



Implementation of Educational Digitalization Policy at The Junior High School Level in Paser Regency, East Kalimantan Province

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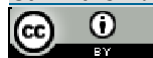
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ABSTRACT

This study aims to analyze the management of educational digitalization policy at the junior high school level in Paser Regency, East Kalimantan Province, with particular focus on policy planning and implementation. The study employed a qualitative approach with a case study design. Data were collected through interviews, observations, and document analysis involving six junior high schools representing urban, peri-urban, and 3T areas. Policy implementation was analyzed using the George C. Edwards III framework, encompassing communication, resources, disposition, and bureaucratic structure, while data were analyzed through data condensation, data display, and conclusion drawing and verification. The findings indicate that educational digitalization planning has been integrated into local government policies and school planning and supported by the provision of technological devices and digitalization programs. However, planning has not yet been fully based on systematic assessments of the specific needs and characteristics of individual schools. Policy implementation has taken place across all schools examined but varies according to regional conditions, infrastructure, teachers' digital competencies, budget availability, school leadership, and technical support. Technology utilization is relatively more advanced in educational administration than in the transformation of teaching and learning. The management of educational digitalization therefore needs to be directed toward more needs-based planning, equitable infrastructure and connectivity, strengthened teacher digital competencies, and continuous mentoring to ensure that digitalization extends beyond administrative requirements and develops into adaptive and sustainable transformation of teaching and learning.

INTRODUCTION

Learning is fundamentally a process of knowledge construction that takes place through learners' interaction with their learning environment, with teachers serving as facilitators who provide experiences, feedback, and support for the development of learners' competencies. The advancement of digital technology has subsequently expanded the learning environment while transforming the ways in which schools organize learning, manage information, communicate, and make decisions. Digital transformation in education is therefore no longer limited to the use of technological devices in teaching and learning but also encompasses changes in pedagogical processes, organizational practices, infrastructure, and educational governance. Recent systematic reviews indicate that digital transformation in education involves interconnected technological, pedagogical, and governance dimensions. Consequently, investment in technology without adequate institutional capacity and appropriate strategies does not necessarily result in effective educational transformation (Mukul & Büyüközkan, 2023; Wasserfuhr & Theis, 2026).

However, educational digitalization does not automatically lead to improvements in educational quality or equity in educational service delivery. The success of digital transformation is influenced by infrastructure readiness, teachers' digital competencies, organizational support, leadership, financing, and the capacity of institutions to integrate technology into their work processes. Literature on basic education indicates that human factors, planning processes, technology, and the policy ecosystem interact in determining the success of digital transformation. Therefore, an approach focused primarily on the procurement of technological devices risks producing only partial digitalization (Yang et al., 2026). In the context of educational policy, these challenges become increasingly complex because policy implementation involves actors and organizations operating at different levels, with varying capacities, resources, and local conditions. Studies on educational policy implementation in Indonesia have also identified challenges related to infrastructure, human resource capacity, coordination across levels of government, and limited adaptation of policies to local contexts (Heriyadi et al., 2025).

In Indonesia, the development of educational digitalization is characterized by the increasingly widespread use of digital platforms, educational data systems, and information technology to support both teaching and learning and school management. One of the instruments developed by the government is the Platform Merdeka Mengajar (PMM), which is designed to support teachers by providing learning resources, opportunities for professional development, and guidance for implementing learning practices aligned with the Kurikulum Merdeka. Nevertheless, its utilization at the school level has not been fully optimal, indicating that the availability of digital platforms does not, by itself, guarantee changes in educational practices (Kurniawati & Sarifudin, 2025). This finding demonstrates that educational digitalization needs to be understood as a policy process that requires implementer readiness, institutional support, and implementation strategies capable of connecting national policy directions with school-level conditions.

This direction of digital transformation is further reinforced by government policies concerning the acceleration of digital transformation and the integration of national digital services. Presidential Regulation No. 82 of 2023 places the acceleration of digital transformation and the integration of digital services on the national policy agenda, requiring stronger digital governance across various government sectors. In the education sector, this policy direction implies that local governments and educational institutions are not merely recipients of policy but also implementers responsible for translating digitalization policies into programs, resource management, teacher capacity development, and educational practices at the local level. Accordingly, the success of educational digitalization depends substantially on the capacity of local governments and educational institutions to adapt national policy directions to local needs and characteristics.

