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Culturally sustaining digital pedagogy in primary English education: Integrating local wisdom, technology, and student engagement

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Abstract

The increasing integration of digital technologies into English language education has created new possibilities for enriching the learning process while also raising concerns about the cultural relevance of digitally mediated instruction. The present study examines the effectiveness of culturally sustaining digital teaching in primary English education. A mixed-methods research design was employed, involving 60 primary school students and eight English language teachers. Quantitative data were obtained through a student engagement questionnaire administered both before and after the intervention. Meanwhile, qualitative data were collected through semi-structured interviews with the eight teachers, classroom observations, and student reflections. The quantitative findings indicated a notable increase in students' overall engagement, with the mean score rising from 3.22 pre-intervention to 4.20 post-intervention. Improvements were observed across behavioral, emotional, and cognitive dimensions of engagement. The overall change was statistically significant, $t(59) = 14.27$, $p < 0.001$, and was accompanied by a large effect size (Cohen's $d = 1.84$). The qualitative findings further demonstrated that learning materials grounded in students' existing cultural knowledge and experiences contributed to greater enjoyment and participation while also strengthening their confidence, collaborative behavior, and willingness to communicate in English. The findings indicate that integrating culturally relevant content with digital technologies can contribute substantially to student engagement in primary English education. The study therefore underscores the importance of balancing technological development with cultural relevance when designing digitally mediated English language instruction for elementary learners.

Keywords: Digital learning, Educational technology, Local wisdom, Pedagogy, Primary education.

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Contribution of this paper to the literature

This study contributes to the literature by integrating local wisdom and digital technology into culturally sustaining pedagogy for primary English-language education. It provides empirical evidence of improved behavioral, emotional, and cognitive engagement among students. The findings offer practical insights into developing culturally relevant, interactive, and meaningful digital English learning experiences.

1. Introduction

Language teaching now places far greater emphasis on digital technology. Digital education platforms, multimedia tools, interactive software, and mobile technologies have opened up new opportunities for teachers to deliver flexible and engaging learning experiences. Technology can provide more opportunities for English language instruction by offering greater access to diverse forms of input, interactive activities, collaborative learning, and communication beyond the physical classroom. However, technology-based instructional methods that rely on the distribution of standardized digital content may not sufficiently reflect students' cultural backgrounds, personal experiences, and geographical identities (Zhu, Liang, Mao, & Wang, 2026). Therefore, the primary challenge facing English education today is shifting from the acceptance of technology to the development of appropriate digital teaching strategies (Kim, 2027).

This topic is especially important in English as a Foreign Language (EFL) contexts because English is taught among distinct cultural and linguistic groups. English opens up the world of conversation and knowledge to students. Still, the pedagogical representation of English need not be disconnected from the local cultural surroundings of the students (Hossain, 2026). Students can find significant frameworks for making sense of a new language, expressions, texts, and ways of communicating through familiar cultural experiences. Local knowledge involves knowledge, values, customs, stories, ecological practices, social relations, creative activities, and community practices passed down through generations. Incorporating these resources into English teaching can help create authentic and relevant contexts for language use and strengthen students' ties to their cultural identities (Monica, Arsyad, & Waluyo, 2025). Therefore, the international interest in English can be introduced to young students in a specific context by localizing perspectives in English education.

The relevance of digital technology is growing, creating new opportunities to incorporate local knowledge into English language teaching (Huo & Wang, 2026). Digital storytelling, interactive multimedia, virtual instructional resources, digital games, films, and cooperative learning exercises can be based on traditional stories, local settings, cultural norms, community initiatives, and Indigenous perspectives. These tools can enable students to communicate, analyze, discuss, and exchange ideas in English on the basis of their cultural experiences (Malmström, Rose, Shepard, & Dafouz, 2026; Qi & Shi, 2026). Thus, combining culture and technology can take digital education beyond the simple conversion of books from physical to electronic form. Moreover, cultural information must be adequately integrated into the educational goals of language activities, student interactions, and opportunities for engagement (Chowdhury, Sweet, Emon, Alam, & Biswas, 2026; Tran & Nguyen, 2026).

