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Digital Based Reconstruction Of Indonesian Language Learning : From Conventional Learning To Adaptive And Collaborative Learning

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Abstract

The digital transformation in education demands a shift in Indonesian language learning from conventional patterns to adaptive, interactive, and collaborative learning. This study aims to analyze the reconstruction of digital-based Indonesian language learning and identify its contribution to improving language skills and student engagement. The study used a qualitative approach with a literature study method. Data were obtained through a review of scientific articles, academic books, and various relevant sources on digital learning, adaptive learning, collaborative learning, digital literacy, and educational technology. Data were analyzed descriptively and analytically through a process of identification, categorization, interpretation, and synthesis of findings. The results show that digital-based Indonesian language learning does not simply transfer learning materials to a digital platform, but rather reconstructs the entire pedagogical process through the use of technology that enables material personalization, learning flexibility, multimodal interaction, rapid feedback, and collaboration between students. Adaptive learning provides space for adjusting materials and activities based on learning needs, while collaborative learning strengthens communication, creativity, critical thinking, and language production skills. This reconstruction positions students as active subjects and teachers as reflective and innovative facilitators of digital learning.

Keywords: Indonesian Language Learning; Digital Learning; Adaptive Learning; Collaborative Learning; Digital Literacy

Abstrak

Transformasi digital dalam pendidikan menuntut perubahan pembelajaran Bahasa Indonesia dari pola konvensional menuju pembelajaran yang adaptif, interaktif, dan kolaboratif. Penelitian ini bertujuan menganalisis rekonstruksi pembelajaran Bahasa Indonesia berbasis digital serta mengidentifikasi kontribusinya terhadap peningkatan keterampilan berbahasa dan keterlibatan peserta didik. Penelitian menggunakan pendekatan kualitatif dengan metode studi pustaka. Data diperoleh melalui penelaahan artikel ilmiah, buku akademik, dan berbagai sumber relevan mengenai pembelajaran digital,

pembelajaran adaptif, pembelajaran kolaboratif, literasi digital, dan teknologi pendidikan. Data dianalisis secara deskriptif-analitis melalui proses identifikasi, kategorisasi, interpretasi, dan sintesis temuan. Hasil penelitian menunjukkan bahwa pembelajaran Bahasa Indonesia berbasis digital tidak sekadar memindahkan materi pembelajaran ke platform digital, tetapi merekonstruksi keseluruhan proses pedagogis melalui pemanfaatan teknologi yang memungkinkan personalisasi materi, fleksibilitas belajar, interaksi multimodal, umpan balik secara cepat, dan kolaborasi antarpeserta didik. Pembelajaran adaptif memberikan ruang bagi penyesuaian materi dan aktivitas berdasarkan kebutuhan belajar, sedangkan pembelajaran kolaboratif memperkuat komunikasi, kreativitas, berpikir kritis, dan keterampilan produksi bahasa. Rekonstruksi tersebut menempatkan peserta didik sebagai subjek aktif dan guru sebagai fasilitator pembelajaran digital yang reflektif dan inovatif.

Kata Kunci: Pembelajaran Bahasa Indonesia; Pembelajaran Digital; Pembelajaran Adaptif; Pembelajaran Kolaboratif; Literasi Digital

INTRODUCTION

The digital transformation in education has brought fundamental changes to various aspects of learning. The presence of learning platforms, mobile devices, artificial intelligence, learning analytics, interactive multimedia, and open learning resources expands the possibilities for flexible, learner-centered learning. The digital environment provides space for learners to read, write, listen, speak, discuss, produce texts, and obtain feedback through various media. Digital technology has the potential to expand access to learning resources, increase practice opportunities, personalize learning, and encourage interaction and collaboration. The use of technology requires a clear pedagogical framework so that digital transformation does not stop at the use of devices, but produces real changes in the quality of learning (Arrafi Bagus Pratama et al., 2024; Chairunnisa & Masyhuri, 2024; Purba & Saragih, 2023).