These issues are particularly relevant in Paser Regency, East Kalimantan Province, where the local government has developed educational digitalization through strategic regional programs. The Government of Paser Regency has incorporated the “One Teacher One Laptop” program (Satu Guru Satu Laptop) as one of its priority development programs in the education sector. The program provides laptops to teachers to support the teaching and learning process and is implemented gradually according to the region’s fiscal capacity. The program has also reached teachers at the junior high school level. In 2022, for example, the Government of Paser Regency distributed 1,443 laptops to kindergarten, elementary, and junior high school teachers as part of the “One Teacher One Laptop” program, which was intended to support learning and improve the quality of educational human resources.

The policy demonstrates the local government’s commitment to strengthening the foundations of educational digitalization. Furthermore, the Government of Paser Regency subsequently reported that the program had distributed 2,699 laptops to teachers at the kindergarten, elementary, and junior high school levels, including 729 units allocated to junior high school teachers. At the same time, the local government strengthened the capacity of junior high school principals through technical guidance activities related to the implementation of the Kurikulum Merdeka, emphasizing the importance of school leadership competencies in responding to the era of educational digitalization. These developments indicate that educational digitalization in Paser Regency has progressed beyond the provision of technological devices toward efforts to strengthen human resource capacity and improve educational management.

Nevertheless, the availability of digital devices and programs cannot be considered a sole indicator of policy success. The management of educational digitalization at the junior high school level requires integration among needs assessment, goal setting, resource allocation, policy communication, implementer readiness, and organizational structures that support implementation. The geographical conditions and diverse characteristics of educational institutions in Paser Regency further reinforce the need for a contextual approach. Thus, the research problem extends beyond the question of

whether technology has been provided to examine how the policy is planned and how it is translated by the local government and educational institutions into educational management practices.

From a policy implementation perspective, these issues can be analyzed using the George C. Edwards III model, which identifies communication, resources, disposition, and bureaucratic structure as important variables influencing the success of policy implementation. This framework is relevant to the analysis of educational digitalization because technology-based policies require clear communication between policymakers and implementers, adequate technological and human resources, implementer commitment, and organizational structures and divisions of authority that support policy implementation. From this perspective, the implementation of educational digitalization can be understood as a process of translating policy decisions into organizational action rather than merely a process of providing technological resources.

Previous studies on educational digitalization have extensively examined technology utilization, teachers' digital competencies, infrastructure, learning platforms, and organizational readiness. However, there remains a need to further examine how educational digitalization policy is managed at the local government and school levels, from planning through implementation, particularly at the junior high school level and in regions with diverse geographical and institutional characteristics such as Paser Regency. Studies of educational governance also indicate the need for further investigation into how actors, local contexts, leadership, and digital transformation interact in the implementation of educational policies. Therefore, this study positions policy planning and policy implementation as the two main dimensions for understanding the management of educational digitalization at the junior high school level in Paser Regency.

Based on these issues, this study aims to analyze the management of educational digitalization policy at the junior high school level in Paser Regency, focusing on (1) how educational digitalization policy is planned and (2) how the policy is implemented. The analysis of policy implementation employs the Edwards III model, encompassing communication, resources, disposition, and bureaucratic structure. This study is expected to provide empirical insights into the capacity of local governments and educational institutions to translate digitalization policies into local practices, while also providing implications for strengthening planning, coordination, implementer capacity, and digital education governance that is more responsive to local needs.

LITERATURE REVIEW

Educational Digitalization

Educational digitalization refers to the process of integrating digital technologies into teaching and learning, organizational management, service delivery, and educational decision-making. Thus, digitalization is not merely concerned with the use of technological devices or applications but reflects broader changes in educational processes and systems. Through a systematic

review of the Education 4.0 literature, Mukul and Büyüközkan (2023) demonstrate that technological developments have transformed the context and processes of education, encouraging educational institutions to adapt their practices and management systems.

From a policy perspective, educational digitalization also requires alignment between policies formulated at the macro level and the needs and realities of schools. Butler et al. (2024) show that one of the major challenges in digital education policy is the complexity of aligning macro-level policies with school realities at the meso and micro levels. They emphasize the importance of adaptive policy processes, infrastructure support, teacher professional development, school leadership, and governance involving multiple stakeholders.

Accordingly, this study conceptualizes educational digitalization as a transformation of educational governance, namely the process of integrating digital technologies into teaching and learning and various educational management functions, supported by appropriate policies, resources, organizational capacity, and implementer readiness. This understanding is important because the success of digitalization cannot be determined solely by the availability of technological devices but also by the capacity of educational organizations to translate digital policies into practices that are appropriate to local needs.