A crucial element in investigating the educational effectiveness of this approach is student involvement. Engagement refers to the behavioral, emotional, cognitive, and active involvement of students in learning activities (Oh, Park, & Gweon, 2026; Pellegrino, Feraco, Meneghetti, & Carretti, 2026). When teaching English at the initial stage, teachers must be able to keep students interested. Digital technologies offer the potential to promote engagement and provide a variety of participatory possibilities, while local cultural content can stimulate a sense of familiarity and personal relevance (Oh et al., 2026; Pellegrino et al., 2026). The addition of these elements can help establish learning environments in which students regard English not only as an abstract school subject but also as a means of expressing their surroundings, culture, and personal experiences (Kwangmuang, Kosum, Sarakan, & Nguyen, 2026).

Previous studies on technology have primarily addressed digital skills, technology adoption, academic achievement, motivation, and the effectiveness of specific digital tools (Do, Vo, & Nguyen, 2026; Gonzalez-Vidal, 2026; Malmström et al., 2026; Oumelaid, Talibi, El Boukari, & El Ghordaf, 2026). By contrast, scholarship on culturally responsive language teaching has predominantly examined issues such as cultural identity, culturally relevant learning materials, Indigenous knowledge, and the broader social and cultural contexts in which students learn. While both technological and cultural perspectives offer valuable insights, examining them separately provides only a limited understanding of how digital technologies can interact with Indigenous and local knowledge to support the engagement of young learners in English language education. This represents an important gap in the existing literature, particularly as the increasing digitalization of education calls for pedagogical approaches that are not only technologically appropriate but also attentive to learners' cultural contexts.

Within digital English language education, a culturally sustaining perspective therefore positions technology as more than a means of increasing instructional efficiency or expanding access to learning resources. Instead, digital tools can be employed to construct learning environments in which local knowledge, cultural identity, and students' lived experiences become meaningful resources for language development. Such an approach allows the interactive and multimodal affordances of digital technologies to support language learning while maintaining connections with the cultural contexts in which learners are situated.

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Building on this perspective, the present study examines the effectiveness of culturally sustaining digital teaching practices in primary school English classrooms. In particular, it investigates how local knowledge, technological development, and student participation can be integrated within digitally mediated language instruction. The study further explores how culturally relevant digital learning experiences can be incorporated into English language teaching through the interactive and multimodal capacities of digital technologies. Since the potential benefits of technology-enhanced learning depend substantially on students' active engagement with the learning process, the study also considers the relationship between culturally relevant digital instruction and student participation. The findings are intended to offer practical implications for primary English teachers and curriculum designers seeking to develop digital learning environments that are engaging, contextually meaningful, and responsive to students' cultural backgrounds.

2. Literature Review

2.1. Digital Technology in Primary English Language Education

The advent of digital technology has gradually affected the ways of teaching and learning English in primary schools. Digital platforms, interactive multimedia, instructional software, digital games, and audiovisual resources provide young students with many opportunities to use language and to engage in active participation. Technology-enhanced education is more engaging, more personalized, more inclusive in its representations, and more instantly available in its teaching resources than traditional teacher-centered learning (Huo & Wang, 2026). These benefits are particularly important for young EFL students. Students often benefit from visual stimulation, repetition, engagement, and experiential learning. But technology is not an educational advance in itself. The pedagogical value of digital resources is determined by the teachers' selection and integration of these tools to fulfill learning objectives, classroom activities, student traits, and meaningful language experiences. Successful digital English education must therefore move from technology acceptance to pedagogy-driven integration (Shen et al., 2026).

The literature suggests that digital teaching in basic language teaching has to face contextual and pedagogical challenges. The effectiveness of technology-enhanced learning is affected by gaps in device and connectivity access, teachers' digital skills, lack of institutional support, and quality of digital learning resources. A problem is that digital resources developed from an external or standardized perspective may not be relevant to the daily experiences of students. This issue underlines the necessity of assessing the effectiveness of digital English education not just by technology skills or language success but also by the importance and relevance of educational experiences (Halomoan et al., 2026; Shen et al., 2026). It suggests that it would be a feasible alternative to integrate culturally appropriate content into digital platforms to promote students' engagement and contextual relevance in technology-augmented English training.

