamri⁶, Halimatun Saadiah Abd Mutalib⁷, Sheema Liza
Idris⁸

^{1, 3, 5, 6, 7 & 8}Akademi Pengajian Bahasa Universiti Teknologi MARA (UiTM) Cawangan Perak, Seri
Iskandar, 32610, Bandar Baru Seri Iskandar, Perak, Malaysia

²Akademi Pengajian Bahasa, Pusat Asasi UiTM, Kampus Dengkil, 43800, Dengkil, Selangor, Malaysia

⁴Kolej Pengajian Seni Kreatif, Universiti Teknologi MARA Cawangan Perak, Seri Iskandar, 32610,
Bandar Baru Seri Iskandar, Perak, Malaysia

*Corresponding Author

DOI: <https://doi.org/10.47772/IJRISS.2026.100300098>

Received: 04 March 2026; Accepted: 11 March 2026; Published: 27 March 2026

ABSTRACT

Language learning is daunting for many learners particularly when they do not have the appropriate exposure to the target language and culture. For some learners, they mistakenly believe that they can get by in life by just mastering a few common phrases. However, this is unwise. In the workplace, it is necessary to be highly proficient in a language especially English and Mandarin as the latter is found to emerge as an important language as China is fast emerging as one of the world's major superpowers. This study focuses on language learning and the way gamification and artificial intelligence (AI) enhance motivation and engagement of the language learners. This study focuses on library research which involves a systematic examination of the relevant literature related to language learning, gamification and AI. This study will discuss the advantages, drawbacks and the future of AI and gamification in language learning. The findings revealed that AI and gamification have a positive influence on language learning particularly on student engagement and motivation. Nevertheless, there are certain challenges of AI and gamification to the language learners.

Keywords: AI, gamification, learning, language learners, motivation

INTRODUCTION

Language learning is daunting for many learners particularly when they do not have the appropriate exposure to the target language and culture. For some learners, they mistakenly believe that they can get by in life by just mastering a few common phrases. However, this is unwise. In the workplace, it is necessary to be highly proficient in a language especially English and Mandarin as the latter is found to emerge as an important language as China is fast emerging as one of the world's major superpowers (Goh, 2017). This study focuses on language learning and the way gamification and artificial intelligence (AI) enhance motivation and engagement of the language learners. This study will discuss the advantages, drawbacks and the future of AI and gamification in language learning. The findings revealed that AI and gamification have a positive influence on language learning particularly on student engagement and motivation. Nevertheless, there are certain challenges of AI and gamification to the language learners. This is a conceptual paper which discusses the issue of language learning and how the experience can be enhanced through gamification and AI.

RESEARCH METHODOLOGY

This is a conceptual paper which discusses the issue of language learning and how the experience can be enhanced through gamification and AI. This study focuses on library research which involves a systematic examination of the relevant literature related to language learning, gamification and AI. The relevant literature

was selected upon critically evaluating the information from the materials sourced, using numerous library tools to identify the necessary literature, and appropriately citing sources.

Language Learning in the Digital Era: Artificial Intelligence (AI) and Gamification

Artificial intelligence (AI) has revolutionized many aspects of life particularly modern education. According to Tang et al. (2023) and Zhang & Aslan (2021) learning management and training systems which are dependent on AI algorithms and educational robots have provided the necessary support in many teaching and learning (T&L) activities. Early AI systems were limited in their ability to generate personalized learning content and thoroughly evaluate the performance related to complex cognitive processes based on prior studies although it was evident that certain AI tools have greatly assisted the T & L experience (Zawacki-Richter et al. 2019). AI was mainly used to ease the tasks such as teaching and assessment tasks which comprise of intelligent learning systems and automatic scoring tools prior to the advent of generative AI in education (Wang, 2021). Docebo is an AI-powered learning management system (LMS) which provides personalized learning has numerous AI capabilities to provide the necessary support for T & L activities (Leh, 2022). iFlyTek provides intelligent assessment systems to cater to different grading scenarios and is used in the national college entrance examination in China (iFlyTek, 2024). To further enhance the learning experience of foreign language learners, advance and sophisticated AI systems is fully utilized by Duolingo a popular language learning platform (Bicknell et al., 2023). According to Costello (2023), the education field has been revolutionized by the emergence of generative AI such as ChatGPT. The most apparent change is the enhanced efficiency and flexibility in the development of personalized learning and content creation. These AI tools are capable of handling complex tasks such as creative writing and programming and are also able to generate images and text which result in better efficiency and ease. On January 10, 2025 another powerful AI tool is DeepSeek was released. DeepSeek-R1, its reasoning model, was also released in late January 2025. the success of DeepSeek models was mainly attributed by several key factors, which include innovative architectural designs, optimized training pipelines, and strategic use of computational resources (Deng et.al, 2025). DeepSeek offers high inference speed, low computational power consumption, strong task adaptability, and open-source features which greatly benefit educational institutions faced with a shortage of resources.