Indonesian language learning faces increasingly complex demands. Language mastery is not only related to understanding linguistic rules, but also the ability to use language effectively in various communication contexts. Listening, speaking, reading, and writing skills require learning experiences that enable students to interact with various types of texts, construct meaning, convey ideas, receive feedback, and make continuous improvements (Alifiah Nurachmana et al., 2024; Kusumasari et al., 2024; Suci et al., 2025). Learning models that still focus on teacher delivery, the use of textbooks, and individual assignments tend to limit the space for exploration and student participation. The characteristics of a generation increasingly close to digital technology require Indonesian language learning that can integrate technology into the pedagogical process meaningfully.

Research by Septiari and Suwandi (2024) shows that the use of digital technology in Indonesian language learning has developed through various forms, such as e-learning, animated videos, social media, Canva, Google Sites, Google Docs, and flipped classrooms. These findings demonstrate that the Indonesian language learning environment has experienced diversification in media and learning resources. Hafidhi et al. (2024) found that digital-based teaching materials can support the development of students' digital literacy in Indonesian language learning. The use of digital materials provides access to a wider range of information sources while also requiring students to be able to select, evaluate, and use information critically.

The use of digital technology also provides opportunities to increase student engagement in the learning process. The use of Padlet, for example, can provide a space for students to work on assignments, provide comments, discuss, and collaborate. These activities provide opportunities for students to express ideas more openly and receive responses from peers and teachers. Kiuk et al. (2025) showed that multimedia-based collaborative learning through learning videos, digital projects, and presentations can increase students' motivation, enthusiasm, problem-solving abilities, and communication skills. Liu et al. (2024) also found through a systematic review that technology-assisted language learning combined with cooperative activities positively contributes to students' language abilities and social development.

The digitalization of learning cannot simply be understood as a shift from print to electronic media. The transfer of textbooks to e-books, the submission of assignments through digital platforms, or the delivery of lectures via video conferencing do not yet demonstrate substantive pedagogical transformation. Learning structures remain conventional if technology is used solely as a means of distributing materials. UNESCO (2023) emphasizes that the impact of technology on education depends heavily on how it is designed, used, and placed within a pedagogical context. Learning development should focus on the quality of the learning experience, student needs, active engagement, interaction, and the achievement of learning objectives.

These conditions reinforce the need for adaptive learning. Adaptive learning considers students' initial abilities, needs, learning pace, interests, and developmental milestones when designing learning experiences. Digital technology enables teachers to provide materials with varying levels of complexity, provide exercises tailored to students' abilities, provide rapid feedback, and monitor student learning progress (Nasri, 2019). Each student has the opportunity to participate in the learning process based on their needs and learning characteristics. The adaptive approach also provides teachers with the

opportunity to more systematically differentiate materials, activities, and evaluations (Nasri, 2023) .

Indonesian language learning is strongly relevant to an adaptive approach because students' language skills develop at diverse rates. Students can differ in their abilities to comprehend text, organize ideas, use vocabulary, develop paragraphs, speak, and listen to information. Digital technology enables the provision of various levels of reading, language exercises, videos, audio, infographics, and interactive activities tailored to learning needs. Digital feedback can help students identify errors and improve their work more quickly. Teachers obtain data on learning progress that can be used to determine subsequent learning strategies (Mutiara Mutiara, 2024; Yoma Hatima, 2025) .

Adaptive learning still requires social interaction. Language is a means of communication that develops through interaction, negotiation of meaning, and exchange of ideas. Learners need opportunities to discuss, provide feedback, co-edit, present ideas, and produce work collaboratively. Digital technology provides various spaces for building these interactions through discussion forums, online documents, *collaborative writing*, *peer feedback* , multimodal projects, and digital presentations. The integration of adaptive and collaborative learning enables learners to experience both personal and social learning (Du Plooy et al., 2024a) .

