

Game-Based Learning With Traditional Games: Integration of Local Wisdom to Strengthen Character Education

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Abstract

Traditional games are one of the Indonesian cultural that are full of local values. The values of local wisdom reflect the values, knowledge, and practices that are passed down from generation to generation and show the cultural identity of the local area that is constructively able to face increasingly dynamic global developments. The rapid development of technology poses challenges for everyone to be adaptive and to provide solutions in responding to every change and problem that has never been faced before. The integration of local wisdom of traditional games in learning can be a learning innovation that strengthens students' character as a provision to face global challenges. The aim of this research is to explore the use of traditional games in a game-based learning approach as a way of integrating local wisdom with character education. This research employed a literature review using ScienceDirect and Google Scholar search engine. The review includes 27 articles published in 2014-2024. The study found four study themes, namely Game-Based Learning (GBL); Traditional Games; Local Wisdom Approach in Learning, and Strengthening Character Education. The use of traditional games in learning includes aspects of physical and spiritual health, child growth and development, as well as religious values, integrity, collaboration, sportsmanship, togetherness, responsibility, and others that are positive in forming children's character.

Keyword: game-based learning (GBL), local wisdom approach in learning, strengthening character education, traditional games

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Introduction

The rapid expansion of the modern era poses challenges in the field of education, necessitating innovations in learning methods. According to the Organization for Economic Co-operation and Development (OECD), we are currently confronted with mega-challenges such as climate change, the impact of Artificial Intelligence (AI) and technological innovations, mass migration, and global taxation. The education sector faces significant challenges in designing learning experiences to prepare students for jobs that have never existed, the use of technologies that have never been encountered before, or solving social problems that were previously unimaginable (Taguma & Frid, 2024). Curriculum adaptation is essential to ensure alignment between educational content and the demands of society, which are influenced by technology (Asmayawati et al., 2024). The integration of local wisdom can serve as a strategy for empowering character education and act as an educational innovation by optimizing educational institutions as facilitators of this innovation. Internal institutions that can support the implementation of educational innovation include students, teachers, and management teams (Sánchez & Gutiérrez-Esteban, 2023). This integration of local wisdom can be a step toward aligning local wealth to face global society.

The rapid technological advancements in recent years have led to an increased need for students to develop lifelong learning skills that will enable them to adapt to the workforce (Smith et al., 2022). Students must develop skills such as critical thinking, problem-solving, creativity, active learning, collaboration, and teamwork to live and work in the future (Videnovik et al., 2024). In response to these needs, teachers need to prepare adaptive pedagogical strategies to spark students' interest, motivation, and enthusiasm for learning. Teachers, as educators, can use Game-Based Learning (GBL) strategies, especially for digital native generations who are characterized by relatively short attention spans and a preference for exploration over traditional lecture-based learning. Several studies on GBL show that this strategy, which incorporates game concepts into education, and the integration of traditional games, can influence the formation of character traits such as discipline and honesty (Atmaji, 2019; Liu et al., 2020; Winardy & Septiana, 2023). Local wisdom embedded in traditional games in Indonesia carries moral values that equip students with social skills such as working together in teams and facing rapidly evolving global challenges. Traditional game experts Mohamad Zaini Alif and the Hong Community have researched 2,600 traditional games across Indonesia, and these games play a significant role in promoting moral values, teachings, attitudes, beliefs, norms, and behaviors that are deeply embedded in the societal belief systems (Alif & Community, 2023). This local wisdom can significantly contribute to character education through learning.

Special attention to character education is necessary to ensure that students have a strong identity to face the increasingly competitive global environment. Character education serves as the foundation of a nation, in building individuals who are creative, religious, innovative, and have a broad national perspective (Arif et al., 2023). The character developed is expected to address educational problems in Indonesia, such as bullying, sexual harassment, intolerance, and mental health issues (Juliansen et al., 2024; Septiana & Afifah, 2022). These issues faced by Indonesian youth must be urgently addressed as this generation is expected to be the golden generation and demographic bonus for Indonesia's future. Therefore, the urgency of this research on educational innovation through GBL with traditional games becomes an effort to strengthen character education with local wisdom that can be used to face increasingly complex issues. This effort aims to create a sustainable lifestyle, uphold human rights, promote gender equality, support peace and anti-violence campaigns, and build

global citizenship and multiculturalism principles while considering cultural contributions to sustainable development (Bappenas, 2024).