The emergence of new technology and the change it has brought to the world has become more apparent in the past decade. The field of education particularly the T & L experience has been elevated with the use of AI as it has become more evident that technology has a tremendous impact on almost every aspect of life (Shan, 2024). The role of technology and the way it greatly enhances the learning experience has led to much of the development experienced by society. Hence, it is pertinent to inculcate a mindset to embrace the use of technology and lifelong learning particularly learning to use new AI tools to assist and making life more efficient. AI and gamification have a positive influence on language learning particularly on student engagement and motivation (Salmanova, 2025). Learners regardless of background should possess the ability to harness the use of AI by embracing the use of technology to be able to gain a competitive edge and become an invaluable asset to the nation in the near future (Kushwaha, 2024). A concerted approach should be taken by the educators and the administrations to achieve this end. It is an undeniable fact that possessing the knowledge of these AI tools will make individuals become employable in the future as these AI tools are fast gaining popularity due to its ability to enhance efficiency and lowering cost (Babu, 2024).

Motivation and engagement can be increased through gamification and does not necessarily refer to digital or computer-based games. The integration of content knowledge, literacy, and 21st-century learning skills in a fun and appealing way is found in gamification. The perspective to attract and motivate individuals to face specific challenges and the application of game mechanics, aesthetics, and has been defined as gamification (Gomez, 2024). Gamification can be implemented in any learning or work process in the form of a game and it does not necessarily involve electronic devices or video games. It has been revealed that there are favorable effects of gamification in teaching and learning processes since the integration of gamification in the field of education (Inigo, 2023). With the inclusion of gamification in the classroom, the role of the teacher is someone who plays the role of a facilitator of learning whose purpose is to intentionally involve students in direct experiences to develop skills and increase knowledge, focusing on developing the interests and needs of the students (Tas, 2023). The teacher is no longer the expert who has the knowledge and transmits it to the students as the inclusion

of gamification in the classroom led to significant effects on teachers' conceptions of teaching and assessment methods. The students will experience heightened motivation in what they do, increased levels of engagement in learning and achieve better results in skill development while having fun through the use of gamification in the classroom (Wulan, 2024).

Benefits of Artificial Intelligence (AI) and Gamification in Language Learning

Personalised Learning

Games are created to cater to the different language proficiency level, learning styles and preferences of the language learners. In a physical classroom setting, language learners often face anxiety especially when there are other proficient language learners. However, when language learners are engaged in AI-generated games they can select the level of proficiency they are most comfortable with (Yujia, 2025). This personalized learning experience is the primary attraction of AI-generated games. Each learner is unique and has his own learning style. AI-generated games are created to suit the learning preference of the learner (Onyebuchi, 2024). AI offers personalized, adaptive learning experiences by adapting the gamified content while gamification provides the motivational aspects of games, promotes social interaction while promoting collaborating in its virtual environments. The dynamic combination leads to a revolution in the field of education by producing innovative strategies which leads to an engaging, personalized process for developing vital competencies (Abes, 2024).