2.2. Local Wisdom and Culturally Sustaining Pedagogy in English Learning

Language is intertwined with social conventions, ideas, identities, and worldviews, and hence culture is a vital feature of language acquisition. Culturally sustaining pedagogy extends culturally responsive pedagogy to foreground the sustaining and flourishing of students' cultural and linguistic ways of being in classrooms (Esmaeili & Kuhi, 2023). This stance challenges those English language education approaches that focus on English acquisition mainly on the basis of culturally external materials, and calls for teachers to recognize students' particular cultural assets as legitimate grounds for learning. Indigenous knowledge might include folklore, community traditions, ecological knowledge, art forms, cultural practices, social norms, and many other forms of knowledge shared among communities (Das & Jalandharachari, 2026). By incorporating these materials into English teaching, students can express and communicate meanings that they know in English, which will improve language learning and cultural connections.

The specific role of local wisdom in education is notable in primary school, where students learn new knowledge by connecting it to what they already know in their social and life experiences. English instruction with a cultural orientation can provide contextualized vocabulary, important communicative contexts, and regionally relevant topics for speaking, reading, writing, and listening activities. The integration of culture in language teaching is not, however, just a matter of adding cultural references to what is already there (Guo, Yang, Xiao, & Xie, 2024). Teachers need to ensure that local material is represented accurately, politely, and developmentally appropriately by the students while maintaining explicit connections to English learning objectives (Majadly & Amara, 2025). Thus, combining culturally sustaining pedagogy with digital technology offers a way to transform local cultural treasures into multimodal learning experiences. Digital stories, interactive displays, films, digital games, and content created by students can support students' investigation and expression of local knowledge in English, as well as developing their digital and communication abilities (Mutmainah, Rosidah, & Ilham, 2025; Yang, 2013).

2.3. Student Engagement in Culturally Grounded Digital Learning

Student engagement is widely accepted as a key indicator of the quality and effectiveness of educational experiences. It comprises behavioral, emotional, and cognitive dimensions, such as students' participation in classroom activities, enthusiasm and enjoyment, persistence, attention, and dedication to learning tasks. In digital English teaching, the level of contact may be influenced by the degree of promotion of interaction, independence, feedback, multimodal stimulation, and opportunities for meaningful communication in digital tasks (Pratono, Nawangpalupi, & Sutanti, 2023). These characteristics are particularly relevant in primary education, where sustaining students' attention and interest over extended periods can be challenging, especially when learning activities are perceived as repetitive, uninteresting, or disconnected from their everyday experiences. In this context, digitally mediated learning environments may provide opportunities to create more dynamic, interactive, and meaningful educational experiences (Cunsolo Willox, Harper, & Edge, 2013; Xiaofan & Annamalai, 2025). Integrating Indigenous knowledge into digital English language instruction may further strengthen student engagement by bringing together the affordances of digital technology with the cultural knowledge, values, and lived experiences that shape students' everyday learning contexts.

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Young people are likely to be more motivated to engage and talk when they are exposed to interactive digital experiences that contain recognizable stories, traditions, places, and community practices, since the content holds knowledge that is meaningful to them individually and socially (Islami & Octavia, 2026; Wiasti & Wafa, 2025). Such an approach positions students as active contributors to the learning process rather than passive recipients of digitally mediated content. This is particularly evident when learners are encouraged to document, describe, interpret, and communicate aspects of their local cultural knowledge as part of their English language learning, thereby creating opportunities for meaningful participation and cultural expression (Husein, Agustin, & Maghfiroh, 2026; Nurhaliza, Sofendi, & Mirizon, 2025).

