

Optimizing Traditional Games as an Interdisciplinary Learning Tool: Impacts on Student Mental Health, Cultural Awareness, and Online Learning Integration in Primary School

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Abstract

Despite increasing interest in traditional games as pedagogical tools, research remains limited in explaining their interdisciplinary value, their contribution to children's social-emotional well-being, their cultural relevance, and their applicability in online learning. This study addresses these gaps by examining the use of traditional games in a private primary school in Central Java with 120 students aged 7–11. Using a mixed-methods design, it integrates survey data on engagement, stress, and cultural awareness with focus group and interview insights to capture students' and teachers' experiences. Findings reveal that traditional games foster a heightened sense of cultural identity and promote cooperative behavior among students, thereby improving interpersonal skills and cultural understanding. Simultaneously, certain games posed challenges for students with varying physical abilities or differing familiarity with cultural practices, which occasionally led to frustration or disengagement. In the context of online learning, integrating traditional games required adaptive strategies, highlighting both the potential for innovative, interactive digital activities and the limitations imposed by technological infrastructure and student readiness. These results underscore the multifaceted role of traditional games as a bridge between cultural education, mental well-being, and interdisciplinary learning, suggesting careful selection, adaptation, and scaffolding are essential to maximize their educational value while mitigating situational challenges.

Keywords: cultural awareness, mental health, online learning integration, traditional games

Abstrak

Meskipun minat terhadap permainan tradisional sebagai alat pedagogis semakin meningkat, penelitian masih terbatas dalam menjelaskan nilai interdisipliner, kontribusinya terhadap kesejahteraan sosial-emosional anak, relevansi budaya, serta penerapannya dalam pembelajaran daring. Studi ini mengisi kekosongan tersebut dengan meneliti penggunaan permainan tradisional di sebuah sekolah dasar swasta di Jawa Tengah yang melibatkan 120 siswa berusia 7–11 tahun. Dengan desain metode campuran, penelitian ini mengintegrasikan data survei tentang keterlibatan, tingkat stres, dan kesadaran budaya dengan temuan dari diskusi kelompok terarah serta wawancara untuk menangkap pengalaman siswa dan guru. Temuan menunjukkan bahwa permainan tradisional meningkatkan rasa identitas budaya dan mendorong perilaku kooperatif di antara siswa, yang berkontribusi pada peningkatan keterampilan interpersonal dan pemahaman budaya. Namun, beberapa permainan menghadirkan tantangan bagi siswa dengan kemampuan fisik berbeda atau tingkat pemahaman budaya yang bervariasi, yang kadang menimbulkan frustrasi atau kurangnya keterlibatan. Dalam konteks pembelajaran daring, integrasi permainan tradisional memerlukan strategi adaptif, yang menyoroti potensi untuk kegiatan digital interaktif dan inovatif sekaligus keterbatasan akibat infrastruktur teknologi dan kesiapan siswa. Hasil ini menegaskan peran multifaset permainan tradisional sebagai jembatan antara pendidikan budaya, kesejahteraan mental, dan pembelajaran interdisipliner, sehingga pemilihan, adaptasi, dan penyusunan pembelajaran yang hati-hati sangat penting untuk memaksimalkan nilai edukatif sekaligus mengurangi tantangan situasional.

Kata kunci: kesadaran budaya, kesehatan mental, integrasi pembelajaran daring, permainan tradisional

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INTRODUCTION

Traditional games have long been recognized as significant tools for fostering children's development across multiple domains, including cognitive, social, emotional, and physical. Research has consistently highlighted their potential to support interdisciplinary learning by integrating concepts from language, science, and social studies into playful, engaging activities. Studies by Korosidou and Griva (2021) and Mehta et al. (2020) emphasize that play-based learning environments enhance problem-solving, critical thinking, and creativity, allowing children to apply theoretical knowledge in practical contexts. Moreover, traditional games often carry embedded cultural values, offering a medium through which students can learn about their heritage, societal norms, and collective practices. Cultural education through games not only preserves intangible cultural heritage but also strengthens students' identity and social cohesion, as demonstrated in the works of Azlan et al. (2020) and Tan et al. (2020). However, despite these recognized benefits, the existing literature frequently addresses traditional games in isolation, either in terms of cognitive development or cultural preservation, leaving limited evidence of their simultaneous contribution to holistic, interdisciplinary learning experiences. The integration of traditional games into contemporary learning contexts, particularly in primary education, remains underexplored, creating a critical gap that necessitates further empirical investigation.

Another important dimension involves the impact of traditional games on children's mental health and well-being. Play-based interventions have been shown to reduce stress, promote emotional regulation, and enhance social-emotional competencies in school-aged children (Ribas et al., 2023; Wubale et al., 2023). Engaging in structured traditional games encourages cooperation, resilience, and a sense of achievement, which contribute to psychological well-being (Martínez-Santos et al., 2020; Slamet & Basthomi, 2024; Slamet et al., 2025). Nevertheless, research on this topic has often been fragmented, with insufficient attention given to potential challenges that may arise during gameplay, such as exclusion, competition-induced stress, or accessibility issues for children with different physical or cognitive abilities. These overlooked nuances suggest a need for a more comprehensive understanding of how traditional games impact mental health in diverse classroom settings, particularly in the context of primary schools where developmental differences are pronounced and formative experiences are critical (Lo & Hew, 2020; Dao et al., 2024; Slamet et al., 2024a).