Management of Educational Digitalization Policy

Policy management is a process that connects policy objectives with organizational actions through planning, resource organization, coordination, implementation, and control. In the context of educational digitalization, policy management becomes increasingly complex because it involves technology, human resources, financing, infrastructure, school organizations, and coordination between government and educational institutions. Jian and Mustafa (2024) indicate that the successful implementation of educational digital transformation policies is associated with governance mechanisms, stakeholder coordination, infrastructure investment, and human resource capacity.

On this basis, educational digitalization policy planning in this study is understood as the process of determining the needs, objectives, targets, strategies, programs, resources, and coordination mechanisms required to achieve educational digitalization objectives. Planning constitutes a critical stage because it determines the direction of government intervention and influences implementation readiness at the school level. Digital policies that fail to consider local conditions may create gaps between policy objectives and practices in the field. Butler et al. (2024) specifically demonstrate that achieving alignment between digital policies at the macro level and school realities is a critical issue in the development of digital education policies.

Therefore, the management of educational digitalization policy in this study is not positioned merely as a technological procurement activity but as a managerial and policy process that connects planning with implementation. This perspective enables the study to examine whether school needs have been

translated into policy planning and whether such planning provides adequate conditions for the implementation of educational digitalization.

Policy Implementation

Policy implementation is the stage at which policy objectives and decisions are translated into concrete actions by organizations and policy implementers. This stage is important because the existence of a formal policy does not automatically guarantee the achievement of its intended objectives. In the context of digital education, implementation involves multiple actors at the local government and school levels, meaning that the process of translating policy into practice can be influenced by capacity, resources, communication, and organizational conditions.

This issue is consistent with the findings of Butler et al. (2024), who demonstrate the complexity of aligning digital education policies formulated at the macro level with actual school conditions at the meso and micro levels. Their study further emphasizes that the implementation of digital policies requires infrastructure support, teacher professional development, school leadership, and coordination and governance processes involving multiple stakeholders.

Accordingly, the implementation of educational digitalization policy in this study is understood as the process of translating digital policy into concrete actions and educational management practices at the local government and school levels. This conceptualization provides the basis for employing the Edwards III model as the analytical framework for policy implementation.

Edwards III Policy Implementation Model

This study employs the policy implementation model developed by George C. Edwards III (1980). The model explains that successful policy implementation is influenced by four main variables: communication, resources, disposition, and bureaucratic structure. Edwards III argues that unclear or inconsistent communication can hinder implementation; limitations in staff, information, authority, and facilities can constrain implementers' capacity; implementers' attitudes influence their acceptance of a policy; while organizational structures can either facilitate or constrain policy implementation.

Communication

Communication refers to the process of transmitting policy information to policy implementers. Policy information must be conveyed accurately, clearly, and consistently so that implementers understand the policy objectives, procedures, and responsibilities.

In this study, communication is used to analyze how educational digitalization policies are disseminated and communicated among the local government, education office, school principals, teachers, and education personnel. The aspects examined include information transmission, policy clarity, and communication consistency.

Resources

Resources refer to the resources required to implement a policy. Edwards III identifies staff, information, authority, and facilities as important resources for policy implementation.

In the context of educational digitalization, these resources can be translated into digital infrastructure, technological devices, internet connectivity, budgets, teacher competencies, education personnel, technical support, and organizational authority. Accordingly, the analysis does not only examine whether technological devices are available but also whether the available resources are sufficient and can be effectively utilized to achieve policy objectives.

Disposition

Disposition refers to the attitudes, willingness, commitment, and acceptance of policy implementers toward a policy. A policy may encounter implementation barriers when implementers lack sufficient willingness or commitment to carry it out.

In this study, disposition is used to examine the acceptance and commitment of school principals, teachers, and education personnel toward educational digitalization, including their readiness to adapt to changes in technology-based work and learning practices.

Bureaucratic Structure

Bureaucratic structure refers to the organizational structure, division of authority, work procedures, and coordination mechanisms governing policy implementation. Edwards III emphasizes that organizational structures can either facilitate or constrain implementers in carrying out a policy.

In this study, bureaucratic structure is analyzed through the distribution of tasks and authority, implementation procedures, inter-unit coordination, and mechanisms for supervision and support in implementing educational digitalization policy.

Based on the literature reviewed, this study differs from studies that focus primarily on technology adoption, teachers' digital competencies, or infrastructure availability. Instead, it examines educational digitalization as a public policy managed through processes of policy planning and policy implementation. For implementation, the Edwards III model is employed to identify how communication, resources, disposition, and bureaucratic structure influence the translation of policy into practices at the school level.

This position is important because the literature indicates that the success of digital transformation in education is strongly influenced by the relationship between policies formulated at the macro level and the organizational realities of schools at the meso and micro levels. Therefore, this study of educational digitalization policy management at the junior high school level in Paser Regency seeks to address this gap by examining how the policy is planned and how implementation capacity operates within the context of local government and educational institutions.