Method

Research Approach

This study employed a qualitative approach with a literature review methodology. A literature review aims to map and analyze the existing intellectual domains and determine the research questions for further development of the existing body of knowledge (Guler, 2019). The intellectual domains covered in this study include the integration of traditional games into Game-Based Learning (GBL) in character education. This research focused on reviewing scholarly articles published between 2014 and 2024. This approach was chosen because it allows the researcher to understand and summarize trends, findings, and gaps in the existing literature, which can help formulate relevant learning strategies in the current context.

The data sources for this research were scientific articles obtained from two main search engines: ScienceDirect and Google Scholar. These search engines were selected for their wide access to quality international and national journals that are relevant to the research topic. The researcher conducted searches using keywords such as “traditional game in education,” “local wisdom in education,” and “character education.” A total of 27 articles considered relevant to the research topic were selected for in-depth analysis.

The data collected from the 27 articles were analyzed using thematic analysis. This analysis aimed to identify the main themes emerging from the articles and determine the relationships between these themes. The process of analysis involved several steps: initial reading, grouping themes, and data synthesis.

Findings and Discussion

Findings

Based on the findings from the 27 selected articles, this study identified four major themes: Game-Based Learning (GBL), Traditional Games, the Local Wisdom Approach in Learning, and Strengthening Character Education. These themes are explained in detail as follows:

Game-Based Learning (GBL)

The concept of "games" should be understood as an existential phenomenon, as play is inseparable from human culture and represents an activity that does not produce a product (either material or ideal), except in business games and design (Shalaev et al., 2019). This explanation underlines that games can also be used in education as a strategy to achieve educational goals. The concept of play in learning is known as the Game-Based Learning (GBL) approach. Learning through games is one of the oldest and most effective pedagogical ideas, based on the use of video games and game-related elements such as reality, content, subjects, and visuals in the educational process (Liu et al., 2020; Raybourn, 2014; Ucus, 2015). The literature related to GBL is summarized in Table 1 below.

Table 1*Major Potential Issues Associated With GBL*

No	Author	Country	Research Focus	Research Result
1	(Mansoor & Nugraha, 2021)	Indonesia	An effort to preserve one of traditional scripts that exist in Indonesia	Educational games with the memory game genre can help improve children's mastery of the lontara script
2	(Pramono et al., 2021)	Indonesia	The implementation of thematic games for children's education	The efficiency of the game showed that there was an increase in child socio-physical expertise and skills, as well as changes in learning models for children and assessment models by the teacher.
3	(Cheong et al., 2014)	Australia	The development of a game-like learning system	Students favored social interaction, engagement, feedback, and increased learning, which suggests that gamification is particularly suited to learning approaches such as social constructivism.
4	(Crocco et al., 2016)	n/a	Conducted on the efficacy of GBL offer mixed results	Games increased reported enjoyment levels, especially in subjects where students reported the greatest anxiety about learning, and this increase in enjoyment correlated positively with improvements in deep learning and higher-order thinking.
5	(Hsiao et al., 2014)	Taiwan	How different instructional strategies (i.e., traditional instruction and instruction using digital games) affected the students' creativity and their performance on manual skills	There were three interesting findings related to the use of DGBL: (1) the ToES was an effective learning tool for cultivating the students' creativity; (2) there was a positive effect of creativity and their performance of manual skills; and (3) the ToES accelerated the improvement of practical behaviors regarding manual skills
6	(Huizenga et al., 2017)	Netherlands	The perceptions of teachers who actually used digital games in their teaching and investigate what they see as the games' effects on learning and motivation	Most teachers who actually use games in class perceived student engagement with a game and cognitive learning outcomes as effects of the use of games in formal teaching settings. Fewer teachers mentioned motivational effects of learning with digital games

