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An Interpretative Phenomenological Analysis of Digital Media Integration Experiences Among Indonesian Secondary School Teachers

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Abstract

This study examines the lived experiences of Indonesian secondary school teachers integrating digital media into their classrooms. Despite growing policy emphasis on digital transformation in education, teachers' subjective experiences of this process remain underexplored. Employing Interpretative Phenomenological Analysis (IPA), the study drew on semi-structured interviews with twelve teachers representing western, central, and eastern regions of Indonesia. Data were analysed following Smith et al.'s (2022) systematic IPA procedure, with trustworthiness ensured through investigator triangulation, member checking, and audit trail maintenance. Six themes emerged across three research questions. Teachers reported persistent uncertainty in evaluating their digital competence, attributed to the absence of standardized assessment tools. Structural barriers, including unreliable infrastructure, limited device access, and the burden of self-directed content creation, constrained meaningful integration. The rapid proliferation of digital platforms placed additional demands on teachers navigating continuous technological change with insufficient institutional support. Variable student acceptance and unequal digital literacy further complicated classroom implementation. Teachers also identified pedagogical and practical opportunities, including enhanced student engagement and improved administrative efficiency. The findings underscore that digital integration is shaped as much by teachers' professional identities and lived realities as by access to technology, with implications for policy, professional development, and future qualitative research in this field.

Introduction

The integration of digital media into secondary education has emerged as a transformative force that is reshaping the nature of teaching and learning in the twenty-first century. Traditional classrooms are increasingly reconceptualised as dynamic, interactive spaces where technology functions not merely as a supplementary tool but as an integral component of pedagogy. The growing ubiquity of digital technologies demands that teachers adapt to rapid change while leveraging the pedagogical opportunities these technologies offer. Globally, studies highlight that digital tools can enrich instructional quality by enabling personalised learning experiences, supporting differentiated instruction, and fostering greater student engagement (Yaseen et al., 2025). Digital integration also nurtures critical competencies such as digital literacy and analytical thinking, which are essential for students navigating the complexities of the information age (Isdendi et al., 2023). As central actors in this process, teachers are expected to develop robust digital competencies to ensure that technology is used meaningfully and purposefully in classroom practice (Tyunnikov et al., 2023).

Research underscores that technologies such as multimedia learning environments, e-learning platforms, and interactive applications have transformed instructional practices across disciplines by creating inclusive environments that engage diverse learners (Agarwal, 2019). Structured use of digital media can also positively influence students' psychological well-being and provide opportunities for expression and social connectedness (Moroney et al., 2023). Yet, alongside these benefits, potential risks persist, including exposure to cyberbullying, screen fatigue, and information overload, requiring that

schools embed digital citizenship programmes to help students navigate the online environment responsibly (Maltby et al., 2024). Digital media integration is therefore a pedagogical matter that simultaneously intersects with broader concerns of equity, ethics, and student well-being.

In Indonesia, the imperative for digital media integration in secondary education is particularly pressing. The country's diverse geography and persistent educational disparities between urban and rural schools create unequal access to technology (Safira et al., 2024). For schools in metropolitan areas, digital learning tools are increasingly accessible, while rural institutions often face infrastructural limitations such as inconsistent internet connectivity and inadequate devices. Research suggests that digital literacy initiatives, when properly implemented, can foster adaptive learning environments that benefit students across socioeconomic contexts (Akbar & Wijaya, 2024). The rapid growth of internet penetration in Indonesia further amplifies the urgency of equipping students with the skills to engage with digital media critically and responsibly (Isdendi et al., 2023).

National education reforms reflect the government's recognition of these imperatives. The Kurikulum Merdeka emphasises flexibility, student-centred learning, and the use of digital resources across subjects, which encourage teachers to employ multi-strategic approaches to enhance learning experiences (Wansit et al., 2024). Complementary government programmes such as the Digital School Program and teacher professional development initiatives have been introduced to strengthen digital competencies and encourage the use of digital tools in everyday classroom practice. Despite these efforts, the success of policy implementation remains uneven, as it relies heavily on schools' institutional capacity, teachers' readiness to embrace change, and the availability of infrastructural support (Durriyah & Zuhdi, 2018).

