

## Iban Language Education in the Digital Age: A Conceptual Review via MIDBI Model

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### Abstract

This article analyzes the development of Iban language education within the framework of the digital age, emphasizing the interaction among technology, pedagogy, and cultural factors. The Iban language faces challenges associated with modernization, digital readiness, and the preservation of cultural heritage in Malaysia. This study aims to conceptualize the improvement of Iban language instruction via digital innovation, while maintaining its cultural integrity. A qualitative conceptual literature review synthesized studies from 2010 to 2025, utilizing databases such as Scopus, ERIC, and MyJurnal. The text discusses Iban language education, indigenous pedagogy, digital transformation, and culturally sustaining teaching methodologies. The literature underwent thematic synthesis to identify recurring themes related to technological adaptation, pedagogical innovation, and cultural contextualization. The analysis employed established frameworks including Technological Pedagogical Content Knowledge (TPACK), Diffusion of Innovations Theory, and Culturally Sustaining Pedagogy. The findings indicate that effective Iban language education in the digital era requires a balanced integration of three dimensions, leading to the creation of the Model for Digital Integration of Iban Language (MIDBI). This study offers a conceptual framework for future empirical research and outlines implications for educators, policymakers, and curriculum developers focused on improving digital inclusion and cultural continuity in indigenous language education.

**Keywords:** Iban Language, Digital Transformation, Language Education, Technology-Based Pedagogy, Cultural Heritage

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### INTRODUCTION

The Iban language is one of the largest ethnic languages in Sarawak and plays a vital role as a medium of communication, a marker of cultural identity, and a repository of intellectual heritage for the Iban community. Within Malaysia's formal education system, Iban has been recognized as an elective subject in primary and secondary schools under the national curriculum for several decades. This initiative not only reinforces the status of Iban as a heritage language but also reflects the government's commitment to preserving ethnic languages in Malaysia (Antau & Jamaludin, 2023).

However, the global shift in educational landscapes particularly driven by the digital revolution and the rise of educational technology (EdTech) has introduced both challenges and opportunities for Iban language education. The digital era demands that education systems adapt to new modes of knowledge delivery and foster more dynamic learning environments. The use of

technologies such as e-learning platforms, mobile applications, and social media has transformed how students engage with language and culture (Mohd Azmi, 2021).

In the context of Iban language education, this transformation opens up space for pedagogical innovation, including the use of interactive digital materials, gamification, and community-based virtual learning. Nevertheless, questions remain about the extent to which Iban language education can keep pace with digital advancements, given persistent challenges such as the lack of digital resources, limited teacher competence in technology, and access disparities between urban and rural areas (Ting & Ling, 2020).

Beyond technological concerns, Iban language education faces a more fundamental issue: sustaining student interest in this heritage language. In a world increasingly dominated by global languages such as English, efforts to maintain the relevance of Iban within the education system must be strategic and integrated. Research by Crump and Head (2022) indicates that digital integration in indigenous language education not only enhances student engagement but also makes learning more contextual, relevant, and resilient to changing times.

Therefore, there is an urgent need to re-examine the direction of Iban language education in the digital age. This article aims to review existing literature on the development of Iban language education in the context of digital transformation, focusing on the issues, challenges, and innovations that shape its trajectory. Through an analysis of prior studies, this article will explore both the potential and limitations of digitizing Iban language instruction. The discussion will also propose a conceptual framework for understanding how Iban language education can be strengthened through the use of educational technologies that align with the socio-cultural context of the Iban community. Ultimately, this article seeks to contribute conceptually to the empowerment of Iban language education so that it remains relevant, sustainable, and competitive in the landscape of 21st-century learning.

## LITERATURE REVIEW

This section discusses findings from various scholarly sources related to the status of the Iban language in Malaysia's education system, the challenges faced in its implementation, and the transformations and innovations brought about by digital technology. The review aims to trace the trajectory of Iban language education and its potential for transformation in the digital era.

