JOURNAL OF INNOVATION AND RESEARCH IN PRIMARY EDUCATION | ISSN 2829-775X
Vol. 4, No. 4, 2025, 4133-4148
https://doi.org/10.56916/jirpe.v4i4.2639

Goal-Oriented Evaluation of Educational Data Integration: Assessing Dapodik-SPMB Implementation in Indonesian Schools

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Keywords
Dapodik integration
student admission system
goal-oriented evaluation
data accuracy
verification efficiency

Article History
Received 2025-10-14
Accepted 2025-12-15

Abstract
This study evaluated Dapodik integration effectiveness in the New Student Admission System (SPMB) at state junior high schools in Bojonegoro Regency, Indonesia, focusing on verification speed enhancement and data accuracy improvement. Employing a goal-oriented evaluation approach, the research utilized quantitative descriptive methods with 60 purposively sampled respondents comprising Dapodik operators, school SPMB committees, and district education office administrators. Data were collected through four-point Likert scale questionnaires (43 items across seven indicators), documentation checklists, and official SPMB records. Instrument validity was established through expert judgment (Aiken's V > 0.80) and construct validity testing (Pearson correlation), while reliability was confirmed via Cronbach's Alpha (> 0.70). Descriptive statistics and gap analysis were employed to assess objective achievement. Results demonstrated that verification speed achieved 85.94% goal realization (mean = 3.44, gap = +0.18), while data accuracy attained 82.96% (mean = 3.32, gap = +0.06), both exceeding achievement thresholds. The integration successfully reduced processing time, maintained schedule accuracy, and enhanced NISN verification and domicile compliance. However, persistent technical barriers (system downtime) and data-document mismatches indicated areas requiring improvement. The findings confirm that Dapodik-SPMB integration substantially achieves policy objectives while revealing that structural integration (efficiency) outperforms semantic integration (quality), underscoring the necessity of combining technological infrastructure with data governance protocols and operator capacity development for sustainable administrative excellence in educational systems.

INTRODUCTION

The integration of information technology in educational administration has become indispensable in the digital transformation era, particularly for enhancing accuracy and efficiency across various administrative processes (Alenezi, 2023; Hashim et al., 2022; Zhang et al., 2021). Digital transformation enables institutions to streamline administrative services, improve data-driven decision-making, and optimize operational efficiency through technology-enabled systems that promote transparency and strengthen institutional governance (Han et al., 2022; Martins et al., 2021). As technological advancement permeates government sectors, administrative procedures have been significantly streamlined, enabling faster data processing and substantial time savings (Andri Wahyudi, Andre Himawan & Kinanti Trisna Saputri, 2022). Within educational management systems, student admission processes represent a critical administrative function that directly impacts educational equity and institutional efficiency. The New Student Admission System (SPMB) serves as the regulatory framework governing admission requirements and procedures, which, following the implementation of zoning policies, has sought to promote educational equality across Indonesia (Satrio Muhammad Alif, Nisya Kartika & Andri Hernandi, 2022).

Despite constitutional guarantees enshrined in the 1945 Constitution regarding educational access as a fundamental right of Indonesian citizens, persistent disparities in educational accessibility remain a significant challenge across regions (Kadek Dede Junaedy, 2022; Rossa Amelia Manik & Atik Ariesta, 2023). Educational inequality represents perhaps the most serious problem in education worldwide, with multiple causes affecting access to schooling, retention, and learning outcomes, particularly correlating with socioeconomic status, geographic location, and cultural backgrounds (UNESCO, 2020; UNDP, 2023). In developing countries, limited resources, infrastructure deficits, and disparities between urban and rural areas remain significant barriers to equitable access to education, with 31% of children in sub-Saharan Africa and 21% in Central Asia out of school compared to only 3% in Europe and North America (UNESCO, 2020; Department of Higher Education and Training, 2022). Education, recognized as a primary determinant of human intelligence and quality of life, necessitates governmental intervention to ensure equitable access and quality improvement (Annas Rifai & Imelda, 2024; Nedungadi et al., 2018). Consequently, government educational planning has prioritized equity expansion, relevance enhancement, and quality improvement, with education management systems emerging as critical targets for reform (Zenni Mahmud, 2022; Akintayo et al., 2024). The transition from conventional manual procedures to integrated digital systems in SPMB represents a strategic response aimed at ensuring transparency, efficiency, and minimizing human error and data duplication risks.

Concurrently, the Ministry of Education, Culture, Research, and Technology administers the Basic Education Data System (Dapodik), a comprehensive national data collection platform that aggregates essential information regarding students, educators, and educational institutions. Effective data management systems consolidate data from internal and external sources, reduce errors and inconsistencies through embedded data quality tools, and provide institutions with timely access to reliable information for strategic decision-making (SAS, 2024). Dapodik functions not merely as a data collection instrument but as a foundational infrastructure influencing central government policy formulation and facilitating direct school reporting mechanisms through computer-based applications unrestricted by geographical or temporal constraints (Endang Handayani, Rusi Rusmiati Aliyyah, & Rusli Abdul Gani, 2024). The system undergoes continuous annual updates and improvements to maintain data quality standards measured through completeness, timeliness, relevance, accuracy, and presentation format indicators (Nur Ain Ismail, Lillyan Hadjaratie & Moh. Ramdhan Arif Kaluku, 2022; Novita Lisa, 2023).