While global and national discourses highlight the transformative potential of digital media, the lived experiences of teachers present a more complex picture. Previous studies consistently note that insufficient teacher training and limited institutional support remain critical barriers to effective integration (Meier & Kaspar, 2024). Teachers frequently report feeling unprepared to incorporate new technologies due to inadequate professional development and few opportunities for practice. Their prior knowledge, motivation, and attitudes towards digital tools significantly influence whether technology is used creatively, superficially, or not at all (Bećirović, 2023). Although successful cases, including gamification, multimedia, and virtual reality applications demonstrate potential for improving student engagement and comprehension (Lampropoulos & Kinshuk, 2024), they equally underscore the decisive role of teachers' pedagogical readiness and institutional backing.

Despite the growing body of literature on digital learning, substantial gaps remain in understanding teachers' lived experiences with technology. Much of the existing research prioritises quantitative outcomes, such as student performance metrics or technology use frequency, or relies on competency-based frameworks such as Technological Pedagogical Content Knowledge (Ismail, 2023; Wafa & Sutomo, 2023). These approaches, while valuable, frequently overlook the subjective and contextualised realities of teachers as they navigate the demands of digital media integration. Qualitative investigations

capturing personal narratives and professional reflections remain limited, and dimensions such as teachers' professional identities, pedagogical philosophies, and emotional responses to technological change are underexplored (Nowell, 2014). Consequently, there is a lack of nuanced understanding of how teachers interpret their struggles, how these struggles shape their classroom practices, and how they reconcile external demands with their lived realities.

Phenomenology offers a productive lens for addressing this gap. As both a philosophical tradition and a methodological approach, phenomenology seeks to uncover the subjective experiences of individuals and the meanings they attribute to them (Chenail, 2011). Applied to education, phenomenological inquiry enables researchers to capture the richness and complexity of teachers' experiences as they engage with digital media, foregrounding their voices rather than treating technology integration as a purely technical or policy-driven phenomenon. This perspective is particularly valuable in the Indonesian context, where cultural diversity, infrastructural disparities, and institutional variation all shape the ways teachers interact with digital tools.

The present study seeks to explore the lived experiences of Indonesian secondary school teachers in integrating digital media into their classrooms. Three interrelated research questions guide this inquiry: (1) How do teachers perceive and evaluate their own competence in using digital media? (2) What barriers and challenges do teachers face in integrating digital media into their teaching practice? (3) What opportunities do teachers perceive in leveraging digital media to enhance teaching and learning? By engaging with these questions through an interpretative phenomenological approach, this study aims to illuminate the complex and often underrepresented perspectives of teachers in the digital transformation of Indonesian education.

Methods

Research Design

This study employed a qualitative design grounded in Interpretative Phenomenological Analysis (IPA). IPA was selected because it centres on how individuals make sense of their experiences, which aligns with the aim of exploring Indonesian secondary school teachers' lived experiences of digital media integration. Unlike descriptive phenomenology, IPA is both interpretative and hermeneutic, acknowledging that participants interpret their world and that researchers, in turn, interpret those interpretations. This double hermeneutic makes IPA particularly appropriate for examining teachers' meaning-making processes regarding competence, challenges, and opportunities in digital pedagogy. Drawing on the hermeneutic tradition of Heidegger and Gadamer, IPA does not call for the bracketing of researchers' prior assumptions; instead, the researchers maintained ongoing reflexivity throughout the study, making their prior professional experiences with digital media explicit and treating them as part of the interpretive process rather than obstacles to it (Smith et al., 2022).

Participants

Twelve Indonesian secondary school teachers participated in the study, representing the western, central, and eastern regions of the country. While IPA studies typically involve smaller samples, twelve participants was considered appropriate given the explicit aim of capturing maximum variation across a geographically and institutionally diverse national context (Smith et al., 2022). To maximise variation, teachers were recruited from public and private schools, urban and rural settings, and across multiple subject disciplines. Eligibility criteria required that participants had actively integrated digital tools into their teaching for at least one academic year, possessed at least two years of online teaching experience or equivalent formal training, and were willing to share both successes and difficulties in the integration process. Purposive sampling was used to identify initial participants, followed by snowball sampling to recruit additional teachers with relevant experience (Neubauer et al., 2019). Table 1 presents the demographic profile of the sample.