### Status of the Iban Language in the Education System

The Iban language is one of Sarawak's principal ethnic languages and is very important to its community. However, its place in Malaysia's education system is still not secure. Policy initiatives have made Iban an optional topic in several primary and secondary schools, but the execution is inconsistent and has systemic problems. Antau and Jamaludin (2023) emphasize that while national education policies advocating for the incorporation of indigenous languages, insufficient infrastructure and ongoing support hinder the efficacy of these projects.

The lack of adequately competent Iban language teachers is one of the most important problems. Banseng, Sintian, and Sarudin (2022) performed a needs analysis that showed that many teachers who are supposed to teach Iban traditional poems don't have the right training or confidence. This difference is especially clear in rural schools, where teachers don't have as many chances to improve their skills. The quality of Iban language training varies greatly without skilled teachers, which makes it harder for students to stay interested and learn.

To make matters worse, younger generations are increasingly choosing English and Sarawak Malay over Iban. Metom, Ting, and Ling (2021) discovered that the Iban language is declining due to views of economic and social advantages linked to hegemonic languages. This trend is made worse by the fact that Iban is not often used in media, technology, or official education. This makes it harder for people to pass along their culture to the next generation and makes their cultural identity weaker.

New ways of teaching are promising ways to get people interested in learning Iban again. Sandai, Mahmud, and Sandai (2019) put forward a comprehensive pedagogy for instructing in

leka main, a genre of sung and chanted Iban traditional poetry. Their technique integrates narrative-based learning with musical teaching, enhancing the educational experience by making it more immersive and culturally relevant. These kinds of activities not only help students improve their language skills, but they also help them reconnect with their culture via performance and storytelling.

A comprehensive approach is necessary to enhance the educational standing of the Iban. This includes changing the curriculum to include oral traditions and local stories, giving teachers thorough training, and getting the community involved to build pride and ownership. Malaysia can make sure that the Iban language stays a lively and lasting component of Sarawak's educational and cultural landscape by taking into account both pedagogical and sociological elements.

### **Challenges in Iban Language Education**

Iban language education in Malaysia faces a complex set of challenges that go beyond policy recognition, particularly in rural and underserved communities. While the language has been introduced as an elective subject in selected schools, its delivery is constrained by limited infrastructure. Many schools lack stable internet connectivity and access to digital devices, which restricts the use of multimedia tools that could make learning more engaging. Bećirović (2023) emphasizes that successful technology integration requires not just hardware, but also institutional support and teacher digital literacy both of which are unevenly distributed across Sarawak.

Pedagogical limitations further hinder the effectiveness of Iban instruction. Traditional teaching methods, often reliant on rote memorization and static materials, fail to resonate with modern learners. Butler (2011) notes that communicative and task-based language teaching (CLT and TBLT), though widely promoted across Asia, face resistance due to rigid curricula and cultural mismatches. These approaches are rarely adapted for indigenous languages like Iban, which rely heavily on oral traditions and community-based storytelling elements that are difficult to incorporate into standardized classroom models without creative reform.

Teacher preparedness is another critical barrier. Many educators lack formal training in both Iban language pedagogy and the use of technology-enhanced instruction. Dash and Mohapatra (2025) argue that effective digital integration in language education requires a dual focus: equipping teachers with technical skills and helping them adapt culturally relevant content for digital platforms. Without targeted professional development, Iban teachers may struggle to deliver lessons that are both linguistically accurate and pedagogically engaging.

Student attitudes also influence the effectiveness of instruction. In a globalized world dominated by English, ethnic languages like Iban are often perceived as less relevant to modern economic contexts. The greatest challenge lies in ensuring that Iban continues to be learned not only as cultural heritage but also as a valuable medium of knowledge and communication. This requires more creative, contextual, and technology-driven teaching approaches to attract student interest (Banseng & Sandai, 2017).

Addressing these challenges requires a holistic, technology-driven, and culturally grounded strategy. This includes developing interactive content rooted in Iban oral traditions, training teachers in culturally sensitive digital pedagogy, and reshaping public attitudes through community engagement. By aligning infrastructure, instructional design, and cultural relevance, Malaysia can ensure that Iban language education evolves into a dynamic and sustainable part of its multilingual landscape.