The development of artificial intelligence is increasingly expanding the possibilities for implementing adaptive learning. AI-based technology can provide feedback, help students evaluate writing, provide alternative learning resources, support brainstorming , and help teachers develop more varied learning materials. Systematic studies of the use of AI in language education show that this technology has the potential to support personalized learning, self-regulated learning, and learner autonomy. The use of AI also raises ethical issues, technology dependency, information validity, data privacy, and access gaps, so its utilization requires digital literacy and adequate pedagogical support. (Y. Liu et al., 2024b; Purba & Saragih, 2023) .

The context of Indonesian language learning requires the use of technology that still considers the cultural values and character of students. Yuniarti et al. (2026) demonstrated that the integration of AI in Indonesian language literacy education can be developed through a digital ethnopedagogy approach that connects technology with local cultural values and contexts. This perspective demonstrates that digital innovation does not have to separate language learning from its social and cultural context. Instead, technology can be used to expand cultural exploration, develop multimodal texts, document local

languages and traditions, and connect students' learning experiences with their social environment.

Previous research shows that technology-based Indonesian language learning has been studied from various perspectives. Some studies focus on the effectiveness of specific media, such as Padlet, learning videos, digital modules, Canva, and various learning platforms. Other studies examine digital literacy, collaborative learning, multimedia, and the use of artificial intelligence. These research focuses provide an important foundation for the development of digital learning, but there is still room to integrate these various components into a more comprehensive pedagogical construct. Adaptive and collaborative learning are often discussed as distinct approaches, while Indonesian language learning requires both simultaneously.

This gap demonstrates the need for a digital-based reconstruction of Indonesian language learning that goes beyond the use of media or technology platforms. Reconstruction should encompass changes in learning design, interaction patterns, learning resource management, assessment strategies, feedback, and the roles of teachers and students. Technology should be positioned as a pedagogical instrument that enables learning to be more flexible, personalized, interactive, collaborative, and contextual. Teachers act as both designers and facilitators of learning, able to select technology according to pedagogical objectives. Students are positioned as active subjects who construct knowledge, produce language, collaborate, and reflect on their learning process.

This reconstruction is also relevant to the changing characteristics of literacy in the 21st century. Language skills are no longer solely related to the ability to understand and produce printed text. Learners need to understand multimodal texts, evaluate digital information, communicate across various platforms, produce content, and use technology ethically and responsibly. Learning Indonesian plays a strategic role in developing these competencies because language is the primary instrument for understanding information, building knowledge, developing arguments, and communicating in a digital environment.

This research aims to analyze the reconstruction of digital-based Indonesian language learning from a conventional model to adaptive and collaborative learning. The analysis focuses on the characteristics of digital learning, forms of learning adaptability, student collaboration patterns, technology utilization, and their implications for language skills and student engagement. This study is expected to produce a conceptual construct that can serve as a basis for developing Indonesian language learning that is responsive to technological developments while remaining oriented to student needs.

The urgency of this research lies in the need to shift the orientation of digital learning from mere use of technology to pedagogical transformation. The digital-based reconstruction of Indonesian language learning is expected to combine personalized learning with social interaction, technological flexibility with pedagogical control, and digital innovation with language skill development. This framework provides direction for Indonesian language learning that not only follows technological developments but also utilizes them critically, creatively, and collaboratively, and is oriented toward developing student competencies in the digital era.

METHOD

This research uses a qualitative approach with a *library research method*. (Chu, 2015; Lund, 2020; Yasmin et al., 2024) . A qualitative approach was chosen because the research was directed at understanding, interpreting, and synthesizing various ideas and research results regarding the reconstruction of digital-based Indonesian language learning (Creswell, 2013; Tariq, 2025; Wiesner, 2022) . Literature studies allow researchers to identify the development of digital learning concepts, adaptive learning, collaborative learning, digital literacy, and the use of cutting-edge technology in language education through relevant scientific sources. *Literature reviews* can be used as a research methodology to identify, evaluate, and synthesize knowledge that has developed in a field of study (Coombes & Tresidder, 2026; Miao, 2019; Yasmin et al., 2024) .