Table 1
Informants' demographic characteristics

Demographic	**Category**	**Frequency (n)**
Gender	Male	6
	Female	6
Type of school	Public	6
	Private	6
Years of experience	More than 10 years	6
	10 years or fewer	6
Ethical Consideration		

The study was conducted in accordance with the applicable participant-protection principles of the Declaration of Helsinki, and the Research Ethics Committee of Universitas Negeri Yogyakarta reviewed the submitted research documents and issued an administrative ethics statement (Statement Letter No. 2709/DST/UN34.9/B/PT.01.04/2026, dated 31 August 2026). Ethical considerations were addressed throughout the research process to protect the rights and well-being of all participants. Before data collection, participants were informed about the purpose of the study, the nature of their involvement, and their right to decline participation or withdraw at any stage without any negative consequences. Participation was entirely voluntary, and informed consent was obtained before the interviews were conducted. Attention was also given to confidentiality and anonymity, with participant codes used in reporting the findings. Any potentially identifying information about participants or their schools removed from the research records and publications. Interview data were stored securely and used only for research purposes. The researcher also maintained a reflexive approach throughout data collection and analysis to critically consider how personal assumptions might influence interactions with participants and the interpretation of their experiences. These measures were implemented to maintain ethical integrity, transparency, and respectful representation of participants throughout the study.

Data Collection

Data were collected between July and December 2025 through semi-structured, in-depth interviews conducted online via Zoom, given participants' geographical distribution across Indonesia. Each interview lasted between 90 and 120 minutes, with follow-up sessions arranged where necessary to clarify emerging issues. The interview guide comprised open-ended questions refined through a pilot interview and expert review. All interviews were audio- and video-recorded with informed consent and transcribed verbatim. Detailed field notes were maintained alongside transcripts to capture contextual observations and early analytic reflections.

Data Analysis

Analysis followed the systematic IPA procedure outlined by Smith et al. (2022) and Pietkiewicz and Smith (2014). The process began with reading each transcript to foster immersion in the data. At this stage, the researchers developed exploratory notes that included descriptive observations about the content of the narratives, linguistic remarks on how the participants articulated their experiences, and early ideas on how they made sense of them. The exploratory notes were then developed into emergent themes and subsequently clustered into broader categories. Consistent with IPA's idiographic commitment, each case was analysed independently before moving to cross-case to ensure that the distinctiveness of each participant’s voice was preserved.

During the process, the researchers alternated between segments of the data to improve their interpretations and connect them to the actual experience of the participants. ATLAS.ti (version 26) supported transcript management, coding, and memoing, though the interpretive work remained firmly embedded within the IPA framework. Trustworthiness was ensured through investigator triangulation, member checking with three participants, maintenance of a detailed audit trail, and ongoing researcher reflexivity (Shenton, 2004).

Reliability of Analysis and Findings

Several strategies were employed to ensure the trustworthiness of the analysis and findings, following the established principles of rigorous qualitative research by Shenton (2004). Investigator triangulation was done as a measure to enhance objectivity and analytical rigor. All co-authors involved in the review and validation of the emerging themes through discussions to achieve a consensus interpretation of the data. According to Casler-Failing (2024), this process helps in reducing the risk of individual bias and makes the analysis more reliable. It was especially important in this study because the researchers themselves brought different professional experiences with digital media in education, which could otherwise have shaped the interpretations.

Member checking was also used to strengthen the accuracy of the findings. Summaries of the key themes were shared with three participants from the original cohort, who represented diverse

perspectives within the sample. Their feedback was referred in clarifying certain points and ensuring that the interpretations remained consistent with their experiences (Chase, 2017).