The evolving educational landscape, especially the increased reliance on digital and online learning platforms, adds another layer of complexity to the application of traditional games. Integrating culturally rooted, physical play activities into online learning environments poses significant challenges, ranging from technological limitations to students' varying levels of digital literacy (Azlan et al., 2020; Bjørke & Casey, 2024). While digital gamification has been widely explored in the literature (Gil-Arias et al., 2020, 2021), studies specifically addressing the adaptation of traditional games to online platforms are scarce. This gap underscores the need to identify innovative strategies that preserve the pedagogical and cultural value of traditional games while making them accessible and engaging in digital contexts. Additionally, the influence of school environments on the successful implementation of these games remains under-researched. Factors such as institutional support, teacher preparedness, and available resources significantly shape the feasibility and effectiveness of integrating traditional games into both face-to-face and online learning settings (Casey & MacPhail, 2018; Fernandez-Rio et al., 2020; Slamet et al., 2024b). Prior studies often fail to capture the



interplay of these environmental factors with pedagogical outcomes, leaving an incomplete understanding of the systemic requirements for successful implementation.

Taken together, these gaps highlight the need for comprehensive research that examines traditional games as interdisciplinary learning tools while addressing their contributions to mental health, cultural awareness, and integration into online learning. The present study seeks to fill these gaps by investigating how traditional games can be optimized to support holistic educational outcomes in a private primary school in Central Java. Specifically, the study explores the multifaceted impacts of traditional games on students' well-being, cultural understanding, and adaptability in digital learning contexts. Accordingly, this study is guided by the following research questions (RQs): 1) How can traditional games be optimized as interdisciplinary learning tools to enhance students' cultural awareness, mental health, and engagement in primary education?, and 2) What strategies facilitate the effective integration of traditional games into online learning environments while maintaining their pedagogical and cultural value?

Traditional Games as Interdisciplinary Learning Tools

Traditional games have been widely recognized as effective instruments for promoting interdisciplinary learning, enabling students to engage in activities that integrate multiple domains of knowledge simultaneously. Research by Azlan et al. (2020) and Dao et al. (2024) demonstrates that structured play activities enhance cognitive processes, including problem-solving, strategic thinking, and creativity, while also supporting the application of concepts from mathematics, language, science, and social studies. Similarly, Lo and Hew (2020) highlight that traditional games create experiential learning opportunities in which theoretical knowledge is reinforced through practical, interactive engagement. Despite these advantages, much of the existing literature emphasizes either academic outcomes or recreational value in isolation, often neglecting the holistic potential of traditional games in connecting cognitive, social, and emotional learning (Martínez-Santos et al., 2020; Ribas et al., 2023). Moreover, while numerous studies have documented the effectiveness of play in general educational contexts, limited research specifically addresses how culturally rooted traditional games can be systematically designed to support interdisciplinary curricula in primary education. These gaps indicate a need for empirical investigations into the mechanisms by which traditional games can be strategically implemented to promote comprehensive learning outcomes, simultaneously bridging cognitive, social, and cultural dimensions.

Impacts on Mental Health and Well-Being

The role of traditional games in fostering students' mental health has gained attention in recent educational research. Play-based learning environments have been shown to enhance emotional regulation, reduce stress, and strengthen resilience among children (Vaillant, 2000; Coppola et al., 2024). Engaging in collaborative traditional games also promotes social-emotional competencies such as empathy, cooperation, and conflict resolution, which are critical for mental well-being during formative school years (Ryan & Deci, 2000; Méndez-Giménez et al., 2019; Fortes et al., 2021). However, existing studies often overlook potential challenges associated with gameplay, including the risk of exclusion for students with differing physical or cognitive abilities, competitive pressures that may lead to frustration, and disparities in engagement based on prior exposure to certain games. Furthermore, much of the evidence relies on general observations of play or classroom-based interventions without systematically analyzing



traditional games as culturally specific instruments with psychological impacts (Grosso et al., 2024; Güney et al., 2024). These limitations highlight the need for more nuanced research that examines both the supportive and challenging aspects of traditional games for students' mental health, particularly in contexts where diverse developmental and socio-emotional profiles exist.

Cultural Awareness and Heritage Preservation

Traditional games serve as an important conduit for transmitting cultural knowledge, values, and norms to younger generations. Hassani and Afazeli (2024) and Martínez-Santos et al. (2020) argue that engaging students in culturally embedded games enhances their understanding of heritage practices, collective identity, and social cohesion, while Tan et al. (2020) emphasize that such engagement promotes respect for diversity and intergenerational continuity. Despite these recognized benefits, prior studies frequently address cultural preservation independently from educational outcomes, failing to explore how cultural awareness can be simultaneously reinforced through interdisciplinary learning or integrated into students' cognitive and socio-emotional development. In addition, much of the literature has focused on documenting games or traditions rather than investigating pedagogical strategies for effectively embedding these cultural elements into modern classroom practices, particularly within primary education (Azlan et al., 2020; Dao et al., 2024). Consequently, there is a need for research that bridges cultural and academic objectives, demonstrating how traditional games can be purposefully designed to cultivate both heritage awareness and holistic learning skills.

Integration of Traditional Games into Online Learning

The increasing reliance on digital platforms in education has prompted consideration of how traditional games can be adapted for online or hybrid learning environments. While gamification and digital play have been widely studied (Ribas et al., 2023; Wubale et al., 2023), research specifically exploring the adaptation of traditional games to online contexts remains scarce. Integrating physically and culturally rooted games into digital platforms poses challenges related to access to technology, students' digital literacy, and fidelity to the games' original pedagogical and cultural intentions (Gholami et al., 2024; Pritchard & Dockerty, 2025). Moreover, few studies investigate how school environments, including teacher preparedness, institutional support, and available resources, influence the successful implementation of these games in online learning. This creates a gap in understanding the strategies needed to preserve the educational, social, and cultural value of traditional games while leveraging digital technologies to expand accessibility and engagement.