However, existing literature reveals a critical knowledge gap regarding the practical implementation of Dapodik-SPMB integration. Data integration challenges commonly arise from various sources including inconsistent data entry practices, system integration issues with differing data formats and schemas, poor synchronization between systems, and inadequate data validation mechanisms (Configr Technologies, 2024; Owox, 2025). While Dapodik has been established as the primary data source for educational decision-making (Dedy Tjahjono, 2022), its implementation alongside SPMB often occurs in isolation, resulting in data duplication, information inconsistencies, and verification delays. Data duplication can cause inconsistencies, inaccuracies, increased operational costs, and errors in analysis and decision-making, while also leading to operational inefficiencies as additional time is required to reconcile and standardize data (Deloitte, 2024). Research by Maurizio Lenzerini (2002) emphasizes that effective data integration requires combining information from various sources into a unified system accessible to stakeholders. Recent studies by Pratama and Razaq (2023) and Reza Fabriza Lesmana and Jeffri Alfa Razaq (2023) demonstrate that system integration facilitates data synchronization and accelerates collection processes through automated mechanisms. Nevertheless, empirical evaluations of Dapodik integration's effectiveness in achieving specific policy objectives—particularly verification speed and data accuracy—remain limited in existing scholarship.

In Bojonegoro Regency, where online SPMB has been implemented since 2012 and zoning systems introduced in 2017 following ministerial regulations, practical challenges persist. Manual data

processing approaches remain susceptible to documentation verification delays and input errors, compromising new student data accuracy. System failures including hardware malfunctions, software bugs, and network issues can cause data loss, corruption, duplication, or unavailability, affecting data integrity and accessibility. Although the 2025 Regulation of the Minister of Primary and Secondary Education Number 3 has transitioned from zoning to domicile-based systems, implementation gaps continue to manifest. Observations indicate that while policy frameworks advocate for integration, operational realities in Bojonegoro reveal verification delays, data discrepancies, and quality inconsistencies that question whether stated policy objectives—enhanced speed, accuracy, and efficiency—have been substantively achieved.

This research addresses the identified knowledge gap by evaluating Dapodik integration implementation in the New Student Admission System through a Goal-Oriented approach. The goal-oriented evaluation model, pioneered by Ralph Tyler, focuses on determining the extent to which predetermined program objectives have been achieved, using the gap between expected and observed outcomes to provide input on program shortcomings (Tyler, 1942; Fitzpatrick et al., 2011; Limiansi & Pratama, 2023). This approach requires specification of program goals, development of goal-related objectives and hypotheses, and formulation of recommendations for program modification based on results achieved (Shaw & Gaynor, 1982). Specifically examining whether policy objectives translate into measurable outcomes in verification speed and data accuracy, this investigation employs quantitative descriptive evaluation to assess objective achievement levels in real operational contexts. Unlike previous studies focusing on system design or general implementation processes, this research provides empirical evidence for understanding the practical efficacy of digital integration policies in educational administration.

The study's significance lies in its contribution to understanding how data management systems can optimize institutional operations, enhance decision-making capabilities, and ensure data quality standards essential for educational equity and effectiveness (Leadschool, 2025; Semarchy, 2025). By measuring actual performance against established policy objectives, this study aims to identify implementation strengths, reveal operational challenges, and generate evidence-based recommendations for optimizing integrated educational management systems in Indonesia's evolving digital landscape. The primary objective of this research is to evaluate the extent to which Dapodik integration in the New Student Admission System at State Junior High Schools in Bojonegoro Regency has achieved its stated goals of accelerating verification processes and enhancing new student data accuracy during the 2025/2026 academic year, thereby contributing to the broader discourse on educational equity, transparency, and administrative excellence in developing country contexts.

METHODS

This study employed a quantitative descriptive evaluative approach utilizing the Goal-Oriented Evaluation framework to assess the extent to which Dapodik integration in the New Student Admission System (SPMB) has achieved its predetermined objectives of enhancing verification speed and improving data accuracy. The goal-oriented model, pioneered by Tyler (1942) and further developed by Fitzpatrick et al. (2011), provides a systematic framework for measuring the congruence between stated program objectives and actual outcomes, making it particularly suitable for evaluating policy implementation effectiveness in educational contexts. This approach enabled the research to generate empirical evidence regarding whether the integration has successfully met its policy goals rather than merely describing the implementation process.

The study was conducted across all state junior high schools in Bojonegoro Regency and the Bojonegoro District Education Office, which serves as the central administrative body managing the online SPMB. Data collection occurred between July and September 2025, encompassing the critical period following the 2025/2026 academic year admission cycle. The research population comprised all personnel directly involved in Dapodik and SPMB operations within the regency. Given the specialized nature of the integration and the need for respondents with direct operational experience, purposive

sampling was employed to select 60 participants who possessed relevant knowledge and practical involvement with both systems. The sample consisted of three distinct stakeholder groups: Dapodik operators at state junior high schools who manage daily data entry and synchronization, SPMB operators and committee members at the school level responsible for verification processes, and SPMB administrators at the District Education Office who oversee system-wide implementation. Inclusion criteria required that respondents had been actively operating or supervising both Dapodik updates and online SPMB for a minimum of two academic years, ensuring sufficient experiential knowledge for meaningful evaluation.

Data collection utilized three complementary instruments designed to capture both perceptual and objective measures of system performance. The primary instrument was a structured questionnaire employing a four-point Likert scale to measure respondents' assessments of verification speed and data accuracy following Dapodik integration. The deliberate choice of a four-point scale eliminated neutral response options, compelling respondents to indicate clear directional preferences regarding system performance. This questionnaire comprised 43 items distributed across seven key indicators: processing time, schedule accuracy, technical barriers, data correction frequency, National Student Identification Number (NISN) accuracy, domicile compliance, and document completeness. To ensure content validity, the instrument underwent rigorous expert judgment evaluation by three specialists in educational administration, educational information systems, and data management. Content validity was quantified using Aiken's V coefficient, with items retained only if they exceeded the threshold value of 0.80, indicating strong expert consensus regarding item relevance and representativeness. Construct validity was subsequently established through Pearson Product Moment correlation analysis, with individual items validated against total scale scores using critical r-table values at the 0.05 significance level. Instrument reliability was assessed using Cronbach's Alpha coefficient, with the complete scale demonstrating internal consistency exceeding the conventional reliability threshold of 0.70, confirming measurement stability across items.