This research maintained a detailed audit trail to document decisions made during data collection, data analysis, and data interpretation. Finally, the researchers practiced reflexivity to help minimize the influence of prior beliefs on the analysis and interpretation of the data (Howard et al., 2024). In a study focused on digital media integration, a topic with which the researchers themselves were familiar, a reflexive awareness was essential to ensure that participants' perspectives remained at the forefront of the findings.

Results

The analysis yielded six themes organized across three research questions. Table 2 presents an overview of the thematic structure before each theme is examined in turn.

Table 2
Overview of themes and subthemes

Research Question	Theme	Subtheme
RQ1: Digital competence	Absence of standardized assessment tools	Inability to self-assess; lack of clear standards; perceived incomplete mastery
RQ2: Barriers and challenges	Barriers to effective use of digital media	Infrastructure limitations; difficulty creating content
	Challenges in adapting to multiple platforms	Constant learning demands; insufficient institutional support
	Challenges in managing human resources and student acceptance	Unequal device access; variable digital literacy; preference for traditional methods
RQ3: Perceived opportunities	Pedagogical opportunities	Student engagement; content development; professional growth
	Practical opportunities	Administrative efficiency; classroom management

RQ1: How do teachers perceive and evaluate their competence in using digital media?

The Absence of Standardized Assessment Tools

A prominent theme across participants was the absence of recognized instruments for assessing their own digital competence. Teachers consistently described an experience of evaluative uncertainty: they used digital tools regularly and perceived themselves as functional practitioners, yet found it difficult to anchor these self-perceptions to any established framework or standard. The difficulty was not one of ignorance but of structural absence. As one participant articulated:

"Teachers' ability to use digital media has not been properly assessed. I have never come across a standard or valid instrument to measure this competence." (Teacher ND)

This account reflects more than a practical inconvenience. For Teacher ND, the absence of a recognized measure rendered the very question of competence unstable and unanswerable. A similar experience was expressed by Teacher ST, who described the absence of assessment tools not merely as a gap in resources but as something that left professional judgment without foundation:

"As far as I know, there is no assessment tool. I have not seen any instrument that could evaluate how competent I am in using a particular digital learning tool or medium." (Teacher ST)

Read through the hermeneutic lens, these accounts reveal a pattern in which the lack of shared evaluative criteria becomes self-reinforcing. Teachers who employed digital platforms confidently in their classrooms still hesitated to describe themselves as proficient, not because their practices were ineffective, but because no recognized framework existed to anchor such a claim. Several participants described a felt sense of never quite mastering digital pedagogy, a formulation that signals something beyond individual self-doubt. From an IPA perspective, this uncertainty is not a personal deficit but a structural condition: without valid, context-sensitive standards, teachers' expertise risks being perpetually deferred rather than recognized and built upon.

The implications extend beyond individual confidence. Without reliable assessment tools, professional development becomes difficult to target at the institutional level. Schools cannot easily diagnose specific needs, teachers cannot track their own growth over time, and system-level discourse about digital competence remains abstract rather than actionable. In this sense, the absence of standardization does not merely reflect a measurement gap; it actively shapes how these teachers experience, narrate, and invest in their continuing professional learning.

RQ2: What are the barriers and challenges teachers face in integrating digital media into their teaching practice?

Barriers to Effective Use of Digital Media

Across the interviews, teachers described structural and practical conditions that constrained their use of digital media. Two categories were particularly salient: limited access to infrastructure and the difficulty of creating digital content. Together, these speak to a broader disjuncture between the pedagogical promise of digital technology and the material realities of Indonesian schools, particularly those in rural or under-resourced settings.

Infrastructure limitations were described not as occasional inconveniences but as defining features of the teaching environment. Unstable internet connectivity, intermittent electricity, and inadequate devices meant that digital media frequently remained an aspiration rather than a practical reality. A teacher from a rural school described the situation in direct terms:

"Here in remote areas, we are still struggling with internet connection." (Teacher SD)

The same teacher elaborated on how energy supply determined what was pedagogically possible:

"During the pandemic, we never held online learning through Zoom, or even used a projector for slides, because electricity was only available at night. In the daytime there was no electricity at all, just diesel, and it only ran from 6:30 to 10 at night." (Teacher SD)

