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Teachers' experiences and adaptations in navigating generational pedagogical shifts with digital native junior high students

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Abstract. The mismatch between traditional pedagogical approaches and digital-native learners' expectations poses substantial educational issues that need immediate attention. This research examined teachers' experiences with navigating generational pedagogical transitions while instructing digital-native students at junior high schools in Palembang. Participants, selected through purposive sampling, each had over 20 years of teaching experience and completed their education before the widespread integration of digital technology. Data collection utilized semi-structured interviews, non-participant classroom observations, and document analysis, analyzed through Colaizzi's phenomenological approach with triangulation for credibility. Findings revealed teachers' experiences evolved through five emotional stages from initial shock to eventual integration. Major challenges included technological competency gaps, infrastructure limitations, classroom management complexities, tensions between traditional and modern pedagogical values, and assessment difficulties. Teachers employed comprehensive adaptation strategies: segmented instruction with multimedia integration, strategic use of technology aligned with learning objectives, explicit digital citizenship instruction, continuous self-directed professional development, and cultivation of supportive learning environments. Results demonstrate that effectively managing generational pedagogical transitions requires comprehensive transformation beyond technical skills, necessitating systematic institutional support through infrastructure investment, continuous professional development, collaborative learning communities, adaptable curricula, and assessment reform to sustain teacher innovation in addressing digital-native learners. Key recommendations include establishing professional development programs, investing in digital infrastructure, creating teacher learning communities, developing flexible curricula, and implementing comprehensive support systems for teacher adaptation in the digital age.

Introduction

Indonesian junior high school teachers face critical challenges adapting to digital-native students. National data show that 68% struggle to maintain student attention in conventional lectures, while 72% feel unprepared for technology integration. Palembang observations reveal that students demonstrate a 45% distraction rate in traditional teaching, compared with 78% engagement with technology-integrated activities. Additionally, 81% of experienced teachers (15+ years) in South Sumatra report anxiety adapting to students who prefer visual, interactive content and immediate feedback. This pedagogical gap demands urgent understanding of how teachers navigate generational transitions (Haryanto et al., 2026).

Theoretical frameworks provide an essential foundation for understanding the challenges of teacher adaptation. The TPACK framework (Koehler et al., 2013) identifies integration of technological, pedagogical, and content knowledge as crucial for effective digital teaching, while teacher identity theory explains how pre-digital professional identities create adaptation tensions (Beauchamp & Thomas, 2009; Kelchtermans, 2009). Sociocultural learning theory positions technology as mediating artifacts, reshaping pedagogical relationships Vygotsky & Cole (1978), supporting Darling-Hammond et al. (2020) view of teachers as designers of learning environments. Although generational theory Prensky (2001) illuminates digital immigrant-native conflicts, illuminating that digital competency varies by experience rather than age alone (Helsper & Eynon, 2010). Indonesian studies confirm teachers need contextualized professional development addressing cultural values, institutional constraints, and infrastructure alongside technical skills (Revuelta-Domínguez et al., 2022;Sabariah et al., 2025). These frameworks collectively suggest that successful adaptation requires integrated support for technological competence, pedagogical innovation, identity reconstruction, and institutional enablement simultaneously.

In response, teachers utilize adaptation strategies to address generational pedagogical disparities. Contemporary frameworks like TPACK (Technological Pedagogical Content Knowledge, a framework describing how teachers integrate technology, pedagogy, and content knowledge) and DigCompEdu (Digital Competence Framework for Educators, the European framework outlining digital competencies educators need) underscore the necessity of integrating technical, pedagogical, ethical, and socio-emotional dimensions, highlighting that effective technology integration demands operational expertise, critical responsiveness, and ethical judgment (Sarfo, 2016; Redecker, 2017). Research indicates that teacher professional development programs must prioritize lifelong learning and promote continuous skill enhancement via webinars, self-directed learning pathways, action research projects, and digital learning communities (Sabariah et al., 2025). Innovative methodologies corresponding with digital-oriented perspectives of modern students foster adaptive educational frameworks, equipping both teachers and students for achievement in the changing labor market (Quimpan & Bauyot, 2025).

The educational landscape in Indonesia, particularly in Palembang, offers a significant context for analyzing these phenomena. Junior high school teachers operate at the intersection of traditional educational principles and increasingly digital student demographics, making their experiences particularly significant for understanding generational pedagogical shifts. Recent Indonesian research indicates students born in the digital era exhibit unique traits teachers must acknowledge; however, many teachers have not yet integrated essential materials into teaching practices corresponding with these traits (Hendrastomo & Januarti, 2023). Indonesian educational assessments indicate that a fraction of schools had sufficient digital infrastructure, restricting students' access to digital tools and hindering full digital competence development (Durahman & Anwar, 2021; Purnadewi et al., 2023).