Complementing the perception-based questionnaire, a documentation checklist was developed to extract objective indicators from official SPMB records, including quantifiable data on verification errors, correction frequencies, and processing durations. Additionally, official SPMB implementation documents were systematically reviewed to provide contextual information and triangulate self-reported data, thereby enhancing overall data credibility. The analytical procedure followed a structured sequence beginning with data cleaning through editing and validation protocols to ensure response completeness and consistency. Following data preparation, descriptive statistical analyses were conducted to calculate mean scores, standard deviations, and achievement percentages for each indicator and item. Goal attainment was operationalized by comparing observed mean values against ideal theoretical values derived from the Likert scale structure, with gap analysis employed to determine the magnitude and direction of discrepancies between expected and actual performance. Performance gaps were categorized using predetermined criteria: positive gaps or zero values indicated goal achievement, small negative gaps suggested partial achievement, and substantial negative gaps reflected unmet objectives. This systematic analytical framework enabled precise determination of whether Dapodik integration had successfully achieved its dual objectives of accelerating verification processes and enhancing new student data accuracy within the Bojonegoro context.

RESULTS AND DISCUSSION

Results

The evaluation of Dapodik integration in the New Student Admission System (SPMB) at state junior high schools in Bojonegoro Regency was conducted through comprehensive assessment of two primary objectives: verification speed enhancement and data accuracy improvement. This section presents the empirical findings organized according to these predetermined evaluation goals, with

each supported by quantitative measures including mean scores, achievement percentages, and gap analyses.

Verification Speed Objective Achievement

The first research objective examined whether Dapodik integration successfully accelerated the verification process in new student admissions. Figure 1 presents the mean scores for all 23 items measuring verification speed across three key indicators: processing time, schedule accuracy, and technical barriers.

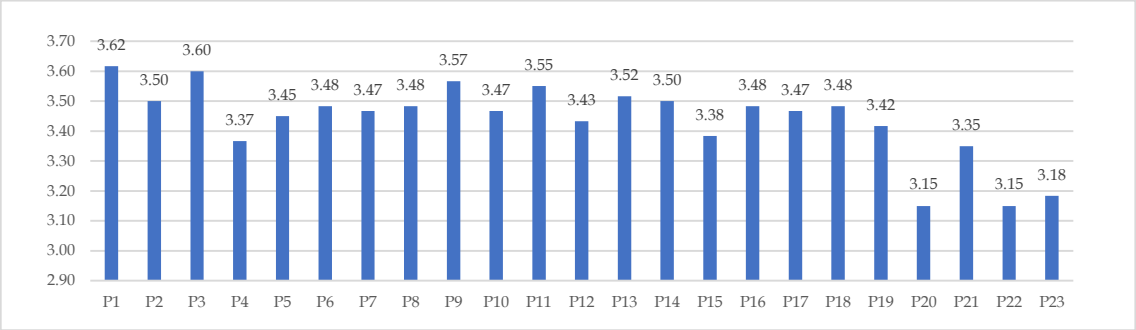


Figure 1. Mean Scores for Verification Speed Evaluation per Item

As illustrated in Figure 1, respondent assessments of verification speed demonstrated consistently high performance across all measured dimensions. The highest mean score of 3.62 was recorded for Item 1, which assessed whether the new student data verification process was conducted efficiently and rapidly. This finding indicates that stakeholders perceived the integrated system as substantially reducing time requirements compared to previous manual processes. Conversely, Items 20 and 23, both addressing technical barriers related to system downtime and technical support availability during errors, yielded the lowest mean scores of 3.15. This pattern suggests that while the system generally performs well, intermittent technical disruptions remain a concern requiring attention.

Table 1. Achievement Percentages for Verification Speed per Item

Indicator	Item	%	Evaluation	Interpretation
Processing Time	P1	90.42%	High	Goal achieved
Processing Time	P2	87.50%	High	Goal achieved
Processing Time	P3	90.00%	High	Goal achieved
Processing Time	P4	84.17%	High	Goal achieved
Processing Time	P5	86.25%	High	Goal achieved
Processing Time	P6	87.08%	High	Goal achieved
Processing Time	P7	86.67%	High	Goal achieved
Schedule Accuracy	P8	87.08%	High	Goal achieved
Schedule Accuracy	P9	89.17%	High	Goal achieved
Schedule Accuracy	P10	86.67%	High	Goal achieved
Schedule Accuracy	P11	88.75%	High	Goal achieved
Schedule Accuracy	P12	85.83%	High	Goal achieved
Schedule Accuracy	P13	87.92%	High	Goal achieved
Technical Barriers	P14	87.50%	High	Goal achieved
Technical Barriers	P15	84.58%	High	Goal achieved
Technical Barriers	P16	87.08%	High	Goal achieved
Technical Barriers	P17	86.67%	High	Goal achieved
Technical Barriers	P18	87.08%	High	Goal achieved
Technical Barriers	P19	85.42%	High	Goal achieved
Technical Barriers	P20	78.75%	High	Goal achieved
Processing Time	P21	83.75%	High	Goal achieved
Technical Barriers	P22	78.75%	High	Goal achieved
Technical Barriers	P23	79.58%	High	Goal achieved