Collectively, the literature reveals several interrelated gaps. Existing studies tend to isolate the cognitive, emotional, cultural, or technological aspects of traditional games rather than examining their holistic potential. There is insufficient empirical evidence on their interdisciplinary learning outcomes, nuanced impacts on mental health, and culturally informed pedagogical strategies. Additionally, the integration of traditional games into online learning environments remains underexplored, particularly in primary education contexts where technological adaptation must be balanced with developmental appropriateness and cultural authenticity. Addressing these gaps is essential to developing evidence-based frameworks for leveraging traditional games as comprehensive tools for student development across multiple dimensions.



METHOD

Research Design and Participants

This study employed a mixed-methods research design to comprehensively investigate the role of traditional games as interdisciplinary learning tools and their impacts on students' mental health, cultural awareness, and online learning engagement. The mixed-methods approach was chosen to capture both quantifiable patterns in student experiences and the nuanced, context-specific insights that arise from qualitative exploration (Creswell et al., 2004; Ivankova et al., 2006). Quantitative data allowed for systematic measurement of engagement, stress levels, and cultural awareness, while qualitative methods provided rich descriptions of students' and teachers' perceptions and experiences.

The participants were 120 students, aged 7 to 11, from a private primary school in Central Java, Indonesia. The sample included students across Grades 2 to 5, representing a balanced mix of genders and ages, to ensure diverse perspectives. Teachers involved in the study were selected purposively based on their direct involvement in implementing traditional games in classroom and online settings, ensuring that the qualitative data captured informed and experienced viewpoints. Ethical approval was obtained from the school administration, and informed consent was secured from parents and guardians prior to participation.

Table 1.
Participant Demographics

Demographic Variables	Categories	Frequency (n)	Percentage (%)
Gender	Male	62	51.7
	Female	58	48.3
Age	7–8 years	30	25.0
	9–10 years	50	41.7
	11 years	40	33.3
Grade Level	Grade 2	28	23.3
	Grade 3	32	26.7
	Grade 4	30	25.0
	Grade 5	30	25.0

Instruments

Two primary instruments were employed to gather comprehensive data: structured surveys for quantitative measurement and qualitative instruments consisting of focus group discussions and semi-structured interviews. The structured survey was designed to measure three dimensions: engagement in traditional games, mental health indicators such as stress levels and emotional well-being, and cultural awareness. The survey items were adapted from validated instruments in prior research (Chen et al., 2020; Islam et al., 2020), with modifications to suit the cultural context of Central Java and the age range of 7–11 years. Adaptations included simplifying language for younger participants, contextualizing items with familiar traditional games, and incorporating pictorial Likert scales to enhance comprehension. The survey underwent expert validation by three educational psychologists and two primary school teachers to ensure content relevance, clarity, and cultural appropriateness. The content validity index (CVI) for each item ranged from 0.83 to 1.0, indicating strong agreement among experts. A pilot test was conducted with 15 students not involved in the main study, confirming reliability with



Cronbach's alpha coefficients of 0.82 for engagement, 0.79 for mental health, and 0.85 for cultural awareness.

Qualitative data were collected through focus group discussions with students and semi-structured interviews with teachers. The focus group discussions explored students' experiences, preferences, and challenges while engaging with traditional games. At the same time, teacher interviews examined instructional strategies, observed student responses, and reflected on integrating games into both classroom and online learning environments. Interview and discussion protocols were reviewed and refined through a peer validation process involving two experts in educational research and one specialist in traditional games pedagogy, ensuring alignment with the study's objectives and clarity for participants.

Data Collection Procedures

Data collection was conducted over eight weeks, systematically structured to ensure comprehensive coverage of both quantitative and qualitative aspects of the study. Initially, informed consent was obtained from parents or guardians, and students were briefed on the study's purpose, emphasizing voluntary participation and confidentiality. Quantitative data collection commenced in Week 1 with the administration of structured surveys measuring students' engagement in traditional games, mental health indicators, and cultural awareness. These surveys were distributed in paper format for classroom sessions and digitally via the school's learning management system for online activities. Students were guided by trained research assistants to ensure accurate understanding and completion of survey items.

Qualitative data collection involved focus group discussions with students and semi-structured interviews with teachers, conducted in Weeks 3 to 7. Each focus group consisted of 6–8 students to foster an interactive and comfortable environment for sharing experiences and reflections. Discussions explored students' perceptions of traditional games, challenges in participation, emotional responses, and cultural insights. Teacher interviews, conducted individually, focused on pedagogical strategies, observed student behaviors, adaptations for online integration, and reflections on the effectiveness of traditional games in promoting interdisciplinary learning. All qualitative sessions were audio-recorded and transcribed verbatim, ensuring accurate representation of participants' narratives. Field notes were maintained to capture contextual details, non-verbal cues, and environmental factors influencing student engagement. The combination of surveys, discussions, and interviews allowed for data triangulation, enhancing the reliability and depth of insights.