A critical synthesis of the literature in this study shows that digital technology, local culture, and student engagement in learning activities are closely interrelated; however, these aspects are often studied separately in the context of English learning in elementary schools. The study of the literature review indicates that effective English learning in the digital era requires not only the integration of digital technology but also culturally relevant teaching materials to develop students' active engagement. This literature review serves as a foundation for designing interventions that integrate digital technology for interactive English learning in elementary schools, the integration of Balinese local wisdom for cultural relevance, and student-centered learning processes to support student engagement. The gaps identified in the literature review serve as a reference in determining the measured outcomes, namely cultural integration, the use of digital technology, and student engagement.

3. Materials and Methods

The study adopted a mixed-methods research design to examine the transformation of primary English language education within a digital technology environment, drawing on neo-humanistic principles and Indigenous cultural knowledge. The mixed-methods approach enabled the phenomenon to be examined from both quantitative and qualitative perspectives, providing a more comprehensive understanding of the educational practices under investigation (Cohen, Manion, & Morrison, 2018). Quantitative data focused on teachers' instructional needs, students' perceptions, and the extent to which key pedagogical features were reflected in the learning process. The qualitative component, in turn, provided a deeper exploration of how local cultural knowledge, neo-humanistic principles, contextualized learning, and digital technologies were integrated into English language instruction.

The research was conducted at Bali public schools in Indonesia, where English was taught as a foreign language. The participants included 60 primary school students and English teachers who were directly involved in the English learning process. Participants were selected through purposive sampling based on their active involvement in English language instruction and their relevance to the study's research objectives.

Data were collected using document analysis, surveys, classroom observations, semi-structured interviews, and student reflections. A document analysis tool was used to assist the evaluation of the materials in terms of English lesson plans and educational resources for contextual learning, the integration of local culture, digital technologies, and student participation. The classroom observation tool used a five-point scale (1 to 5) from not evident to highly evident and regularly highlighted contextual learning, local culture, student engagement and collaboration, digital technology, English communication, and creativity. The semi-structured interviews were done to get insights into the teachers' experiences, needs, problems, and expectations in the integration of local culture, humanistic ideals, and digital technology. The student reflections were used to understand the experiences, responses, perceived importance, and obstacles faced by the students during educational activities.

The learning intervention process was carried out for 6 weeks, consisting of 12 English learning sessions, each session lasting 90 minutes. A pre-test was given before the intervention process began, and students took an initial test. The teaching materials delivered using digital technology utilized local cultural themes such as traditional Balinese houses, culinary delights, festivals, art, handicrafts, and local community life. Teachers used digital technology in the form of interactive learning platforms, digital visual materials, short videos, online quizzes, and digital presentation tools.

The findings derived from the questionnaire, document analysis, and classroom observations were synthesized in relation to the key dimensions of the study: contextualized learning, the integration of local cultural knowledge, neo-humanistic principles, digital technology, and student interaction. The average scores were classified into five categories: 1.00-1.80 as extremely low; 1.81-2.60 as low; 2.61-3.40 as normal; 3.41-4.20 as elevated; and 4.21-5.00 as rather high. Qualitative data were collected through document analysis, classroom observation, teacher interviews, and student reflection, and were analyzed thematically by familiarizing with data, initial coding, classifying, identifying recurring patterns, developing themes, and interpreting. Then, in the analytical step, the quantitative and qualitative findings were combined. In an effort to increase the reliability of the findings, data triangulation from different sources was used to provide a basis for comprehending and developing a primary English learning framework that includes English language development, Balinese cultural aspects, neo-humanistic ideals, and intentional use of digital technology.

4. Results

The study involved 60 primary school students and eight English language teachers, all of whom participated in the implementation and evaluation of culturally sustaining digital teaching practices. Quantitative data were collected through a student engagement questionnaire administered before and after the educational intervention, allowing changes in students' engagement to be examined over the course of the study. Qualitative data were obtained through semi-structured interviews with the eight participating teachers, classroom observations, and students' reflective accounts. Together, these sources provided complementary perspectives on the implementation of culturally sustaining digital teaching and its influence on the learning experience.

4.1. Integration of Local Wisdom into Digital English Learning

The qualitative analysis yielded five overarching themes that characterized students' experiences throughout the intervention: (1) cultural contextualization, (2) active participation, (3) emotional connection, (4) collaborative interaction, and (5) confidence in English use. These themes emerged through the triangulation of evidence from

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teacher interviews, classroom observations, and students' reflective responses. An overview of the identified themes and their corresponding patterns is presented in Table 1.

