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Implementation of Education Digitalization Policy in Central Kalimantan: IFP/Smart Board Utilization Readiness in Pulang Pisau Senior High Schools

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ABSTRACT: This article maps implementation readiness for the education digitalization policy in Central Kalimantan Province through the use of Interactive Flat Panels (IFPs)/smart boards at senior high schools in Pulang Pisau Regency. Using an integrated lens (Edwards III + TAM + TPACK), the study distinguishes between "devices being available" and "devices being used meaningfully" by examining governance arrangements, infrastructure conditions, and pedagogical integration. A multi-site case study across nine schools (eight subdistricts) combined a review of policies/documents, administrative facility profiles (Kemendikdasmen Education Data), and a descriptive survey of school-level implementers (n = 25). The analysis shows that the use of IFPs/smart boards has the potential to strengthen interactive learning and support the Merdeka Curriculum. A consistent pattern was frequent and positively perceived use: 73.3% of respondents reported using IFPs at least five times per week, most commonly for collaborative projects (40.0%) and presentations (33.3%), while 80.0% reported using interactive features in more than 50% of sessions. Nevertheless, readiness varies according to operational conditions and governance, particularly reliance on personal hotspots when connectivity is limited (53.3%), uneven consistency in SOP implementation (20.0% reported written SOPs that were not implemented consistently; 13.3% reported relying only on informal SOPs), and technical-support arrangements (only 40.0% reported formal reporting channels with rapid responses and/or service-time targets). This study does not measure classroom learning outcomes; rather, it reports readiness and governance conditions that shape routine use. A feasible minimum implementation package should prioritize: (1) standardized SOPs for use, access, and asset governance; (2) sustained TPACK-oriented mentoring; and (3) tiered maintenance/helpdesk arrangements and utilization monitoring focused on usage indicators rather than procurement.

Keywords: Policy Implementation, Education Digitalization, Interactive Flat Panel, Smart Board, Central Kalimantan.

INTRODUCTION

Digital transformation in the public sector is changing how governments deliver educational services, including through policies for the digitalization of learning. At the national level, the

Indonesian Government launched the Digital Learning Program for a Smart Indonesia to accelerate the equitable provision of digital learning services through the distribution of devices such as IFPs, laptops, and storage media for learning content. The program is also positioned as a strategic step to enhance learning interactivity and reduce disparities in education-service quality across regions (President of the Republic of Indonesia, 2025). At the subnational level, the Central Kalimantan Provincial Education Office, (2025) Government followed up this agenda by preparing interactive digital devices from 2024 onward and encouraging their use in schools under provincial authority (ANTARA, 2025).

One prominent device in this implementation is the IFP/smart board. This device is a large touchscreen panel that allows teachers to write, display multimedia content, annotate materials, and interact with students in real time. Within the context of the Merdeka Curriculum, IFPs are relevant for supporting project-based learning, collaborative discussion, and the use of digital learning resources. From a public administration perspective, however, the provision of devices does not automatically ensure meaningful use: policy success is strongly shaped by implementation processes, organizational capacity, and resource readiness at the school level(Anggraini, 2019).

This study stems from the reality that the provision of devices does not automatically guarantee effective use. The adoption of learning technology is often constrained by limited infrastructure (electricity and internet), digital divides across regions, and variations in teachers' digital competence. Studies on the digital divide in Indonesia show that increased internet access has not always been accompanied by adequate digital capability and that rural and remote communities face distinctive challenges (Fatrisna et al., 2024; Jayanthi & Dinaseviani, 2022; Onitsuka et al., 2018)(Hidayat, & Huang, 2018). Beyond access, the divide has also shifted toward differences in patterns of use—from mere "access" to "activity" and productivity—so digitalization policy must ensure that devices are used for meaningful learning activities (Pearce & Rice, 2013). This study highlights the gap between "device provision" and "readiness for device utilization." Pulang Pisau Regency was selected because of its diverse geography (coastal areas, peat swamplands, riverbank settlements, and subdistricts located far from one another). This variation is important for understanding how digitalization policy is translated into equitable educational services and how governance arrangements across the central, provincial, and school levels shape implementation in a geographically diverse region.