METHODOLOGY

This study employed a qualitative approach with a case study design to obtain an in-depth understanding of the management of educational digitalization policy at the junior high school level in Paser Regency, East Kalimantan Province. A case study design was selected because the study focuses on a single case within its real-life context and enables an in-depth examination of policy processes, including the relationship between policy planning and implementation at the school level (Creswell & Poth, 2018). The study focused on two main aspects: educational digitalization policy planning and policy implementation. Policy implementation was analyzed using the George C. Edwards III model, which consists of four dimensions: communication, resources, disposition, and bureaucratic structure (Edwards, 1980). This model is also relevant to educational policy research in Indonesia, particularly for examining policy implementation at the local level through these four dimensions.

The study was conducted in six junior high schools in Paser Regency, selected to represent variations in geographical and contextual characteristics: two schools in urban areas, two in peri-urban areas, and two in areas categorized as 3T (frontier, outermost, and least developed areas). The selection of these sites was intended to capture variations in the management and implementation of educational digitalization under different school conditions. Data consisted of primary and secondary sources. Primary data were obtained through in-depth interviews and observations involving actors engaged in the management of educational digitalization policy, including officials from the Education Office, school principals, teachers, school operators, and, where relevant to the research focus, students and parents. Secondary data were obtained through a review of policy and educational management documents, including planning documents, school work programs, and other documents related to educational digitalization.

Data were collected through in-depth interviews, observation, and document analysis. Interviews were conducted to explore the experiences, understanding, and practices of actors involved in policy planning and implementation. Observations were undertaken to obtain information regarding the conditions and practices of digital technology utilization in schools, while document analysis was used to corroborate interview findings and provide evidence concerning policies, programs, and the management of educational digitalization. Data were analyzed interactively through data condensation, data display, and conclusion drawing and verification, following the framework developed by Miles et al. (2014). Data trustworthiness was established through source and technique triangulation by comparing information obtained from different informants and examining consistency across interviews, observations, and documentary evidence. The analysis was conducted iteratively throughout the data collection and interpretation processes to ensure that the findings were consistent, traceable, and firmly grounded in the empirical data.

RESULTS AND DISCUSSION

Planning and Management of Educational Digitalization Policy at the Junior High School Level in Paser Regency

The findings indicate that the planning and management of educational digitalization policy at the junior high school level in Paser Regency have been carried out at two levels: the local government level through the Education and Culture Office and the school level through individual educational institutions. At the local government level, planning refers to national policy directions and is subsequently translated into regional planning documents, including the Strategic Plan of the Paser Regency Education and Culture Office for 2025–2030. At the school level, these policy directions are translated into school work plans and budget documents. This finding indicates the existence of a planning chain extending from the national level to the local government and ultimately to individual schools, although the translation process produces variations according to the capacity and conditions of each school.

These findings demonstrate that educational digitalization planning in Paser Regency has a top-down character in terms of policy direction but an adaptive character at the implementation level. The Education and Culture Office serves as the primary actor in translating the central government's digitalization agenda into local policies, while schools adjust programs according to their internal conditions and surrounding environments. This pattern is consistent with Gustafsson (2022), who demonstrates that national school digitalization policies are not implemented identically at the local level because policy translation is influenced by local governance, organizational capacity, material conditions, and professional competencies. Thus, differences among urban, peri-urban, and 3T schools in Paser Regency do not necessarily indicate policy inconsistency but rather demonstrate how national policies are translated through varying local capacities.

At the school level, considerable differences were found in the orientation of planning. Schools in urban areas tend to have broader digitalization plans directed not only toward administration but also toward digital learning, including the use of virtual reality, interactive digital boards, Google Forms, digital libraries, and various network-based services. Schools in peri-urban areas have begun integrating technology into both administrative and learning activities, whereas schools in 3T areas tend to plan the use of technologies that can operate under limited connectivity conditions, including Chromebooks with offline functionality. These findings indicate that the availability and quality of infrastructure directly shape schools' choices regarding digitalization programs.

This pattern is consistent with Zein et al. (2026), who identified differences in technological readiness across regional contexts in Indonesia and demonstrated that infrastructure readiness, digital competence, and institutional support are important determinants of technology-based educational policy implementation. Their study also found that limitations in connectivity, devices, and technical support are more pronounced in rural and 3T contexts. Accordingly, the findings from Paser Regency demonstrate that digitalization planning cannot be separated from schools' material conditions. Schools with

better access to technology have greater opportunities to plan digital learning programs, whereas schools with limited connectivity tend to prioritize administrative programs or technologies that can operate offline.