Table 1. Qualitative themes based on the implementation of culturally sustaining digital pedagogy.

Theme	Evidence from teachers	Evidence from classroom observations	Evidence from student reflections
Cultural contextualization	Teachers connected English tasks with local stories, traditions, and environments.	Students readily related lesson content to familiar experiences.	Students reported that familiar cultural topics made English easier to understand.
Active participation	Teachers observed greater willingness to answer questions and complete the learning activities.	An increasing number of students volunteered responses and participated actively in collaborative group activities.	Students characterized the activities as enjoyable, engaging, and motivating, reflecting a positive affective response to the learning experience.
Emotional connection	Teachers reported heightened student enthusiasm when elements of local culture were incorporated into digitally mediated learning activities.	Students demonstrated heightened enthusiasm and sustained attentiveness throughout culturally oriented learning activities.	Students expressed a strong sense of enjoyment and cultural pride when engaging with learning activities centered on their own cultural heritage.
Collaborative interaction	Teachers incorporated collaborative, group-based digital activities to foster peer interaction, facilitate knowledge sharing, and encourage students to engage more actively with one another throughout the learning process.	Students engaged in task-related discussions and provided peer support throughout the digitally mediated learning activities.	Students valued collaborative learning opportunities that enabled them to work collectively on tasks integrating cultural content and English language practice.
Confidence in English use	Teachers observed a marked increase in students' willingness to express themselves orally and participate in English-language presentations.	Students increasingly demonstrated initiative in using English expressions independently, without relying on teacher prompts or explicit encouragement.	Students reported greater confidence when expressing their ideas and engaging in English-language discussions on culturally familiar topics.

The findings demonstrate a close interplay between the cultural and technological dimensions of the intervention. Rather than simply transferring existing cultural resources into digital formats, teachers strategically employed digital tools to amplify the visual richness, interactivity, accessibility, and pedagogical value of culturally grounded materials. Familiar places, practices, and everyday cultural experiences were incorporated into digital storytelling, photographic materials, and short films, providing meaningful contexts through which students could expand their vocabulary and develop their ability to articulate ideas in English. In this way, the approach created opportunities for learners to describe, interpret, and discuss aspects of their own cultural environments in English, rather than relying predominantly on unfamiliar or decontextualized scenarios commonly presented in conventional textbook materials.

4.2. Student Engagement: Quantitative Findings

The quantitative findings revealed a statistically significant increase in student engagement following the implementation of culturally sustaining digital teaching practices. Table 2 presents the descriptive statistics for the three dimensions of student engagement examined in the study: behavioral, emotional, and cognitive engagement.

Table 2. Descriptive statistics of student engagement.

Dimension	Pre-intervention Mean	Pre-intervention SD	Post-intervention Mean	Post-intervention SD
Behavioral engagement	3.21	0.54	4.18	0.47
Emotional engagement	3.28	0.57	4.31	0.45
Cognitive engagement	3.16	0.52	4.12	0.49
Overall engagement	3.22	0.48	4.20	0.41

Overall student engagement increased substantially, with the mean score rising from 3.22 prior to the intervention to 4.20 following its implementation. Among the three dimensions examined, emotional engagement recorded the highest post-intervention mean ($M = 4.31$, $SD = 0.45$), followed by behavioral engagement ($M = 4.18$, $SD = 0.47$) and cognitive engagement ($M = 4.12$, $SD = 0.49$). The consistent upward shift across all three dimensions suggests that students responded favorably to the incorporation of culturally relevant content and digitally mediated learning activities, indicating that the intervention supported their emotional involvement, active participation, and cognitive investment in the English learning process.

4.3. Students' Perceptions of Culturally Sustaining Digital Learning

The questionnaire responses were further examined to determine which dimensions of the intervention received the most favorable evaluations from the students. Based on the mean scores, the five highest-rated questionnaire items are presented in Table 3.

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Table 3. Highest-rated student perception and engagement items.