Previous studies on interactive whiteboards/IFPs generally focus on classroom-level effects, teacher perceptions, or the measurement of learning outcomes, and often treat the technology as a pedagogical intervention(Kyriakou & Higgins, 2016; Purwanto, 2013; Shi et al., 2021). In contrast, this article focuses on implementation governance and variations in readiness at the regency level: how central–provincial–school arrangements, operational infrastructure, and post-procurement support systems influence whether devices move beyond the distribution stage into routine instructional use. By situating IFP utilization within an implementation framework, this study complements outcome-oriented research by clarifying the governance and capacity preconditions that need to exist before classroom effects can reasonably be expected.

This study integrates three complementary lenses to produce a readiness map. Edwards III helps diagnose governance constraints in implementation (communication, resources, disposition, and bureaucratic structure) and identify breaks between provincial coordination and school routines. The Technology Acceptance Model (TAM) adds an adoption mechanism by explaining how perceived usefulness and perceived ease of use shape implementers' willingness to use IFPs in everyday teaching (Davis, 1989; Šumak & Šorgo, 2016). The TPACK framework adds a pedagogical integration lens by assessing whether teachers are able to translate device operation into classroom practices aligned with subject matter and pedagogy (Mishra & Koehler, 2006). Taken together, these three lenses distinguish between "devices being available" and "devices being ready for meaningful use," and clarify whether the main constraints are infrastructural, organizational, or pedagogical(Lai, 2019; Tosuntaş et al., 2021).

Based on this background, the research questions are: (1) How are education digitalization policies designed and directed at the national level and within the Central Kalimantan Provincial Government? (2) To what extent is the implementation of IFP/smart board utilization at senior high schools in Pulang Pisau Regency ready? and (3) What factors support and hinder the use of these devices in learning?

Theoretical Framework

Policy implementation analysis in this study refers to Edwards III's model, which emphasizes four variables that influence implementation performance: communication, resources, disposition (implementers' attitudes), and bureaucratic structure (Edwards III, 1980; Van Meter & Van Horn, 1975). This model helps explain why policies that are formally well designed may generate different outcomes at the implementation level.

To strengthen the analysis of technology adoption in schools, this study also uses the Technology Acceptance Model (TAM), which emphasizes perceived usefulness and perceived ease of use as determinants of adoption (Davis, 1989), as well as the TPACK framework, which emphasizes the integration of technological, pedagogical, and content knowledge as a prerequisite for the effective use of educational technology (Mishra & Koehler, 2006).

Integrating the three frameworks allows readiness to be interpreted in layered terms. For example, infrastructural differences can be read as "resource" constraints (Edwards III), but also as conditions that increase perceived effort (TAM: lower perceived ease of use). Similarly, training that focuses only on device operation may improve basic competence, but without TPACK-oriented mentoring teachers may still be unable to translate device features into learning practices aligned with pedagogy and subject content. Figures 1 and 2 summarize the Edwards III model and the study's conceptual framework.

Figure 1. Edwards III Policy Implementation Model: Theoretical Framework (Edwards III, 1980)