The research data sources consist of scientific literature relevant to the research focus. The literature includes national and international journal articles, academic books, scientific proceedings, educational institution reports, and policy documents discussing Indonesian language learning, *digital learning*, *adaptive learning*, *collaborative learning*, *digital literacy*, *multimedia learning* , and *artificial intelligence* in education. The literature search was conducted through academic databases and scientific search engines using a combination of keywords " *digital Indonesian language learning* ", " *Indonesian language education* ", " *adaptive learning* ", " *collaborative learning* ", " *digital literacy* ", " *AI in language learning* ", and " *technology-enhanced language learning* ". The literature used was prioritized based on topic relevance, publisher credibility, methodological quality, and publication recency (De Sordi, 2024; Morse & Field, 1996) .

The source selection process was carried out in stages through identification, screening, feasibility assessment, and determination of the literature used as research data. The identification stage was carried out by collecting publications related to Indonesian language learning and digital transformation. The screening stage was carried out by reading titles, abstracts,

keywords, and bibliographic information to exclude sources that did not align with the research focus. The feasibility assessment stage was carried out through a more in-depth reading of the article's content to ensure alignment between the objectives, methods, findings, and contributions of previous research. This process followed the principles of systematic literature selection to ensure the analyzed sources were of adequate relevance and quality. (Page et al., 2021) .

Data obtained from the literature were then extracted based on several analysis categories. The first category relates to the characteristics of digital learning, including the use of digital platforms, multimedia, electronic learning resources, and AI-based technology. The second category relates to adaptive learning, including personalization of materials, differentiation of activities, learning pace, providing feedback, and monitoring student progress. The third category relates to collaborative learning, including digital discussions, collaborative writing, peer feedback, group projects, presentations, and interactions between students. The fourth category relates to the impact of learning on listening, speaking, reading, writing, digital literacy, creativity, critical thinking, and student engagement (Kholifah & Sofwan, 2024; Peter et al., 2024) .

Data analysis was conducted using descriptive-analytical and thematic synthesis. Descriptive analysis was used to map concepts, approaches, technologies, and previous research findings. Thematic analysis was used to identify emerging patterns from various sources based on the themes of digital learning, adaptability, collaboration, and language skills. Braun and Clarke (2006) explain that thematic analysis can be used to systematically identify and interpret patterns of meaning within a data set. The resulting theme groupings were then compared to identify similarities, differences, trends, and opportunities for development in previous research.

The synthesis stage is carried out by connecting various findings into a conceptual construct regarding the reconstruction of digital-based Indonesian language learning. The synthesis not only summarizes the results of previous research but also integrates various concepts into relationships that explain the shift from conventional learning to adaptive and collaborative digital learning. This approach allows the research to produce a more comprehensive understanding of the relationship between digital technology, personalized learning, collaboration, digital literacy, and language skill development. Snyder (2009) emphasized that literature synthesis can generate new perspectives by combining various previously scattered research findings.

Data validity is maintained through source triangulation. Information regarding specific concepts and findings is compared across multiple scientific

sources so that research interpretation is not dependent on a single publication. Source credibility is also considered through the reputation of the journal or publisher, clarity of methodology, relevance to the research focus, and recency of the publication. This principle is used to reduce interpretation bias and increase the accuracy of the resulting conceptual synthesis. (Afiyanti, 2008; Arslan, 2022; Brink, 1993) .

The research process encompasses seven main stages: problem identification, literature search, source selection, data extraction and categorization, analysis and synthesis, learning model reconstruction, and conclusion formulation. This sequence yields a conceptual construct that positions digital technology as a pedagogical instrument, adaptive learning as a personalization mechanism, and collaborative learning as a mechanism for social interaction. These three components are aimed at supporting the development of students' language skills and digital literacy.