The findings further indicate that educational digitalization planning has been accompanied by budget allocation. A review of strategic plans and School Activity and Budget Plans (RKAS) shows that schools have incorporated digitalization needs into their planning and budgeting documents, including expenditures for networks or Wi-Fi, computers or laptops, supporting facilities, and capacity development for teachers and administrative staff. However, the scale and scope of these allocations differ across school clusters. Urban schools generally have more comprehensive planning and facility support, whereas 3T schools face greater constraints in providing adequate financial and infrastructure support. This finding demonstrates that budgeting is not merely an administrative instrument in the planning process but also constitutes an important factor determining the scope for digital innovation at the school level.

This finding is consistent with research on the governance of school digital transformation, which indicates that financial support and technological provision are important prerequisites but are insufficient on their own to produce comprehensive digital transformation. The quality of transformation is also influenced by professional development, organizational support, and the capacity of local governments and schools to direct technology utilization toward educational objectives (Gustafsson, 2022). Research on school governance and digital transformation further emphasizes the important position of local governments as providers of infrastructure support and as actors directing the transformation process at the school level.

Another important finding concerns stakeholder involvement in the planning process. At the Education and Culture Office level, planning involves the Junior High School Principals Working Group (MKKS), school supervisors, and local government agencies responsible for communication and information technology. Such involvement indicates an effort to establish cross-organizational coordination because educational digitalization concerns not only pedagogical matters but also infrastructure, information systems, competency development, and technical support. At the school level, several educational institutions involve school principals, teachers, administrative or technical personnel, and school committees in program development. However, the intensity of stakeholder involvement is not uniform across all school clusters. Urban schools demonstrate more systematic stakeholder involvement, whereas participation remains more limited in some peri-urban and 3T schools.

This finding is important because it demonstrates that the capacity to plan educational digitalization is determined not only by formal bureaucratic structures but also by the ability to establish coordination and participation among stakeholders. Gustafsson (2022) found that local approaches to school digitalization may differ depending on how local governments organize support, build consensus, and distribute roles in the policy translation process. More collaborative approaches enable local governments and schools to adapt policies to local needs, whereas more centralized approaches tend to position schools

primarily as recipients and translators of policy. Similar findings have been reported in studies of school digitalization policy development, which emphasize the importance of collaboration and stakeholder involvement in addressing gaps between policy and school practices.

Nevertheless, this study found that needs assessment has not yet been conducted systematically across all schools. Some programs are planned primarily in response to directions or programs established by the central or local government. This condition is particularly evident in schools with limited resources, which tend to follow predetermined programs rather than develop independent plans based on systematic assessments of their specific needs. Consequently, a distinction emerges between policy-driven planning and locally needs-based planning. Programs such as ARKAS, online student admission (PPDB), Google Forms, interactive digital boards, and other digital applications are generally perceived as relevant to improving effectiveness and efficiency; however, the prioritization of these programs has not always been preceded by systematic and documented needs assessments.

This condition reinforces the argument that educational digitalization policies need to take local contexts into account. Butler et al. (2024), based on a cross-national study, demonstrate that one of the major challenges of digital education policy is aligning macro-level policies with school realities at the meso and micro levels. Policies formulated in general terms require adaptation processes to respond to actual school conditions. Gustafsson (2022) similarly demonstrates that school digitalization policies undergo processes of translation as they move from the national to the local level, with material, professional, situational, and external contexts influencing how these policies are translated into practice.

Overall, the findings demonstrate that educational digitalization policy planning in Paser Regency has established institutional structures and received organizational support but has not yet been fully differentiated according to the specific needs of individual schools. On the one hand, a top-down approach provides relatively clear policy direction, standards, and legitimacy. On the other hand, differences in infrastructure, human resource capacity, geographical conditions, and financial capacity require schools to have different degrees of flexibility in adapting digitalization programs. In this context, an appropriate planning approach does not require abandoning central policy direction but rather combining top-down policy direction with bottom-up, school needs-based planning.

Substantively, the findings can be summarized into four main points. First, educational digitalization planning has been integrated into local government and school planning documents. Second, stakeholder involvement has taken place, although its intensity varies across geographical clusters. Third, the types of digitalization programs vary considerably, ranging from digital learning in urban schools, administrative and learning applications in peri-urban schools, to more limited and offline technology utilization in 3T schools. Fourth, all schools have demonstrated attention to digitalization needs through planning and budget allocation, although the quality and scope of planning remain

uneven. These four findings demonstrate that geographical context functions as an important mechanism linking policy planning with the forms of digitalization planned and pursued by schools.