Immersive Learning, Enhanced Motivation and Engagement

The learners are engrossed with playing the game. However, they are also improving their language proficiency at the same time. The games have been created to evoke enthusiasm and heighten motivation (Garris, 2002). Games are usually created with one ultimate goal which is to win. To achieve this end, each player must go through several obstacles and in the case of language learning, the players must solve language-related problems. The one primary element that promotes active engagement is that games are generally created with an element of fun (Ambikapathy, 2024). It is human nature to prefer fun and enjoyment. AI and gamification have successfully integrated all these elements: learning, challenge and enjoyment. Important skills like creativity, collaboration, and critical thinking in education are the result of the convergence between gamification and artificial intelligence (AI) (Chandrakant, 2023). Other skills such as creativity, collaboration, communication, and critical thinking are other by-products of this integration. Game elements found in gamification not only enhance motivation, skill acquisition but also engagement (Ardi, 2022).

Challenges of Artificial Intelligence (AI) and Gamification in Language Learning

Reduced Human Interaction and Distraction Risks

Unfortunately, many people have become victims to gaming addiction. Another downside of this type of addiction is becoming anti-social and lacking in communication skills. The players are often immersed in their own gaming world that they prefer to be indoors and not socialize with others and engage in physical and social activities (Kaya et.al, 2023). Gen-Z are also well-known for their lack of communication skill. Being born in the digital era where I pads and mobile phones are their trusted companions, have led to a generation of youngsters that lack the skill to communicate with others around them (Peredy, 2024). In addition, most individuals also face academic decline as their gaming obsession has tragically clouded their judgement which led them to become distracted and neglect their studies. Moreover, they also face health-related issues. Obesity is on the rise as well as depression and anxiety (Mohamad, 2023). These unfortunate individuals face physical and mental health issues. Since most of them prefer to stay indoors they become obese and get diabetes and other diseases. Besides that, since they lack social interaction, they become reclusive which leads to depression, anxiety and overthinking.

Cognitive Overload

Completely immersed in the game. They will become obsessed with the games (Chou, 2024). Generally, most individuals have not learnt to master the need for prioritizing important tasks. Moreover, they will become totally engrossed in playing the game particularly on scoring higher points in the game. Games are mostly created to

evoke excitement, curiosity, and serve to challenge the players (Kiraly, 2022). Generally, it is human nature to want to win and achieve the satisfaction and savour the thrill of winning or overcoming an obstacle. Games have been incorporating all these elements particularly immersion, to entice the players to continuously play the game (Fatima, 2023).

Data Privacy

When gamers are logged into a game, normally their personal data is stored in the system. This is an open invitation for unscrupulous people to misuse the data (Debastuti, 2022). This explains the rise in cybercrime (Singh, 2022). Companies providing the gaming services should be held accountable for any misuse of data or data mining (Daniel, 2019). Identity theft, hacking of bank accounts and also personal information for financial gains are some of the examples of an invasion of data privacy (Jayavanti, 2024). This will have long-term impact on the society.

Challenges to Educators

With the integration of gamification and learning, the teacher will face new challenges (Nikoleta, 2020). Identifying in advance the interests and needs of the students, thinking about interaction dynamics that allow maintaining motivation, and opening the possibility of developing other skills, beyond those foreseen in the curricula of a specific area are several challenges faced by teachers when designing gamification in the classroom (Elina, 2022). Moreover, gamification can appear as a way of trivializing learning and pose as a distraction if it is not implemented well (Castellano, 2024).

Future of AI and Gamification in Language Learning

The addition of AI to gamification only amplifies its potential as a promising strategy for promoting skill development. This can be achieved as AI can not only enhance gamified learning experiences, AI can also offer dynamic and personalized adaptations that consistently present challenges to students while developing their skills.

Take for instance, student performance can be analysed in real-time and this enables AI to adjust the level of intensity or difficulty. Consequently, this will ensure that students are performing at their best and according to their capability. Ultimately, this will have a significant effect on the level of motivation and engagement of the students. In addition, the assessment of skills will be revolutionized by the use of AI within gamified environments. Complex patterns of student behavior during gameplay can be studied by machine learning algorithms. This is made possible as AI is able to provide insights into skill development that might be challenging for human observers to identify. In a nutshell, AI is able to develop a more accurate and comprehensive assessments of 21st-century skills.