This account is phenomenologically significant. The absence of electricity was not experienced merely as a technical inconvenience; it fundamentally reconfigured what teaching could mean during a period when digital pedagogy was being mandated nationally. Teacher RK connected infrastructure to a more affective dimension of the experience, describing how resource disparities between rural and urban schools generated a sense of professional marginalization:

"It makes us feel somewhat inferior. Our main hope is really just for more attention to facilities and infrastructure. We want to experience what teachers in the city can." (Teacher RK)

Alongside infrastructure, teachers identified content creation as a significant challenge. Many lacked both the technical training and the time to design engaging interactive materials, and consequently defaulted to pre-existing resources that did not always align with their pedagogical goals. One participant captured the time burden succinctly:

"If we're not used to it, creating digital media takes a very long time." (Teacher JS)

Importantly, several teachers made a distinction between their willingness and capability on the one hand, and the conditions available to them on the other. Teacher SD articulated this clearly:

"What we really lack is the availability of facilities and infrastructure. Because of these limitations, we cannot fully apply digital media in our classrooms. But in terms of ability, alhamdulillah, I think we are quite capable." (Teacher SD)

This distinction is analytically important. These teachers did not experience themselves as technologically incapable; they experienced themselves as capable practitioners operating within conditions that constrained what capability could achieve.

Challenges in Adapting to Multiple Platforms

A second cluster of challenges concerned the pace and volume of digital change. Teachers described a lived experience of perpetual learning, in which new platforms proliferated faster than they could be mastered, and in which the expectation of keeping up fell largely on individual teachers rather than being supported institutionally. For many, this produced a specific form of professional stress that was distinct from ordinary workload pressure. One participant described the recursive quality of this experience, in which learning a new tool was itself a time-consuming task that preceded rather than accompanied teaching:

"Sometimes as a teacher, for example, I want to download software that I don't know yet, so I first have to search, learn how to install it, and only then can I use it. I usually get stuck at that point, because I feel that IT keeps developing, and so we have to keep learning all the time." (Teacher ST)

Teacher JS described a similar dynamic in the context of content production, where learning and creating occurred simultaneously without structured support:

"For example, when it came to video editing, I actually had to first learn on my own before I could make something. So I was learning and producing at the same time." (Teacher JS)

The phenomenological texture of these accounts is one of perpetual catch-up: a relationship to technology characterized not by mastery or even competence, but by ongoing effort in conditions of insufficient support. Teacher SD extended this observation to colleagues, noting that basic digital literacy remained a challenge across the profession:

"IT skills, whether among teachers or students, are still very limited. Many teachers still feel awkward even just holding a laptop." (Teacher SD)

These accounts suggest that the challenge of multiple platforms is not primarily cognitive but structural. What teachers described was less a deficit in individual capacity than an institutional failure to provide the sustained, scaffolded support that would allow digital learning to feel manageable rather than burdensome.

Challenges in Managing Human Resources and Student Acceptance

Teachers also described the complexity of integrating digital media into classrooms where students' access, digital literacy, and dispositions varied considerably. The challenge was not simply one of deploying technology but of ensuring that technology did not deepen existing inequalities or alienate students for whom digital learning was unfamiliar or inaccessible. Unequal access to devices was a prominent concern, particularly in the early phases of the pandemic:

"Students didn't have Android phones, they didn't have the technology that made online learning possible. That's why at the start of the pandemic no online learning was carried out at all." (Teacher SD)

The same structural limitation extended to school-level resources. Another participant described a situation in which the entire institution shared a single device:

"We couldn't apply it in school, because the support wasn't there. There was only one laptop in the entire school." (Teacher SD)

Beyond access, teachers encountered variability in students' receptiveness to digital approaches. Some students engaged readily, while others resisted or struggled to find relevance in technology-mediated instruction. Teacher JS reflected on this as an ongoing pedagogical responsibility:

"Not all students like it, not all respond positively to digital technology, especially in certain subjects. This is a challenge and homework for us as teachers; we have to keep discussing with one another about how to make digital media more engaging." (Teacher JS)

What is notable in these accounts is that teachers did not frame student resistance as obstinacy or failure. Instead, they positioned it as a pedagogical problem for which they bore responsibility, one requiring continued reflection, dialogue with colleagues, and adaptation of practice. This orientation reveals a professional disposition characterized by responsiveness rather than resignation.