Item	Statement	Mean	SD
1	I enjoyed learning English through local cultural materials.	4.43	0.61
2	The digital activities made English learning more interesting.	4.38	0.59
3	I felt proud when learning English through my local culture.	4.35	0.63
4	I was more willing to participate in English activities.	4.28	0.58
5	The digital materials helped me understand the English lessons.	4.25	0.60

The highest mean score was recorded for students' enjoyment of learning English through locally grounded cultural resources (M = 4.43, SD = 0.61), followed by their perception that digitally mediated activities rendered English learning more appealing and stimulating (M = 4.38, SD = 0.59). The comparatively high score for cultural pride (M = 4.35, SD = 0.63) further suggests that cultural familiarity and affiliation constituted a meaningful dimension of students' learning experiences. These quantitative findings were reinforced by students' reflective accounts, in which they frequently emphasized that learning activities became more engaging and personally meaningful when they incorporated familiar narratives, places, customs, and community traditions. Such reflections suggest that the incorporation of culturally recognizable content may have enhanced not only students' interest in the learning activities but also their sense of connection to the subject matter.

4.4. Teacher Perspectives on the Implementation

Further insight into the pedagogical value and practical challenges of the approach was obtained through semi-structured interviews with eight teachers. Overall, the teachers viewed the integration of Indigenous knowledge and digital technology positively, particularly in relation to strengthening students' engagement and active participation in English learning. They emphasized that students' existing cultural knowledge provided a familiar foundation from which they could generate ideas and participate in English-language activities with greater confidence. Teachers also noted that digital resources enabled them to represent local cultural knowledge through a range of multimodal formats, including photographs, music, videos, animations, and interactive learning tasks.

A recurring theme across the interviews was the changing role of the teacher, from primarily transmitting information to facilitating students' learning and participation. Teachers described investing greater effort in designing learning activities, selecting culturally appropriate digital materials, organizing collaborative tasks, and guiding students in using English to discuss topics relevant to their local communities. At the same time, several practical challenges were identified, including the time required for lesson preparation, differences in students' digital competencies, occasional technical difficulties, and the need to ensure that cultural content was represented accurately and appropriately. Although these challenges did not diminish teachers' overall positive perceptions of the approach, they highlighted the importance of adequate teacher preparation, professional development, and institutional support for the effective implementation of culturally sustaining digital pedagogy.

Teachers' individual observations further illustrated these findings. One teacher explained that students' existing cultural knowledge gave them a familiar basis for developing ideas and discussing them in English, while another observed that digital media made local cultural resources more engaging and accessible to students. These perspectives were consistent with classroom observations, which showed that students were able to sustain their attention for longer periods when digital activities were connected to culturally familiar events and experiences. The teacher interviews therefore provide important contextual evidence for interpreting the quantitative increase in student engagement, demonstrating how culturally relevant digital practices may contribute to students' participation and confidence in English learning.

4.5. Classroom Observation Findings

Classroom observations revealed noticeable changes in students' patterns of participation throughout the intervention. Three consistent developments were particularly evident: increased voluntary participation, more frequent peer interaction, and greater sustained attention during digitally mediated cultural activities. At the beginning of the intervention, some students depended on teacher prompts and guidance when responding in English. As the intervention progressed, however, an increasing number of students began to contribute answers, pose questions, and use English expressions more independently.

The findings also indicated that collaborative digital activities facilitated peer-supported learning. Students frequently assisted one another in interpreting instructions, identifying unfamiliar terminology, and completing digital tasks. This form of interaction was especially apparent when students worked with local narratives, visual materials, and films, which enabled them to draw on shared cultural knowledge while using English to complete the assigned activities. Overall, the classroom evidence suggests that the intervention created opportunities for students to use English within meaningful social and cultural contexts, rather than limiting language use to isolated responses to teacher-initiated questions.