7	(Lester, et al., 2014)	n/a	The design of the Crystal Island learning environment	Crystal Island produced significant learning gains on both science content and problem-solving measures. Importantly, gains were consistent for gender across studies
8	(Hussein et al., 2019)	n/a	To classify learning outcomes from studies of DGBL applications in the area of elementary science education	Promising potential of DGBL, particularly in the area of content understanding. However, the finding of the review also suggest that there is a need to provide additional research in order to gain a more comprehensive picture of the educational effectiveness of DGBL
9	(Ucus, 2015)	Turkey	To understand elementary school teachers' views on GBL related to elementary school courses	GBL activities were exemplified as e-learning activities, creative drama activities, digital games, values education and character education.
10	(Anastasiadis et al., 2018)	n/a	Students' new needs and requirements for more interactive and engaging learning experiences and analyzes the concept and the impact of serious games in education	The characteristics and features of serious games and the significance of motivation in students' learning procedure. It analyzes the digital game-based learning approach and presents some of its benefits
11	(Tokac et al., 2019)	n/a	The effects of learning video games on mathematics achievement of PreK-12th-grade students compared with traditional classroom instructional methods	Video games are a slightly effective instructional strategy for teaching mathematics across PreK-12th-grade levels
12	(Shi & Shih, 2015)	Taiwan	Macro design concepts that elucidates 11 crucial game-design factors	clearly define each factor and analyze the relationships among the 11 factors to construct a game-based learning design model. Two application examples are analyzed to verify the usability of the model and the performance of these factors. It can assist educational game designers in developing interesting games

Several studies mentioned above show that GBL contributes positively to improve students' academic achievements, both in cognitive areas and practical skills. GBL has been proven to be effective in enhancing content understanding and problem-solving abilities in the context of science education and also affects the improvement of mathematics skills, although the effect size is moderate (Hussein et al., 2019; Lester et al., 2014; Tokac et al., 2019). The study by Hsiao et al. (2014) emphasized that GBL can enhance students' creativity and manual skills. GBL is also utilized as culture-based learning and thematic character education, thus functioning as a medium for transmitting cultural and national character values (Mansoor &

Nugraha, 2021; Pramono et al., 2021). Several studies highlight that GBL can increase student engagement and motivation through feedback, social interaction, and various challenges in the games (Anastasiadis et al., 2018; Cheong et al., 2014; Huizenga et al., 2017).

GBL has become a transformative tool in education and an innovative pedagogical approach. Literature evidence strengthens the notion that GBL is effective in enhancing learning, 21st-century skills, and student engagement (Liu et al., 2020; Smith et al., 2022; Videnovik et al., 2024). However, the success of GBL implementation may depend on well-designed games, teacher support, and contextualization within the local culture and curriculum (Huizenga et al., 2017; Shi & Shih, 2015; Ucus, 2015).

Traditional Games

Traditional games fall within gamification in learning because their implementation involves elements of game mechanics, aesthetics, and thinking to attract and motivate students in solving specific problems (Liu et al., 2020). Traditional games give children the freedom to develop their creativity by making game tools and combining them with materials available in their surroundings, such as seeds, shells, and other materials (Rahmawati, 2010). Traditional games in learning can serve as an enjoyable alternative to learning and can help improve children's mastery of their local culture (Asrial et al., 2022; Mansoor & Nugraha, 2021). The literature findings in this study are presented in Table 2 below.

Table 2

Major Potential Issues Associated With Traditional Game

No	Author	Country	Research Focus	Research Result
1	(Asrial et al., 2022)	Indonesia	Integrate the traditional games of Petak Umpet into learning process.	The integration of traditional games in learning can be used as an alternative to fun learning and in accordance with the age of elementary school children.
2	(Hendrowibowo et al., 2018)	Indonesia	The implementation of character education based on traditional games	Show that the implementation of character education based on traditional games in the three kindergartens is different from one another, character values are internalized through several traditional games, namely gobak sodor; cublak-cublak suweng; dakon; jamuran and engklek or sundamanda, character education based on workable traditional becomes a character education model in kindergarten.
3	(Ali et al., 2021)	Indonesia	Study and analyze about the traditional games that can be played in-home environment that can help early childhood social development	Some traditional games can be introduced from early childhood in the family environment to introduce traditional games and children's social development

4	(Mahfud et al., 2023)	n/a	Conduct a literature review on game strategies in developing students' self-control.	Game strategy can be used as a medium to develop self-control in self-control students. This includes behavioral control, cognitive control, and decision control
5	(Bazaz et al., 2018)	Iran	Assessing the effects of traditional games on preschool children's social development and emotional intelligence.	Traditional games are effective in improving preschool children's social development and emotional intelligence
6	(Hasanah, 2018)	Indonesia	Describe the type and characteristics of traditional games in nonformal educational institution and to describe the character values contained in traditional game Kaulinan Barudak Lembur for children learnig.	Cultural literacy through the Kaulinan Barudak Lembur is able to develop the values of character education, such as religious value, cooperation value, responsible value, honesty value, caring value, selfconfidence value and curiosity value.