RQ3: What opportunities do teachers perceive in leveraging digital media to enhance teaching and learning?

Pedagogical Opportunities

Despite the challenges described above, teachers identified meaningful pedagogical opportunities that digital media had made available to them. These were not abstract possibilities but specific, experientially grounded instances in which technology had enabled forms of engagement or content delivery that would otherwise have been difficult to achieve. Several teachers described how digital tools had introduced elements of interactivity and competition that increased student motivation. Teacher JS reflected on the affective dimension of a digital quiz:

"For example, when I give a quiz, the students do it with joy and seem motivated when they see a classmate score highly. I find this quite interesting, because it encourages them to practice through friendly competition." (Teacher JS)

The same teacher described how self-produced video content had extended the reach of instruction beyond classroom time, enabling students to encounter and process material independently:

"Before the midterm exam, I gave them a YouTube video I made myself. Some of the students accessed it, and they were able to understand what I had explained in the video, even though I had not yet explained it to them directly." (Teacher JS)

Teachers also recognized digital media as a resource for their own professional development, not only as a tool for student learning. Teacher VS articulated this with a sense of expanded possibility:

"Everything can now be accessed through digital media, and its integration is growing so widely. In the past we had limitations. Now the impact is broad; we can use digital media to gain more experiences and knowledge, and we push ourselves to keep learning more." (Teacher VS)

These accounts suggest that for some teachers, digital media has not only changed what they teach or how they teach it, but has also altered their understanding of what professional growth can look like: more self-directed, more connected to a wider world of resources, and less dependent on formal institutional provision.

Practical Opportunities

Teachers also recognized the practical utility of digital tools in making their daily work more manageable. Digital platforms were described as supporting lesson organization, student progress tracking, timely feedback, and administrative efficiency. Rather than framing these as minor conveniences, several teachers presented them as meaningful contributors to a more sustainable working life. The ability to manage administrative tasks more efficiently freed time and mental space for the relational and instructional dimensions of teaching that many considered most important.

In this sense, the practical value of digital media was not experienced as separate from its pedagogical value but as a condition of it. When teachers spent less time on administrative burdens, they had more capacity to focus on students. This practical dimension of digital integration deserves recognition alongside the more visible pedagogical benefits, as it speaks to the sustainability of teachers' engagement with technology over time.

Discussion

This study explored the lived experiences of Indonesian secondary school teachers integrating digital media into their classrooms. The findings reveal a complex interplay of structural conditions, institutional constraints, and individual meaning-making processes that together shape how teachers engage with digital technology in practice. Rather than treating digital integration as a technical or policy problem with discrete solutions, the phenomenological lens employed in this study foregrounds what these experiences mean to teachers themselves, and how that meaning shapes their professional identities, confidence, and pedagogical choices.

Competence Without Confirmation: The Structural Roots of Teacher Uncertainty

The most theoretically significant finding of this study concerns the relationship between the absence of standardized assessment tools and teachers' sense of professional competence. Teachers in this study were not, by their own accounts, unwilling or unable to use digital media. Many did so regularly and with evident pedagogical intention. What they lacked was any recognized framework through which to validate or evaluate what they were doing. This produced a distinctive phenomenological condition: active, practiced engagement with digital tools coexisting with persistent uncertainty about whether that engagement constituted genuine competence.

This finding extends the existing literature on digital competence frameworks. Ferrari et al. (2012) and Jolls (2015) have outlined that assessment frameworks are important for guiding professional learning, but the present study demonstrates that the absence of assessment has consequences beyond program planning by affecting teachers' sense of professional identity. Without external criteria for recognition, competence becomes a felt but unverifiable quality, something teachers experience in practice but cannot claim with confidence. This is consistent with Nowell’s (2014) observation that teachers' professional identities and emotional responses to technological change remain underexplored in the

literature, and suggests that competence frameworks must be designed as tools of professional recognition, not merely as evaluative instruments.