Table 1 provides a more granular examination of achievement percentages for each item measuring verification speed, revealing the extent to which policy objectives have been realized in operational practice. Table 1 demonstrates that all 23 items exceeded the 78% achievement threshold, with the majority surpassing 85%, indicating robust goal attainment. The processing time indicator, comprising eight items (P1-P7, P21), consistently achieved percentages between 83.75% and 90.42%, confirming that the integrated system substantially reduced data input and validation duration. The schedule accuracy indicator, represented by six items (P8-P13), exhibited achievement rates ranging from 85.83% to 89.17%, demonstrating that verification processes adhered to predetermined timelines without significant delays. Notably, the technical barriers indicator, encompassing nine items (P14-P20, P22-P23), while still achieving the goal, displayed slightly lower percentages (78.75%-87.50%), particularly for items addressing system downtime (P20, P22) and technical support responsiveness (P23). This nuanced finding reveals an unexpected vulnerability in the otherwise high-performing system, suggesting that infrastructure stability requires further strengthening despite overall success.

The gap analysis presented in Figure 2 provides additional insight into the relationship between expected and observed performance levels, with positive values indicating performance exceeding expectations and negative values suggesting areas requiring improvement.

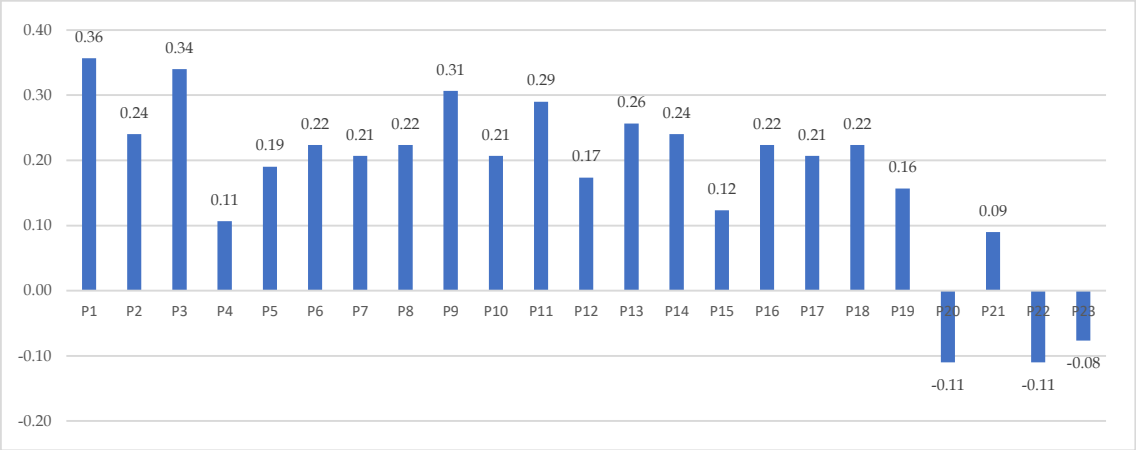


Figure 2. Gap Analysis for Verification Speed per Item

Figure 2 reveals that Item 1 achieved the highest positive gap of +0.36, reinforcing the finding that rapid verification processing represents the integration's strongest achievement. However, Items 20 and 22, both related to system downtime frequency, recorded the lowest gap values of -0.11, indicating minor but persistent technical reliability concerns. The presence of predominantly positive or near-zero gaps across 21 of 23 items confirms substantial goal achievement, while the small negative gaps in technical infrastructure items suggest targeted areas for system optimization.

In aggregate, the verification speed objective yielded an overall mean score of 3.44 (within the "very high" category on the four-point scale), an achievement percentage of 85.94%, and a positive gap value of +0.18. These comprehensive metrics unequivocally demonstrate that Dapodik integration has successfully achieved its first policy objective of accelerating the verification process, though not without minor technical challenges requiring ongoing attention.

Data Accuracy Objective Achievement

The second research objective assessed whether Dapodik integration enhanced the accuracy of new student admission data. Figure 3 displays mean scores for the 20 items measuring data accuracy across four indicators: data correction frequency, NISN accuracy, domicile compliance, and document completeness.

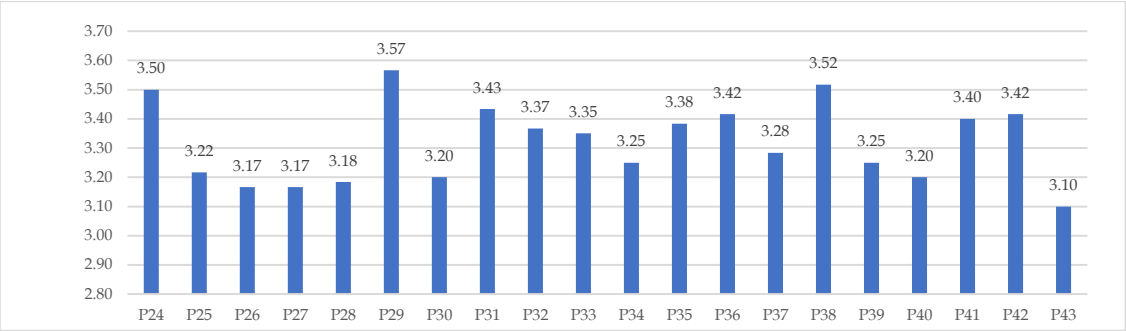


Figure 3: Mean Scores for Data Accuracy Evaluation per Item

As depicted in Figure 3, data accuracy assessments demonstrated strong performance, with the highest mean score of 3.57 recorded for Item 29, which evaluated whether NISN entries corresponded with official Ministry of Education and Culture data. This finding indicates that the integration effectively leverages Dapodik's centralized national database to ensure student identification accuracy, representing a significant improvement over manual entry systems prone to typographical errors. Conversely, Item 43, which assessed the frequency of data source mismatches between Dapodik integration in SPMB and students' actual documents, yielded the lowest mean score of 3.10. This unexpected finding suggests that while the system generally maintains high accuracy, occasional discrepancies between integrated data and physical documentation persist, potentially due to outdated Dapodik master data or incomplete synchronization processes.