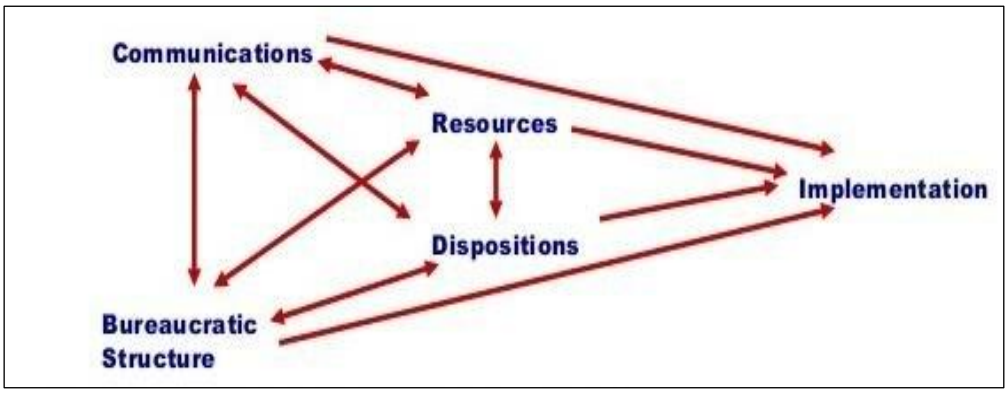
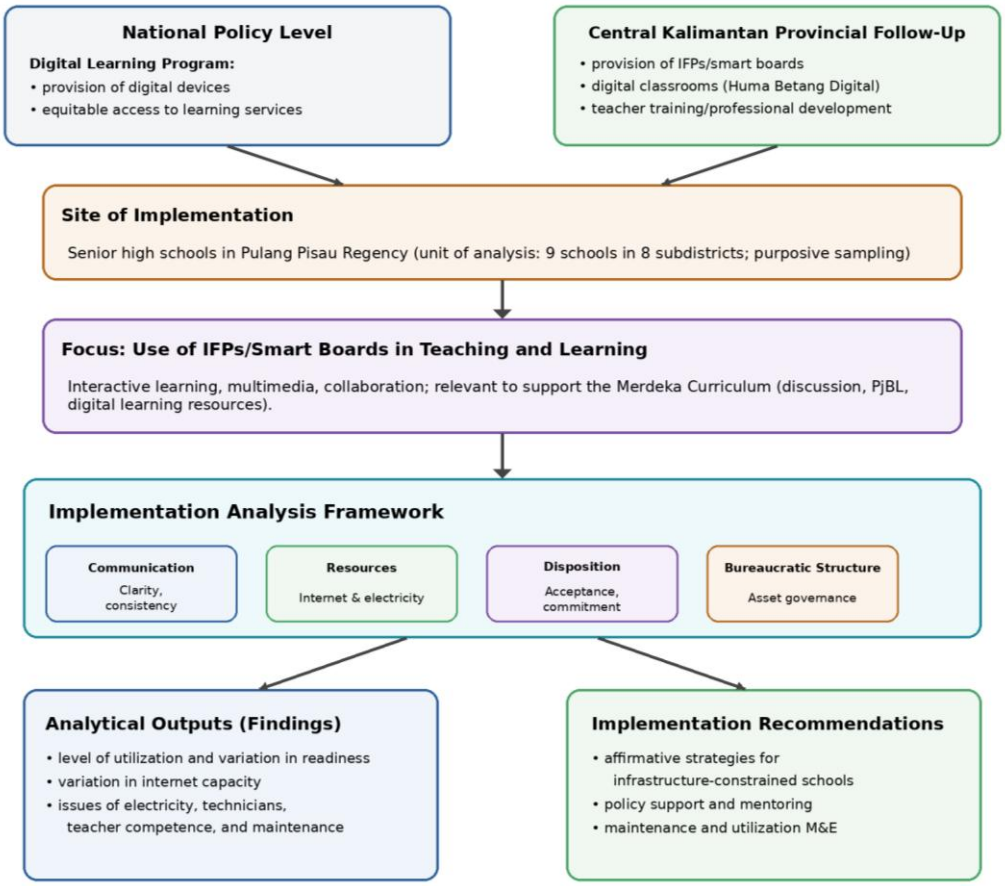


Figure 2. Conceptual Framework of the Study



METHOD

Research Design and Study Site

This study employed a multi-site case study design across nine senior high schools (SMA) in Pulang Pisau Regency. Schools were selected purposively to represent geographical variation (1–2 schools per subdistrict) across eight subdistricts.