### **Digital Transformation in Language Education**

The rise of digital technology has significantly reshaped education, including language instruction. The use of information and communication technologies has enabled new modes of knowledge delivery, such as online learning, blended learning, and interactive mobile applications. In the context of Iban language teaching, these approaches enrich the learning

experience through digital media such as videos, interactive quizzes, and language learning software.

Even while the digitization of Iban language texts is still in its early stages, both grassroots and institutional efforts are starting to gain ground. Educational programs have added online modules, quiz platforms, and mobile apps to help people learn Iban vocabulary and grammar. These aids frequently include cultural features like traditional melodies and folklore, which make the learning experience better. Matt et al. (2022) showed that platforms like Wordwall may greatly improve student engagement and performance in literature-based learning. This means that comparable tools could be used for Iban training.

The efficacy of digital integration is contingent upon the preparedness of educators and the functionality of the infrastructure. Ahmad and Rathakrishnan (2025) found that educators in Kedah recognize the importance of digital technology, although many lack the requisite confidence and proficiency to employ them effectively. Their research stresses the need for professional development and institutional assistance, which are also important in Sarawak, where Iban is taught. Failure to invest in enhancing teachers' competencies may exacerbate educational disparities due to the digital revolution.

Wang et al.'s (2024) recent research shows how artificial intelligence could change education in big ways. Their systematic analysis of the research illustrates how AI-powered technologies like intelligent tutoring, adaptive learning platforms, and automated feedback may make lessons more personal, keep students interested, and work in a variety of educational settings. These technologies might be adapted to work with Iban, giving personalized help while keeping cultural content and oral traditions alive.

To fully grasp the promise of digital revolution in Iban language instruction, coordinated initiatives are necessary. This involves making open-access information based on Iban oral traditions, teaching teachers how to use culturally responsive digital pedagogy, and including indigenous languages in national digital education plans. Istifci and Dogan Ucar (2021) say that social media can help students become more independent, communicate with their peers, and utilize language in a real way. These are all things that fit well with Iban's oral traditions and community-based learning style.

### **Gamification and Pedagogical Innovation**

Innovations in language pedagogy increasingly emphasize technology-based approaches and gamification to enhance student motivation and engagement. Gamification allows learning activities to be delivered in a fun and rewarding manner through achievement levels, point systems, and healthy competition. This approach has been shown to improve focus, memory retention, and interest in academic subjects.

In the context of Iban language education, gamification offers a promising avenue to rekindle student interest in heritage languages. Teachers can utilize digital platforms such as Kahoot, Quizizz, Wordwall, or custom-built apps for Iban language learning. These tools not only strengthen student interaction with the language but also embed cultural values and local knowledge into the learning process. However, the effectiveness of gamification depends on its cultural relevance and the teacher's ability to integrate technology with meaningful pedagogy (Banseng et al., 2022).

McIvor and Anisman (2018) contend that effective language revival necessitates tactics that are community-oriented and culturally integrated. The significance of storytelling, place-based learning, and intergenerational transmission is emphasized in their work; these are aspects that digital tools can enhance but not replace. In the case of Iban, pedagogical innovation and transformation should be seen as a complement to traditional practices, enabling broader reach while preserving linguistic heritage.

Similarly, Higgins et al. (2020) emphasize the intrinsic value of indigenous languages like Māori, not only as communication tools but as carriers of identity, worldview, and cultural continuity. Their insights underscore the need for digital education initiatives to respect and reflect

the cultural significance of the language being taught. For Iban, this means designing the innovation of learning that incorporates oral traditions, rituals, and community narratives.

This literature review reveals that Iban language education is undergoing a transition from traditional methods toward more interactive, student-centered digital approaches. While challenges persist such as limited digital materials, teacher training gaps, and infrastructure disparities the opportunities presented by digital technology have the potential to make Iban language learning more engaging and sustainable. The future of Iban language education requires strategic planning that integrates cultural values with digital innovation to ensure its continued relevance in modern education.