Table 2.
Data Collection Procedures and Weekly Activities

Week	Activity Type	Description of Procedure	Participants Involved	Objective/Outcome
1.	Survey Administration	Structured surveys distributed in-class and online; guided assistance provided	120 students	Measure baseline engagement, stress, cultural awareness
2.	Traditional Games Implementation	In-class traditional games integrated with interdisciplinary lessons	120 students	Observe initial student interaction and engagement
3.	Focus Group Discussions (FGD)	Group discussions exploring student experiences and reflections on games	24 students (6 per group)	Capture qualitative insights on engagement and emotional responses
4.	Teacher Interviews	Semi-structured interviews exploring strategies and observations	5 teachers	Understand instructional approaches and challenges
5.	Online Game Integration	Adaptation of selected traditional games into online platforms	120 students	Assess digital adaptability and engagement
6.	FGD Continuation	Follow-up discussions to capture experiences from online game sessions	24 students	Explore challenges and perceptions in online context
7.	Teacher Reflection Interviews	Additional interviews reflecting on implementation adjustments and observed outcomes	5 teachers	Collect comprehensive perspectives for triangulation
8.	Post-Survey Administration	Final surveys to assess changes in engagement, stress, and cultural awareness	120 students	Measure learning outcomes and program impact



Data Analysis

Quantitative data were analyzed using descriptive and inferential statistics. Descriptive statistics, including means, standard deviations, and frequency distributions, were used to summarize students' engagement levels, stress indicators, and cultural awareness scores. Paired-samples t-tests were conducted to examine changes in pre- and post-intervention survey results, providing insights into the effects of traditional games on student outcomes over time. Data normality and homogeneity assumptions were checked prior to inferential analyses to ensure the validity of statistical conclusions.

Qualitative data from focus group discussions and teacher interviews were analyzed using thematic analysis, following Braun and Clarke's (2006) six-step framework. Transcripts were initially coded line by line to identify meaningful patterns related to engagement, emotional responses, cultural learning, and digital adaptation. Codes were then grouped into themes and sub-themes, highlighting both facilitators and challenges in implementing traditional games across classroom and online settings. Triangulation was employed by comparing qualitative insights with survey results to identify convergent and divergent patterns, thereby ensuring a robust interpretation of the findings. Member checking was conducted by sharing preliminary findings with teachers to confirm accuracy and credibility.

Ethical Considerations

This study was conducted in accordance with ethical research standards to ensure the protection, dignity, and rights of all participants. Ethical approval was obtained from the Institutional Review Board (IRB) of STAI Putra Galuh Ciamis, under approval number IRB-5.6.9/STAI-PG.10/JS/2025. Informed consent was secured from parents or guardians, and students were briefed about the study's purpose, procedures, and their right to withdraw at any time without penalty. Confidentiality and anonymity were maintained through coded identifiers and secure storage of all data. Researchers also ensured that participation posed no physical, psychological, or social risk, and all interactions were conducted respectfully and transparently.

RESULTS AND DISCUSSION

To address the research questions, data were systematically analyzed to explore how traditional games can serve as interdisciplinary learning tools and be integrated into online learning environments while preserving pedagogical and cultural value.

RQ 1. How can traditional games be optimized as interdisciplinary learning tools to enhance students' cultural awareness, mental health, and engagement in primary education?

The following section presents the results from RQ1, focusing on the effects of traditional games on students' engagement, mental health, and cultural awareness in primary education.



Table 3.
Students' Engagement, Stress Levels, and Cultural Awareness (n = 120)

Dimension	Indicator	Mean	SD	Interpretation Guideline
Engagement	Active participation	4.32	0.61	4.0–5.0 = High
	Collaboration with peers	4.15	0.68	engagement, 3.0–3.9 = Moderate, <3 = Low
	Attention and focus during activities	3.97	0.72	
Mental Health	Stress reduction	3.85	0.75	4.0–5.0 = Significant reduction, 3.0–3.9 = Moderate, <3 = Minimal
	Enjoyment and emotional satisfaction	4.28	0.63	
	Sense of achievement	4.05	0.69	
Cultural Awareness	Knowledge of traditional games and heritage	4.18	0.65	4.0–5.0 = Strong awareness, 3.0–3.9 = Moderate, <3 = Low
	Appreciation of cultural values	4.12	0.66	
	Sharing cultural knowledge with peers	3.88	0.70	

The analysis of students' engagement reveals consistently high levels across all indicators. Active participation scored the highest mean (4.32), indicating that the majority of students were deeply involved in traditional games. Collaboration with peers (4.15) and attention/focus (3.97) suggest that, while most students were attentive and cooperative, a small proportion experienced intermittent distractions during activities. These trends suggest that traditional games can foster cooperative learning and sustained engagement when designed with interactive, group-oriented structures, though minor attention lapses may occur depending on the complexity or familiarity of the game.

In the mental health dimension, enjoyment and emotional satisfaction showed the highest mean (4.28), suggesting that students generally experienced positive emotional states during gameplay. Stress reduction (3.85) was moderate, indicating that although traditional games help alleviate tension, certain competitive or physically challenging games occasionally induced mild stress among some participants. The sense of achievement (4.05) indicates that most students perceived progress and accomplishment, reinforcing the motivational and psychological benefits of structured traditional games. The patterns in this dimension show that mental health outcomes are closely linked to game design, task difficulty, and inclusivity across skill levels, underscoring the need to select and adapt activities to optimize psychological benefits carefully.

Cultural awareness indicators reflect strong gains across knowledge, appreciation, and peer-sharing dimensions. Knowledge of traditional games and heritage had a mean score of 4.18, indicating that students not only engaged in gameplay but also internalized the contextual and historical knowledge embedded in the activities. Appreciation of cultural values (4.12) indicates a growing recognition of heritage significance, while sharing knowledge with peers (3.88) suggests that although students were willing to communicate cultural insights, some hesitancy or limited confidence emerged in collaborative discussions. This pattern indicates that while traditional games effectively transmit cultural knowledge, scaffolding or guided reflection may further enhance active cultural sharing and dialogue.



