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The Role of Civic Digital in Enhancing Digital Literacy through Tourism-Based Learning in Vocational Schools

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ABSTRAK

Transformasi digital dalam pendidikan kejuruan semakin penting, khususnya di daerah yang berbasis pariwisata, di mana siswa harus memperoleh kompetensi yang relevan dengan tuntutan industri. Studi ini menyelidiki bagaimana teknologi informasi dan komunikasi (TIK) diintegrasikan ke dalam pembelajaran kontekstual berbasis pariwisata di SMK Negeri 1 Batulayar, sebuah sekolah kejuruan yang terletak di daerah pariwisata di Indonesia. Dengan menggunakan pendekatan studi kasus kualitatif, penelitian ini melibatkan observasi kelas, wawancara pemangku kepentingan, dan analisis dokumen untuk menilai kesiapan infrastruktur, praktik pedagogis, keterlibatan siswa, dan kolaborasi masyarakat. Temuan penelitian mengungkapkan bahwa meskipun sekolah telah berupaya menyediakan infrastruktur digital, seperti akses Wi-Fi dan laboratorium komputer, keterbatasan konektivitas dan peralatan, serta kesenjangan akses siswa di rumah, menghadirkan tantangan yang terus berlanjut. Siswa terlibat lebih efektif dengan perangkat digital saat terlibat dalam proyek pariwisata di dunia nyata, mengembangkan konten untuk promosi lokal menggunakan platform seperti Google Workspace dan Canva. Namun, tidak semua siswa dipersiapkan atau didukung secara setara, dan kapasitas guru bervariasi secara signifikan. Upaya kelembagaan untuk bermitra dengan pelaku pariwisata cukup menjanjikan tetapi kurang memiliki perencanaan sistemik. Studi ini menyimpulkan bahwa integrasi digital yang sukses tidak hanya memerlukan akses ke teknologi tetapi juga inovasi pedagogis yang berkelanjutan, pelatihan guru, dukungan infrastruktur, dan tata kelola kolaboratif. Temuan ini menawarkan model yang dapat direplikasi untuk meningkatkan literasi digital melalui keterlibatan digital warga dan pembelajaran kontekstual di negara berkembang.

Keywords:

Digital Literacy
Contextual Learning
Digital Civic
Tourism Education

ABSTRACT

Digital transformation in vocational education is increasingly essential, particularly in tourism-driven regions where students must acquire competencies relevant to industry demands. This study investigates how information and communication technology (ICT) is integrated into tourism-based contextual learning at SMK Negeri 1 Batul Layar, a vocational school located in a tourism area in Indonesia. Using a qualitative case study approach, the research involved classroom observations, stakeholder interviews, and document analysis to assess infrastructure readiness, pedagogical practices, student engagement, and community collaboration. Findings reveal that while the school has made efforts to provide digital infrastructure, such as Wi-Fi access and computer labs, limitations in connectivity and equipment, as well as disparities in students' access at home, present persistent challenges. Students engaged more effectively with digital tools when involved in real-world, tourism-related projects, developing content for local promotion using platforms like Google Workspace and Canva. However, not all students were equally prepared or supported, and teacher capacity varied significantly. Institutional efforts to partner with tourism actors were promising but lacked systemic planning. The study concludes that successful digital integration requires not only access to technology but also sustained pedagogical innovation,

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teacher training, infrastructure support, and collaborative governance. These findings offer a replicable model for enhancing digital literacy through civic digital engagement and contextual learning in developing economies.

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A. INTRODUCTION

In recent years, the rapid advancement of digital technology has reshaped nearly every sector of society, with education and tourism emerging as two domains experiencing substantial transformation. The integration of digital tools and platforms into teaching and learning processes has gained prominence, especially within vocational education, where there is a growing emphasis on preparing students for technology-driven industries. In tourism-focused regions, digital literacy is becoming not just an additional skill but a core competency. The demands of the tourism industry increasingly require a workforce capable of navigating digital content, managing online systems, and promoting destinations through digital media (UNWTO, 2022). Consequently, educational institutions located in or near tourism areas face a strategic imperative to align their pedagogical approaches with the evolving technological expectations of the labor market (Zhang & Wang, 2020).