Despite comprehensive global research on digital pedagogy and technology integration, considerable gaps remain in understanding the lived experiences, particular challenges, and contextual adaptation strategies used by Indonesian junior high school teachers when instructing digital-native students. Prior research has primarily focused on quantitative evaluations of technology adoption rates and digital competency metrics, often overlooking the intricate experiential aspects of pedagogical adaptation. Research has not sufficiently examined how teachers within cultural and institutional frameworks manage conflicts between traditional educational practices and digital-native students' expectations. Academic discourse analysis indicates a notable lack of emphasis on understanding the needs of secondary students in developing nations as digital

natives, highlighting the need for further research into digital-native contexts in these regions (Gallardo-Echenique et al., 2015).

This study presents five distinct contributions that set it apart from prior research on digital pedagogy and teacher adaptation. First, the phenomenological approach, unlike quantitative surveys, captures teachers' lived experiences, emotional journeys, and identity shifts. Second, focusing on experienced educators with more than 20 years of pre-digital training illustrates how established pedagogical identities navigate significant changes in practice. Third, combining Colaizzi's phenomenological framework with generational transition theory creates a fresh analytical lens for teacher adaptation. Fourth, addressing Indonesian junior high contexts fills key gaps, as cultural values, examination curricula, and resource limitations create unique adaptation dynamics that differ from those in Western research settings. Finally, assessing experiences, difficulties, and strategies simultaneously, using triangulated data, yields holistic knowledge for building contextually appropriate teacher support systems.

This study fills these gaps by applying a qualitative methodology that uses triangulation through in-depth interviews, classroom observations, and document analysis to investigate teachers' experiences, challenges, and adaptation methods in Palembang junior high schools. Comprehending how teachers perceive and adapt to generational pedagogical changes has significant ramifications for teacher professional development, curriculum design, and educational policy creation. This research elucidates teachers' experiences facing digital-native students, thereby informing the development of effective support systems, training initiatives, and institutional policies that improve pedagogical efficacy while promoting teacher well-being and professional advancement in the digital era.

This study seeks to answer three fundamental research questions: (1) What are the lived experiences of junior high school teachers navigating generational pedagogical shifts when teaching digital-native students? (2) What challenges do junior high school teachers encounter in adapting their pedagogical practices to meet the learning needs and characteristics of digital-native students? (3) What adaptation strategies do junior high school teachers employ to effectively navigate generational pedagogical shifts in teaching digital-native students? Through systematic investigation of these questions, this research aims to contribute empirical insights advancing both theoretical understanding and practical applications in the evolving field of digital-age pedagogy, particularly within the Indonesian educational context, where such investigations remain limited.

Method

Research Design

This study utilized qualitative phenomenological methodology to investigate lived experiences, challenges, and adaptation strategies of junior high school teachers navigating generational pedagogical shifts while instructing digital-native students. Phenomenology was chosen for its capacity for comprehensive examination of teachers' subjective experiences and meaning-making processes (Creswell & Poth, 2018).

Research Context and Participants

The study was conducted in five junior high schools in Palembang, South Sumatra, Indonesia, from August 2024 to January 2025. Schools were intentionally chosen to represent diverse institutional contexts, encompassing public and private schools serving distinct socioeconomic communities. The five schools (three public, two private Islamic) represented diverse geographic areas and levels of technological infrastructure. The detailed timeline appears in Table 2.

Ten junior high school teachers participated, selected through purposive sampling. Inclusion criteria required non-digital-native teachers who completed primary education before extensive digital technology integration, specifically those who commenced their teaching careers before 2005 and had over 20 years of experience. Additional criteria encompassed active teaching status at the junior high level, instruction of core academic subjects (Mathematics, Science, Indonesian Language, English, or Social Studies), and readiness to engage in data collection activities. Participants' roles included serving as primary informants in semi-structured interviews, sharing their lived experiences, allowing classroom observations of their teaching practices, providing lesson plans and teaching materials for document analysis, and engaging in member checking to validate research interpretations.