The literature on traditional games primarily comes from research in Indonesia. Traditional games in Indonesia, such as "petak umpet" and "Kaulinan Barudak Lembur," have been proven to contain character-building values, such as religiosity, cooperation, responsibility, honesty, caring, curiosity, and self-confidence (Asrial et al., 2022; Hasanah, 2018). Other traditional games, such as "gobak sodor," "cublak-cublak suweng," "dakon," and "engklek," can serve as adaptive models for character education in kindergarten, although their implementation varies depending on the institutional context (Hendrowibowo et al., 2018). Based on the above literature, traditional games have proven to possess high educational value, such as character development, emotional regulation, strategy-making or decision-making skills, and cooperation (Ali et al., 2021; Bazaz et al., 2018; Mahfud et al., 2023). These studies indicate that traditional games are relevant to both formal and non-formal education systems as an effort to preserve culture while simultaneously strengthening children's character values.

The Local Wisdom Approach in Learning

Traditional games, when integrated into a game-based learning approach, become one of the strategies for internalizing local wisdom. This strategy can internalize elements of local wisdom while also integrating character values such as creativity, perseverance, responsibility, love of knowledge, honesty, politeness, wisdom, and cooperation (Asmayawati et al., 2024). Literature findings related to this can be seen in the following Table 3.

Table 3

Major Potential Issues Associated With Local Wisdom Approach in Learning

No	Author	Country	Research Focus	Research Result
1	(Baharun, 2017)	Indonesia	Character education model developed by pesantren and offers an alternative perspective of the development of character education	The model of character education in pesantren is carried out through a multi-disciplinary approach so as to provide maximum results for the development of character education

2	(Asmayawati et al., 2024)	Indonesia	Investigates the relationship between Pedagogical Innovation (PED), Curricular Adaptation (CUR), Local Wisdom Approach (LWA), and Digital Literacy (DIGLI) in Early Childhood Education	The main findings reveal significant impacts of PED and CUR on both the LWA and DIGLI. Moreover, the LWA mediates the relationships between PED and DIGLI, as well as CUR and DIGLI.
3	(Hidayati et al., 2020)	Indonesia	Investigating the strategies for implementing local wisdom-based character education among Indonesian higher education students by focusing on the values stated in Jamus Kalimasada book of Samin Community.	Teaching character education in the higher education based on local wisdom could be conducted by integrating values and aesthetics in the course, internalizing positive values to students, habituation and training, providing example and model, creating characterized-situation based on local wisdom, and civilizing.
4	(Pornpimon et al., 2014)	Thailand	Application of local wisdom in primary school and application of local wisdom in primary school	The appropriate model in applying local wisdom in curriculum and learning and teaching development in elementary school included: 1) governmental and private sectors had to cooperate in promoting learning and teaching of community, 2) the Educational Institute and organization in community had to cooperate and support creativity of leaders and villager philosophers, 3) temple or church had to be the centre of local wisdom development, learning source, learning process, 4) the Educational Institute Administrators had to lead their local Education, motivate, encourage the family and community to be aware, and collaborate in learning process, and 5) for the teachers' role, they had to study their community as well as information and select the villager science combining with local wisdom emphasizing on local wisdom application. The strategy challenges of the local wisdom for sustainable use in schools were: 1) Leadership Approach, leadership-related wisdom was more likely to be displayed at the societal, and at the organizational levels through fulfilling visions, solving problems, and founding organizations. 2) Combination of humility and strong professional.