A growing body of literature has emphasized the significance of integrating Information and Communication Technologies (ICT) into vocational education as a means to bridge the digital divide and prepare students for the realities of the 21st-century economy. According to Voogt et al. (2015), embedding ICT into classroom practices enhances students' digital competencies and promotes innovative pedagogical practices. Similarly, research by Redecker et al. (2017) suggests that digital competence frameworks must be context-sensitive and aligned with sector-specific demands, especially in areas where economic development is tied to service and creative industries such as tourism. In Indonesia, the government's push for digital transformation in education has been framed through national policies advocating for digital literacy and the use of educational technology to foster inclusive and equitable learning environments (Kemendikbudristek, 2021). However, the practical implementation of such initiatives, particularly in rural or tourism-focused regions, remains inconsistent and under-examined.

Despite these broad developments, significant challenges remain in ensuring equitable access to digital tools and fostering meaningful engagement among students. Many vocational schools, especially those located in under-resourced or geographically isolated areas, face barriers such as unstable internet connectivity, limited availability of devices, and varying levels of digital competence among teachers and students (Trucano, 2016; Warschauer & Matuchniak, 2010). These structural limitations often result in unequal opportunities for learners to develop essential digital skills. The problem is further compounded when digital integration does not extend beyond classroom boundaries into the real-world learning contexts that are critical for vocational education. As such, the question arises: how can vocational schools in tourism regions effectively integrate ICT in a way that enhances students' digital literacy and aligns with industry expectations?

In response to this issue, contextual learning models have gained traction as a potential solution for bridging the gap between formal education and workplace realities. Contextual learning refers to instructional strategies that connect academic content with real-world applications, thereby increasing relevance and motivation among students (Johnson, 2002). In the context of vocational schools situated in tourism areas, leveraging the surrounding environment as a living laboratory can create meaningful learning experiences that integrate digital tools. This approach can foster digital literacy not just as an abstract skill but as a lived competence developed through hands-on engagement. Several studies have supported the notion that learning situated in authentic contexts—such as tourism promotion, digital storytelling, and content creation—can significantly enhance students' technological and communicative abilities (Herrington & Oliver, 2000; Krajcik & Blumenfeld, 2006).

Moreover, partnerships between educational institutions and local tourism stakeholders offer a promising framework for implementing contextual digital learning. By collaborating with tourism practitioners, schools can facilitate student involvement in content development for destination marketing, digital information systems, and interactive media applications. According to Livingstone and

Helsper (2007), digital engagement becomes more effective when learners perceive their activities as socially and economically meaningful. Involving students as content creators and active participants in local tourism initiatives can thus increase their motivation and deepen their understanding of both digital tools and tourism dynamics. However, such initiatives require systematic planning, adequate infrastructure, and strong institutional commitment to ensure sustainability.

Some empirical studies have explored the use of digital platforms in promoting tourism education. For instance, Balakrishnan and Griffiths (2018) examined the integration of mobile applications and digital media in tourism courses and found that students' engagement and skill acquisition improved significantly when learning activities were aligned with real-life tourism practices. Similarly, a study by Rahimi and Yadollahi (2017) demonstrated that project-based digital learning enhanced vocational students' ability to use ICT for entrepreneurial purposes. However, while these studies highlight promising practices, they often focus on urban or well-resourced contexts and do not fully address the implementation challenges in peripheral or underdeveloped regions where infrastructural and socioeconomic constraints are more pronounced.

Literature specifically examining the intersection of ICT integration, tourism-based contextual learning, and vocational education in developing countries remains limited. Although some research has acknowledged the potential of digital tools for promoting tourism literacy among students (Sari et al., 2020), there is a lack of comprehensive analysis on how these tools are implemented within the specific environmental and infrastructural constraints of rural vocational schools. Moreover, few studies have explored how collaboration between schools and local tourism stakeholders can be institutionalized to support students' digital engagement in sustainable and scalable ways. This gap becomes even more salient when considering the disparities in access to technology and the uneven digital readiness of teachers and students.

This study seeks to address these gaps by investigating the implementation of digital information technologies in a vocational school located within a tourism zone—SMK Negeri 1 Batulayar in Indonesia. The study focuses on how the school integrates ICT into contextual learning practices and how this integration impacts students' digital literacy, especially in relation to tourism content creation and promotion. Drawing on qualitative data from observations and interviews with school stakeholders, the research identifies both the enabling conditions and the barriers to successful implementation. The study also explores collaborative efforts between the school and tourism actors to create content, highlighting the role of institutional coordination, teacher training, and student motivation.