Table 1. Stages of the Research Method

<i>No.</i>	<i>Research Stage</i>	<i>Main Activities</i>	<i>External</i>
1	Identification of problems	Identifying Indonesian language learning issues in digital transformation	Focus and direction of research
2	Literature search	Browse relevant articles, books, proceedings and documents	Initial source collection
3	Source selection	Assess the relevance, credibility, quality, and currency of sources	Selected literature
4	Data extraction	Identify important information from each source	Research data
5	Categorization	Grouping data based on digital, adaptive, collaborative, and language skills themes	Thematic matrix
6	Analysis and synthesis	Compare, interpret, and integrate findings	Conceptual patterns and relationships
7	Model reconstruction	Formulating the relationship between digital technology, adaptive learning, and collaborative learning	Conceptual model of learning
8	Conclusion	Formulating the characteristics and implications of the model	Research conclusion

The table shows that the research does not stop at literature mapping but moves toward a process of conceptual synthesis and reconstruction. The research focuses on integrating digital, adaptive, and collaborative dimensions into Indonesian language learning. The resulting model is expected to serve as a conceptual basis for developing Indonesian language learning that is more flexible, personalized, interactive, and appropriate to the characteristics of learning in the digital era.

RESULTS AND DISCUSSION

The Shift in Indonesian Language Learning from Conventional Models to Digital Ecosystems

The study results show that Indonesian language learning has shifted from a teacher-centered learning pattern to a learning environment that utilizes digital technology more intensively. This shift is visible through the use of *learning management systems*, electronic learning resources, learning videos, collaborative documents, educational social media, presentation applications, *digital storytelling*, and various platforms that allow students to access materials and work on learning activities flexibly. Technology no longer functions solely as a medium for delivering material, but is beginning to be used to build interactions, provide multimodal learning resources, provide feedback, and support the production of language works.

These findings indicate that the digitalization of Indonesian language learning has moved from a substitution stage to a pedagogical transformation. A study by Septiari and Suwandi (2024) demonstrated the diverse use of technology in Indonesian language learning, including *e-learning*, animated videos, social media, Canva, Google Sites, Google Docs, and *the flipped classroom*. These developments demonstrate that digital technology provides teachers with greater freedom to design learning experiences beyond the classroom and textbooks.

The discussion of these findings is relevant to the Technological Pedagogical Content Knowledge (TPACK) perspective. TPACK positions technology, pedagogy, and content as three components that need to be integrated simultaneously in learning. Technology cannot be separated from pedagogical objectives and the characteristics of the material being taught. Studies on TPACK in language learning show that technology integration often results in a pattern of technology use for learning that remains teacher-centered. This condition demonstrates that mastery of technology alone is not enough to produce learning transformation (Tseng et al., 2022).

Learning Indonesian requires integrating technology with the characteristics of language competencies. Reading materials, for example, can be developed through digital texts and multimodal resources; writing lessons can utilize *collaborative writing* and *peer feedback* ; speaking lessons can utilize video and digital conferencing; and listening lessons can utilize podcasts, videos, and audio sources. This pattern demonstrates that digital reconstruction is not simply a change in devices, but rather a change in the way learners experience the language learning process.

Adaptive Learning as a Form of Personalization of Indonesian Language Learning

Research results show that digital learning offers strong opportunities for the implementation of adaptive learning. Adaptability is evident through the provision of materials with varying levels of difficulty, a variety of learning activities, rapid feedback, monitoring student progress, and adjusting activities based on abilities and learning needs. Technology allows teachers to move beyond providing a completely uniform learning experience to all students.

The study's findings indicate that personalization is an important characteristic of adaptive learning. Learners can access different learning paths based on their initial abilities, training results, and learning progress. A review of 69 *personalized adaptive learning* studies found that improvements in academic achievement were found in 59% of the studies, while improvements in student engagement were found in 36%. These findings demonstrate the potential of adaptive learning to support learning outcomes and engagement, while also highlighting that its implementation still faces technological and resource limitations. (Du Plooy et al., 2024b) .