Cases and Data Sources

Data were collected from three main sources: (a) policy documents and official publications at the national and provincial levels related to the education digitalization program; (b) school facility profiles (administrative internet-access categories and electricity sources) obtained from the Kemendikdasmen Education Data portal; and (c) a descriptive survey of school-level implementers to capture conditions of utilization and governance that are not visible in administrative datasets.

Data and Instruments

Two types of empirical data were used. First, policy and program documents were collected from national and provincial websites and official publications to capture the intended implementation design (device provision, data governance, and support mechanisms). Second, school facility profiles (administrative internet-access categories and electricity sources) were obtained from the Kemendikdasmen Education Data portal to describe operational readiness across the nine sample schools (Pusdatin Kemendikdasmen, n.d.; accessed 16 January 2026).

To complement the document review and facility profiles, a brief descriptive survey (Google Form) was administered to implementers in schools across Pulang Pisau Regency (school principals, vice principals for academics, and one subject teacher). The survey covered: (1) current frequency of use; (2) the most common learning activities; (3) use of interactive features; (4) perceptions of internet conditions and strategies when connectivity was limited; (5) exposure to training/mentoring; (6) readiness for pedagogical integration (TPACK-oriented); (7) perceived usefulness (TAM-oriented); (8) the existence of SOPs/governance arrangements; and (9) technical-support channels when device disruptions occurred. The survey did not record respondents' positions in a structured field; therefore, the results are reported as aggregate perceptions of implementers rather than role-based estimates or school-level population estimates.

Sample Schools

Table 1 presents the nine sample schools by subdistrict and National School Identification Number (NPSN).

Table 1. Sample Senior High Schools by Subdistrict in Pulang Pisau Regency

Subdistrict	Sample School	National School Identification Number (NPSN)
Kahayan Hilir	SMAN 1 Pulang Pisau	30202089
Kahayan Hilir	SMAN 2 Pulang Pisau	30208913
Kahayan Tengah	SMAN 2 Kahayan Tengah	30203897
Kahayan Kuala	SMAN 4 Kahayan Kuala	69860791
Jabiren Raya	SMAN 1 Jabiren Raya	30205116
Banama Tingang	SMAN 2 Banama Tingang	30205112
Maliku	SMAN 1 Maliku	30202088
Pandih Batu	SMAN 1 Pandih Batu	30202072
Sebangau Kuala	SMAN 1 Sebangau Kuala	30205118

Descriptive Survey (Instrument and Respondents)

A brief descriptive survey (Google Form) was administered to school-level policy implementers, namely principals, vice principals for academics, and teachers involved in the use of IFPs/smart boards. A total of 25 responses were received out of a maximum target of 27 during 20 January–28 February 2026. Given the small number of responses and the case study design, the survey was used for descriptive mapping and triangulation rather than for statistical inference or generalization(Olivares & Castillo, 2018; Teng, 2021).

The survey comprised 10 items capturing: (1) the frequency of IFP use in the previous week; (2) the learning activities most frequently supported; (3) the extent of interactive-feature use; (4) internet stability for IFP use; (5) strategies when internet access was limited; (6) training/mentoring support during the last year; (7) readiness for pedagogical integration (TPACK-oriented); (8) perceived usefulness (TAM-oriented); (9) the existence and implementation of school SOPs/governance for IFP utilization; and (10) technical-support mechanisms when device breakdowns occurred. The full list of items is presented in Appendix A.

Data Analysis

Analysis combined: (a) descriptive statistics for the survey items and (b) layered framework analysis of policy documents and contextual notes. First, qualitative materials were coded deductively using Edwards III's dimensions (communication, resources, disposition, and bureaucratic structure). Second, coded segments were mapped onto the adoption lenses: TAM (perceived usefulness and perceived ease of use) and TPACK (readiness for technology–pedagogy–content integration).

Within each category, inductive subthemes were developed to capture context-specific issues (e.g., strategies for dealing with limited connectivity, SOP consistency, and maintenance channels). Findings are reported as cross-school patterns and contextual variations, through triangulation between administrative facility profiles and survey responses.