Therefore, the first research question can be answered by concluding that the planning and management of educational digitalization policy at the junior high school level in Paser Regency has been implemented through a tiered mechanism from the local government to individual schools and has been supported by planning documents and budget allocations. However, the planning process remains predominantly top-down and is not yet fully supported by systematic needs assessment. Variations in infrastructure, resources, and geographical characteristics have led schools to translate the policy into different forms and levels of digitalization. These findings indicate that future planning should focus on mapping the specific digital needs of each school, strengthening stakeholder participation, and allocating resources in a manner that is more responsive to disparities across geographical areas.

Implementation and Management of Educational Digitalization Policy at the Junior High School Level in Paser Regency

The findings indicate that educational digitalization policy at the junior high school level in Paser Regency has been implemented in all schools included in the study, covering urban, peri-urban, and 3T areas. The implementation is reflected in the use of digital technology for school administration, data management, planning and reporting, financial management, student services, school communication, and teaching and learning. However, the level and forms of technology utilization vary across schools. Urban schools demonstrate more diverse technology use, whereas schools in peri-urban and 3T areas tend to prioritize mandatory applications and technologies that can operate under limited connectivity. These findings indicate that policy implementation has been relatively widespread but has not yet resulted in a uniform level of digitalization across educational institutions.

Utilization of Digital Technology in Educational Management

Observations and interviews indicate that all schools included in the study have utilized digital technology in educational management. Technologies that are relatively widely used include ARKAS, Dapodik, SIPLah, and PPDB, which support budget management, educational data management, procurement of goods and services, and student admission services, respectively. The use of these technologies demonstrates that digitalization has become part of schools' organizational processes, particularly in administrative functions requiring reporting, data integration, and accountability.

Beyond mandatory applications, variations were found in technology utilization across schools. Urban schools use technology more extensively through Google Classroom, Google Forms, Microsoft 365 for Education, interactive digital boards, Virtual Reality, and digital library services. One school principal reported that Google Classroom had already been implemented, although not all teachers had utilized it optimally. In contrast, schools in 3T areas

rely more heavily on technology to meet administrative requirements and mandatory programs, while the use of technology for teaching and learning remains constrained by limited devices and internet connectivity. These findings demonstrate that educational digitalization in Paser Regency has developed through two patterns: compliance-driven digitalization, resulting from policy requirements, and innovation-driven digitalization, emerging from school and teacher initiatives.

This pattern reinforces the findings of Wollscheid et al. (2025), who demonstrate that school digitalization encompasses the use of technology for managerial, administrative, educational, and communication purposes, requiring school leadership to manage these dimensions in an integrated manner. Their study also emphasizes that school digitalization requires infrastructure support, teacher professional development, and leadership capable of integrating technology into school organizations. Thus, variations in technology utilization in Paser Regency do not simply reflect differences in schools' willingness to adopt technology but also indicate differences in organizational capacity to transform technology into meaningful educational practices.

The findings further indicate that administration represents a relatively more established domain of digitalization than teaching and learning. The use of ARKAS, Dapodik, SIPLah, and PPDB was identified across all schools, whereas Google Classroom, Virtual Reality, interactive digital boards, and other learning applications were found only in certain schools. This suggests that digitalization initially transforms standardized and mandatory administrative procedures more readily than pedagogical practices, which require changes in teachers' behavior and competencies. This finding is important because successful administrative digitalization cannot automatically be interpreted as successful transformation of teaching and learning.

Uneven Policy Implementation

The findings further reveal implementation gaps across school clusters. Urban schools are relatively more capable of utilizing technology comprehensively because they are supported by more stable internet connectivity, more adequate technological resources, and greater human resource readiness. Peri-urban schools have developed technology use for administrative purposes and some learning activities, whereas 3T schools continue to combine digital and manual systems. Under certain circumstances, school operators must even seek locations with better network signals to complete online administrative tasks.

These conditions demonstrate that the same policy does not necessarily produce identical implementation practices. Digitalization policy is translated according to the capacity and implementation environment of each school. This finding is consistent with Butler et al. (2024), who demonstrate that national digital education policies must interact with diverse school realities at the local level. Differences in school contexts, organizational capacity, infrastructure, and implementer needs can influence how policies are translated into practice.

The findings from Paser Regency are also consistent with research on technology-based educational policy in Indonesia, which indicates that infrastructure readiness, educators' digital competencies, and institutional support are important elements in the implementation of educational technology policies. Regional differences in these conditions can produce differences in schools' capacity to adopt and utilize technology. Accordingly, implementation challenges in Paser Regency should not be understood simply in terms of whether schools have or have not adopted technology, but rather in terms of the extent to which technology can be integrated into educational management and teaching and learning practices.