Table 1. Participant Demographics and Characteristics

Participant Code	Gender	Age	Teaching Experience (Years)	Subject Taught	School Type	Highest Education
T1	Female	48	26	Mathematics	Public	Master's
T2	Male	52	30	Science	Public	Bachelor's
T3	Female	50	28	Indonesian Language	Private	Master's
T4	Male	47	24	English	Public	Master's
T5	Female	49	27	Social Studies	Private	Bachelor's
T6	Female	51	29	Mathematics	Public	Master's
T7	Male	53	31	Science	Public	Bachelor's
T8	Female	46	23	Indonesian Language	Private	Master's
T9	Male	48	25	English	Public	Bachelor's
T10	Female	50	28	Social Studies	Private	Master's

Research Procedures

The research followed systematic procedures detailed in Table 2, employing purposive sampling, sequential data collection (interviews, observations, documents), and Colaizzi's phenomenological analysis with member checking and peer debriefing for validation.

Table 2. Data Collection Timeline and Activities

Phase	Timeline	Activities
Preparation	August 2024	School selection, ethical clearance, participant recruitment
Pilot Study	September 2024	Interview protocol testing, observation protocol refinement
Phase 1: Initial Interviews	October - November 2024	First round of in-depth interviews (60-90 min each)
Phase 2: Observations	November - December 2024	Two classroom observations per teacher (80 min each)
Phase 3: Follow-up Interviews	December 2024 - January 2025	Second interview focusing on strategies and reflections (45-60 min)
Document Collection	October 2024 - January 2025	Ongoing collection of teaching documents
Member Checking	January 2025	Transcript verification and preliminary findings validation

Data Collection Methods

Data collection utilized triangulation via three complementary methods to ensure a thorough understanding and bolster the credibility of the findings. The triangulation strategy enabled the

researchers to validate their findings across diverse data sources and viewpoints, thereby enhancing the credibility of their interpretations.

In-depth Semi-structured Interviews

Each participant underwent two interview sessions: an initial 60-90-minute interview examining general experiences and challenges, followed by a 45-60-minute interview focusing on specific adaptation strategies. All interviews were conducted in Indonesian, audio-recorded with informed consent, and transcribed verbatim within 48 hours. Member checking was performed by distributing transcripts to participants.

Classroom Observations

Non-participant observations were performed to understand how teachers' articulated experiences and strategies were reflected in actual classroom practices. Each participant was observed during two 80-minute teaching sessions. Observations focused on instructional methodologies, technological incorporation, student engagement trends, and classroom management techniques.

Document Analysis

Relevant documents were gathered, including lesson plans from current and prior academic years, teaching materials, student assessment tools, professional development certificates, and personal reflection journals when accessible.

Instrument Validity and Reliability Tests

Instrument validity was established through expert validation, which involved three educational research experts reviewing instruments for content validity and alignment with research objectives, followed by pilot testing with two non-participant teachers to improve question clarity and observational categories. Reliability in qualitative phenomenological research was ensured through investigator triangulation, which involved two researchers independently analyzing selected data with consistent interpretations, methodological triangulation, which combined interviews, observations, and documents, and detailed audit trails that documented all analytical decisions and interpretations.

Table 3. Research Instrument Grid

Instrument	Focus Areas	Key Questions/Indicators
Semi-Structured Interview Protocol	Teaching experiences, Challenges faced, Adaptation strategies, Professional development	How do you experience teaching digital-native students? What challenges emerged? What strategies have you developed? What support do you need?
Classroom Observation Protocol	Instructional methods, Technology integration, Student engagement, Classroom management	Teaching approach used, Digital tools employed, Student attention patterns, Behavior management techniques
Document Analysis Protocol	Lesson plan evolution, Teaching material changes, Assessment modifications	Changes in pedagogical approaches over time, Integration of multimedia materials, Shifts in assessment strategies

Data Analysis

Data analysis employed Colaizzi's phenomenological method. The seven-step process involved: (1) reading transcripts repeatedly for familiarity, (2) extracting relevant statements, (3) deriving meanings while adhering to participants' original expressions, (4) categorizing meanings into thematic clusters, (5) amalgamating clusters into a comprehensive description, (6) distilling into a core framework, and (7) member checking for validation. NVivo 14 software facilitated systematic organization and coding.

Trustworthiness and Rigor

Trustworthiness was established through credibility (extended engagement, triangulation, member validation, peer debriefing), transferability (comprehensive descriptions), dependability (audit trails, consistent procedures), and confirmability (reflexive journaling, explicit data connections, external auditors) following Lincoln et al. (1985).

Ethical Considerations

This study obtained ethical approval from the Institutional Ethics Committee. Informed consent was acquired from all participants. Pseudonyms were allocated to ensure confidentiality. All data were securely stored in password-protected files and will be destroyed five years post-study completion.

Results and Discussion

This section presents findings from the analysis of interviews, classroom observations, and document reviews involving 10 experienced junior high school teachers in Palembang. The findings are structured around the three research questions, examining teachers' lived experiences, the challenges they face, and the adaptation strategies they use when instructing digital-native students. Each theme is examined in connection with pertinent theoretical frameworks and current research findings.