These findings can be explained through constructivism theory, which views learning as an active process of constructing knowledge based on experience and prior knowledge. Piaget positioned students as active subjects constructing knowledge, while Vygotsky emphasized the importance of support and interaction within *the zone of proximal development* . Adaptive learning is relevant to both perspectives because it provides support that can be tailored to the learner's ability level. Technology serves as an instrument that helps provide *scaffolding* , practice, and feedback as the learner progresses.

The context of Indonesian language learning reinforces this need. Reading, writing, speaking, and listening skills develop at different rates in each student. Adaptive learning allows students with reading difficulties to receive texts of more appropriate complexity, while students with higher abilities can receive more challenging texts and assignments. Writing learning can also be

developed through stages ranging from idea identification, outlining, paragraph development, editing, and publication. Each stage can be accompanied by different feedback tailored to the student's needs.

Digital Collaborative Learning as a Strengthening of Interaction and Language Skills

The study's findings demonstrate that effective digital learning provides more than just individual learning experiences. Digital platforms also create collaborative spaces through discussion forums, shared documents, *peer review*, group projects, digital presentations, and the production of multimodal work. Learners can construct knowledge through the exchange of ideas while simultaneously using language as a means of communication.

The research findings of Liu et al. (2024) provide empirical support for these results. A systematic review of technology-assisted language learning and cooperative learning showed that technology combined with cooperative learning had a positive impact on language skills. The study reported a *mean effect size* of 0.86 and improvements in critical thinking, communication, language awareness, motivation, and self-reflection. The effectiveness of collaborative learning was still influenced by the type of task, group composition, interaction patterns, and learner characteristics (Y. Liu et al., 2024a).

These findings align with Vygotsky's social constructivism theory, which places social interaction as a crucial part of knowledge construction. Knowledge is constructed not only through individual activity but also through dialogue, negotiation of meaning, and assistance from others. Learning Indonesian directly aligns with this principle because language is both an object and a learning tool. Students learn language through its use in authentic communication situations.

Collaborative writing is a relevant learning method. Students can construct texts together, provide comments, improve sentence structure, evaluate arguments, and make edits. This process allows writing skills to develop through practice and interaction. *Peer feedback activities* also encourage students to critically read others' work and provide responses using sound argumentation.

These findings also demonstrate that digital collaboration does not always automatically produce positive impacts. Liu et al. (2024b) noted students' perceived pressure during collaborative writing activities and doubts about the quality of *peer feedback*. These conditions highlight the importance of task design, role allocation, evaluation mechanisms, and teacher support.

Integration of Adaptive and Collaborative Learning

The synthesis results show that adaptive and collaborative learning need not be viewed as opposing approaches. Adaptive learning addresses individual student needs, while collaborative learning addresses social interaction needs. Reconstructing digital-based Indonesian language learning requires an integration of both approaches.

Learning can begin with diagnostic activities to identify students' initial abilities. The system or teacher then provides materials and exercises based on individual needs. Students are then directed toward collaborative activities such as discussions, problem-solving, text development, multimodal projects, or presentations. The results of group work can form the basis for individual feedback. This cycle allows for ongoing personalization and collaboration.

Vygotsky's perspective provides a strong theoretical foundation for this construct. Learners require support tailored to their actual abilities while also interacting with others to achieve higher levels of proficiency. Digital technology can meet these two needs through *adaptive pathways* and *collaborative learning spaces*. Learning is no longer entirely individual or entirely uniform, but rather shifts between individual and social experiences. These findings also align with a study by Liu et al. (2024b), which showed that the effectiveness of technology-assisted language learning is influenced by task design, interaction patterns, and learner characteristics. Technology functions optimally when designed as part of a learning strategy, not simply as an additional medium.

Digital Multimodality in Language Skills Development

The research findings show that digital technology is expanding the text formats used in Indonesian language learning. Learning texts are no longer limited to written texts, but have evolved into multimodal texts that combine language, images, sound, video, animation, infographics, and interactive elements. Learners not only read and write texts but also interpret, evaluate, design, and produce various forms of digital communication.