Data Trustworthiness and Limitations

Credibility was strengthened through cross-source triangulation: (1) official policy/program documents; (2) school facility profiles in administrative datasets; and (3) survey responses from school implementers. Cross-school pattern validation was conducted by examining whether supporting and constraining factors recurred across different subdistrict contexts (e.g., more remote/coastal areas versus more urban ones). Because the main field evidence was a descriptive survey rather than interviews, member checking was not conducted; instead, internal consistency checks were carried out by comparing related items (e.g., frequency of utilization versus use of interactive features, and the existence of SOPs versus technical-support channels).

RESULT AND DISCUSSION

The Results section reports implementation readiness and conditions of utilization based on documents, administrative facility profiles, and the descriptive survey. This study does not measure student learning outcomes; utilization intensity is reported as self-reported frequency and accompanying conditions, not as device logs or systematic classroom observations.

Design of Education Digitalization Policy: National and Provincial Levels

At the national level, the Digital Learning Program for a Smart Indonesia positions digital learning devices as an instrument for equitable education services. Official government communications state that the digitalization program was launched nationally with a target of hundreds of thousands of beneficiary schools (President of the Republic of Indonesia, 2025). Implementation also emphasizes data governance through the Dapodik system because targeting and monitoring depend on school-unit data, as reinforced by Helpdesk Dapodik publications explaining and confirming the program (Directorate General of Early Childhood Primary & Education, 2025).

At the provincial level, the Central Kalimantan Provincial Education Office followed up by providing interactive digital devices, including interactive whiteboards/IFPs, to schools. ANTARA reported that the province had prepared interactive digital devices since 2024 and linked the strategy to equitable access, including infrastructure support such as solar panels and satellite connectivity for hard-to-reach areas (ANTARA, 2025). The Education Office has also promoted digital classrooms through the "Huma Betang Digital" concept and encouraged the use of IFPs in instruction (Central Kalimantan Provincial Education Office, 2025a; Central Kalimantan

Provincial Education Office, 2025b). Governance efforts are also reflected in provincial publications that emphasize procurement compliance and audit processes.

Readiness of Supporting Facilities in the Sample Schools

Readiness for IFP/smart board utilization is influenced by basic operational facilities, especially electricity and internet access. According to school profile data on the Kemendikdasmen Education Data portal, eight of the nine sample schools use PLN electricity, while one school (SMAN 4 Kahayan Kuala) relies on diesel power and solar panels. In terms of connectivity, the administrative internet-access categories among the sample schools range from 30 to 100 Mbps (Table 2).

These Mbps values should be read as administrative classifications rather than direct measures of real-time classroom performance (e.g., stability, latency, and downtime). Therefore, the facility mapping is used as a proxy for readiness and is interpreted together with survey reports on internet stability and strategies when connectivity is limited (Table 3). From a public administration perspective, this mapping suggests two implications: (1) differences in connectivity require adaptive implementation (offline-first content and bandwidth management for schools with lower connectivity); and (2) electricity profiles do not eliminate the risk of disruption, so contingency planning remains important in some locations.

Table 2. Summary of Administrative Internet-Access Categories and Electricity Sources in the Sample Schools (Kemendikdasmen Education Data portal; accessed 16 January 2026)

School	Subdistrict	Internet Access	Electricity Source
SMAN 1 Pulang Pisau	Kahayan Hilir	100 Mbps	PLN
SMAN 2 Pulang Pisau	Kahayan Hilir	100 Mbps	PLN
SMAN 2 Kahayan Tengah	Kahayan Tengah	50 Mbps	PLN
SMAN 4 Kahayan Kuala	Kahayan Kuala	30 Mbps	Solar panel/Diesel
SMAN 1 Jabiren Raya	Jabiren Raya	50 Mbps	PLN
SMAN 2 Banama Tingang	Banama Tingang	30 Mbps	PLN
SMAN 1 Maliku	Maliku	50 Mbps	PLN
SMAN 1 Pandih Batu	Pandih Batu	50 Mbps	PLN
SMAN 1 Sebangau Kuala	Sebangau Kuala	30 Mbps	PLN