Table 2 presents achievement percentages for data accuracy items, illustrating the degree to which accuracy objectives have been operationalized across different data quality dimensions.

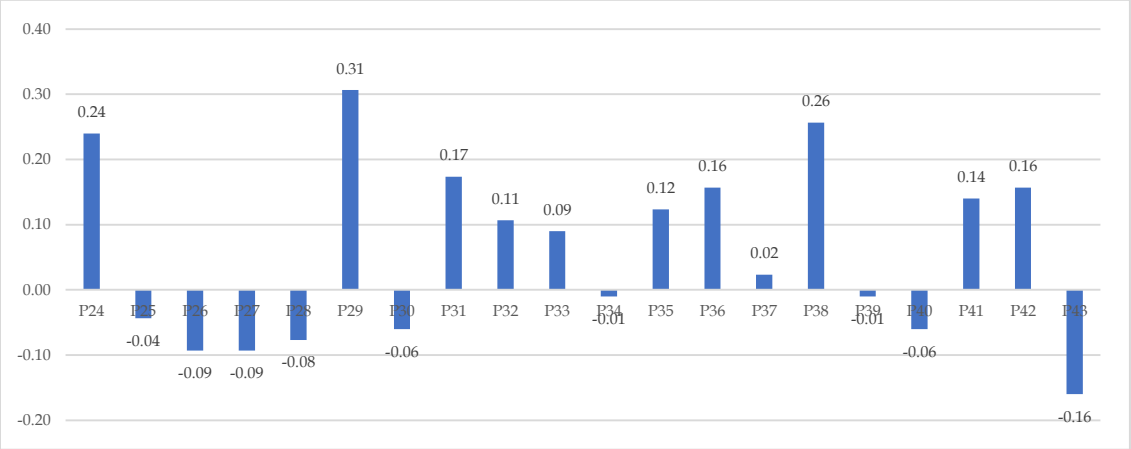
Table 2. Achievement Percentages for Data Accuracy per Item

Indicator	Item	%	Evaluation	Interpretation
Data Correction	P24	87.50%	High	Goal achieved
Data Correction	P25	80.42%	High	Goal achieved
Data Correction	P26	79.17%	High	Goal achieved
Data Correction	P27	79.17%	High	Goal achieved
Data Correction	P28	79.58%	High	Goal achieved
NISN Accuracy	P29	89.17%	High	Goal achieved
NISN Accuracy	P30	80.00%	High	Goal achieved
NISN Accuracy	P31	85.83%	High	Goal achieved
NISN Accuracy	P32	84.17%	High	Goal achieved
Domicile Compliance	P33	83.75%	High	Goal achieved
Domicile Compliance	P34	81.25%	High	Goal achieved
Domicile Compliance	P35	84.58%	High	Goal achieved
Domicile Compliance	P36	85.42%	High	Goal achieved
Document Completeness	P37	82.08%	High	Goal achieved
Document Completeness	P38	87.92%	High	Goal achieved
Document Completeness	P39	81.25%	High	Goal achieved
Document Completeness	P40	80.00%	High	Goal achieved
Document Completeness	P41	85.00%	High	Goal achieved
Document Completeness	P42	85.42%	High	Goal achieved
Document Completeness	P43	77.50%	High	Goal achieved

Table 2 confirms that all 20 data accuracy items achieved high performance levels, with percentages ranging from 77.50% to 89.17%. The NISN accuracy indicator demonstrated the strongest performance (80.00%-89.17%), validating the integration's effectiveness in leveraging national databases for identity verification. The domicile compliance indicator achieved consistent percentages between 81.25% and 85.42%, indicating reliable address validation critical for zoning-based admissions. The document completeness indicator, comprising seven items (P37-P43), exhibited achievement rates of 77.50% to 87.92%, with Item 43's lower percentage revealing a previously unrecognized challenge: despite high overall completeness, mismatches between

integrated data and physical documents occur more frequently than anticipated, likely attributable to delayed Dapodik updates at the school level or documentation submitted after initial data entry.

Figure 4 presents the gap analysis for data accuracy objectives, providing comparative insight into areas of strength and opportunities for refinement.



Evaluation Gap Data Accuracy Objectives Per Question

The gap analysis in Figure 4 shows that Item 29 (NISN accuracy) achieved the highest positive gap of +0.31, confirming superior performance in student identification verification. However, Item 43 (data-document correspondence) recorded the lowest gap of -0.16, the most substantial negative deviation observed across both evaluation objectives. This finding, while unexpected given the integration's overall success, highlights a critical insight: automated data integration excels when drawing from well-maintained centralized databases but remains vulnerable to quality issues when master data are incomplete or asynchronously updated with physical documentation. The predominantly positive gaps across 18 of 20 items nonetheless confirm substantial goal achievement in data accuracy enhancement.