Lived Experiences of Teachers Navigating Generational Pedagogical Shifts

Analysis of interview transcripts and observation data revealed four major themes characterizing teachers' lived experiences when teaching digital-native students: (1) recognition of fundamental cognitive and behavioral differences, (2) emotional responses ranging from frustration to fascination, (3) transformation of teacher-student relationship dynamics, and (4) evolving sense of professional identity and pedagogical philosophy.

Recognition of Fundamental Differences in Student Characteristics

All participants noted significant distinctions between modern students and those who were instructed earlier in their careers. Teachers consistently observed that digital-native students demonstrated markedly shortened attention spans, a preference for visual and interactive content, ease with multitasking, and an expectation of immediate feedback. Participant T2 expressed:

"Twenty years ago, students could sit through a 40-minute lecture, taking notes and asking questions at the end. Now, if I talk for more than 10 minutes without changing activity or showing something visual, I can see their eyes glazing over."

However, participants highlighted diversity within classes, observing that not all students demonstrated uniform digital-native traits. Participant T6 stated:

"I have students who are very digitally savvy; they can find information instantly, create videos, and edit photos. But I also have students who struggle with basic computer operations."

This finding supports recent criticisms of monolithic digital native conceptualizations (Gallardo-Echenique et al., 2015; Helsper & Eynon, 2010).

Table 4. Digital-Native Student Characteristics Identified by Teachers

Characteristic Category	Specific Behaviors/Traits	Frequency (n=10)	Representative Quote
Attention and Focus	Short attention span, difficulty sustaining focus on single task	10/10	"They can't focus on one thing for long" (T5)
	Preference for rapid content switching	9/10	"They want variety, constant change" (T1)
Technology Interaction	High comfort with digital devices	10/10	"The smartphone is like an extension of their hand" (T7)
	Preference for visual over textual information	10/10	"They'd rather watch a video than read text" (T3)
	Multitasking tendency	8/10	"They're doing three things at once" (T9)
Learning Preferences	Expectation of immediate answers/feedback	9/10	"They want instant results, no waiting" (T4)
	Interactive and hands-on learning preference	10/10	"They learn better by doing than listening" (T8)
	Collaborative learning inclination	7/10	"They like working together, sharing ideas" (T6)
Social Behavior	Reduced face-to-face communication skills	8/10	"They're awkward in direct conversation" (T2)
	Strong online social connections	9/10	"Their real friendships are on social media" (T10)
Information Processing	Fast information seeking	10/10	"They google everything immediately" (T1)
	Surface-level processing tendency	9/10	"They skim, don't read deeply" (T3)

Emotional Landscape: Frustration, Adaptation, and Fascination

Teachers' emotional experiences proved complex and multifaceted. Initial interactions with digital-native students' characteristics often elicited frustration, especially when traditional teaching methods unexpectedly failed to engage them. Participant T8 reflected:

"The first few years teaching this generation, I felt like a failure. Methods I'd used successfully for 15 years just didn't work anymore. Students seemed bored, distracted, disrespectful even."

However, as teachers developed an understanding of digital-native traits and began adjusting their methodologies, many experienced an affective shift toward greater curiosity. Participant T4 outlined:

"Once I stopped seeing their digital habits as problems to eliminate and started understanding them as different ways of learning, my whole perspective shifted. Now I'm fascinated by how they think."

Observation data corroborated these emotional trajectories. Teachers reporting emotional shift toward inquiry exhibited more adaptable, student-centered pedagogical strategies during observed lessons.