Overview of Utilization Based on the Descriptive Survey

To complement the administrative facility profiles and document analysis, this study summarizes a descriptive survey of school implementers (n = 25). The survey provides an overview of utilization (recent frequency and common activities) as well as governance/support conditions (SOPs, training/mentoring, and technical support). These results should be understood as self-reported implementer perceptions rather than population estimates. Overall, utilization is frequent and positively perceived; however, readiness is uneven in post-procurement governance

(consistency of SOPs) and support channels (maintenance/helpdesk), and connectivity "workarounds" remain common. A summary of the survey results is presented in Table 3.

Table 3. Descriptive Survey Results on the Utilization of IFPs/Smart Boards in Schools

Indicator (descriptive survey)	Result (n = 25 responses)
Reported number of IFP/smart board units	Range: 5–16 units; median: 11; mean: 11.4
Frequency of IFP use in the previous week	≥5 times/week: 73.3% (n = 19); 3–4 times/week: 26.7% (n = 6)
Most common activities in the past month	Project/group work and collaborative discussion: 40.0% (n = 10); Presentations: 33.3% (n = 8); Interactive quizzes/exercises: 20.0% (n = 5); Simulations/visualizations: 6.7% (n = 2)
Use of interactive features (not merely as a display)	Frequent (51–75% of sessions): 57.0% (n = 14); Almost always (≥76%): 33.3% (n = 5); Fairly often (26–50%): 13.3% (n = 4); Display only: 6.7% (n = 2)
Internet conditions supporting IFP use (self-report)	Very stable for high-intensity use: 46.7% (n = 12); Stable for occasional video use: 26.9% (n = 7); Sufficiently stable for basic materials: 26.5% (n = 6)
Most common strategy when internet access is limited	Personal hotspots (teachers/staff): 53.3% (n = 14); External storage/other options: 26.7% (n = 6); Scheduling during better-connection hours: 13.3% (n = 3); Offline content bank (local files): 6.7% (n = 2)
Support/training during the last year	Ongoing mentoring: 53.3% (n = 14); Periodic training without practical mentoring: 26.7% (n = 6); Training + mentoring + cross-school sharing: 13.3% (n = 3); One-off orientation only: 6.7% (n = 2)
Teacher integration readiness (TPACK-oriented)	Integrated across many subjects: 60.0% (n = 15); Integrated across some subjects: 20.0% (n = 5); Routine cross-subject practice: 13.3% (n = 3); Operational only (not yet integrated): 6.7% (n = 2)
Perceived usefulness (TAM-oriented)	Helpful: 53.3% (n = 14); Very helpful: 46.7% (n = 11)
School SOP/governance for IFP use	Written SOP implemented consistently: 53.3% (n = 13); Written but not consistently implemented: 20.0% (n = 5); Informal (unwritten): 13.3% (n = 4); Written and periodically reviewed/updated: 13.0% (n = 3)
Technical-support mechanism when problems occur	Formal reporting channel with rapid response and/or service-time target: 40.0% (n = 10); Internal coordinator/slow response or no standard route: 46.7% (n = 11); No clear mechanism: 13.3% (n = 4)

Implementation Readiness According to Edwards III's Dimensions (Integrated with TAM and TPACK)

1) Communication: clarity of operational guidance and feedback. National and provincial publications indicate strong commitment to digital learning and IFP provision, but schools still require specific operational guidance and feedback mechanisms for daily routines (accounts, scheduling, reporting, and disruption handling). Governance routines appear not yet uniform: 53.3% of respondents reported written SOPs implemented consistently, whereas 20.0%

reported written SOPs that were not implemented consistently and 13.3% reported only informal arrangements. Training/communication support also varies: 53.3% reported ongoing mentoring, but 26.7% reported only periodic training without practical mentoring and 6.7% reported one-off orientation only. In more constrained settings (e.g., with lower connection stability), the absence of SOPs and mentoring increases coordination costs and can reduce perceived ease of use (TAM) even when devices are available.