The Indonesian context adds a further dimension to this issue. The unevenness of digital infrastructure and institutional support across regions means that teachers are evaluating themselves against an implicit national standard while operating in vastly different material conditions. A rural teacher using simple video lessons constrained by diesel-powered electricity is not less competent than an urban counterpart using interactive platforms; they are differently resourced. The absence of context-sensitive assessment criteria renders this distinction invisible, compounding the sense of inadequacy that several participants described.

Infrastructure, Content Creation, and the Limits of Individual Agency

The structural barriers documented in this study, particularly unreliable infrastructure and the burden of self-directed content creation, have been reported across diverse national contexts (Gudmundsdottir & Hatlevik, 2018; Niederhauser et al., 2018). What the phenomenological approach contributes here is not merely confirmation of these patterns but a more granular account of how they are experienced from the inside. Teachers in this study did not describe infrastructure limitations as background inconveniences. They described them as conditions that fundamentally altered what teaching could mean, and what professional aspiration was possible.

The distinction several participants drew between their own capability and the conditions available to them is analytically important. Teacher SD's statement, that they were capable but constrained by the lack of facilities, reflects a professional self-understanding that resists the deficit framing often applied to teachers in under-resourced settings. This is a finding with direct implications for policy. Initiatives that treat low digital integration as evidence of teacher incapacity, rather than as a predictable response to structural conditions, risk misdiagnosing the problem and designing solutions that are ineffective and potentially demoralizing.

The challenge of content creation reinforces this point. Teachers who wanted to produce engaging digital materials frequently found themselves learning and producing simultaneously, without institutional time or pedagogical support. Blasco and Bueno (2024) and Pongsakdi et al. (2021) both argue that sustained, hands-on training is necessary for building content creation capacity. The present findings support this argument but add an experiential dimension: the expectation of digital content production, without commensurate support, was experienced not as professional development but as an additional cognitive and emotional burden.

Navigating Continuous Technological Change

The challenge of adapting to multiple and rapidly changing digital platforms constitutes a distinct phenomenological theme in this study. Unlike infrastructure limitations, which are experienced as external impositions, the challenge of platform proliferation was partly internalized by participants as a

question of individual adequacy. Teachers described feeling that they were perpetually behind, that the speed of digital change exceeded their capacity to keep up, and that this gap was somehow their professional responsibility to close. This is consistent with Bećirović's (2023) observation that teachers' motivation and prior experiences with digital tools significantly shape how they relate to technological change. However, the present study suggests that the affective burden of this experience, the specific feeling of perpetual catch-up, merits recognition as a distinct dimension of teachers' digital integration experiences rather than as a secondary effect of skills gaps.

Importantly, teachers in this study understood the value of digital literacy and expressed genuine commitment to developing it. Their frustration was directed not at the tools themselves but at the conditions under which they were expected to learn and apply them. This distinction has implications for professional development design. Training programs that treat teachers as the primary site of intervention, without addressing the institutional conditions that make sustained learning difficult, are likely to be experienced as yet another demand rather than as genuine support.

Opportunities as Lived Experience: Engagement, Agency, and Sustainability

The opportunities teachers identified were notable for their pedagogical content and, equally, for the manner in which they were articulated. Teachers described specific, concrete instances in which digital media had enabled something they valued: students engaging more actively, materials reaching learners beyond the classroom, professional knowledge expanding through digital access. These were not abstract endorsements of digital education but accounts of meaningful experience. This distinction matters phenomenologically. It suggests that where digital integration is experienced as purposeful and self-directed, it generates a sense of professional agency that contrasts sharply with the experiences of constraint and catch-up described elsewhere in the data.

The practical dimension of this finding is equally significant. Teachers who perceived digital tools as reducing administrative burdens and making daily work more manageable were, in effect, describing sustainability. Digital integration that lightens rather than adds to teachers' workload is more likely to persist over time. This observation supports Hood and Littlejohn's (2017) argument that professional engagement with technology is more durable when it is experienced as enhancing rather than complicating practice. Policy and institutional design would benefit from taking this experiential logic seriously, building digital integration around what teachers find genuinely useful rather than what aligns with external frameworks or mandates.