5	(Hidayati et al., 2020)	n/a	Etnopedagogy as a cultural activity and the culture of teachings	The values of local wisdom as a source of innovation in the field of culture-based education of local communities through social contacts that are educational pedagogical to the communicant, namely cognitive (know about something), affective (formation attitude), and conative (behavior, act to do something).
6	(Sugiyono & Purwastuti, 2017)	Indonesia	Developing the integrated character education model based on local wisdom in elementary schools in Bantul, Yogyakarta, Indonesia	(1) batik making on pottery piggy banks which integrates creativity, determination, and responsibility; (2) traditional song called "Cublak-cublak Suweng" integrating knowledge loving value, honesty, and responsibility; and (3) traditional game and song "Gundhul-gundhul Pacul" integrating some values such as modesty, carefulness, and cooperation.
7	(Suprpto et al., 2021)	Indonesia	The issue of Indonesian curriculum reform in policy and local wisdom.	curriculum policy and policy borrowing, philosophy of Indonesian local wisdom, cultural-based learning, science local wisdom and ethnoscience, and policy borrowing versus local wisdom.

Studies in Indonesia show that local wisdom is effectively used to strengthen character education (Baharun, 2017; Hidayati et al., 2020; Sugiyono & Purwastuti, 2017). Meanwhile, a study from Thailand provides cross-country insights that the implementation of local wisdom in primary schools requires collaboration from various sectors, such as educational institutions, community leaders, places of worship, and the active role of teachers (Pornpimon et al., 2014). Based on the above findings, the local wisdom approach in learning contributes to character education processes, cultural preservation, and serves as a bridge between tradition and modernity in the context of educational innovation and digital transformation. The success of this process depends on curriculum design, the role of teachers, and support from local communities.

Strengthening Character Education

The findings of studies on character education can be seen in Table 4 below.

Table 4***Major Potential Issues Associated With Strengthening Character Education***

No	Author	Country	Research Focus	Research Result
1	(Singh, 2019)	n/a	Identify and define the place of character education in education system reviewing of the Character Education Partnership's (hereafter CEP) eleven (11) principles of character education in the future	The Classroom/Activity-Based Character Education Program Implementation and finally the Models of Character Education: Perspectives and Developmental Issues, teaching Strategies and benefits of character education were also discussed
2	(Pattaro, 2016)	n/a	Exploratory research on the main tendencies in the international literature	character education can play an important role in the construction of children and adolescents' identity and can be a distinctive intervention for youth education and socialization

Based on the literature above, strengthening character education requires a systematic design based on proven principles and models. This design must be implemented through activities that are contextual and relevant to the students' lives. Strong character education can build a solid moral identity and good social skills. Character education emphasizes values or ideals, which is why it is categorized as a type of pedagogy known as idealist pedagogy. The definition of idealist pedagogy is a focus on teachings or values that are historical cornerstones (Koesoema, 2023). Koesoema (2023) explains in his book *Character Education: Strategies for Educating Children in the Global Era* that there are three dimensions that are considered important in conducting educational actions for achieving holistic education, namely individual, social, and moral dimensions. Therefore, innovations and creations in the field of education should consider these three dimensions to achieve integral reforms.

Discussion

The findings from the literature suggest that the Game-Based Learning (GBL) approach contributes positively to students' academic achievements, engagement in learning, and the character empowerment through the integration of traditional games based on local wisdom. This discussion elaborates on the comprehensive contribution of GBL in the three main dimensions of character education according to Koesoema (2023): individual, social, and moral dimensions, as well as its relevance to the context of pedagogical innovations based on local culture. GBL has proven effective in improving cognitive understanding and practical skills, including in the context of science and mathematics learning (Lester et al., 2014; Tokac et al., 2019). These findings confirm that game-based approaches can create a constructive and challenging learning environment, aligning with the spirit of idealist pedagogy that emphasizes the importance of meaningful values and learning experiences. Additionally, the enhancement of creativity, manual skills, and problem-solving, mediated by GBL, supports the formation of students' moral identity and reflective abilities (Cheong et al., 2014; Hsiao et al., 2014).

The integration of traditional games within GBL provides space for the preservation of local culture while also transmitting national character values. For example, games like *Kaulinan Barudak Lembur*, *gobak sodor*, *engklek*, and *cublak-cublak suweng* carry values such as

cooperation, honesty, responsibility, and self-confidence (Asrial et al., 2022; Hasanah, 2018). This shows that GBL with traditional games is not only a tool for improving academic outcomes, but also an instrument for building social morality in learning. In the context of digital transformation, GBL based on traditional games offers an approach that bridges local values with the demands of the 21st century. This aligns with the OECD Learning Compass 2030 framework, which emphasizes the balance between knowledge, skills, attitudes, and values. Traditional games, when contextualized digitally, can become an innovative strategy in strengthening students' character without losing their cultural roots.