Multimodal learning provides opportunities for teachers to develop language skills in an integrated manner. Reading materials can be enriched with visuals and videos; listening materials can use podcasts or videos; speaking skills can be developed through video production; and writing skills can be directed toward producing digital articles, blogs, *digital storytelling*, or multimedia scripts.

multiliteracies perspective provides a theoretical foundation for these findings. Contemporary literacy demands the ability to understand and produce meaning through various communication modes. Learners need to be able to select the appropriate mode for their communication goals, understand the relationships between modes, and produce messages effectively. Digital

technology provides an environment that allows for more authentic multiliteracies practices.

Studies of technology in language education also show that pedagogical design is a crucial aspect of technology utilization. A review of 51 empirical studies on technology in language education found significant attention to technology use practices, TPACK (Teacher-Based Achievement in Language Learning), teacher perceptions, and pedagogical design. These findings reinforce the position that the success of technology in language learning is strongly influenced by instructional design and teacher pedagogical competence (T. Liu et al., 2023) .

Artificial Intelligence as an Instrument of Feedback and Personalization

The synthesis results show that artificial intelligence has the potential to expand adaptive learning in Indonesian Language Education. AI can be utilized to help generate varied exercises, provide early feedback on writing, identify linguistic errors, provide alternative ways to develop ideas, and support student reflection on their work. This utilization allows the learning process to be more responsive to individual needs.

The presence of AI needs to be placed within a controlled pedagogical framework. AI cannot be positioned as a substitute for teachers or a substitute for students' thinking processes. Students still need the ability to evaluate information, verify answers, be accountable for ideas, and produce work with academic integrity. Teachers continue to play a crucial role as directors, evaluators, facilitators, and guardians of the quality of the learning process.

The TPACK perspective is relevant to explaining this position. Technology integration requires a fit between technology, materials, and pedagogical strategies. TPACK studies in language learning show that technology use can remain trapped in teacher-centered learning patterns if pedagogical competence and content understanding do not develop alongside technological competence (Tseng et al., 2022) .

The context of AI expands these demands. Teachers need to understand not only how to use AI applications but also when the technology is relevant, how to use it ethically, how to verify its results, and how to integrate it with Indonesian language learning objectives. Teachers' digital competence ultimately becomes an integral part of the learning reconstruction.

Reconstructing the Roles of Teachers and Students

The research results show that digital transformation has changed the distribution of roles in Indonesian language learning. Teachers are no longer the

sole source of information, while students are no longer passive recipients of information. Teachers act as learning designers, facilitators, feedback providers, interaction managers, and evaluators. Students act as information seekers, information processors, text producers, collaborators, and reflective learners.

These changes can be understood through constructivism and TPACK theories. Constructivism positions students as the primary actors in knowledge formation, while TPACK demands that teachers integrate technology with content and pedagogy. A study of TPACK in the Indonesian context shows that technology integration has become a growing field of research, but the quality of integration is greatly influenced by teachers' ability to connect technology with pedagogical strategies and learning content (Sandy et al., 2023) .

The changing role of teachers does not mean a diminishing of their function. The complexity of the digital environment actually increases the need for teachers with pedagogical skills, digital literacy, information curation skills, and ethical competencies. Teachers must be able to identify credible sources, select relevant technology, design adaptive activities, manage collaboration, and ensure that technology use does not diminish students' thinking processes.

Digital-Based Indonesian Language Learning Reconstruction Model

The overall results of the research yielded a conceptual construct that the reconstruction of digital-based Indonesian language learning is built through the relationship between four main components: digital technology, adaptive learning, collaborative learning, and multimodal literacy. Digital technology functions as a supporting ecosystem; adaptive learning functions as a personalization mechanism; collaborative learning functions as a social interaction mechanism; and multimodal literacy serves as the orientation of the competencies being developed.