## **METHODOLOGY**

This study employs a conceptual qualitative review design to investigate the digital transformation of Iban language education, focusing on its implications for technology, pedagogy, and cultural integration. Rather than collecting primary data, the study synthesizes and critically analyzes existing literature to identify key trends, theoretical perspectives, and instructional strategies relevant to indigenous language contexts. The review serves as a foundation for the proposed Model for Digital Integration of Iban Language (MIDBI), which emphasizes the interplay between technological innovation and cultural preservation in language learning.

A structured review process was adopted to ensure both breadth and depth of coverage. Sources were selected from peer-reviewed journal articles, policy papers, academic books, and conference proceedings published between 2010 and 2025. Databases such as Scopus, ERIC, Google Scholar, SpringerLink, and MyJurnal were used to retrieve relevant literature. Keywords included “Iban language education,” “indigenous language pedagogy,” “digital transformation in education,” “culturally responsive teaching,” and “technology integration in language learning.” Studies were included if they addressed technological adaptation, teacher readiness, cultural sustainability, or innovation in indigenous language instruction. Thematic synthesis was conducted following Braun and Clarke’s (2021) framework to identify recurring themes such as digital accessibility, pedagogical innovation, and cultural contextualization.

To ensure conceptual rigor, the study draws on the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006), which highlights the integration of technology, pedagogy, and content knowledge in effective teaching. The review also incorporates methodological guidance from Snyder (2019) as well as Webster and Watson (2002), who emphasize the value of structured, conceptually driven literature reviews. Additionally, insights from McIvor and Anisman (2018) and Higgins et al. (2020) inform the cultural dimension of the analysis, underscoring the importance of community-driven strategies and the intrinsic value of indigenous languages in education. These perspectives help situate the findings within Malaysia’s broader educational transformation agenda and support the development of a culturally responsive digital framework for Iban language instruction.

## **DISCUSSIONS AND CONCEPTUAL MODEL**

This section explores the implications of the literature review on the future direction of Iban language education in the context of digital transformation. The findings suggest that Iban language education is undergoing a shift from traditional, teacher-centered instruction toward more student-centered, technology-enhanced approaches. However, this transformation requires a comprehensive conceptual model to ensure that implementation is not merely technical, but also reflects the cultural values and identity of the Iban community.

### **Iban Language Education in the Context of Digital Transformation**

Digital transformation in education involves more than the adoption of technological tools it represents a paradigm shift in how knowledge is accessed, shared, and contextualized. In the case of Iban language education, technology can serve as a bridge between oral traditions and modern

knowledge systems. It enables digital documentation, interactive learning, and the creation of culturally grounded content (Banseng et al., 2021).

However, this shift must be sensitive to the socio-cultural and economic realities of the Iban community. For example, rural schools facing infrastructural limitations require different strategies than urban institutions. Therefore, any digital transformation strategy must consider the readiness of teachers, students, and local communities. This highlights the need for a layered approach that harmonizes technology, pedagogy, and culture (Mohamed Shuhidan et al., 2024)

### The Need for Holistic Integration of Technology, Teachers, and Culture

The success of Iban language education in the digital era depends on the integration of three core components: appropriate technology, pedagogical competence of teachers, and preservation of cultural values.

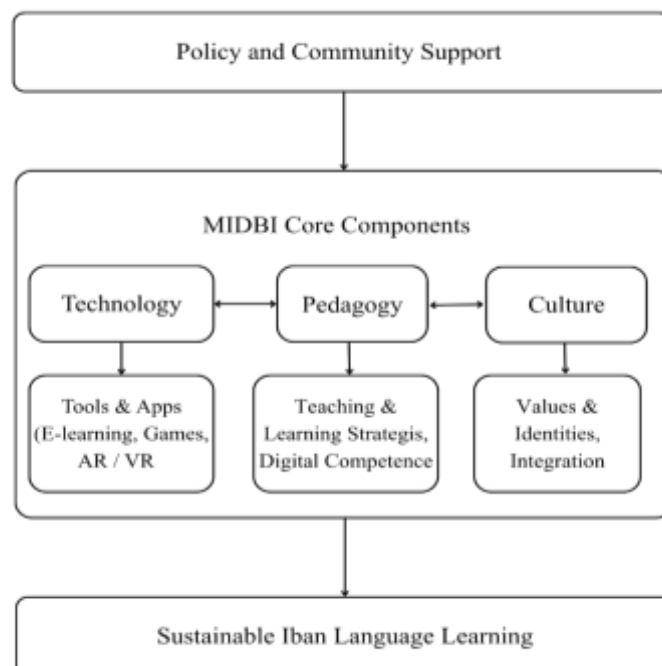
**Technology as a Catalyst for Learning:** Technology should be viewed not merely as a delivery tool, but as a medium that enriches the learning experience. The use of interactive applications, language games, and multimedia resources (Adzmi et al., 2024; Nik Fauzi et al., 2025) can help students engage with the Iban language in a more contextual and enjoyable manner.