Nevertheless, there remain certain challenges with the integration of AI in gamification. For instance, advanced AI-enhanced gamified learning can be accessed by certain students rendering them an advantage over those without the access. Consequently, this will create a digital chasm. Furthermore, it is imperative that learning objectives align with game mechanics as the presence of AI will make it more complex. Thus, careful design is required to ensure that pedagogical goals are consistently supported by AI-driven adaptations (Kingsley & Grabner-Hagen, 2015)/

Recommendations for Future Research

It is recommended that future research on AI and gamification should put more emphasis on increasing user engagement, skill acquisition, creating more immersive and deeply personalized experiences, ethical data usage, and the long-term impact on social behaviours and cognitive aspects of users in education.

CONCLUSION

Teachers, instructional designers, and policymakers seeking to prepare students for future challenges through leveraging gamification and AI in fostering 21st-century skills would find the findings of this paper invaluable.

By applying game mechanics (points, badges, leaderboards) to non-game contexts, powered by AI's ability to adapt, predict, and customize in real time highly engaging, personalized, and interactive experiences when AI and gamification are combined. Ultimately, user motivation in education, training, and marketing will be enhanced with the integration of AI and gamification. It is evident that the difficulty level and content in real-time can be adjusted as AI is able to analyse user behaviour which prevents boredom and frustration. Furthermore, this integration of AI and gamification will increase motivation and participation of users. Besides, AI is able to create personalized education and skill training as it is able to monitor user progress and feedback to provide tailored experiences. In the education field, this will directly improve educational outcomes as the adaptive learning platforms adjust to student pace and skill levels to produce a better learning experience.

REFERENCES

1. Abbes, Ferial & Bennani, Souha & Maalel, Ahmed. (2024). Generative AI and Gamification for Personalized Learning: Literature Review and Future Challenges. *SN Computer Science*. 5. 10.1007/s42979-024-03491-z.
2. Ambikapathy, M., Abdul Hamid, M. K., & Mohd Sukor, M. A. A. (2024). Impact of Gamification on Student Motivation and Engagement. *Environment-Behaviour Proceedings Journal*, 9(SI21), 11–20. <https://doi.org/10.21834/e-bpj.v9iSI21.6076>
3. Ardi, Priyatno; Rianita, Elvira (2022) Leveraging Gamification into EFL Grammar Class to Boost Student Engagement, *Teaching English with Technology*, v22 n2 p90-114 2022, <http://www.tewtjournal.org> 90
4. Babu, Nirupama & Marda, Keshav & Mishra, Abhishek & Bhattar, Saahil & Ahluwalia, Anshika & Services, Edupub. (2024). The Impact of Artificial Intelligence in the Workplace and its Effect on the Digital Wellbeing of Employees. *Journal for Studies in Management and Planning*. 10. 1-32. 10.5281/zenodo.10936348.
5. Bicknell, K., Brust, C., & Settles, B. (2023). How Duolingo's AI learns what you need to learn. *IEEE Spectrum*. <https://spectrum.ieee.org/duolingo>
6. Castellano-Tejedor, C., & Cencerrado, A. (2024). Gamification for Mental Health and Health Psychology: Insights at the First Quarter Mark of the 21st Century. *International Journal of Environmental Research and Public Health*, 21(8), 990. <https://doi.org/10.3390/ijerph21080990>
7. Chandrakant, S.M (2023) Gamified learning and NLP: Enhancing student engagement through AI-driven interactive education models. *International Journal of Science and Research Archive*, 2023, 09(01), 813-824. <https://doi.org/10.30574/ijsra.2023.9.1.0496>
8. Chou, Ting-Jui & Ting, Chih-Chen. (2004). The Role of Flow Experience in Cyber-Game Addiction. *Cyberpsychology & behavior : the impact of the Internet, multimedia and virtual reality on behavior and society*. 6. 663-75. 10.1089/109493103322725469.
9. Costello, E. (2023). ChatGPT and the educational AI chatter: Full of bullshit or trying to tell us something? *Postdigital Science and Education*. <https://doi.org/10.1007/s42438-023-00398-5>
10. Daniel L. King, Paul H. Delfabbro, Sally M. Gainsbury, Michael Dreier, Nancy Greer, Joël Billieux (2019) Unfair play? Video games as exploitative monetized services: An examination of game patents from a consumer protection perspective, *Computers in Human Behavior*, Volume 101, Pages 131-143, ISSN 0747-5632, <https://doi.org/10.1016/j.chb.2019.07.017>. (<https://www.sciencedirect.com/science/article/pii/S0747563219302602>)
11. Debastuti Dasgupta and Soumyadeep Sarkar *International Journal of Advanced Mass Communication and Journalism* 2022; 3(2): 38-47 Privacy: A myth in online gaming? DOI: <https://doi.org/10.22271/27084450.2022.v3.i2a.49>
12. Deng, Z., Ma, W., Han, Q.-L., Zhou, W., Zhu, X., Wen, S., & Xiang, Y. (2025). Exploring DeepSeek: A survey on advances, applications, challenges and future directions. *IEEE/CAA Journal of Automatica Sinica*, 12(5), 872–893. <https://doi.org/10.1109/JAS.2025.125498>
13. Elina Jääskä, Jere Lehtinen, Jaakko Kujala, Osmo Kauppila (2022) Game-based learning and students' motivation in project management education, *Project Leadership and Society*, Volume 3, ISSN 2666-7215, <https://doi.org/10.1016/j.plas.2022.100055>. (<https://www.sciencedirect.com/science/article/pii/S2666721522000151>)