<i>Component</i>	<i>Key Findings</i>	<i>Theoretical Basis</i>	<i>Learning Implications</i>
<i>Digital technology</i>	Platforms, multimedia, AI, and digital resources expand the learning experience.	TPACK	Technology integrated with pedagogy and content
<i>Adaptive learning</i>	Materials, assignments, and feedback can be tailored to the needs of students.	Constructivism and <i>scaffolding</i>	Personalize your learning path

<i>Collaborative learning</i>	Discussions, <i>peer feedback</i> , <i>collaborative writing</i> , and digital projects enhance interaction.	Social constructivism	Strengthening communication and cooperation
<i>Multimodality</i>	Texts evolve into a combination of text, visuals, audio, and video.	Multiliteracies	Multimodal literacy development
<i>Artificial intelligence</i>	AI supports feedback and personalization	TPACK and <i>self-regulated learning</i>	More responsive learning with ethical control
<i>The role of teachers</i>	Teachers become designers, facilitators, and evaluators	TPACK	Strengthening digital-pedagogical competencies
<i>The role of students</i>	Students become producers, collaborators, and reflective learners.	Constructivism	Increased independence and engagement

This synthesis shows that digital-based Indonesian language learning is not synonymous with online learning or the use of apps. A more appropriate concept is a transformation of the pedagogical ecosystem that changes how materials are provided, how students learn, how teachers provide support, how interactions occur, and how language skills are developed.

This model draws support from research on adaptive learning and technology-assisted collaborative learning. Adaptive learning has shown potential to improve student achievement and engagement, while technology-assisted cooperative learning has been shown to positively impact language skills, communication, critical thinking, motivation, and self-reflection (Du Plooy et al., 2024b) . Integrating the two creates a more comprehensive pedagogical approach: students receive individual support without losing opportunities to interact and learn together.

Synthesis of Research Results

The synthesis of research results shows that the reconstruction of digital-based Indonesian language learning has three main characteristics. First, learning moves from **uniform learning** to **adaptive learning** through personalized materials, activities, and feedback. Second, learning moves from *individual learning* to *collaborative learning* through digital interactions, *peer feedback* ,

discussions, and collaborative work production. Third, learning moves from *text-based learning* to *multimodal learning* through the integration of text, visuals, audio, video, and interactive technologies.

These three changes result in a learning construct that can be formulated as *Digital Adaptive Collaborative Language Learning*. This concept positions technology as pedagogical infrastructure, adaptivity as a response mechanism to learner diversity, and collaboration as a mechanism for constructing social knowledge. Language skills serve as the primary orientation connecting all components.

These findings reinforce the view that the success of digital transformation is not determined solely by technological sophistication. Technology needs to be embedded within learning designs that have clear objectives, activities, interactions, assessments, and feedback. Studies on technology-assisted language education also show that technology does not automatically result in improved language learning; its effectiveness depends heavily on task design, social context, interaction patterns, and active student engagement.

The reconstruction of Indonesian language learning can finally be understood as a change from the teacher as the center of information to the teacher as the learning designer, from students as recipients to students as producers of knowledge, from uniform materials to adaptive materials, from individual activities to digital collaboration, and from single texts to multimodal literacy. This formulation is the main conceptual contribution of the research in explaining the direction of Indonesian language learning development that is relevant to the contemporary digital education ecosystem.

CONCLUSION

The digital-based reconstruction of Indonesian language learning demonstrates a shift from conventional learning to adaptive, collaborative, and multimodal learning. Digital technology serves not only as a medium for delivering material but also as part of a pedagogical design that supports personalized content, learning flexibility, interaction, collaboration, and feedback. Adaptive learning allows for the adjustment of the learning process based on student needs, while collaborative learning strengthens communication, creativity, critical thinking, and language skills.

The synthesis results in the concept of *Digital-Adaptive-Collaborative Language Learning*, which integrates digital technology, personalization, collaboration, and multimodal literacy in Indonesian language learning. This model positions teachers as facilitators and learning designers, while students are active subjects in constructing knowledge and producing language works.

This reconstruction sets the direction for developing Indonesian language learning that is more flexible, interactive, and relevant to the demands of education in the digital era.

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