Conclusion

The integration of GBL with traditional games offers significant opportunities to strengthen education in Indonesia. Traditional games are rich in local wisdom values that not only develop motor and social skills but also build character traits such as cooperation, creativity, responsibility, and sportsmanship. These local wisdom values are highly relevant in facing the increasingly dynamic and complex global challenges. This study demonstrates that through an ethnopedagogical approach, education can become more contextual and meaningful for students while contributing to the transmission of Indonesian culture. The use of PBL with elements of local wisdom from traditional games in education has been shown to enhance student engagement, learning motivation, and problem-solving skills, which are essential competencies for the 21st century.

Recommendations

This research opens up opportunities for future researchers to further investigate the integration of game-based learning with traditional games, to be applied at various educational levels. Future studies could focus on developing more comprehensive measurement tools to assess the impact of traditional games on character development. In addition, further exploration is needed regarding the use of digital technology to integrate traditional games into a more modern learning context, while still being able to internalize local wisdom amidst global developments.

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References

- Ali, M., Nugraha, H., & Aqobah, Q. J. (2021). Traditional Games and Social Skills of Children in The Pandemic Era. *JPSD*, 7(1), 105-117.
<https://doi.org/10.30870/JPSD.V7I1.10345>
- Alif, M. Z., & Community, H. (2023, April 02). Data of Indonesian People's Game. OLAHMAIN. https://olahmain.com/edumain-data-mainan-rakyat-indonesia/#flipbook-df_218/5/
- Anastasiadis, T., Lampropoulos, G., & Siakas, K. (2018). Digital Game-based Learning and Serious Games in Education. *International Journal of Advances in Scientific Research and Engineering (IJASRE)*, 4(12). <https://doi.org/10.31695/IJASRE.2018.33016>
- Arif, M., Abdurakhmonovich, Y. A., & Dorloh, S. (2023). Character Education in the 21st Century: The Relevance of Abdul Wahhab Ash Syarani's and Thomas Lickona's Concepts. *Islamic Review: Jurnal Riset dan Kajian Keislaman*, 12(1), 35-58.
<https://doi.org/10.35878/islamicreview.v12i1.690>
- Asmayawati, Yufiarti, & Yetti, E. (2024). Pedagogical innovation and curricular adaptation in enhancing digital literacy: A local wisdom approach for sustainable development in the Indonesian context. *Journal of Open Innovation: Technology, Market, and Complexity*, 10(1), 1-15. <https://doi.org/10.1016/j.joitmc.2024.100233>
- Asrial, A., Syahrial, S., Kurniawan, D. A., & Zulkhi, M. D. (2022). Response, Peace-Loving Characters and Homeland Love Characters: Integrating Traditional Game of Petak Umpet. *Jurnal Iqra: Kajian Ilmu Pendidikan*, 7(1), 275-294.
<https://doi.org/10.25217/ji.v7i1.2064>
- Atmaji, T. (2019). Interactive Learning Media Through Traditional Games to Strengthen Character Education. *Prosiding Seminar Nasional Manajemen Pendidikan*, 1(1), 329-337. <https://jurnal.ustjogja.ac.id/index.php/semnasmp/article/view/5542>
- Baharun, H. (2017). Total Moral Quality: A New Approach for Character Education in Pesantren. *Ulumuna: Journal of Islamic Studies*, 21(1), 57-80.
<https://doi.org/10.20414/ujis.v21i1.1167>
- Bappenas. (2024, April 02). Quality Education. SDGs Indonesia. <https://sdgs.bappenas.go.id/17-goals/goal-4/>
- Bazaz, S. B., Hasankala, Q. Y., Shojaee, A. A., & Unesi, Z. (2018). The Effects of Traditional Games on Preschool Children's Social. *Modern Care Journal*, 15(1), 1-5.
<https://doi.org/10.5812/modernc.66605>
- Cheong, C., Filippou, J., & Cheong, F. (2014). Towards the Gamification of Learning: Investigating Student Perceptions of Game Elements. *Journal of Information Systems Education*, 25(3), 233-244.