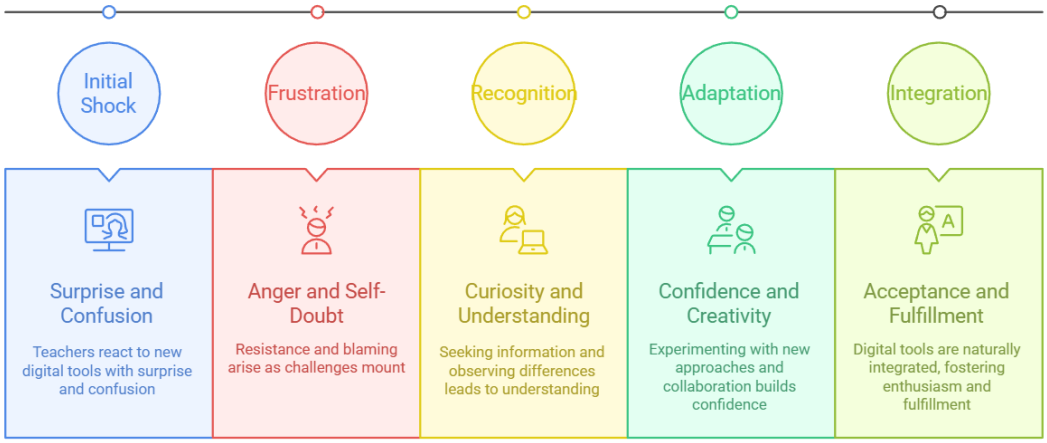

Image 1. Stages of Digital Integration in Education

Transformation of Teacher-Student Relationship Dynamics

Participants articulated significant changes in teacher-student relationship dynamics. Traditional hierarchical structures transitioned toward more collaborative and facilitator-driven interactions. Participant T1 reflected:

"I used to be the source of all knowledge in my classroom. Now they ask Google first. At first, this felt threatening. But I've learned my role isn't to be the information source but to help them evaluate, analyze, and apply information critically."

This transformation corresponds with modern pedagogical theories emphasizing teachers as facilitators rather than mere transmitters (Darling-Hammond et al., 2020). Nevertheless, several participants expressed concerns that certain digital-native students encountered difficulties in their relationships with authority figures. Participant T7 observed:

"There's a fine line between collaborative learning and students thinking they know everything because they can search online. Some students challenge my explanations by immediately searching their phones."

Observation data indicated that teachers who effectively managed the transformation of relationships established clear guidelines for appropriate technology use, positioned themselves as collaborative learning partners, and explicitly instructed students in critical evaluation skills.

Evolving Professional Identity and Pedagogical Philosophy

Teachers articulated significant transformations in professional identity and pedagogical philosophy. Participant T5 expressed:

"I became a teacher because I loved my teachers who were wise, knowledgeable, and commanded respect. I wanted to be like them. But that model doesn't resonate with today's students. I've had to completely rethink what it means to be a good teacher."

This identity work entailed balancing appreciation of established pedagogical knowledge with acknowledgment of its limitations within contemporary contexts. Teachers engage in digital identity development, forging new professional identities capable of functioning effectively within technology-mediated learning environments (Engeness, 2021). Document analysis demonstrated

evidence of pedagogical philosophy development through comparative review of lesson plans from initial career stages and more recent plans.

Challenges Encountered in Adapting Pedagogical Practices

Analysis identified five major challenge categories: (1) technological competency gaps and infrastructure limitations, (2) classroom management complexities, (3) balancing competing pedagogical values, (4) institutional constraints, and (5) assessment difficulties.

Technological Competency Gaps and Infrastructure Limitations

Each participant recognized the deficiencies between their technological proficiency and the skills necessary for the effective integration of digital tools into pedagogy. These deficiencies manifested across the domains of technical operation, pedagogical integration, and troubleshooting. Participant T3 explained:

"I can do basic PowerPoint, show YouTube videos. But students expect more sophisticated use of technology. They create content using apps I've never heard of. When they ask for help with digital projects, I often can't assist them technically."

This finding aligns with extensive research indicating insufficient teacher training for instruction mediated by technology (Revuelta-Domínguez et al., 2022; Mwinyi, 2024). In addition to personal competency limitations, teachers recognized infrastructural challenges that hindered the integration of technology despite the presence of pedagogical objectives. These limitations include unreliable internet connectivity, an insufficient number of devices for student use, restricted access to websites due to filtering systems, and the absence of technical support in the event of equipment malfunctions. Participant T2 articulated concerns regarding infrastructure challenges:

"I plan a great lesson using online simulations, students are excited, and then the internet crashes. Or we can't access the website because it's blocked. Or we have one computer lab for the whole school, and it's always booked. The gap between what's pedagogically possible and what's actually feasible is enormous."

Observation data validated the existence of these challenges. During observed lessons, technical difficulties arose in 65% of sessions involving instructors' attempts to integrate technology, thereby consuming instructional time and disrupting the lesson's flow. Table 7 classifies technology-related challenges by type and occurrence frequency.

Classroom Management Complexities

Teachers consistently reported that classroom administration posed considerably greater challenges with digital-native students. These challenges primarily involved sustaining attention, mitigating device-related distractions, addressing multitasking tendencies, and establishing effective learning standards. Participant T6 described:

"Managing classroom behavior has completely changed. It's not physical disruption like talking or passing notes. It's mental absence, students physically present but psychologically elsewhere, looking at their laps where phones are hidden."