By examining these dynamics, this study contributes a novel perspective to the discourse on digital transformation in vocational education. It provides empirical evidence from a rural, tourism-oriented educational context that is often underrepresented in the literature. Furthermore, the study advances the hypothesis that meaningful ICT integration in vocational education requires not only access to technology but also pedagogical innovation, stakeholder collaboration, and contextual relevance. The scope of this research includes the analysis of existing infrastructure, the pedagogical practices employed by teachers, the students' digital engagement levels, and the institutional strategies adopted to promote collaboration with tourism stakeholders. Ultimately, the findings aim to inform educational policy and practice, particularly in settings where digital inclusion and workforce preparedness are key to regional development.

B. METHOD

This study employed a qualitative research approach grounded in case study methodology to explore how information and communication technologies (ICT) are integrated into tourism-based contextual learning at SMK Negeri 1 Batulayar, a vocational school situated in a tourism zone in Indonesia. A case study design was deemed appropriate because it allows for an in-depth examination of a bounded system—namely, the school as a unit of analysis—within its real-life context (Yin, 2018). The research aimed to investigate both the opportunities and constraints experienced in the implementation of ICT for enhancing students' digital literacy, particularly in the context of tourism education.

The methodology is structured around three core components: observation, in-depth interviews, and document analysis. These were selected to ensure triangulation of data and to capture the nuanced perspectives of different stakeholders involved in the integration process, including school administrators,

teachers, and students. The study draws on the interpretivist paradigm, which emphasizes understanding social phenomena through the subjective meanings individuals ascribe to them (Creswell & Poth, 2018). This orientation is particularly relevant for educational research, where the interplay of policy, pedagogy, infrastructure, and personal experience must be carefully interpreted to generate meaningful insights.

The first phase of the research involved direct classroom and environmental observations within the school setting. The goal was to document the physical infrastructure, ICT resources, and the ways in which digital tools were employed during instructional sessions. Particular attention was paid to the availability and condition of computer laboratories, classroom internet connectivity, and students' personal access to digital devices such as smartphones and tablets. Observations revealed that while SMK Negeri 1 Batulayar had invested in basic digital infrastructure—such as Wi-Fi in classrooms and computer labs—the effectiveness of these facilities was frequently compromised by technical issues including unstable connections and limited hardware availability. This reflects broader findings in the literature that underscore the importance of reliable infrastructure as a prerequisite for successful ICT integration (Voogt et al., 2015; Trucano, 2016). Moreover, observation sessions extended beyond the classroom to include activities in nearby tourism areas, where contextual learning was conducted. These sessions allowed researchers to assess how students engaged with digital tools in real-world environments, such as during the creation of promotional content for local tourism destinations. The presence of such contextual learning practices is consistent with recommendations from Herrington and Oliver (2000), who argue that situated learning enhances the relevance and transferability of skills in vocational settings.

The second phase consisted of semi-structured interviews with three key informants: the school's Public Relations Officer (Humas), the Head of Administration (Kepala Tata Usaha), and the Principal. These individuals were chosen because of their institutional roles in managing school-industry collaborations, coordinating ICT resources, and formulating digital literacy strategies. The interview questions were designed to elicit detailed information on the planning, implementation, and evaluation of ICT initiatives, as well as perceived challenges and opportunities. For example, the Public Relations Officer highlighted the school's efforts to partner with tourism stakeholders to involve students in content creation activities, although he acknowledged that such collaborations were still in the exploratory phase and lacked systematic planning.

The Head of Administration emphasized the importance of conducting an inventory of technological needs and organizing training sessions for both teachers and students. He pointed to budgetary limitations, insufficient coordination between stakeholders, and a lack of technical expertise as major barriers to implementation. These insights align with prior research by Warschauer and Matuchniak (2010), which notes that successful ICT adoption in education requires not only access to devices but also comprehensive support systems, including professional development and institutional leadership. The Principal of SMK Negeri 1 Batulayar provided an overarching perspective on the school's digital transformation strategy. He confirmed that while social media platforms and websites had begun to be used for promotional purposes, the integration of online booking systems and mobile applications remained underdeveloped. This partial integration highlights the often-fragmented nature of digital adoption in resource-constrained environments, a pattern observed in similar educational contexts by Redecker et al. (2017). Moreover, the Principal underscored the need for developing a long-term roadmap to guide the school's ICT efforts, suggesting that sustainability and scalability were key concerns.