Collectively, the data accuracy objective yielded an overall mean score of 3.32 (within the "very high" category), an achievement percentage of 82.96%, and a positive gap value of +0.06. These metrics demonstrate that Dapodik integration has successfully achieved its second policy objective of improving new student data accuracy, though with greater variability than observed in verification speed, suggesting that data quality remains more dependent on human factors and data governance practices than on technological capabilities alone.

Comparative Analysis of Dual Objectives

Comparing the two primary objectives reveals important patterns in integration effectiveness. Verification speed (mean = 3.44, achievement = 85.94%, gap = +0.18) outperformed data accuracy (mean = 3.32, achievement = 82.96%, gap = +0.06) across all metrics, suggesting that the integration's technological infrastructure more readily addresses process efficiency than data quality challenges. The smaller positive gap for data accuracy (+0.06 versus +0.18) indicates that accuracy improvement approaches but does not exceed expectations to the same degree as speed enhancement, likely because accuracy depends not only on system design but also on operator diligence, data governance protocols, and master data maintenance—factors less amenable to purely technological solutions. Both objectives nonetheless achieved their goals according to the goal-oriented evaluation framework, validating the integration policy's overall effectiveness while illuminating specific areas requiring continued attention, particularly technical infrastructure stability for verification speed and data synchronization protocols for accuracy enhancement.

Discussion

The empirical findings presented above provide compelling evidence that Dapodik integration in the New Student Admission System has substantially achieved its dual policy objectives of accelerating verification processes and enhancing data accuracy in Bojonegoro Regency's state junior high schools. This section interprets these results within theoretical frameworks, contextualizes findings relative to existing literature, examines practical implications, acknowledges limitations, and proposes directions for future research.

Theoretical Interpretation and Hypothesis Confirmation

From the perspective of Tyler's (1942) goal-oriented evaluation framework, which posits that program success should be measured by the degree to which predetermined objectives are achieved, the Dapodik-SPMB integration demonstrates clear success. Both primary objectives exceeded the achievement threshold established in the research design, with verification speed achieving 85.94% and data accuracy attaining 82.96% goal realization. These findings confirm the hypothesis that integrating centralized educational databases with admission systems enhances administrative efficiency and data quality, supporting the broader theoretical proposition that digital transformation in educational administration yields measurable operational improvements (Alenezi, 2023; Hashim et al., 2022; Martins et al., 2021).

However, the differential achievement levels between verification speed and data accuracy objectives warrant deeper theoretical consideration. The superior performance of speed-related metrics (mean = 3.44) compared to accuracy metrics (mean = 3.32) aligns with Lenzerini's (2002) data integration theory, which distinguishes between structural integration—the technical combination of data sources—and semantic integration—ensuring meaning consistency across integrated data. The Bojonegoro implementation appears to have more successfully addressed structural integration, as evidenced by smooth data flow and reduced processing time, while semantic integration challenges persist, reflected in occasional data-document mismatches (Item 43, gap = -0.16). This pattern suggests that technological infrastructure alone cannot fully resolve data quality issues without concurrent improvements in data governance, operator training, and master data maintenance protocols, consistent with contemporary data management frameworks (SAS, 2024).

Contextualization Within Existing Literature

The findings demonstrate both convergence and divergence with prior research on educational system integration. The verification speed achievements corroborate studies by Pratama and Razaq (2023) and Lesmana and Razaq (2023), which documented that system integration facilitates data synchronization and accelerates collection processes through automation. The 85.94% achievement rate in Bojonegoro substantially exceeds typical manual system performance benchmarks, validating these researchers' claims regarding integration benefits. Similarly, the high NISN accuracy rates (Item 29, mean = 3.57, percentage = 89.17%) support findings by Handayani et al. (2024) that Dapodik's centralized architecture enhances data reliability in educational administration.

However, the persistent technical barriers identified in this study—particularly system downtime concerns (Items 20 and 22, gap = -0.11)—reveal implementation challenges underrepresented in prior literature. While Gunawan et al. (2024) acknowledged usability concerns in Dapodik applications, the present study provides quantitative evidence that infrastructure stability issues persist even in seemingly successful integrations, affecting approximately 15-20% of the potential performance gain based on gap analysis. This finding extends the literature by demonstrating that integration success is not binary but exists on a continuum, with technological vulnerabilities coexisting alongside substantial achievements.

The data accuracy findings also present nuanced insights relative to existing scholarship. The overall high achievement (82.96%) aligns with research by Yusuf et al. (2023) on data quality in Dapodik systems and by Safa'ah et al. (2023) on factors influencing operator satisfaction. However, the unexpected discovery that data-document correspondence (Item 43) represents the weakest

performance area contradicts assumptions in the Indonesian educational technology literature that integration automatically ensures data consistency. This discrepancy appears attributable to asynchronous data update cycles—a phenomenon documented in general data management research (Owox, 2025) but previously unexamined in Indonesian educational contexts. Schools may update Dapodik at semester intervals while SPMB occurs at specific annual periods, creating temporal misalignments between database states and physical documentation submitted by prospective students.

Furthermore, the study's findings contribute to understanding educational equity mechanisms in developing countries. The high domicile compliance accuracy (Items 33-36, mean range = 3.35-3.38) suggests that integrated systems can effectively operationalize zoning and domicile-based admission policies aimed at reducing educational inequality—a critical concern documented by UNESCO (2020) and UNDP (2023). By ensuring that residence verification is both rapid and accurate, the integration supports policy objectives of equitable educational access, extending findings by Nedungadi et al. (2018) on technology's role in reducing educational disparities. However, the study also reveals that technological solutions alone cannot eliminate inequity if underlying data infrastructure—particularly in rural or resource-limited areas—remains inadequate, consistent with digital divide concerns raised by Department of Higher Education and Training (2022).