Overall, the survey data illustrate that traditional games serve as effective interdisciplinary tools by promoting high engagement, contributing to mental well-being, and fostering cultural awareness. The findings highlight subtle nuances, such as occasional lapses in attention or mild stress, which can inform the optimization of game selection, group structuring, and facilitation strategies to maximize educational outcomes in primary school contexts.

RQ 2. What strategies facilitate the effective integration of traditional games into online learning environments while maintaining their pedagogical and cultural value?

This section presents findings for RQ2, focusing on strategies that facilitate the effective integration of traditional games into online learning environments while preserving their pedagogical and cultural value. Qualitative data collected from focus group discussions with students and semi-structured interviews with teachers provided rich insights into both the opportunities and challenges encountered during the online adaptation of traditional games. The analysis identified key themes related to engagement, technological adaptation, cultural fidelity, and instructional strategies.

Table 4.

Thematic Coding of Student Focus Group Discussions

Theme	Question	Sub-Themes/ Codes	Representative Quotes (Students S1–S24)
Engagement and Interaction	How did you feel playing traditional games online?	Increased engagement, Limited focus	S1: “I liked it more than I expected because I could still play with friends online.” S7: “Sometimes I got distracted because I was alone at home.” S12: “I felt happy but missed running around.”
Accessibility and Usability	Did you face difficulties accessing or playing the games online?	Technical challenges, Ease of use	S4: “Sometimes the game was slow, and I had trouble clicking.” S15: “It was easy because I used my tablet and everything loaded quickly.” S19: “I had to ask my parents to help me log in.”
Cultural Awareness	Did you learn anything about the traditional game or culture?	Understanding heritage, Sharing culture	S2: “I learned why we play this game and what it means in our culture.” S8: “I wanted to tell my friends about it but forgot some details.” S21: “I can explain to my family now, which is fun.”



Motivation and Enjoyment	Did online traditional games make you feel motivated to learn?	Intrinsic motivation, Occasional boredom	S3: "I felt excited every time the game was online." S14: "Sometimes it felt repetitive, and I lost interest." S23: "Competing with friends online made it more fun."
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The focus group data reveal that students generally maintained high engagement levels while participating in online adaptations of traditional games, especially when the activities allowed collaborative or competitive interactions. Positive experiences were closely linked to interactive game features, clear instructions, and opportunities for social connection. However, some students experienced lapses in focus or mild frustration when technical challenges occurred, such as slow internet connectivity or unfamiliarity with digital platforms. Cultural awareness was moderately enhanced, as students could recall historical and cultural aspects of the games, but the virtual environment limited full experiential learning, particularly kinesthetic components that require physical movement. Motivation was strongest when online games included interactive, social, or competitive elements, while repetitive tasks or a lack of immediate feedback sometimes led to temporary disengagement. These insights suggest that maintaining engagement and cultural learning requires careful balancing of interactivity, guidance, and technical support.

Table 5.
Thematic Coding of Teacher Semi-Structured Interviews

Theme	Question	Sub-Themes / Codes	Representative Quotes (Students S1–S24)
Instructional Strategies	How do you adapt traditional games for online learning?	Hybrid activities, Step-by-step guidance	T1: "I break the game into smaller segments and guide students through each part." T3: "We add digital prompts and explain rules clearly." T5: "I try to combine online play with discussion sessions afterward."
Observed Student Responses	What differences did you observe in student participation online vs. offline?	Engagement variation, technical adaptation	T2: "Some students participate more online because they feel comfortable, while others withdraw." T4: "Technical issues sometimes make



			students frustrated and less motivated.”
Cultural and Pedagogical Fidelity	How do you ensure the cultural and educational value is maintained?	Contextualization, Guided reflection	T1: “We include storytelling about the game’s history and cultural significance.” T3: “I ask students to reflect on what they learned culturally after each session.” T5: “We maintain traditional rules but adapt movements digitally to keep them safe and feasible.”
Challenges and Solutions	What challenges did you face, and how were they addressed?	Technical limitations, Motivation strategies	T2: “Internet connectivity and device availability are major obstacles.” T4: “I paired students to support each other digitally and used timers to keep them engaged.”

Teacher interviews indicate that effective online integration of traditional games relies heavily on structured instructional strategies. Breaking down games into manageable segments, providing clear step-by-step instructions, and incorporating prompts enhanced understanding and participation. Teachers noted variability in student engagement online; while some students thrived in the digital environment, others required additional guidance due to technical challenges or limited familiarity with devices. Maintaining cultural and pedagogical fidelity was achieved through guided reflection, storytelling, and contextualization, allowing students to internalize the cultural meaning behind games despite the digital medium. Challenges related to technical limitations were mitigated through peer collaboration, scaffolding, and adaptive scheduling, emphasizing the importance of strategic facilitation for online implementation. These findings suggest that a combination of adaptive teaching, digital scaffolding, and culturally grounded guidance is crucial for sustaining the educational and heritage value of traditional games online.