Teachers employed strategies ranging from restrictive methods (confiscating devices) to integrative approaches (incorporating devices into activities). Observation data indicated that prohibitive methods frequently elicited student resistance, whereas integrative approaches demanded advanced pedagogical skills that many teachers were developing. Participant T10 articulated the dilemma:

"If I ban phones completely, students resent it and find ways to use them secretly. If I allow phones for learning, some students immediately go off-task. Finding the right balance is exhausting."

Balancing Competing Pedagogical Values

Teachers faced persistent tension between preserving traditional pedagogical methods and implementing innovative practices aligned with digital-native attributes. This tension manifested across dimensions: depth versus breadth of content, individual versus collaborative learning, delayed versus immediate feedback, and print versus digital literacy priorities. Participant T4 expressed:

"I believe deeply in slow, careful reading of complex texts, that's how we develop critical thinking. But digital-native students want quick summaries, video explanations, and instant understanding. If I insist on my way, I lose them. If I accommodate their preferences, am I sacrificing important learning?"

This dilemma exemplifies wider educational discussions regarding balancing responsiveness to student preferences with preservation of rigorous academic standards (Darling-Hammond et al., 2020). Analysis of documentation identified this tension in lesson preparation records, in which teachers explicitly recorded internal deliberations about pedagogical decisions.

Institutional Constraints and Limited Support

Teachers recognized institutional factors impeding adaptation efforts, including strict curriculum requirements that constrain innovation, assessment mandates prioritizing conventional testing, limited professional development opportunities, and administrative pressures to adopt standardized teaching methods. Participant T7 explained:

"I want to try project-based learning, let students create digital portfolios, and use more authentic assessments. But I'm bound by curriculum requirements that specify exactly what I must cover and standardized tests that only assess traditional knowledge."

Beyond formal constraints, teachers identified cultural and collegial factors that hindered adaptation. Several participants indicated experiencing isolation during adaptation efforts, with few opportunities for collaboration. Participant T5 stated:

"Some older colleagues think I'm wasting time with technology, abandoning proven methods. Younger colleagues don't understand my struggles because they're digital natives themselves."

Assessment and Evaluation Difficulties

Teachers recognized substantial difficulties evaluating digital-native student learning in a manner consistent with current competencies while meeting accountability standards. Conventional assessment techniques prioritized memorization and knowledge reproduction skills that have become less relevant. Participant T1 explained:

"What's the point of testing whether students memorized definitions when they can look them up instantly? I need to assess higher-order thinking, but creating those assessments is much harder."

Teachers explored alternative assessment methods, including digital portfolios, multimedia projects, and authentic performance tasks. However, these innovations introduced challenges, including increased time commitment, grading inconsistencies, plagiarism concerns, and difficulties assessing individual contributions. Participant T9 expressed frustrations:

"Students create amazing videos demonstrating concepts, and produce creative work I never imagined. But how do I grade these fairly? What rubric captures creativity, technical skill, content understanding, and collaboration?"

Adaptation Strategies Employed by Teachers

Analysis revealed diverse adaptation strategies clustering into five categories: (1) pedagogical modifications for engagement, (2) strategic technology integration, (3) developing digital citizenship and self-regulation, (4) continuous professional learning, and (5) building supportive learning environments.

Pedagogical Modifications for Engagement

Teachers adapted instructional strategies to better align with learners' learning preferences while preserving academic rigor. The most frequently used modification was dividing instructions into shorter segments with diverse activities. Participant T2 explained:

"I used to lecture for 30-40 minutes, then give practice problems. Now I break lessons into 10-15 minute segments alternating between brief explanations, hands-on activities, discussions, media, and practice."

Observation data verified the efficacy of this approach, with student attention and engagement significantly increased in courses employing diverse activity structures. Beyond tempo adjustments, teachers integrated additional visual and multimedia components, expanded opportunities for movement and experiential learning, incorporated collaborative exercises, and offered students options for demonstrating understanding. Participant T3 explained:

"I learned that digital-native students aren't less capable of deep learning, they just need different entry points. If I start with something visual and interactive that hooks their interest, they'll engage deeply."

This approach aligns with research on culturally responsive pedagogy adapted for digital environments (Darling-Hammond et al., 2020).