Practical Implications for Policy and Practice

The research findings yield several actionable implications for educational administrators and policymakers. First, the demonstrated success of Dapodik-SPMB integration in Bojonegoro provides empirical justification for expanding similar integration initiatives to other districts in Indonesia and potentially to other developing countries facing comparable administrative challenges. The 85.94% verification speed achievement and 82.96% data accuracy rates represent substantial improvements over manual systems, suggesting that districts continuing to rely on non-integrated processes are forgoing significant efficiency gains and accuracy enhancements. Policymakers should prioritize investment in integration infrastructure, recognizing that the benefits extend beyond mere administrative convenience to encompass educational equity objectives through improved transparency and reduced opportunities for manipulation—concerns highlighted by Mahendra (2022) and Churiyah (2022) in their evaluations of Indonesian PPDB systems.

Second, the identification of technical infrastructure vulnerabilities, particularly system downtime and technical support inadequacies, suggests that integration success requires sustained investment in hardware, network reliability, and helpdesk capacity, not merely initial system deployment. The negative gaps observed in Items 20, 22, and 23 indicate that approximately 10-15% of potential performance remains unrealized due to infrastructure limitations. Educational authorities should establish dedicated technical support teams with rapid response capabilities, implement redundant systems to minimize downtime impacts, and ensure robust internet connectivity—particularly in rural areas where infrastructure deficits are most acute. This recommendation aligns with broader digital transformation principles articulated by Han et al. (2022) and Zhang et al. (2021), which emphasize infrastructure as the foundation for successful technology adoption.

Third, the data-document mismatch challenges revealed by Item 43 underscore the necessity of strengthening data governance protocols, particularly around synchronization schedules and master data maintenance. Schools should implement mandatory pre-SPMB Dapodik audits to identify and correct outdated information before admission cycles commence. The Ministry of Education should consider establishing real-time or near-real-time synchronization capabilities rather than semester-based updates, particularly for data elements critical to admissions such as student addresses and family documentation. Additionally, operator training programs should emphasize data quality management competencies alongside technical system operation skills, recognizing that human factors significantly influence accuracy outcomes. This recommendation resonates with research by Ferdias et al. (2022) and Ismail et al. (2022) on operator capacity building as a determinant of Dapodik system effectiveness.

Fourth, the differential achievement levels between verification speed and data accuracy suggest that future integration initiatives should employ balanced scorecards that monitor multiple performance dimensions rather than assuming that technological implementation uniformly improves all outcomes. Educational administrators should establish ongoing monitoring systems that track not only process efficiency metrics but also data quality indicators, enabling early detection of emerging problems such as synchronization failures or master data degradation. This continuous improvement approach, grounded in the goal-oriented evaluation model employed in this study, ensures that integration benefits are sustained over time rather than dissipating as initial implementation enthusiasm wanes.

Limitations and Future Research Directions

While this study provides valuable insights into Dapodik-SPMB integration effectiveness, several limitations qualify the findings and suggest avenues for future research. First, the cross-sectional design, with data collection occurring during a single admission cycle (2025/2026), precludes assessment of integration effectiveness across multiple years or examination of longitudinal trends in system performance. Future research should employ longitudinal designs tracking the same schools over multiple admission cycles to determine whether observed achievements represent stable equilibria or transient states subject to degradation or improvement over time. Such longitudinal studies could also examine learning curve effects, determining whether operator experience and institutional familiarity with integrated systems enhance performance beyond initial implementation levels.

Second, the purposive sampling strategy, while appropriate for ensuring respondent expertise, limits generalizability beyond Bojonegoro Regency. The 60 participants, though representative of the district's educational administration stakeholders, may not reflect conditions in districts with different socioeconomic profiles, infrastructure capabilities, or administrative cultures. Future research should replicate this evaluation across multiple districts with varying characteristics—urban versus rural, resource-rich versus resource-poor, technologically advanced versus technologically developing—to identify contextual factors moderating integration effectiveness. Comparative studies could illuminate best practices from high-performing districts and diagnose barriers in struggling implementations, enabling more nuanced policy guidance.

Third, the study's reliance on self-reported perceptions through Likert-scale questionnaires, while complemented by documentation review, introduces potential response bias. Respondents invested in integration success—particularly operators and administrators whose performance may be evaluated based on system outcomes—might unconsciously inflate achievement assessments. Although the documentation checklist provided some objective verification, future research should incorporate additional objective performance measures such as actual processing times extracted from system logs, error rates calculated from database audits, and comparison groups from non-integrated districts to establish true counterfactual baselines. Mixed-methods designs incorporating qualitative interviews could also capture nuanced perspectives on integration challenges and successes not fully accessible through quantitative instruments.

Fourth, the study did not examine differential impacts across stakeholder groups (Dapodik operators, school SPMB committees, district administrators) or school characteristics (size, location, previous technological capacity). Disaggregated analyses might reveal that integration benefits accrue unevenly, with some schools or personnel experiencing greater advantages than others. Future research should investigate whether implementation success correlates with factors such as operator digital literacy, school leadership support, prior technology exposure, or student population size. Understanding these moderating variables would enable more targeted support interventions, directing resources toward schools or stakeholders most likely to struggle with integration.

Fifth, the goal-oriented evaluation framework, while appropriate for assessing objective achievement, does not capture unintended consequences—both positive and negative—of integration implementation. For instance, has integration altered power dynamics between central education

offices and individual schools, affecting professional autonomy? Has automation reduced opportunities for corruption but also diminished operator job satisfaction or professional identity? Have efficiency gains enabled administrators to redirect time toward instructional leadership, or have new technical demands simply replaced old bureaucratic ones? Future research employing broader evaluation models such as Stufflebeam's CIPP (Context, Input, Process, Product) framework or Kirkpatrick's evaluation model could capture these multidimensional impacts, providing more holistic assessments of integration success.