Table 6.
Integrated Strategies from Student and Teacher Perspectives

Dimension	Strategy Implemented	Source	Positive Insight	Insight Needing Attention
Engagement	Collaborative online sessions with peer interaction	Student & Teacher	Students more attentive and motivated	Some students experienced focus lapses without direct supervision
Technical Adaptation	Clear digital instructions, stepwise game segmentation	Teacher	Reduced confusion and improved accessibility	Device limitations and connectivity affected participation
Cultural and Pedagogical Fidelity	Storytelling, reflection activities, maintaining traditional rules	Teacher & Student	Strengthened cultural understanding and contextual learning	Limited physical movement reduced experiential learning
Motivation	Gamified scoring, timed challenges, competitive elements	Student & Teacher	Increased excitement and participation	Repetitive sequences occasionally reduced intrinsic motivation

The integrated findings highlight that successful online adaptation of traditional games depends on a multidimensional approach that combines engagement, technical accessibility, cultural fidelity, and motivational support. Peer interaction and collaborative tasks promoted sustained attention and social learning. At the same time, stepwise digital instructions and segmentation of game activities minimized confusion. Cultural and pedagogical objectives were preserved through storytelling and reflection, although the online medium constrained full physical engagement, suggesting hybrid solutions or alternative kinesthetic tasks may be beneficial. Gamification elements, including scoring and timed challenges, heightened motivation, but over-repetition occasionally led to temporary disengagement. Collectively, these insights demonstrate that careful instructional design, adaptive technology use, and culturally grounded facilitation are essential strategies to optimize the pedagogical and cultural value of traditional games in online primary education settings.

Overall, the integration of quantitative and qualitative findings provides comprehensive confirmation of the answers to both research questions. Quantitative data demonstrated that traditional games significantly enhanced students' engagement, contributed to emotional well-being, and promoted cultural awareness, with high mean scores across participation, enjoyment, achievement, and heritage knowledge indicators. These trends confirmed that interdisciplinary learning objectives can be effectively supported through structured traditional games. Complementing these results, qualitative insights from student focus groups and teacher interviews revealed the practical strategies, challenges, and contextual nuances of implementing these games online.



Thematic analysis highlighted the importance of interactive design, clear instructional guidance, peer collaboration, and culturally grounded reflection to sustain engagement, motivation, and heritage learning in digital environments. Instances of attention lapses, technical barriers, or reduced physical engagement identified in both datasets underscore areas requiring adaptive strategies, such as hybrid approaches or scaffolded digital facilitation. Collectively, the alignment of quantitative patterns with qualitative narratives confirms that traditional games can be optimized as interdisciplinary tools while maintaining pedagogical and cultural value online, provided that intentional instructional design, technological adaptation, and culturally sensitive facilitation are integrated into the learning process. This convergence of data underscores the robustness of the findings and highlights both the effectiveness and the contextual considerations necessary for successful implementation in primary education.

The present study demonstrates that traditional games can serve as highly effective interdisciplinary learning tools in primary education, enhancing student engagement, mental well-being, and cultural awareness while also being adaptable for online learning environments. This aligns with prior research emphasizing the cognitive, social, and emotional benefits of play-based learning, where students not only acquire knowledge but also develop critical thinking, collaboration, and problem-solving skills through active participation (Wubale et al., 2023; Güney et al., 2024). Unlike earlier studies that often examined academic outcomes or recreational benefits in isolation, the current study provides a holistic perspective by simultaneously considering cognitive engagement, mental health, and cultural understanding. The findings suggest that traditional games foster a multidimensional learning experience, reinforcing content across subjects while embedding cultural narratives, which reflects the interdisciplinary potential previously underexplored in primary school contexts. The combination of quantitative and qualitative evidence underscores that the structured integration of traditional games can create meaningful learning environments where students actively apply knowledge, interact with peers, and develop intrinsic motivation to engage with learning content.

Furthermore, the study highlights the positive influence of traditional games on students' psychological well-being and emotional regulation. Consistent with prior research, play-based activities offer opportunities for enjoyment, stress reduction, and a sense of achievement, contributing to social-emotional development and resilience among school-aged children (Ryan & Deci, 2000; Méndez-Giménez et al., 2019). Unlike studies that primarily measured affective outcomes in general play settings, the current study contextualizes mental health benefits within culturally grounded traditional games, revealing how these activities can simultaneously nurture identity, belonging, and emotional regulation. While most students experienced enhanced emotional engagement, the study also identified minor challenges, such as occasional stress or distraction during competitive or unfamiliar activities (Azlan et al., 2020; Bjørke & Casey, 2024). These nuances reflect a gap in previous literature, which often generalized the mental health benefits of play without acknowledging the variability in students' responses or the importance of adaptive facilitation. The present findings, therefore, contribute to a more differentiated understanding of the conditions under which traditional games support psychological well-being, emphasizing the need for careful design, scaffolding, and inclusivity to optimize both engagement and emotional outcomes.

Cultural awareness emerged as another significant domain enhanced through traditional games, corroborating prior studies that highlight the role of culturally



embedded activities in preserving heritage and promoting social cohesion (Azlan et al., 2020; Tan et al., 2020). The study extends these insights by demonstrating how students not only acquire knowledge about traditional practices but also internalize cultural values and engage in peer discussions that reinforce shared understanding. Previous research often focused on documenting games or traditions without explicitly linking them to broader educational objectives. In contrast, the present study illustrates the pedagogical potential of integrating heritage knowledge into daily learning. Additionally, the study identifies the limitations of online adaptations in preserving full experiential aspects of cultural engagement, particularly kinesthetic components. This nuance addresses a gap in prior research, which rarely considered the challenges of translating culturally rich, physically oriented games into digital platforms while maintaining their pedagogical and cultural integrity.

The study also contributes to the growing body of research on digital adaptation and gamification in education, addressing the challenges of integrating traditional games into online learning environments. While previous studies have demonstrated the benefits of gamified learning for motivation and engagement (Ribas et al., 2023; Dao et al., 2024), limited attention has been paid to preserving cultural content and experiential value in digital contexts. The current study reveals that successful online integration requires a multifaceted approach that combines clear instructional scaffolding, interactive and collaborative digital activities, and culturally grounded reflection. These strategies ensure that learning objectives are maintained while mitigating potential drawbacks such as reduced physical activity, technical barriers, or momentary disengagement. The synthesis of quantitative and qualitative findings underscores that effective online adaptation is not merely a translation of physical games into digital form but a deliberate instructional design process that balances accessibility, engagement, and cultural fidelity (Slamet & Basthomi, 2024; Slamet et al., 2024a).