- Crocco, F., Offenholley, K., & Hernandez, C. (2016). A Proof-of-Concept Study of Game-Based Learning in Higher Education. *Sage Journals: Simulation & Gaming*, 47(4), 403-422. <https://doi.org/10.1177/1046878116632484>
- Guler, G. (2019). Data literacy from theory to reality: How does it look?. Vrije Universiteit Brussel.
- Hasanah, A. P. V. R. (2018). Traditional Game to Develop Character Values in Nonformal Educational Institution. *IJAEDU- International E-Journal of Advances in Education*, 4(10), 86-92. <https://doi.org/10.18768/ijaedu.415411>
- Hendrowibowo, L., Haryono, Raharjo, T. J., & Rusdarti. (2018). The Use of Traditional Games to Implement Character Education Policy in Kindergarten. *The Journal of Educational Development*, 6(3), 380-388. <https://doi.org/10.15294/jed.v6i3.25395>
- Hidayati, N. A., Waluyo, H. J., Winarni, R., & Suyitno. (2020). Exploring the Implementation of Local Wisdom-Based Character Education among Indonesian Higher Education Students. *International Journal of Instruction*, 13(2), 179-198.
- Hsiao, H-S., Chang, C-S., Lin, C-Y., Hu, P.-M. (2014). Development of children's creativity and manual skills within digital game-based learning environment. *Journal of Computer Assisted Learning*, 30(4), 377-395. <https://doi.org/10.1111/jcal.12057>
- Huizenga, J. C., Dam, G. T. M. t., Voogt, J. M., & Admiraal, W. F. (2017). Teacher perceptions of the value of game-based learning in secondary education. *Computers & Education*, 110, 105-115. <https://doi.org/10.1016/j.compedu.2017.03.008>
- Hussein, M. H., Ow, S. H., Cheong, L. S., Thong, M.-K., & Ebrahim, N. A. (2019). Effects of Digital Game-Based Learning on Elementary Science Learning: A Systematic Review. *IEEE Access*, 7, 62465-62478. <https://doi.org/10.1109/ACCESS.2019.2916324>
- Juliansen, A., Heriyanto, R. S., Muljono, M. P., Budiputri, C. L., Sagala, Y. D., & Octavius, G. S. (2024). Mental health issues and quality of life amongst school-based adolescents in Indonesia. *Elsevier: Journal of Medicine, Surgery, and Public Health*, 2, 1-11. <https://doi.org/10.1016/j.glmedi.2024.100062>
- Koesoema, D. (2023). Character Education: Strategies for Educating Children in the Global Age. Grasindo.
- Lester, J. C., Spires, H. A., Nietfeld, J. L., Minogue, J., Mott, B. W., & Lobone, E. V. (2014). Designing game-based learning environments for elementary science education: A narrative-centered learning perspective. *Elsevier: Information Science*, 264, 4-18. <https://doi.org/10.1016/j.ins.2013.09.005>
- Liu, Z.-Y., Shaikh, Z. A., & Gazizova, F. (2020). Using the Concept of Game-Based Learning in Education. *International Journal of Emerging Technologies in Learning*, 15(14), 53-64. <https://doi.org/10.3991/ijet.v15i14.14675>