2) Resources: infrastructure, human-resource capacity, and technical support. Readiness depends not only on device distribution but also on operational infrastructure (electricity and connectivity), human capacity, and access to maintenance. Administrative profiles show variation in internet categories (30–100 Mbps) and one school with a non-PLN electricity source, indicating uneven operational risk. The survey shows that connectivity generally supports use, but mitigation strategies when internet access is limited remain common: 53.3% most often rely on personal hotspots and 26.7% rely on external storage/offline strategies. Technical-support capacity also varies: 40.0% reported formal reporting channels with rapid response and/or service-time targets, 46.7% relied on internal coordinators with slow responses or no standard route, and 13.3% stated that no clear mechanism existed. Schools with stable connectivity and formal support channels are more likely to sustain utilization with lower downtime; by contrast, schools facing electricity/connectivity constraints require offline-first content planning, backup practices, and clearer escalation routes to reduce perceived effort (TAM).
3) Disposition: acceptance, perceived value, and routinization. Implementer acceptance tends to be high, and many schools report that utilization has begun to become routine. However, acceptance is conditional on perceived instructional value and the amount of effort required—both of which are influenced by infrastructure reliability and support arrangements. The survey shows frequent utilization: 73.3% reported using IFPs at least five times per week in the previous week. Perceived usefulness is very positive (100% reported that the devices were "helpful" or "very helpful"), and interactive features are widely used (80.0% reported using interactive features in more than 50% of sessions). Reported readiness for pedagogical integration is also relatively high: 60.0% reported integration across many subjects and 13.3% reported routine cross-subject practice, while 6.7% remained at the operational stage only (not yet pedagogically integrated). In better-supported contexts, perceived usefulness (TAM) and readiness for integration (TPACK) can stabilize habitual utilization; when handling disruptions is difficult or response is slow, perceived ease of use declines and utilization risks shifting toward presentation-only mode even if general attitudes remain positive.
4) Bureaucratic structure: SOPs, asset governance, and maintenance channels. Post-procurement governance structures—SOPs, asset governance, and maintenance-reporting routines—determine whether IFP utilization becomes reliable beyond individual initiative. SOP maturity varies: 66.7% reported having written SOPs (whether or not implemented consistently), but only 13.3% reported that SOPs were reviewed/updated regularly. Technical-support routines also vary, with 40.0% reporting formal reporting channels with rapid response/service targets and 13.3% reporting no clear mechanism. When SOPs and support channels are formalized (clear reporting lines, response targets, and maintenance logs), routines become less dependent on individuals and workload anxiety decreases, which improves perceived ease of use (TAM)

and makes broader pedagogical integration (TPACK) more likely. When governance remains informal, implementation becomes fragile and more sensitive to staff turnover and operational disruptions.

From Procurement to Readiness for Use

This study shows that education digitalization policy may produce procurement outputs (devices delivered to schools), but the key implementation challenge lies in converting those outputs into readiness for use—that is, routines and capacities that enable regular instructional use. The Pulang Pisau case indicates that readiness is shaped by operational infrastructure (electricity and connectivity), post-procurement governance (SOPs and maintenance channels), and sustained pedagogical mentoring that supports the integration of utilization into teaching and learning.

Importantly, this study does not measure student learning outcomes. Therefore, references to "learning outcomes" in policy discourse should be understood as policy intentions or presumed downstream effects rather than as findings of this study. The empirical contribution of this study is a readiness map showing governance and capacity conditions that may serve as prerequisites before learning effects can reasonably be expected.