Teacher Digital Competence as an Implementation Factor

The interview findings indicate that teachers' digital competencies have generally developed sufficiently to support policy implementation. Most teachers are able to use computers, laptops, the internet, office applications, learning platforms, and various educational management applications. Teachers also utilize technology to prepare instructional materials, process student grades, deliver learning content, communicate with students, and conduct learning assessments.

However, these competencies are not yet evenly distributed. Some teachers continue to require assistance when using new applications, dealing with feature changes, or adapting to updated systems. Under such circumstances, school operators or teachers with stronger digital competencies often serve as sources of technical assistance for their colleagues. One informant noted that teachers who are accustomed to using computers and the internet tend to adapt more quickly, whereas some other teachers still require assistance in using particular applications.

These findings demonstrate that digital competence is not merely the technical ability to operate devices but also involves teachers' capacity to integrate technology into their professional work and pedagogical practices. These findings demonstrate that digital competence is not merely the technical ability to operate devices but also involves teachers' capacity to integrate technology into their professional work and pedagogical practices. This is consistent with Kim and Hong (2024), who found that teachers' digital competence is a multidimensional construct influenced by individual, organizational, and external factors. In the Indonesian context, the development of teachers' digital competence is also influenced by school leadership, supervision, digital culture, and organizational support. Therefore, differences in teachers' digital competence across schools in Paser Regency cannot be understood solely as individual differences but should also be considered in relation to the availability of training, technical assistance, infrastructure, and institutional support.

Therefore, the findings demonstrate that the availability of technological devices alone is insufficient to guarantee the quality of policy implementation. Schools with teachers possessing stronger digital competencies have greater capacity to develop innovative learning practices, whereas schools where digital

competencies remain uneven require greater mentoring and support. Accordingly, professional development should not be limited to training teachers to operate applications but should also focus on how technology can improve instructional design, assessment, communication, collaboration, and knowledge management.

Student Responses to Educational Digitalization

The findings indicate that students generally respond positively to educational digitalization. Students reported that the use of videos, interactive presentations, learning applications, and digital media made learning more engaging and facilitated access to learning materials. Students also tend to adapt relatively easily to technology because many are already accustomed to using digital devices in their daily lives. Online assignment submission was also perceived as more practical than conventional mechanisms.

Nevertheless, positive responses do not mean that all students experience digital learning in the same way. The study identified challenges related to limited access to devices, internet data quotas, internet connectivity, and students' ability to use technology for academic purposes. These challenges are particularly evident in areas with limited connectivity. Thus, students' acceptance of technology is generally positive, but the benefits of digitalization remain dependent on the accessibility and quality of the broader digital ecosystem.

These findings demonstrate that digital transformation at the school level must consider not only access to technology but also students' ability to use technology productively. This reinforces the view that educational digitalization is a socio-technical process involving interactions among technology, teachers, students, school organizations, and their supporting environments. In the context of this study, technology produces meaningful benefits when students have adequate access, teachers are capable of integrating it pedagogically, and schools have sufficient capacity to provide the necessary support.

Implementation through the Edwards III Model

The findings were subsequently analyzed using the four dimensions of the George C. Edwards III policy implementation model, namely communication, resources, disposition, and bureaucratic structure. These four dimensions provide a systematic explanation of why educational digitalization policy has been implemented but has produced different levels of implementation across schools. The use of these four dimensions is also relevant to educational policy implementation research in Indonesia. Sitorus (2019), for example, analyzed educational policy implementation using communication, resources, disposition, and bureaucratic structure as the main variables.

1. Communication. The findings indicate that policy communication takes place through the Education Office, school principals, school supervisors, and school coordination mechanisms. Information concerning programs and application use is communicated to schools for implementation. However, the intensity and depth of communication are not entirely uniform across

schools. In schools with stronger internal capacity, policy communication can develop into innovation, whereas schools with more limited resources tend to implement instructions at a minimum level. This condition indicates that communication should not be limited to the transmission of instructions but should enable implementers to understand policy objectives and adapt them to school conditions.