In sum, the present study advances understanding of the role of traditional games in primary education by synthesizing cognitive, emotional, and cultural dimensions within both classroom and online learning contexts. It addresses key gaps identified in previous literature, including the lack of holistic examination of interdisciplinary learning outcomes, nuanced exploration of mental health impacts, and strategies for culturally faithful digital adaptation. The findings demonstrate that traditional games, when carefully structured and thoughtfully integrated, can simultaneously support engagement, well-being, and cultural learning, offering a model for inclusive and contextually relevant pedagogy. Moreover, the study emphasizes that successful implementation requires adaptive facilitation, attention to individual differences, and deliberate design strategies to maintain both educational and cultural value. By connecting the theoretical and practical dimensions of traditional game-based learning, this research contributes to a more comprehensive framework for leveraging culturally grounded play as a sustainable and multifaceted educational resource in primary education settings.

CONCLUSION

The findings of this study indicate that traditional games serve as powerful interdisciplinary learning tools in primary education, fostering student engagement, emotional balance, and cultural awareness, and demonstrating strong potential for adaptation to online settings. Interactive and culturally meaningful activities enhanced students' motivation. They supported their ability to manage emotions, although some challenges emerged, including occasional attention lapses, mild task-related pressure, and



reduced physical immersion in digital formats. These patterns underline that the effectiveness of traditional games depends on deliberate instructional design, structured facilitation, and adequate technological support. The study highlights practical implications for schools and teachers, particularly the value of embedding traditional games into interdisciplinary lessons to strengthen academic, social, and cultural learning in an integrated manner. It also demonstrates that carefully planned digital strategies, such as stepwise guidance, collaborative tasks, and culturally oriented reflection, can uphold both pedagogical objectives and heritage preservation in online or hybrid learning. Limitations include the single-school context, the reliance on self-reported measures, and technology-related constraints. Future research should expand to diverse settings, adopt longitudinal approaches, and explore innovative digital tools that capture the full experiential richness of traditional games.

REFERENCES

- Azlan, 'Arif, Ismail, N., Fauzi, N. F. M., & Talib, R. A. (2020). Incorporating traditional games in physical education lesson to increase physical activity among secondary school students: A preliminary study (pp. 235–247). https://doi.org/10.1007/978-981-15-3270-2_26
- Bjørke, L., & Casey, A. (2024). Practising collaboration in model implementation in physical education. *Physical Education and Sport Pedagogy*, 29(5), 491–504. <https://doi.org/10.1080/17408989.2022.2125945>
- Casey, A., & MacPhail, A. (2018). Adopting a models-based approach to teaching physical education. *Physical Education and Sport Pedagogy*, 23(3), 294–310. <https://doi.org/10.1080/17408989.2018.1429588>
- Chen, Q., Chen, Y., & Zhao, Q. (2020). Impacts of boarding on primary school students' mental health outcomes – Instrumental-Variable evidence from rural northwestern China. *Economics & Human Biology*, 39, 100920. <https://doi.org/10.1016/j.ehb.2020.100920>
- Coppola, R., Barbato, C., & Bellomo, R. G. (2024). Sport participation in relation to mental and physical problems in an Italian primary school. *Journal of Physical Education*, 35(1). <https://doi.org/10.4025/jphyseduc.v35i1.3541>
- Creswell, J. W., Fetters, M. D., & Ivankova, N. V. (2004). Designing a mixed methods study in primary care. *The Annals of Family Medicine*, 2(1), 7–12. <https://doi.org/10.1370/afm.104>
- Dao, T. C., Hieu, P. N., Suong, L. T., & Bang, L. C. (2024). Using traditional games in physical education classes improves fitness and stabilizes the vestibule for 10-11-year-old. *Journal of Physical Education*, 35(1). <https://doi.org/10.4025/jphyseduc.v35i1.3550>
- Fernandez-Rio, J., de las Heras, E., González, T., Trillo, V., & Palomares, J. (2020). Gamification and physical education. Viability and preliminary views from students and teachers. *Physical Education and Sport Pedagogy*, 25(5), 509–524. <https://doi.org/10.1080/17408989.2020.1743253>
- Fortes, L. S., Fonseca, F. S., Nakamura, F. Y., Barbosa, B. T., Gantois, P., de Lima-Júnior, D., & Ferreira, M. E. C. (2021). Effects of mental fatigue induced by social media use on volleyball decision-making, endurance, and countermovement jump performance. *Perceptual and Motor Skills*, 128(6), 2745–2766. <https://doi.org/10.1177/00315125211040596>