Table 5. Pedagogical Modifications and Effectiveness

Modification Strategy	Description	Implementation Frequency	Reported Effectiveness (1-5 scale)*
Chunked Instruction	Breaking lessons into 10-15 minute varied segments	10/10 teachers	4.6
Visual Enhancement	Incorporating images, videos, infographics, diagrams	10/10 teachers	4.4
Interactive Activities	Hands-on, manipulative, movement-based learning	9/10 teachers	4.7
Collaborative Learning	Pair work, small groups, peer teaching	10/10 teachers	4.3
Student Choice	Options in topics, methods, or demonstration formats	7/10 teachers	4.5
Real-World Connections	Linking content to students' lives and current events	10/10 teachers	4.8
Multimedia Integration	Using multiple content formats (text, video, audio, interactive)	9/10 teachers	4.4
Gamification Elements	Points, levels, challenges, competition	6/10 teachers	3.9
Immediate Feedback	Quick check-ins, formative assessment, and responsive teaching	8/10 teachers	4.6
Flexible Pacing	Allowing differentiated time for task completion	7/10 teachers	4.2

*Scale: 1=Not effective, 5=Highly effective (based on teacher self-assessment and observation data)

Strategic Technology Integration

Adapted teachers devised strategic integration methods that complemented rather than replaced effective pedagogical practices. This entailed determining specific educational functions that technology could fulfill, selecting appropriate tools aligned with learning goals, and instructing students in using technology as a learning tool. Participant T4 expressed:

"Early on, I thought using technology meant just adding PowerPoint or showing videos. Now I understand it's about fundamentally rethinking how technology can enhance learning, having students research, create, collaborate, and demonstrate understanding in ways that weren't possible before."

Effective strategies encompass utilizing digital tools for research, employing collaborative platforms for group assignments, incorporating educational games and simulations, using creation tools for student-produced content, and applying formative assessment software. Participant T6 explained a balanced approach:

"I'm not anti-technology, but I'm also not blindly pro-technology. I ask: Does this tool help students learn better than alternatives? Does it develop important skills? If yes, I integrate it. If no, I stick with proven non-digital methods."

Observation data revealed that teachers who articulated clear rationales for technology choices demonstrated more effective integration than those who used technology without explicit pedagogical justification.

Developing Digital Citizenship and Self-Regulation

Acknowledging that comprehensive technology restrictions were ineffective, many teachers shifted to explicitly teaching digital citizenship and self-regulation competencies. This encompassed classroom discussions on responsible technology use, collaborative development of device-use norms, instructional strategies to address digital distractions, and opportunities for students to exercise self-regulation. Participant T8 described:

"Instead of me constantly policing phone use, we had honest conversations about technology's benefits and challenges. Students helped create our classroom norms. Now they self-regulate much better because they understand the reasoning and feel ownership of the rules."

This approach aligns with educational research emphasizing the importance of student agency and metacognitive skill development (Zimmerman, 2002). Teachers adopting this approach reported diminished power conflicts, enhanced student accountability, and the cultivation of transferable self-regulation skills (Rivandi & Pahlevi, 2025; Firmansyah & Sastra Atmaja, 2025). Participant T10 shared:

"I dedicate the first two weeks of the school year to digital citizenship, discussing online safety, information evaluation, digital footprints, managing screen time, and appropriate communication. The investment pays off all year through better self-regulated technology use."

Observation data indicated that classrooms with well-established digital citizenship norms experienced fewer technology-related disruptions than classrooms that relied primarily on prohibitions.

Image 2. Digital Citizenship Framework for Secondary Students

Continuous Professional Learning

Teachers acknowledged that accommodating digital-native students necessitated continuous professional development. Successful adapters proactively pursued learning opportunities through online courses, educational YouTube channels, teacher social media communities, peer observation, and experimentation. Participant T1 explained:

"I can't wait for formal professional development that rarely happens. I've become my own professional developer, watching tutorials, joining Facebook groups where teachers share ideas, trying things, and learning from failures."

This autonomous learning approach correlates with research emphasizing teacher agency importance in professional development (Sabariah et al., 2025). Numerous teachers established informal peer learning networks where they observed one another's classes, exchanged lesson ideas, collaboratively addressed challenges, and offered emotional support. Participant T5 delineated a peer learning group:

"Four of us meet monthly to share what's working and what's not. We visit each other's classrooms, give honest feedback, celebrate successes, and commiserate over failures. This peer support has been more valuable than any formal training."

Building Supportive Learning Environments

Ultimately, adapted teachers highlighted the importance of establishing psychologically secure and supportive learning environments in which students feel at ease taking risks, making errors, and growing as learners. This entailed fostering constructive relationships, exhibiting sincere interest in students' lives and digital environments, exemplifying growth-oriented learning perspectives, and cultivating classroom cultures that prioritize effort and development over perfection. Participant T9 articulated this priority:

"Digital-native students need to know I care about them as people, not just as students in my class. When I show interest in their online worlds, ask about their digital creations, and acknowledge their expertise, that builds bridges. They're more willing to engage with my content when they feel I respect their world."