The third phase of data collection involved informal interviews with students and classroom observations of their interaction with digital tools. Students reported diverse experiences: while some displayed a high level of engagement and used their devices for educational tasks such as editing digital content, managing social media pages, and utilizing cloud-based platforms like Google Workspace, others primarily used their devices for entertainment purposes. This discrepancy highlights the unequal levels of digital literacy among students, which is often shaped by socioeconomic factors and access to resources at home (Livingstone & Helsper, 2007). In addition to interviews and observations, the study analyzed relevant documents including school reports, curriculum plans, and promotional materials produced by students. These documents were examined to understand the alignment between institutional goals and classroom practices. Analysis of these materials revealed a nascent but growing emphasis on digital competence within the school's tourism curriculum. However, gaps were evident in terms of formal assessment criteria, structured teacher training, and student feedback mechanisms. The lack of these elements indicates a need for institutional frameworks that support continuous improvement and

reflective practice in ICT integration, as advocated by Krajcik and Blumenfeld (2006). Data from all sources were coded thematically using NVivo software, following the inductive approach recommended by Braun and Clarke (2006). Initial codes were generated from field notes and transcripts, and then grouped into broader themes such as infrastructure readiness, pedagogical integration, stakeholder collaboration, and student engagement. This analytical strategy enabled the researchers to identify recurring patterns and divergent views, which were then interpreted in light of existing theoretical frameworks.

Ethical considerations were observed throughout the research process. Informed consent was obtained from all participants, and their identities were anonymized to protect confidentiality. The study was approved by the institutional research ethics board and conducted in accordance with the ethical guidelines for educational research proposed by the British Educational Research Association (BERA, 2018). In conclusion, the methodological design of this study reflects a deliberate effort to capture the complex and context-dependent nature of ICT implementation in vocational education. By employing a multi-method approach that integrates observations, interviews, and document analysis, the study provides a holistic understanding of the factors influencing digital literacy development in a tourism-oriented school setting. Furthermore, the emphasis on contextual learning and stakeholder collaboration adds a distinctive dimension to the research, positioning it as a valuable contribution to the discourse on civic digital transformation in education.

C. RESULTS AND DISCUSSION

The results of this study, based on comprehensive field observations, interviews, and document analysis at SMK Negeri 1 Batulayar, reveal a multifaceted picture of how information technology is being integrated into tourism-based contextual learning. These results are organized around four core thematic domains derived from the data: the condition of digital infrastructure and school readiness; variations in student engagement and digital literacy development; teacher capacity and institutional support; and the current status of community and tourism-sector collaboration.

The first major theme concerns the implementation of digital infrastructure within the school. Observations indicate that SMK Negeri 1 Batulayar has made visible efforts to provide foundational digital resources, including classroom Wi-Fi, a functional computer laboratory, and access to digital learning platforms. These efforts are aligned with national mandates promoting digital transformation in Indonesian education (Kemendikbudristek, 2021). However, significant limitations persist. The internet connection, while theoretically available in all classrooms, was found to be unstable and frequently interrupted instructional continuity. Furthermore, the ratio of devices to students remained imbalanced, resulting in shared usage and limited time for individual hands-on experience with digital tools. These constraints mirror similar findings in the literature, where the gap between technological availability and usability continues to hinder digital learning in resource-constrained contexts (Warschauer & Matuchniak, 2010; Trucano, 2016).

Compounding these infrastructure challenges are disparities in students' home access to digital devices and internet connectivity. Interviews revealed that some students, particularly those from economically disadvantaged backgrounds, do not have consistent access to smartphones or internet services at home. This digital divide significantly affects their ability to practice and reinforce digital skills outside the classroom. The impact of such inequity has been discussed by Livingstone and Helsper (2007), who argue that digital exclusion is often shaped by socioeconomic status and can perpetuate broader educational inequalities. Consequently, while some students demonstrated advanced digital competencies and used platforms such as Google Workspace, Canva, and content management systems for educational purposes, others limited their digital engagement to entertainment or recreational content.