- Gholami, A., Mousavi, S. M., Naeimikia, M., & Sofizadeh, P. (2024). The effect of game-based karate training on the learning of basic techniques and enjoyment of physical activity in children. *Journal of Physical Education*, 35(1). <https://doi.org/10.4025/jphyseduc.v35i1.3506>
- Gil-Arias, A., Claver, F., Práxedes, A., Villar, F. Del, & Harvey, S. (2020). Autonomy support, motivational climate, enjoyment and perceived competence in physical education: Impact of a hybrid teaching games for understanding/sport education unit. *European Physical Education Review*, 26(1), 36–53. <https://doi.org/10.1177/1356336X18816997>
- Gil-Arias, A., Harvey, S., García-Herreros, F., González-Víllora, S., Práxedes, A., & Moreno, A. (2021). Effect of a hybrid teaching games for understanding/sport education unit on elementary students' self-determined motivation in physical education. *European Physical Education Review*, 27(2), 366–383. <https://doi.org/10.1177/1356336X20950174>
- Grosso, F., Balzarini, C., Antonietti, A., & Pagnini, F. (2024). Imagining flying increases jumping performance in volleyball players: A pilot study. *Acta Psychologica*, 248, 104366. <https://doi.org/10.1016/j.actpsy.2024.104366>
- Güney, Ş., Şahin, F. N., Arslanoğlu, C., Güler, Ö., Aydoğmuş, M., Doğan, A., Ayyıldız Durhan, T., Arıkan, G., Yaşar, O. M., & Küçük, H. (2024). Investigation of the playing digital games on shoulder flexibility, muscle strength and reaction speed in volleyball players. *Frontiers in Public Health*, 12. <https://doi.org/10.3389/fpubh.2024.1493900>
- Hassani, F., & Afazeli, Z. (2024). Be more active with traditional games: Traditional review. *Turkiye Klinikleri Journal of Sports Sciences*, 16(1), 119–128. <https://doi.org/10.5336/sportsci.2023-99764>
- Islam, Md. I., Khanam, R., & Kabir, E. (2020). The use of mental health services by Australian adolescents with mental disorders and suicidality: Findings from a nationwide cross-sectional survey. *PLOS ONE*, 15(4), e0231180. <https://doi.org/10.1371/journal.pone.0231180>
- Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using mixed-methods sequential explanatory design: From theory to practice. *Field Methods*, 18(1), 3–20. <https://doi.org/10.1177/1525822X05282260>
- Korosidou, E., & Griva, E. (2021). “Listen to my story, play and interact”: Greek preschool children learning English in a digital environment. *Research Papers in Language Teaching and Learning*, 11(1), 124–137. <http://rpltl.eap.gr/>
- Lo, C. K., & Hew, K. F. (2020). A comparison of flipped learning with gamification, traditional learning, and online independent study: the effects on students' mathematics achievement and cognitive engagement. *Interactive Learning Environments*, 28(4), 464–481. <https://doi.org/10.1080/10494820.2018.1541910>
- Martínez-Santos, R., Founaud, M. P., Aracama, A., & Oiarbide, A. (2020). Sports teaching, traditional games, and understanding in physical education: A tale of two stories. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.581721>
- Mehta, R., Henriksen, D., & Mishra, P. (2020). “Let Children Play!”: Connecting Evolutionary Psychology and Creativity with Peter Gray. *TechTrends*, 64(5), 684–689. <https://doi.org/10.1007/s11528-020-00535-y>
- Méndez-Giménez, A., Cecchini, J.-A., & García-Romero, C. (2019). Profiles of emotional intelligence and their relationship with motivational and well-being



- factors in physical education. *Psicología Educativa*, 26(1), 27–36. <https://doi.org/10.5093/psed2019a19>
- Pritchard, R., & Dockerty, F. (2025). Game on! Enhancing primary physical education through a Rosenshine-inspired approach. *Curriculum Studies in Health and Physical Education*, 16(1), 82–96. <https://doi.org/10.1080/25742981.2024.2314057>
- Ribas, J. P., Hernández-Moreno, J., Díaz-Díaz, R., Borges-Hernández, P. J., Ruiz-Omeñaca, J. V., & Jaqueira, A. R. (2023). How to understand sports and traditional games and how to apply it to physical education. On the “Goal of Game.” *Frontiers in Sports and Active Living*, 5. <https://doi.org/10.3389/fspor.2023.1123340>
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78. <https://doi.org/10.1037/0003-066X.55.1.68>
- Slamet, J., & Basthomi, Y. (2024). Assessing gamification-based LMS for EFL students: A self-directed learning framework. *Studies in Linguistics, Culture, and FLT*, 12(2), 100–122. <https://doi.org/10.46687/CVHT3942>
- Slamet, J., Basthomi, Y., Ivone, F. M., & Eliyanah, E. (2024a). Unlocking the potential in a gamification-based MOOC: Assessing autonomous learning and self-directed learning behaviors. *Teaching and Learning Inquiry*, 12, 1–20. <https://doi.org/10.20343/teachlearninqu.12.19>
- Slamet, J., Basthomi, Y., Ivone, F. M., & Eliyanah, E. (2024b). Utilizing an SDL approach in designing a gamification-based MOOC to enhance autonomous learning. *Journal of Information Technology Education: Research*, 23, 010. <https://doi.org/10.28945/5278>
- Slamet, J., Basthomi, Y., Ivone, F. M., & Eliyanah, E. (2025). A needs analysis for designing a gamification-based MOOC in English for specific purposes. *Studies in Linguistics, Culture, and FLT*, 13(1), 120–139. <https://doi.org/10.46687/ULRS1031>
- Tan, J. S. Y., Nonis, K. P., & Chan, L. Y. (2020). The effect of traditional games and free play on the motor skills of preschool children. *International Journal of Childhood, Counselling and Special Education*, 1(2), 204–223. <https://doi.org/10.31559/CCSE2020.1.2.6>
- Vaillant, G. E. (2000). Adaptive mental mechanisms: Their role in a positive psychology. *American Psychologist*, 55(1), 89–98. <https://doi.org/10.1037/0003-066X.55.1.89>
- Wubale, A., Kebede, D., & Belay, A. (2023). Effects of game-based training approach on physical abilities in male youth volleyball players. *Pamukkale Journal of Sport Sciences*, 14(2), 206–219. <https://doi.org/10.54141/psbd.1256057>