14. Fatima, Anam & Iqbal, Muhammad Waseem & Hussain, Dilawar & Irfan, Danish & Aqeel, Muhammad & Akram, Sheeraz. (2023). USABILITY IMPACTS OF IMMERSION-BASED ONLINE TASK-ORIENTED GAMES ADDICTION IN YOUTH. *Jilin Daxue Xuebao (Gongxueban)/Journal of Jilin University (Engineering and Technology Edition)*. 42. 24. 10.17605/OSF.IO/5R4MF.
15. Garris, Rosemary & Ahlers, Robert & Driskell, James. (2002). Games, Motivation, and Learning: A Research and Practice Model. *Simulation & Gaming*. 33. 441-467. 10.1177/1046878102238607.
16. Gómez Niño, J. R., Arias Delgado, L. P., Chiappe, A., & Ortega González, E. (2024). Gamifying Learning with AI: A Pathway to 21st-Century Skills. *Journal of Research in Childhood Education*, 1–16. <https://doi.org/10.1080/02568543.2024.2421974>
17. Goh, Y.-S. (2017). The Spread of Mandarin as a Global Language. In *Teaching Chinese as an International Language: A Singapore Perspective* (pp. 1–17). chapter, Cambridge: Cambridge University Press.
18. iFlyTek. (2024). From holding the “red pen” to holding the “mouse”: The technological revolution behind the college entrance examination marking. <https://edu.iflytek.com/solution/examination>
19. Iñigo Aldalur, Alain Perez (2023) Gamification and discovery learning: Motivating and involving students in the learning process, *Heliyon*, Volume 9, Issue 1, ISSN 2405-8440, <https://doi.org/10.1016/j.heliyon.2023.e13135>.
(<https://www.sciencedirect.com/science/article/pii/S2405844023003420>)
20. Jayavanti A K, Sanjana R (2024) JNRID || ISSN 2984-8687 || © November 2024, Volume 2, Issue 11 JNRID2411011 JOURNAL OF NOVEL RESEARCH AND INNOVATIVE DEVELOPMENT | JNRID.ORG a98 An Analysis On The Impact Of Online Gaming In Data Privacy And Determination Of Liability In Case Of Data Breach
21. Kaya, A., Türk, N., Batmaz, H., & Griffiths, M. D. (2023). Online Gaming Addiction and Basic Psychological Needs Among Adolescents: The Mediating Roles of Meaning in Life and Responsibility. *International journal of mental health and addiction*, 1–25. Advance online publication. <https://doi.org/10.1007/s11469-022-00994-9>
22. Kingsley, T. L., & Grabner-Hagen, M. M. (2015). Gamification. *Journal of Adolescent & Adult Literacy*, 59(1), 51-61. <https://doi.org/10.1002/jaal.426>
23. Király, O., Billieux, J., King, D. L., Urbán, R., Koncz, P., Polgár, E., & Demetrovics, Z. (2022). A comprehensive model to understand and assess the motivational background of video game use: The Gaming Motivation Inventory (GMI). *Journal of behavioral addictions*, 11(3), 796–819. <https://doi.org/10.1556/2006.2022.00048>
24. Kushwaha, Abhiram & Kushwaha, Ravindra & Ahmad, Sarfaraz. (2024). Transforming Learning: The Power of Educational Technology.
25. Leh, J. (2022). AI in LMS: 10 must-see innovations for learning professionals. *Talented Learning*.
26. Mohammad, S., Jan, R. A., & Alsaedi, S. L. (2023). Symptoms, Mechanisms, and Treatments of Video Game Addiction. *Cureus*, 15(3), e36957. <https://doi.org/10.7759/cureus.36957>
27. Nikoletta-Zampeta Legaki, Nannan Xi, Juho Hamari, Kostas Karpouzis, Vassilios Assimakopoulos (2020) The effect of challenge-based gamification on learning: An experiment in the context of statistics education, *International Journal of Human-Computer Studies*, Volume 144, ISSN 1071-5819, <https://doi.org/10.1016/j.ijhcs.2020.102496>.
(<https://www.sciencedirect.com/science/article/pii/S1071581920300987>)
28. Onyebuchi, Nneamaka & Olusola, Ayeni & Hamad, Nancy & Osawaru, Blessing & Adewusi, Ololade. (2024). AI in education: A review of personalized learning and educational technology. *GSC Advanced Research and Reviews*. 18. 261-271. 10.30574/gscarr.2024.18.2.0062.
29. Peredy, Zoltán & Vigh, László & Qiongyu, Wei & Muiyi, Jiang. (2024). Analysing Generation Z Communication Attitudes, Values and Norms. *Acta Periodica*. XXX.. 4-19. 10.47273/AP.2024.30.4-19.
30. Salmanova, Shehla. (2025). Gamification and AI in Language Learning – A New Era of Digital Education. *Acta Globalis Humanitatis et Linguarum*. 2. 262-269. 10.69760/aghel.02500134.
31. Shan Wang, Fang Wang, Zhen Zhu, Jingxuan Wang, Tam Tran, Zhao Du (2024) Artificial intelligence in education: A systematic literature review. *Expert Systems with Applications*, Volume 252, Part A, ISSN 0957-4174, <https://doi.org/10.1016/j.eswa.2024.124167>.
(<https://www.sciencedirect.com/science/article/pii/S0957417424010339>)