Integrated Explanatory Model (Edwards III + TAM + TPACK)

The synthesis of the integrated framework shows that readiness can be explained as the interaction between governance mechanisms and adoption mechanisms. Clarity of communication and resource readiness (Edwards III) shape perceived ease of use (TAM) by reducing uncertainty, disruption-handling time, and coordination costs. TPACK-oriented pedagogical mentoring strengthens perceived usefulness (TAM) by helping teachers translate device features into activities aligned with content and pedagogy, rather than merely symbolic use. Bureaucratic structures such as SOPs and maintenance-reporting routines stabilize implementation, reduce workload anxiety, and support routinization—conditions that make meaningful utilization more likely.

Evidence-Based Implications from the Pulang Pisau Case

1) Differentiating implementation support according to operational readiness. Administrative profiles show variation in electricity sources and connectivity categories, while the survey indicates that buffering strategies remain common (53.3% rely on personal hotspots when internet access is limited). Accordingly, implementation support should be tiered: offline-first content packages and contingency plans for more constrained schools, and more advanced collaborative-use support for schools with stronger connectivity.
2) Strengthening post-procurement governance as a core implementation output. Survey responses show that SOP consistency remains uneven (20.0% reported written SOPs that were not implemented consistently; 13.3% relied only on informal SOPs). Standardized SOP templates (access, scheduling, security, lending, and reporting) and utilization-oriented

monitoring can reduce ambiguity and ensure that devices move from "delivered" to "used" on a routine basis.

3) Building sustained mentoring and technical-support channels. Although 53.3% reported ongoing mentoring, some respondents still reported training without practical mentoring (26.7%) or one-off orientation only (6.7%). Meanwhile, only 40.0% reported formal technical-support channels with rapid response/service-time targets. TPACK-oriented mentoring therefore needs to be paired with a tiered helpdesk/maintenance scheme so that routines remain stable and downtime is reduced.

Policy Extensions (Proposed Implementation Tools)

Based on the implications above, this article proposes two policy extensions as practical implementation tools (presented as design suggestions, not as effects proven by this study): (1) a lightweight utilization-monitoring dashboard that tracks a small set of indicators (e.g., number of active teacher users, weekly frequency of use, proportion of interactive-feature use, and downtime/maintenance tickets); and (2) a 90-day school implementation roadmap that sequences SOP finalization, operational-readiness checks (electricity/internet/offline content), pilot lessons using interactive features, and scaled implementation with feedback. These extensions require further evaluation using classroom observation and utilization logs.

Limitations

This study has several limitations. First, the focus is implementation readiness and utilization conditions, not student learning outcomes. Second, measures of utilization are self-reported through a descriptive survey (n = 25) and were not validated through device logs or systematic classroom observation. Third, the survey did not record respondents' positions/roles in structured form, which limits role-based analysis. Finally, administrative internet-access categories and self-reported connectivity stability do not capture all dimensions of service quality (e.g., latency and downtime). Future research needs to employ mixed methods combining classroom observation, utilization logs, and interviews to test how readiness conditions translate into sustained pedagogical use and downstream impacts.

CONCLUSION

The implementation of education digitalization policy in Central Kalimantan is aligned with the national direction of providing digital learning devices, strengthening data governance, and improving equitable learning services. At senior high schools in Pulang Pisau Regency, readiness for IFP/smart board utilization varies according to operational infrastructure (electricity and connectivity), post-procurement governance arrangements (SOPs and maintenance channels), and sustained pedagogical support. The integrated analysis shows that Edwards III's dimensions

(communication, resources, disposition, and bureaucratic structure) interact with adoption and pedagogical integration mechanisms (TAM and TPACK) in shaping readiness for utilization.

A feasible minimum implementation package. Based on the readiness mapping, implementers need to prioritize: (1) standardized SOPs for classroom use and asset governance; (2) sustained TPACK-oriented mentoring rather than one-off training; (3) tiered helpdesk/maintenance schemes with clear reporting lines and service targets; and (4) utilization-oriented monitoring indicators that track classroom use rather than merely device-distribution status. Future research needs to test downstream impacts through mixed methods using classroom observation and utilization logs.

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