2. Resources. This dimension represents one of the strongest findings of the study. Differences in internet connectivity, technological devices, computer laboratories, LCD projectors or smart TVs, learning management systems (LMS), and human resource competencies are associated with variations in implementation quality. Urban schools have greater opportunities to develop digital learning, whereas 3T schools rely more heavily on technology for administrative purposes and utilize devices capable of operating under limited connectivity. This finding is consistent with Stupurienė et al. (2024), who demonstrate that resources, technological tools, implementation guidelines, and school support are important factors in the integration of educational technology. Their study also identifies school leadership as an important element in providing infrastructure and support for teachers.
3. Disposition. The attitudes and commitment of implementers are reflected in the willingness of school principals and teachers to accept and utilize technology. Schools with adaptive principals and teachers who are more receptive to technological change demonstrate a greater tendency to develop innovations beyond mandatory programs. In contrast, implementers who still require technical assistance tend to use technology primarily to meet policy requirements. These findings demonstrate that successful digitalization requires not only competence but also a willingness to change and adapt. Research on digital school leadership indicates that school leaders have an important role in promoting teachers' competency development and creating organizational conditions that support digital transformation.
4. Bureaucratic structure. Digitalization implementation takes place within a relatively clear distribution of authority among the local government, Education Office, school supervisors, principals, teachers, and school operators. Applications such as ARKAS, Dapodik, SIPLah, and PPDB also have relatively standardized procedures, making their implementation more uniform than that of innovative learning applications. This demonstrates that the more standardized a program is, the more uniform its implementation tends to be, whereas programs that provide greater room for innovation generate greater variation according to school capacity. This finding is consistent with Sitorus (2019), who emphasizes the importance of bureaucratic structure, together with communication, resources, and disposition, in explaining educational policy implementation.

Based on the overall findings, the implementation of educational digitalization policy at the junior high school level in Paser Regency can be characterized as implemented but uneven and not yet fully transformative. Implementation is relatively successful in standardized and mandatory administrative functions, such as ARKAS, Dapodik, SIPLah, and PPDB. In

contrast, transformation in teaching and learning has progressed more slowly and is strongly influenced by teacher competencies, school leadership, availability of technological devices, and connectivity quality.

The findings produce a pattern that can be formulated as “compliance–adaptation–innovation.” At the compliance stage, schools use technology to meet policy and administrative requirements. At the adaptation stage, schools adjust technology utilization to their available resources and environmental conditions. At the innovation stage, schools with stronger capacities develop technology use for learning and educational services in more creative ways. Not all schools have reached the innovation stage to the same extent.

Thus, the implementation of educational digitalization policy in Paser Regency cannot be understood as a linear process in which policy formulation, the provision of technological devices, technology utilization, and policy outcomes occur sequentially. The findings demonstrate a more complex relationship among policy communication, resources, implementer disposition, and bureaucratic structure. Limitations in one dimension may constrain the effectiveness of the others. Adequate infrastructure without sufficient teacher competence may result in limited technology utilization, while teacher competence without reliable connectivity may constrain opportunities for innovation. Similarly, the availability of technology and competent personnel without supportive leadership and organizational structures may hinder the sustainability of digitalization practices.

Therefore, the implementation and management of educational digitalization policy at the junior high school level in Paser Regency have taken place across all school clusters, but the level and quality of implementation vary. Communication provides policy direction, resources constitute the most visible differentiating factor among schools, disposition determines implementers’ capacity to adapt and innovate, while bureaucratic structure provides the formal mechanisms for program implementation. The interaction of these four dimensions produces an adaptive and context-sensitive implementation pattern, in which administrative digitalization has developed more rapidly than the transformation of teaching and learning.

CONCLUSION AND RECOMMENDATION

Based on the findings, the management of educational digitalization policy at the junior high school level in Paser Regency has been carried out through planning and implementation processes involving both the local government and educational institutions. Planning has been integrated into policy and school planning documents and supported by resource allocation for digitalization development. However, planning remains predominantly top-down and has not yet been fully based on systematic needs assessment. Policy implementation has also taken place across all schools examined, but it varies according to regional characteristics. Digitalization is more advanced in administrative functions, while the transformation of teaching and learning remains uneven. Differences in infrastructure, teachers’ digital competencies,

budgetary support, school leadership, and geographical conditions constitute the main factors shaping these variations.

Overall, this study demonstrates that educational digitalization management in Paser Regency has developed through an adaptive and context-sensitive pattern. Policies directed through a top-down approach at the government level are translated and adapted by schools according to their local capacities and conditions. Based on the Edwards III model, successful implementation depends on the integration of communication, resources, implementer disposition, and bureaucratic structure. Therefore, future policy strengthening should focus on: (1) developing digitalization planning based on systematic assessments of the needs and characteristics of individual schools; and (2) improving infrastructure equity, strengthening teachers' digital competencies, and enhancing continuous mentoring and stakeholder collaboration, so that digitalization does not remain limited to administrative requirements but develops into sustainable transformation of teaching and learning.

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