This emphasis on relationships correlates with research on caring pedagogy and its influence on student motivation and achievement (Noddings, 2012). Teachers observed that establishing connections with digital-native students required understanding their digital cultures, being willing to learn from them, and identifying shared interests despite generational disparities (Dwikamayuda, 2024; Srijayanti et al., 2023).

Synthesis and Theoretical Implications

Findings indicate that effectively managing generational pedagogical transitions necessitates multifaceted adaptation involving technical competencies, pedagogical methodologies, classroom management techniques, professional identity, and relational practices. Teachers' experiences exemplify pedagogical identity transition, whereby existing professional identities must be redefined to operate effectively within evolving educational environments (Engeness, 2021).

Teachers who effectively manage this transition exhibit essential qualities: acknowledgment of legitimate differences among digital-native learners without framing them as deficiencies, openness to experimentation, dedication to ongoing professional development, strategic adoption of technology, and preservation of fundamental pedagogical principles while modifying practices (Widana & Ratnaya, 2021).

This research advances literature through four contributions. First, unlike quantitative technology adoption studies (Revuelta-Domínguez et al., 2022; Wirama et al., 2023), this phenomenological investigation reveals teachers' emotional trajectories from resistance to integration a developmental pattern absent in prior research. Second, it illuminates how Indonesian cultural values, examination curricula, and infrastructure constraints create unique adaptation dynamics, addressing gaps identified by Gallardo-Echenique et al. (2015) regarding digital native contexts in developing nations. Third, while TPACK emphasizes technical competencies (Koehler et al., 2013), findings demonstrate successful adaptation simultaneously requires identity transformation, relationship reconfiguration, and institutional enablement. Fourth, the study validates Helsper & Eynon (2010) critique by documenting within-classroom diversity in digital competencies. Findings substantiate theoretical frameworks: the five-stage emotional trajectory validates Beauchamp & Thomas (2009) teacher identity theory; the transition from transmitters to facilitators corroborates Darling-Hammond et al. (2020) role transformation with Indonesian-specific manifestations; chunked instruction effectiveness aligns with Vygotsky's sociocultural theory (Vygotsky & Cole, 1978); infrastructure limitations challenge TPACK's techno-optimistic assumptions; and digital citizenship efficacy extends Zimmerman (2002) self-regulation framework.

Theoretically, this research proposes an Integrated Teacher Adaptation Framework synthesizing technological competence, identity transformation, relational reconfiguration, and institutional enablement, reconceptualizing digital pedagogy adaptation as multidimensional development rather than technical skill acquisition.

Practically, findings indicate pre-service programs must integrate training in managing generational tensions and developing adaptive identities; in-service development should adopt job-embedded peer learning models, as our data shows informal networks prove more effective than workshops Sabariah et al. (2025)Educational leaders must recognize infrastructure investment, curriculum flexibility, and assessment reform as prerequisites for innovation, and policymakers should implement recognition systems valuing pedagogical experimentation.

Limitations include geographic restriction to Palembang urban schools, limiting generalizability to rural settings; purposive sampling of experienced teachers; exclusion of digital-native teacher perspectives; a six-month snapshot that misses long-term sustainability patterns; an exclusive teacher focus that omits student voices; and a prioritization of phenomenological depth over breadth. Future research should examine adaptation across diverse Indonesian settings, longitudinal trajectories, student perspectives, intervention effectiveness, testing the proposed framework, and digital-native teachers navigating traditional systems.

Conclusion

This phenomenological study investigated how ten experienced junior high school teachers in Palembang navigate generational pedagogical shifts when teaching digital-native students. In terms of lived experiences, teachers went through five emotional stages: initial shock, frustration, recognition, experimentation, and integration, which resulted in major changes in their professional identity and relationships with their students. Concerning challenges, the findings revealed five primary obstacles: technological competency gaps necessitating continuous skill development, insufficient infrastructure limiting digital integration, complex classroom management balancing technology use with engagement, conflicts between traditional pedagogical values and modern student expectations, and difficulties assessing authentic learning in digital environments. Teachers used five key adaptation strategies: segmented instruction with multimedia and interactive activities, strategic use of technology aligned with pedagogical objectives, explicit digital citizenship instruction, continuous self-directed professional development through online communities and workshops, and the creation of supportive learning environments that bridge generational differences. These findings show that navigating generational pedagogical shifts necessitates comprehensive transformation beyond technical skills, including institutional support through infrastructure investment, ongoing professional development, collaborative learning communities, flexible curricula, and reformed assessment practices to enable effective teacher adaptation in the digital age.

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