4.6. Student Reflections

The students' reflections suggested that familiarity with the cultural content contributed to greater self-confidence when using English. Students also appeared more motivated to participate in English lessons when they could draw on prior knowledge and experiences related to the subject matter. This finding is particularly significant because it indicates that local knowledge served not only to strengthen students' engagement with the learning process but also to provide a cognitive and experiential foundation for producing and communicating in English. These qualitative findings further reinforce the quantitative evidence of increased cognitive engagement following the intervention.

4.7. Pre- and Post-Intervention Differences

A paired-samples *t*-test was conducted to assess whether the observed changes in student engagement before and after the intervention reached statistical significance. The results of the analysis are presented in Table 4.

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Table 4. Paired-samples t-test of student engagement.

Dimension	Mean difference	t	p	Cohen's d
Behavioral engagement	0.97	11.21	< 0.001	1.45
Emotional engagement	1.03	11.86	< 0.001	1.53
Cognitive engagement	0.96	10.74	< 0.001	1.39
Overall engagement	0.98	14.27	< 0.001	1.84

The results showed statistically significant improvements in all three dimensions of student engagement. Behavioral involvement increased by 0.97 points, emotional engagement by 1.03 points, and cognitive engagement by 0.96 points. The overall increase of 0.98 points was statistically significant, $t(59) = 14.27$, $p < 0.001$, with a large effect size (Cohen's $d = 1.84$). These findings suggest that the intervention was associated with a considerable increase in student engagement.

5. Discussion

The findings revealed that the combination of indigenous knowledge and digital technology can improve students' involvement in teaching primary English to a large extent. Students reported higher enjoyment when local stories, traditions, places, and culture were included in the English curriculum. In this case, the local knowledge is not simply additional content but also an emotional and experiential value that can increase the personal importance of learning English (Akbar & Azizah, 2025). The findings provide strong support for a culturally sustaining perspective that views students' current cultural knowledge as a beneficial resource in the language learning context.

The increase in behavioral involvement shows that culturally relevant digital education can lead to higher classroom engagement. During classroom observations, kids were more ready to raise their hands, interact with their classmates, and finish digital assignments. According to the teachers, if the difficulties were culture-related, students would generate ideas and engage in communication activities (Demirkol, 2026). This finding is pedagogically significant since young EFL students normally need a lot of contextual support before they can utilize a foreign language competently. Shared cultural experiences in digital interactions provide students with a pre-existing conceptual framework for making sense in English. Digital technology, therefore, offers more options for participation and collaborative learning activities (Gans, Logan, & Alexander, 2025). The resulting instructional context, therefore, may serve as a bridge connecting students' prior knowledge with the new language structures they are expected to use in the classroom.

The students' views showed that digital resources helped students comprehend English content due to the visual and contextual clues, which enriched their knowledge of the unknown language. Therefore, culturally relevant digital products might be a major cognitive aid. Students learn English vocabulary and phrases in familiar situations and cultural surroundings. Contextualization may lead to better comprehension and encourage students to apply their language abilities for communicative aims (Sabilah, Wicaksono, & Andini, 2025). This research further extends the concept of technology-enhanced learning, in that the cultural and experiential importance of the knowledge delivered through technology could, in part, impact cognitive engagement.

The interviews with the teachers imply that successful implementation involves a change in the teaching obligations of teachers. Teachers said the shift was about more than just delivering digital curriculum (Nurrohman, Anshori, & Ndlovu, 2026). It was about devising culturally relevant activities, sourcing the right resources, and encouraging participation and use of English to convey local knowledge. The finding suggests a large gap between technology use and digital pedagogy (Osman, Hamdan, Hassan, & Alameddine, 2026). Just having digital gadgets in the classroom does not make education student-centered. Teachers need to be conscious about the why of technology, the cultural stories they are presenting, and how students will connect to that information. In this study, digital technology was used for educational purposes by teachers who converted local cultural assets into interesting learning experiences (Gonzalez-Vidal, 2026). The main preconditions for maintaining this methodology seem to be the digital competence of the teachers and their pedagogical competence.