Finally, the study focused exclusively on administrative efficiency and data accuracy without examining ultimate outcomes such as student learning, educational equity realization, or stakeholder satisfaction with admission processes. While the findings demonstrate that integration achieves its proximate objectives, the causal chain connecting these achievements to ultimate educational goals remains unexamined. Do faster, more accurate verification processes actually enhance educational equity by preventing discrimination and ensuring fair admission? Do transparency improvements increase public trust in educational institutions? Future research should trace integration impacts through to distal outcomes, employing rigorous quasi-experimental designs or, where feasible, randomized controlled trials to establish causal relationships between technological interventions and substantive educational improvements.

Synthesis and Conceptual Contributions

This study makes several conceptual contributions to scholarship on educational technology implementation in developing country contexts. First, it demonstrates that goal-oriented evaluation frameworks, often applied to curriculum or instructional interventions, can be productively adapted to assess administrative technology implementations, providing structured, objective evidence of policy effectiveness. The operationalization of abstract policy goals—"enhancing efficiency" and "improving accuracy"—into measurable indicators with clear achievement criteria offers a replicable model for evaluating similar interventions elsewhere. Second, the finding that structural integration (process speed) outperforms semantic integration (data quality) even within successful implementations suggests that technology adoption theories must account for differential integration dimensions, each requiring distinct implementation strategies and timelines. Technological infrastructure improvements may yield rapid efficiency gains, but data quality enhancements demand concurrent investments in human capacity, governance protocols, and organizational culture—insights with broad applicability beyond the Indonesian educational context.

Third, the study contributes to understanding how digital transformation can operationalize educational equity policies in resource-constrained settings. By demonstrating that integrated systems can effectively verify domicile compliance for zoning-based admissions while maintaining high accuracy, the research provides empirical support for technology as an equity tool rather than merely an efficiency mechanism. However, the persistent infrastructure vulnerabilities and data governance challenges identified underscore that technology is necessary but insufficient for equity realization; social and institutional factors remain critical determinants of whether technological capabilities translate into equitable outcomes. This nuanced perspective enriches ongoing debates about technology's role in educational development, avoiding both technological determinism (the assumption that technology automatically improves outcomes) and technological skepticism (the dismissal of technology as irrelevant to equity concerns).

Finally, the study illustrates the value of context-sensitive evaluation research. By conducting detailed assessment within a specific district rather than pursuing large-scale national studies or purely theoretical analyses, the research generates findings that are simultaneously rigorously grounded in empirical evidence and meaningfully connected to practical implementation realities. The identification of specific technical barriers (system downtime), data quality challenges (document mismatches), and achievement patterns (NISN accuracy exceeding domicile verification) provides actionable intelligence for administrators while contributing to theoretical understanding of integration dynamics. This approach models a form of engaged scholarship that bridges academic research and

practical policy improvement, demonstrating that rigorous evaluation can simultaneously advance knowledge and enhance implementation effectiveness.

In conclusion, the Dapodik-SPMB integration in Bojonegoro Regency represents a qualified success, achieving substantial progress toward policy objectives while revealing persistent challenges requiring ongoing attention. The integration has transformed new student admissions from a manual, error-prone process into a largely automated, efficient system characterized by high data quality—a transformation with implications for educational equity, administrative capacity, and public trust in educational institutions. However, the path from policy aspiration to operational success remains complex, requiring not only technological deployment but also infrastructure investment, capacity development, governance strengthening, and continuous quality monitoring. As Indonesia and other developing countries pursue digital transformation in education, the Bojonegoro experience offers both encouragement—demonstrating that substantial improvements are achievable—and caution—revealing that technology alone cannot resolve deeply rooted administrative and equity challenges without complementary institutional reforms.

CONCLUSION

This study provides empirical evidence that Dapodik integration in the New Student Admission System at state junior high schools in Bojonegoro Regency has substantially achieved its dual policy objectives of accelerating verification processes and enhancing data accuracy. The goal-oriented evaluation revealed that verification speed achieved 85.94% goal realization with a mean score of 3.44, while data accuracy attained 82.96% with a mean score of 3.32, both exceeding established achievement thresholds. These findings confirm that integrating centralized educational databases with admission systems yields measurable operational improvements, supporting digital transformation initiatives in developing country educational contexts.

The research contributes methodologically by demonstrating the applicability of goal-oriented evaluation frameworks to administrative technology implementations and theoretically by revealing that structural integration (process efficiency) outperforms semantic integration (data quality) even within successful implementations. This differential achievement pattern underscores that technological infrastructure alone cannot fully resolve data quality challenges without concurrent investments in data governance, operator capacity, and master data maintenance. Practically, the findings provide empirical justification for expanding similar integration initiatives while highlighting the necessity of sustained infrastructure investment and synchronization protocol strengthening to address persistent technical barriers and data-document mismatches.

The study's cross-sectional design and geographic specificity limit generalizability, suggesting that future research should employ longitudinal designs across multiple districts with varying socioeconomic profiles to identify contextual moderators of integration effectiveness. Additionally, investigations examining unintended consequences and tracing integration impacts through to distal educational equity outcomes would provide more holistic assessments of technology's role in educational development. Despite these limitations, the Bojonegoro experience demonstrates that digital integration represents a qualified success—achieving substantial progress while revealing that technology remains necessary but insufficient for administrative excellence without complementary institutional reforms.

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