**Teachers as Digital Facilitators:** Iban language teachers play a critical role as mediators between technology and learners. They must be digitally literate and capable of adapting teaching strategies so that technology is used meaningfully, rather than simply replacing traditional methods (Hamid & Sueb, 2025).

**Culture as the Pedagogical Core:** Digital content developed for Iban language instruction must be rooted in local cultural values and heritage. Integrating elements such as folklore, songs, and customs into digital materials not only strengthens language learning but also fosters pride in Iban identity. Banseng, Sintian, and Sarudin (2022) emphasize that teachers face challenges in teaching traditional Iban poems due to a lack of structured modules and training, reinforcing the need for culturally authentic digital content.

### Conceptual Model: Digital Integration of Iban Language (MIDBI)

Based on this discussion, a conceptual model MIDBI (Model Integrasi Digital Bahasa Iban) is proposed to guide the future of Iban language education in the digital age. The model is built on three interdependent pillars: Technology, Pedagogy, and Culture (TPC), which together form a sustainable learning ecosystem as shown in Figure 1 below.



**Figure 1.** Conceptual Model Digital Integration of Iban Language (MIDBI)

Based on Figure 1, the MIDBI has three main components:

- i. **Technological Foundation** – Development of digital materials, use of e-learning platforms, gamification, and mobile applications.
- ii. **Pedagogical Foundation** – Teacher training, active learning strategies, and student-centered approaches.
- iii. **Cultural Foundation** – Embedding Iban values, stories, and symbols into digital content to preserve linguistic authenticity and ethnic identity.

These components function synergistically which are technology provides the tools, pedagogy defines the methods, and culture gives meaning to the learning process. Their integration can create a learning environment that is relevant, engaging, and rooted in local values as well as giving the future directions for Iban language education.

By focusing on the components, Iban language education can adapt to technological changes while reinforcing its role as a living heritage of knowledge and culture. Thus, future of Iban language education should be driven by three strategic dimensions:

- i. **Digitization of Materials and Curriculum:** Development of digital resources such as e-modules, interactive videos, and Iban learning apps should be enhanced through collaboration between educational institutions and local communities.
- ii. **Professional Development for Teachers:** Teachers must be trained in digital content design, educational technology, and gamification techniques to deliver innovative and effective instruction.
- iii. **Policy Support and Community Collaboration:** Stakeholders including ministries, universities, and cultural organizations must work together to strengthen the Iban language education ecosystem through funding, policy support, and ongoing research (Mahmud, and Ariffin, 2023).

This conceptual discussion affirms that Iban language education in the digital era must be based on a balanced integration of technology, pedagogy, and culture. The proposed MIDBI model serves as a guiding framework to support educational innovation rooted in local identity. This approach not only ensures effective teaching and learning but also safeguards the continuity of the Iban language as a symbol of heritage and communal knowledge in modern education.

## **IMPLICATION AND RECOMMENDATION**

This section outlines the key implications of the conceptual discussion for stakeholders involved in Iban language education and proposes strategic actions to strengthen its implementation in the digital era. The proposed Model for Digital Integration of Iban Language (MIDBI) serves as the foundation for this analysis, emphasizing the balance between technology, pedagogy, and culture as the pillars of sustainable Iban language education.