- Mahfud, M., Susanto, N., Widyasari, R., Firdaus, F., & Witasari, R. (2023). Traditional Games as a Learning Strategy to Develop Students' Self-Control. *Qalamuna-Jurnal Pendidikan, Sosial, dan Agama*, 15(2), 667-674. <https://doi.org/10.37680/qalamuna.v15i2.3176>
- Mansoor, A., & Nugraha, A. A. (2021). Designing Educational Games as Learning Media for Lontara/Bugis Script for Children 7-8 Years old. *Journal of Games, Game Art, and Gamification*, 6(2), 67-74.
- Pattaro, C. (2016). Character Education: Themes and Researches. An Academic Literature Review. *Italian Journal of Sociology of Education*, 8(1), 6-30. <https://ijse.padovauniversitypress.it/2016/1/2>
- Pornpimon, C., Wallapha, A., & Prayuth, C. (2014). Strategy Challenges the Local Wisdom Applications Sustainability in Schools. *Procedia-Social and Behavioral Sciences*, 112, 626-634. <https://doi.org/10.1016/j.sbspro.2014.01.1210>
- Pramono, A., Pujiyanto, Puspasari, B. D., & Dhanti, N. S. (2021). Character Thematic Education Game “AK@R” of Society Themes for Children with Malang-Indonesian Visualize. *International Journal of Instruction*, 14(2), 179-196. <https://doi.org/10.29333/iji.2021.14211a>
- Rahmawati, E. (2010). Playing Fun Traditional Games. Multi Kreasi Satudelapan.
- Raybourn, E. M. (2014). A new paradigm for serious games: Transmedia learning for more effective training and education. *Journal of Computational Science*, 5(3), 471-481. <https://doi.org/10.1016/j.jocs.2013.08.005>
- Sánchez, V. V., & Gutiérrez-Esteban, P. (2023). Challenges and enablers in the advancement of educational innovation. The forces at work in the transformation of education. *Teaching and Teacher Education*, 135, 1-12. <https://doi.org/10.1016/j.tate.2023.104359>
- Septiana, A., & Afifah, L. (2022). Upaya Sekolah dalam Menanamkan Nilai Karakter Untuk Pencegahan 3 Dosa Besar Dunia Pendidikan [School Initiatives in Cultivating Character Values to Prevent the Three Major Wrongs in Education]. *Proseding Didaktis: Seminar Nasional Pendidikan Dasar*, 7(1), 1312-1322.
- Shalaev, V., Emelyanov, F., & Shalaeva, S. (2019). Social Functions of Games in Modern Society: Educational Perspectives. *Proceedings of the International Scientific and Practical Conference on Education, Health and Human Wellbeing (ICEDER 2019)*, 396, 192-197. <https://doi.org/10.2991/iceder-19.2020.41>
- Shi, Y.-R., & Shih, J.-L. (2015). Game Factors and Game-Based Learning Design Model. *International Journal of Computer Games Technology*, 2015(1), 1-11. <https://doi.org/10.1155/2015/549684>
- Singh, B. (2019). Character education in the 21st century. *Journal of Social Studies (JSS)*, 15(1), 1-12. <https://doi.org/10.21831/jss.v15i1.25226>

- Smith, A., Legaki, N. Z., & Hamari, J. (2022). Games and gamification in flipped classrooms: A systematic review. *CEUR Workshop Proceedings*, 33-43.
- Sugiyo, R., & Purwastuti, L. A. (2017). Local Wisdom-Based Character Education Model in Elementary School in Bantul Yogyakarta Indonesia. *Sino-US English Teaching*, 14(5), 299-308. <https://doi.org/10.17265/1539-8072/2017.05.003>
- Suprpto, N., Prahani, B. K., & Cheng, T. H. (2021). Indonesian Curriculum Reform in Policy and Local Wisdom: Perspectives From Science Education. *Jurnal Pendidikan IPA Indonesia*, 10(1), 69-80. <https://doi.org/10.15294/jpii.v10i1.28438>
- Taguma, M., & Frid, A. (2024, April 24). Curriculum frameworks and visualisations beyond national frameworks. OECD Education Working Papers. https://www.oecd.org/en/publications/curriculum-frameworks-and-visualisations-beyond-national-frameworks_2a4bdce6-en.html
- Tokac, U., Novak, E., & Thompson, C. G. (2019). Effect of game-based learning on students' mathematics achievement: A meta-analysis. *Journal of Computer Assisted Learning*, 35(3), 407-420. <https://doi.org/10.1111/jcal.12347>
- Ucus, S. (2015). Elementary School Teachers' Views on Game-based Learning as a Teaching Method. *Elsevier: Procedia-Social and Behavioral Sciences*, 186, 401-409. <https://doi.org/10.1016/j.sbspro.2015.04.216>
- Videnovik, M., Bogdanova, A. M., & Trajkovik, V. (2024). Game-based learning approach in computer science in primary education: A systematic review. *Elsevier: Entertainment Computing*, 48, 1-16. <https://doi.org/10.1016/j.entcom.2023.100616>
- Winardy, G. C., & Septiana, E. (2023). Role, play, and games: Comparison between role-playing games and role-play in education. *Elsevier: Social Sciences & Humanities Open*, 8(1), 1-9. <https://doi.org/10.1016/j.ssaho.2023.100527>