Limitations

Several limitations should be considered when interpreting these findings. The study involved twelve participants, and although their locations were geographically diverse, the sample does not represent the full range of Indonesian secondary schools. Participation was voluntary and based on eligibility criteria, which may have favored teachers who were more reflective, engaged, or willing to discuss digital media. Teachers with strongly negative or disengaged relationships with technology may therefore be

underrepresented. The findings were also generated through self-report interviews and may be influenced by retrospective reconstruction and social desirability. Finally, the study was not designed as a systematic comparison across regions or school types, so differences between contexts should be treated as interpretive indications rather than generalizable regional effects.

Future research should build on the tensions identified here. First, studies should develop and validate context-sensitive frameworks for teacher digital competence that combine shared standards with evidence of pedagogical judgement, adaptability, and resource conditions. Second, longitudinal and comparative research is needed to investigate how teachers' confidence and sense of agency change as technologies evolve. Comparisons across rural and urban settings, school resource levels, subjects, career stages, and regions would help distinguish widely shared experiences from context-specific ones. Lastly, intervention research should evaluate sustained models of professional learning rather than short workshops alone by paying particular attention to mentoring, preparation time, local technical support, and the emotional dimensions of adaptation.

Conclusion

This study examined the lived experiences of Indonesian secondary school teachers integrating digital media into their classrooms. Six themes emerged across three research questions, spanning the absence of standardized competence assessment, structural barriers including infrastructure limitations and content creation difficulties, the demands of continuous platform adaptation, challenges in managing student acceptance, and the pedagogical and practical opportunities teachers identified through practice.

The phenomenological approach revealed that digital integration is shaped as much by teachers' professional identities, beliefs, and emotional responses as by access to technology or policy mandates. Teachers navigated complex, under-resourced environments as active meaning-makers, a dimension that outcome-focused research tends to overlook. Context-sensitive professional development, infrastructural investment, and recognition-oriented assessment mechanisms are necessary conditions for sustainable integration. Longitudinal and comparative research would further illuminate how these dynamics unfold across diverse institutional settings. Meaningful digital transformation in Indonesian secondary education depends on sustained attention to the human dimensions of teaching. Equipping teachers with tools is insufficient without the institutional conditions that make their use genuinely possible.

Declarations

Ethical approval and consent to participate

The study was exempted from prospective ethical approval by the **Research Ethics Committee of Universitas Negeri Yogyakarta** in accordance with the ethical principles of the Declaration of Helsinki and the Committee's determination that it constituted a minimal-risk interview study involving adult volunteers. This determination was documented in Statement Letter No. 2709/DST/UN34.9/B/PT.01.04/2026, dated 31 August 2026. Before participation, all participants were informed about the purpose and procedures of the study, provided informed consent, participated voluntarily, and were informed of their right to withdraw at any time without adverse consequences. Participant confidentiality and anonymity were maintained throughout the study.

Clinical trial number

not applicable

Consent for publication

Not applicable

Competing Interests

The authors declare no conflict of interest.

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Data availability

The qualitative data generated and analysed during the current study are not publicly available because they contain identifiable information from participant interviews and are subject to confidentiality requirements. De-identified data may be made available from the corresponding author upon reasonable request, subject to ethical and confidentiality considerations.

Declarations

Author Contribution

A.A.W. led the conceptualization, investigation, data collection, formal analysis, and preparation of the manuscript. A.M.T.S. contributed to the conceptualization, interpretation of the findings, and preparation of the initial draft, and substantially revised the manuscript. H. worked with A.M.T.S. on the preparation of the initial draft and subsequent revisions. S.H., P., and H.R. contributed through supervision,

methodological guidance, validation, and critical review of the manuscript. All authors reviewed and approved the final version of the manuscript.

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Data Availability

The qualitative data generated and analysed during the current study are not publicly available because they contain identifiable information from participant interviews and are subject to confidentiality requirements. De-identified data may be made available from the corresponding author upon reasonable request, subject to ethical and confidentiality considerations.

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