### **Implications for Teachers**

Teachers are the primary agents in the transformation of Iban language education. The effectiveness of the MIDBI model depends on how well educators can leverage digital tools to enrich the learning process while preserving cultural values. Teachers must acquire digital skills to design interactive teaching materials such as online quizzes, digital modules, and language games. Their ability to embed Iban cultural elements into digital content is crucial to maintaining authenticity and meaningful learning. Teachers also serve as facilitators who encourage students to think critically and creatively through technology-based activities.

For an example, digital storytelling and teacher-led content creation significantly improved student engagement and retention (Barret & Cocq, 2019). In Malaysia, foundation work by Omar et al. (2017) identified persistent challenges in Malaysia's teacher development landscape,

including limited access to training, lack of contextual relevance, and insufficient support for culturally responsive pedagogy.

To support this, continuous professional development programs tailored for Iban language teachers should be expanded to include digital design and innovative pedagogy. Teacher training institutions are encouraged to introduce specialized courses on educational technology and gamification in the context of ethnic languages. A community network of Iban language teachers should be established to share resources, strategies, and experiences in digital teaching.

### **Implications for Students**

Students are the direct beneficiaries of the digital transformation in Iban language education. They must not only master linguistic skills but also develop the ability to adapt to technology-based learning while maintaining their cultural identity. Interactive learning approaches can enhance student motivation and engagement. Gamification offers a fun and competitive environment for language acquisition. Students are more likely to appreciate cultural values when digital content features traditional Iban elements such as folklore, poetry, and heritage songs.

Nordin (2023) found that using Quizizz significantly improved vocabulary learning among rural Malaysian secondary students. The gamified format boosted engagement and made language acquisition more interactive and enjoyable. Similarly, Banseng, Sintian, and Sarudin (2022) emphasized the importance of culturally relevant content in sustaining student interest in Iban traditional poetry.

Students should be encouraged to use digital platforms such as learning apps, language games, and community websites to strengthen their fluency in Iban. Schools and universities can organize digital competitions like “Iban Digital Storytelling” or “Interactive Iban Language Quiz” to boost interest. Students should also be empowered as co-creators by producing digital content in Iban, such as short videos or blogs, to enrich existing learning materials.

### **Implications for Policymakers and Educational Institutions**

Policymakers and educational administrators play a vital role in providing infrastructure, resources, and policies that support the comprehensive implementation of the MIDBI model. Education policies must be more inclusive and support the digitalization of ethnic languages to reduce educational disparities between urban and rural regions. Financial and technological provisions should be increased to enable remote schools to implement digital learning effectively. Collaboration between ministries, universities, and cultural agencies is essential in developing culturally grounded digital learning resources.

The Penang Institute (2025) highlighted that poor digital infrastructure in rural schools’ places students at a disadvantage, calling for targeted investments and inclusive policy frameworks. Ramli et al (2023) emphasized that community engagement and supportive policies are key to the success of indigenous language education in Malaysia. The Ministry of Education is encouraged to develop a National Digital Ethnic Language Plan, outlining guidelines for digital resource development, teacher training, and research. Higher education institutions should serve as research and innovation hubs for developing Iban language apps and digital modules. Community service programs and dedicated funding can be introduced to support the creation of digital materials by local communities and students.

### **Implications for Researchers and Content Developers**

Researchers and digital content developers serve as the bridge between theory and practice in language education. They are responsible for strengthening the academic foundation and ensuring that innovations are contextual and sustainable. Ongoing research is needed to evaluate the effectiveness of digital and gamified approaches in Iban language instruction. Empirical data on technology use among students and teachers should be collected to inform policy and teaching strategies. Innovations such as mobile apps, learning management systems, and interactive modules must be developed based on validated research findings.

Primus (2024) conducted action research in indigenous schools in Sabah, showing that localized digital interventions significantly improved language learning outcomes. UNESCO (2023) also reported that digital tools can conserve and promote indigenous languages when developed collaboratively with communities. Researchers are encouraged to conduct school-based action research to assess the impact of digital integration in Iban language teaching. Content developers should collaborate with linguists, teachers, and community leaders to produce culturally relevant and authentic digital materials. Academic journals and education conferences should expand publication opportunities for topics on ethnic language education and digital innovation (Ramadhani et al., 2022; Handrianto, 2025).