32. Singh, Anita & Kulshrestha, Pradeep & Gautam, Ritu. (2022). Cyber Crime, Regulations and Security - Contemporary Issues and Challenges. 10.55662/CCRSbook.2022.
33. Tang, K.-Y., Chang, C.-Y., & Hwang, G.-J. (2023). Trends in artificial intelligence-supported e-learning: A systematic review and co-citation network analysis (1998–2019). *Interactive Learning Environments*, 31(4), 2134–2152. <https://doi.org/10.1080/10494820.2021.1875001>
34. Tas, Nurullah & Bolat, Yusuf & Publication, Istes. (2023). Digital Games and Gamification in Education.
35. Wang, X. (2021). Research on the application of AI technology in computer-assisted instruction. *Journal of Physics: Conference Series*, 1992, Article 022030. <https://doi.org/10.1088/17426596/1992/2/022030>
36. Wulan, Dyah & Nainggolan, Daniel & Hidayat, Yasysyar & Rohman, Taufikur & Fiyul, Arfiani. (2024). Exploring the Benefits and Challenges of Gamification in Enhancing Student Learning Outcomes. *Global International Journal of Innovative Research*. 2. 1657-1674. 10.59613/global.v2i7.238.
37. Yujia Hong, Nadira Saab, Wilfried Admiraal (2025) EFL university students' game element preferences and learning needs: Implications for the instructional design of digital gamified classes, *System*, Volume 131, ISSN 0346-251X, <https://doi.org/10.1016/j.system.2025.103670>. (<https://www.sciencedirect.com/science/article/pii/S0346251X25000806>)
38. Zhang, K., & Aslan, A. B. (2021). AI technologies for education: Recent research and future directions. *Computers and Education: Artificial Intelligence*, 2, Article 100025. <https://doi.org/10.1016/j.caeai.2021.100025>
39. Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – Where are the educators? *International Journal of Educational Technology in Higher Education*, 16, Article 39.