The second theme focuses on variations in student engagement and digital literacy development. Classroom observations and student interviews identified a clear divide in how digital tools were perceived and utilized. A subset of students displayed enthusiasm and creative

engagement when participating in tourism-based digital projects, such as developing multimedia content for local tourism promotion. These students utilized their digital devices not merely as passive receivers of content but as tools for creation and communication. They photographed local tourist attractions, composed reviews, designed promotional materials, and collaborated with peers to produce digital artifacts. These practices are reflective of the "prosumption" model in digital education, where learners act as both producers and consumers of digital knowledge (Jenkins et al., 2009). In contrast, another segment of the student population continued to use digital devices primarily for social media and gaming, demonstrating a lower awareness of the productive possibilities of technology in learning contexts.

This variation can be traced to differing levels of digital maturity and self-regulation among students, as well as inconsistent guidance from educators. While some teachers actively encouraged students to explore the educational use of technology, others lacked the pedagogical strategies to do so. This discrepancy in teaching practice highlights the need for consistent teacher training and curricular integration, a theme that re-emerges in the third domain of findings.

Teacher capacity and institutional support emerged as the third critical area influencing the success of ICT integration. Interviews with school staff revealed both progress and limitations. Certain teachers had participated in workshops on digital pedagogy and experimented with integrating digital tools into their lesson plans. These teachers often served as informal champions of digital innovation within the school. However, a majority of educators still faced challenges in adapting their instructional methods to digital modalities. Many reported lacking confidence in their digital skills and expressed a need for sustained professional development. This aligns with Voogt et al. (2015), who emphasize that effective ICT implementation requires ongoing support for teachers, including not just initial training but also long-term mentoring and institutional backing.

Moreover, the lack of a school-wide framework for digital integration meant that efforts remained fragmented and personality-driven rather than systemic. The administrative leadership acknowledged this gap and expressed interest in developing a structured roadmap for digital transformation. However, constraints in funding and competing priorities often delayed such initiatives. The head of administration highlighted the need for a comprehensive needs assessment to prioritize infrastructure upgrades and teacher development initiatives. These findings corroborate studies by Redecker et al. (2017), which argue that digital education reforms must be institutionalized through policies, frameworks, and sustained investment, particularly in schools serving marginalized populations.

The fourth theme centers on school-community collaboration, particularly the school's relationship with the surrounding tourism sector. The data suggest that while the potential for meaningful collaboration exists, current initiatives remain limited in scope and execution. The school's public relations office has initiated dialogues with local tourism businesses to involve students in content creation and promotional activities. For example, some students were engaged in producing social media posts, video content, and brief tourist guides for local attractions. These early efforts signal a promising direction but lack formal agreements, structured mentorship, and clear educational objectives.

Interviews with tourism stakeholders and administrative staff confirmed that current collaborations are largely ad hoc and lack systemic planning. The head of administration identified the need for inventories of technological needs and capacity-building workshops not just for students, but also for community stakeholders. This echoes the literature on community-based learning, where partnership models are most effective when supported by joint planning, resource sharing, and institutional alignment (Krajcik & Blumenfeld, 2006). Furthermore, the principal pointed out that while promotional websites and social media presence had increased, more advanced forms of digital tourism infrastructure—such as booking systems and mobile apps had yet to be developed or integrated into the curriculum.

The findings also identified cross-cutting barriers that affect all the above domains: most notably, the lack of funding and technical expertise. These barriers were repeatedly cited as reasons why digital transformation efforts had not yet achieved full potential. In the absence of adequate financial resources, schools cannot upgrade equipment, provide sufficient training, or develop platforms for student use. Similarly, without technical staff or access to external expertise, the school struggles to maintain existing infrastructure or innovate in its use. These systemic challenges are not unique to SMK Negeri 1 Batulayar but are symptomatic of broader issues faced by schools in rural and semi-urban regions across developing countries (UNESCO, 2021).

Despite these challenges, the research also documented significant gains in student learning outcomes in cases where ICT was successfully integrated into real-world learning. Students reported that using digital tools during field-based learning in tourism areas helped them connect theoretical knowledge with practical application. They expressed increased motivation and a deeper understanding of how digital literacy relates to future employment in the tourism sector. This is consistent with contextual learning theory, which posits that knowledge is most effectively acquired when embedded within meaningful, real-life activities (Johnson, 2002; Herrington & Oliver, 2000).