Therefore, the transformation of Iban language education in the digital era requires collective commitment from teachers, students, policymakers, and researchers. The proposed MIDBI model offers a conceptual guide for each stakeholder to play their role synergistically. An integrated approach that balances technology, pedagogy, and culture not only ensures effective learning but also strengthens the position of the Iban language as a living heritage and knowledge system within Malaysia's modern educational landscape.

To strengthen and expand the knowledge base in the field of Iban language education, several avenues for future research are proposed. These recommendations aim to support the refinement of pedagogical strategies, technological integration, and policy development in line with the MIDBI framework. One critical area for exploration is the empirical evaluation of the MIDBI model itself. Research should be conducted to assess its effectiveness and adaptability across diverse educational contexts, including urban and rural schools, formal and informal learning environments, and varying levels of digital readiness (Ibrahim et al., 2021; Adam et al., 2022). Such studies would provide evidence-based insights into how the model can be optimized to meet the needs of different stakeholders.

### **Further Research Recommendations**

Equally important is the development and user evaluation of digital learning materials for the Iban language. This includes research on the design, usability, and cultural relevance of e-modules, mobile applications, and gamified language tools. Higgins et al. (2020) argue that culturally grounded pedagogy rooted in indigenous values fosters transformative learning by promoting relational engagement, identity affirmation, and inclusive, empowering environments for Māori learners. Meanwhile, the "Digital Native Language" initiative in Canada (Morris et al., 2022), have shown that culturally embedded digital resources can significantly enhance learner engagement and retention.

Another vital research direction involves examining the digital competencies of Iban language teachers. Investigating their readiness, training needs, and attitudes toward educational technology will help inform targeted professional development programs. Shuhidan et al. (2022) emphasized that digital literacy plays a crucial role in shaping student engagement, suggesting that equipping teachers with these competencies is essential for fostering effective and innovative language instruction.

The integration of cultural elements into modern digital media also warrants deeper investigation. Research should explore how traditional Iban expressions such as folklore, rituals, and oral poetry can be authentically adapted into digital formats without compromising their symbolic meaning. Banseng et al. (2021) stressed the complexity of translating cultural metaphors into educational content, underscoring the need for culturally sensitive design frameworks.

Finally, there is a pressing need to evaluate existing policies related to ethnic language education in the digital age. Studies should analyze the inclusivity, sustainability, and implementation strategies of current frameworks, and propose more responsive and community-driven approaches. Ramli et al. (2023) advocate for policy models that prioritize collaboration between government bodies, academic institutions, and indigenous communities to ensure equitable access and cultural preservation. Collectively, these research directions will contribute to

a more robust, inclusive, and culturally grounded foundation for Iban language education in the 21st century.

## CONCLUSION

The digital transformation of Iban language instruction is a comprehensive and culturally appropriate endeavor to strengthen Iban identity through innovative teaching methods, not just the application of technology. This transformation requires an integrative approach that aligns digital pedagogies with the linguistic and cultural heritage of the Iban community, ensuring that modernization supports traditional knowledge systems rather than undermines them. The effectiveness of this initiative depends on the collaborative involvement of essential stakeholders, including educators, learners, policymakers, researchers, and community leaders, who must jointly execute reforms grounded in integration, relevance, and cultural continuity. The Model for Digital Integration of Iban Language (MIDBI) serves as a strategic framework for the systematic and culturally responsive development of Iban language education. This framework offers a replicable model for the development and revitalization of various indigenous and ethnic languages across Malaysia. Continuous policy support, thorough research, and active community engagement are essential for maintaining this transformation, ensuring that digital innovation aligns with cultural preservation. Through MIDBI, digital tools can be integrated into educational ecosystems, establishing the Iban language as a medium for knowledge and a representation of cultural identity. The digital transformation of Iban language education signifies a pedagogical shift and underscores cultural resilience and continuity in the face of technological advancements. Malaysia's dedication to multilingualism within a digital framework underscores the importance of Iban language education as a crucial component that merges tradition with innovation, ensuring its relevance for future generations.

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