The findings contribute to the knowledge base on culturally sustaining pedagogy in technology-enhanced language education. Culturally sustaining teaching is typically associated with recognizing and developing students' cultural and linguistic resources. The results presented here suggest that digital technology provides new ways to represent, examine, and convey cultural artifacts. Teachers can digitize regional stories, transform cultural events into multimedia teaching resources, and use community surroundings as settings for language exercises (Suthiprapa et al., 2026). Therefore, technology and culture are related. Culture is the meaning and context of learning, and technology is the means by which that cultural knowledge may be communicated and shared. This relationship challenges the usual notion of technology as a neutral conduit, viewing it instead as a culturally contextualized interpretative tool.

Another crucial result is the link between cultural identification and learning English. Students had fun learning English using the cultural resources of the region, and teachers felt more confident when students took an active part in conversations about common subjects. This result means that studying English does not ask students to disconnect themselves from their cultural identities. Instead, English can be a route for students to express, understand, and share aspects of their cultural context. This is particularly important for modern language teaching, because the world status of English sometimes leads to the production of teaching materials that favor foreign cultural representation (Mantra, Maba, Wedasuwari, & Staupelyte, 2024). It is a culturally sustaining digital pedagogy that gives an egalitarian alternative for students to work with English while maintaining strong ties to their local cultural settings.

However, the teacher interviews revealed several challenges associated with implementing these practices, including the considerable time required for lesson preparation, differences in students' levels of digital competence, limitations in technological infrastructure, and the challenge of ensuring that local cultural knowledge is represented accurately and appropriately. These findings indicate that the culturally sustaining digital pedagogy should not be considered a mere pedagogy of embedding local cultural resources into digital training. Teachers need time and resources, as well as digital skills and instructional assistance, to provide appropriate learning experiences (Taye, 2025). Further, care must be taken in the selection and presentation of local cultural knowledge so as not to

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perpetuate shallow, stereotyped, or misleading cultural portrayals. Thus, teachers' professional development must involve culturally relevant pedagogies, not only technical skills (Cheng, Zhou, Shu, & He, 2026). Institutional support is critical since the transient nature of a workaround might leave teachers struggling to sustain technology-enhanced practices.

From a quantitative perspective, the effect size of the investigation should be interpreted with caution. The results suggest a considerable increase in student engagement in the learning environment, but they should not be interpreted as definitive evidence that culturally sustaining digital pedagogy would have similar benefits in every primary school setting. Student characteristics, teacher competence, technological infrastructure, cultural milieu, curricular requirements, and the timing of implementation may have influenced the results. Student participation was assessed primarily through self-reported data, supported by classroom observations and qualitative evidence. Studies with larger samples, a wider range of educational institutions, longer intervention periods, and control groups would be needed to provide more convincing evidence of the generalizability and sustainability of the claimed outcomes.

Therefore, the findings imply a shift from a technology-driven paradigm of digital English education to a culturally sustaining approach to digital teaching. The instructional value of digital technology is enhanced when it is used in conjunction with students' local cultural knowledge and experiences. The quantitative findings show a substantial increase in engagement across behavioral, emotional, and cognitive dimensions. The findings indicate that effective digital transformation in primary English language education extends beyond the mere adoption of technological tools. Its effectiveness also depends on the extent to which digital instruction is culturally relevant, promotes meaningful student engagement, and enables teachers to design learning experiences that are purposeful and responsive to students' contexts.

6. Conclusion

The results of this study reveal that culturally sustaining digital pedagogy can provide a meaningful way to improve student engagement in primary English education. The learning experiences were designed to integrate English language development into the familiar cultural settings of the students by merging local wisdom with digital technology. Quantitative results showed significant positive gains in behavioral, emotional, and cognitive engagement after the intervention, and qualitative data from teacher interviews, classroom observations, and student reflections showed increased participation, enjoyment, confidence, collaboration, and cognitive engagement. These observations suggest that the instructional value of digital technology extends beyond its capacity to provide access to English language materials. Its pedagogical potential is enhanced when digital tools enable students to explore, interpret, and communicate knowledge that is culturally familiar and connected to their everyday experiences. In this regard, the study contributes to the field of primary English language education by demonstrating how the affordances of digital technology can be integrated with culturally grounded pedagogical practices to support more meaningful and contextually relevant learning experiences.

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