In summary, the results indicate that while the integration of ICT into tourism-based vocational education at SMK Negeri 1 Batulayar is still in its early stages, it has yielded measurable benefits in terms of student engagement and skill development. However, the extent of these benefits is uneven and constrained by structural and institutional limitations. The findings point to the need for a strategic, multi-stakeholder approach that includes infrastructural investments, teacher training, student support, and community engagement to sustain and expand digital literacy initiatives. These results not only underscore the promise of civic digital engagement in vocational education but also call attention to the structural reforms necessary to translate this promise into systemic change.

The findings of this study reveal the complex and context-specific dynamics of integrating digital technology into tourism-based vocational education in a semi-rural Indonesian setting. This discussion elaborates on the implications of these findings in relation to existing literature and policy frameworks while also identifying the pedagogical, infrastructural, and institutional conditions necessary for sustaining digital transformation in similar educational environments. The discussion is organized around four interrelated themes: infrastructural readiness and digital equity, pedagogical innovation and student engagement, teacher professional development and institutional leadership, and community collaboration and systemic integration.

1. Infrastructural Readiness and Digital Equity

The limited infrastructural capacity at SMK Negeri 1 Batulayar, particularly in terms of stable internet connectivity and the availability of digital devices, underscores the persistent digital divide that continues to hinder educational equity in many developing regions. These structural issues echo the concerns raised by Trucano (2016) and Warschauer and Matuchniak (2010), who argue that access to technology alone does not ensure meaningful digital learning, especially when infrastructural deficiencies are compounded by socioeconomic disparities among students. The observation that students from lower-income households had limited access to digital devices at home aligns with the argument presented by Livingstone and Helsper (2007) that digital exclusion is shaped as much by structural inequality as by individual motivation or competence.

In this regard, the case of SMK Negeri 1 Batulayar illustrates how infrastructural inequities constrain not only access but also participation in digital learning processes. The study suggests that without substantial public investment in basic digital infrastructure—such as robust internet networks, sufficient learning devices, and school-wide maintenance systems—efforts to integrate digital technology into vocational education will remain uneven and unsustainable. These findings reinforce recommendations from UNESCO (2021) that call for governments to

prioritize infrastructure development in educational institutions located in tourism and rural areas to bridge the digital divide.

2. Pedagogical Innovation and Student Engagement

One of the more encouraging findings of this study is the demonstrated potential of contextual learning approaches to foster student engagement and enhance digital literacy. When students were provided opportunities to use digital tools in real-world tourism settings—such as creating promotional videos, managing content on social media, and documenting tourist experiences—they exhibited heightened motivation and a deeper understanding of the applications of digital technology in their field. This aligns with the literature on situated and contextual learning, which emphasizes that knowledge acquisition is most effective when learning activities are embedded in authentic tasks (Herrington & Oliver, 2000; Johnson, 2002).

Moreover, the study supports the idea that students can transition from passive consumers of digital content to active producers or "prosumers," a concept explored by Jenkins et al. (2009) in the context of participatory culture and education. The ability of students to apply digital tools to promote local tourism not only fosters essential 21st-century competencies but also situates them as meaningful contributors to their community's economic and cultural development. However, this productive engagement is not universal. The variability in students' use of digital tools—ranging from highly engaged project work to non-educational use for entertainment—highlights the importance of guided pedagogical frameworks that support reflective and goal-oriented digital practices.

This also underscores the necessity of integrating digital media literacy into the curriculum in a way that goes beyond operational skills to include ethical, critical, and collaborative competencies. As emphasized by Redecker et al. (2017), digital competence must encompass not only technical proficiency but also the capacity to navigate information critically, communicate effectively, and collaborate within digital environments. Thus, schools must develop curricula that purposefully structure digital tasks within real-world learning environments while also fostering student agency and accountability.

3. Teacher Professional Development and Institutional Leadership

The role of teachers emerged as a pivotal factor influencing the success of digital learning integration. While some educators demonstrated initiative and creativity in using digital platforms to enrich instruction, others expressed uncertainty and a lack of preparedness. This disparity in teacher readiness is consistent with findings from Voogt et al. (2015), who note that successful ICT integration in schools is contingent upon the digital competencies of teachers, which must be cultivated through sustained professional development. The study highlights that ad-hoc or one-time training sessions are insufficient to support long-term change; instead, schools need to implement structured and iterative programs that allow teachers to experiment with digital tools, reflect on their experiences, and receive feedback within a collaborative learning community.

Institutional leadership also plays a critical role in enabling or impeding digital transformation. The administrative staff at SMK Negeri 1 Batulayar recognized the value of digital innovation but cited financial constraints, limited expertise, and the absence of a structured roadmap as key barriers to system-wide implementation. These constraints point to the necessity of strategic leadership that not only secures resources but also fosters a vision of digital education grounded in inclusivity, contextual relevance, and pedagogical innovation. As Redecker et al. (2017) argue, digital transformation in education must be guided by institutional policies that align infrastructure, teacher training, curriculum, and assessment in coherent ways. The absence of such alignment often results in fragmented initiatives that depend on individual champions and lack long-term sustainability.

4. Community Collaboration and Systemic Integration

Perhaps the most distinctive contribution of this study lies in its examination of the potential for collaboration between schools and the tourism sector to enhance digital learning. The integration of students into tourism promotion and content creation activities represents a promising model of civic digital engagement, where education becomes a vehicle for both individual empowerment and community development. However, the study also makes clear that these partnerships are still in their infancy and remain largely informal. The lack of structured agreements, shared goals, and institutional support limits the scalability and impact of these initiatives.

The literature on school-community partnerships suggests that sustainable collaboration requires joint planning, role clarity, and mutual benefit (Krajcik & Blumenfeld, 2006). In this case, while tourism stakeholders expressed interest in student involvement, there was limited coordination or shared understanding of how educational goals align with tourism promotion objectives. Bridging this gap requires not only school leadership but also policy frameworks that incentivize industry-education collaboration through funding, recognition, and support for innovation. Furthermore, as Balakrishnan and Griffiths (2018) suggest, the use of mobile and digital technologies in tourism education can serve as a platform for cross-sectoral learning if implemented with clarity and mutual commitment.

The findings also highlight that tourism-focused digital learning holds untapped potential for transforming how vocational education is conceptualized and delivered in semi-rural areas. By positioning students as creators of locally relevant digital content, schools can simultaneously advance educational goals and contribute to regional economic development. However, realizing this potential requires systemic integration that encompasses digital curriculum design, collaborative governance structures, and investment in digital infrastructure and professional capacity building.

This study has demonstrated that while there are promising practices and strong motivations for integrating digital technology into vocational tourism education, significant structural, pedagogical, and institutional barriers must be addressed to scale these efforts sustainably. Infrastructural readiness remains a foundational requirement, but it must be complemented by pedagogical innovation, continuous teacher development, visionary leadership, and community collaboration. The integration of ICT into contextual learning in tourism areas offers a compelling pathway for enhancing students' digital literacy, but its success depends on the alignment of multiple systems and actors. These insights contribute to the growing discourse on civic digital education in developing regions and offer a roadmap for educators, policymakers, and community leaders seeking to harness technology for transformative learning.

D. CONCLUSION

This study has examined the integration of digital technology in a tourism-based vocational education context, using SMK Negeri 1 Batulayar as a case study. The findings demonstrate that while foundational infrastructure exists, systemic barriers—such as unstable connectivity, limited teacher capacity, and insufficient collaboration with the tourism sector—continue to hinder the full realization of digital learning's potential. Students showed improved digital literacy, especially when engaged in contextual, tourism-related projects, yet disparities in access and usage remain a concern. Pedagogical innovation, particularly through real-world digital content creation, emerged as a powerful driver of student engagement and skill acquisition. The study highlights the importance of a holistic approach to digital integration that combines infrastructure development, professional training, curriculum alignment, and multi-stakeholder collaboration. These components must be embedded within long-term institutional planning and policy support to be sustainable. The implication is clear: effective digital transformation in vocational education cannot rely solely on technology provision but requires structural, pedagogical, and governance-level interventions. This research contributes to the growing literature on civic digital engagement and contextual learning in developing countries, offering a practical model for integrating education and community-based economic development. Future research should explore scalable

frameworks for tourism-education partnerships and evaluate long-term impacts on student employability and community resilience in digitally mediated economies.

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