



## Implementing the E-Rapor Application: Improving Efficiency and Accuracy in Assessment at SMPN 4 Muara Wis

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### ABSTRACT

To improve the quality, transparency, and accountability of educational services, the application of digital technology in school administration has become an important strategy. This study looks at the use of the e-Rapor application at SMPN 4 Muara Wis and how it has an impact on how effective and accurate student assessment practices are. The e-Rapor system, developed by the Ministry of Education of the Republic of Indonesia, allows teachers to manage assessment data digitally, create report cards, and synchronize student performance records with the national education database (Dapodik). Direct observation of assessment workflows, in-depth interviews with teachers and school administrators, and analysis of institutional documents are all methods used to collect data using qualitative descriptive methodologies. The results showed that the e-Rapor application significantly reduced the time spent creating reports, reduced calculation errors, and improved the consistency of student evaluation. In addition, the system simplifies administration and improves access to data-driven insights, increasing teacher productivity. However, this study found some problems with adoption. These include educators who do not have enough digital literacy, infrastructure issues such as not having internet access, and early resistance to change. Despite these issues, the results show that the e-Rapor application can serve as an effective tool to improve digital assessment in schools if provided with sufficient training, technical support, and leadership commitment. This research provides practical benefits for policymakers and school leaders who seek to use technology to modernize school management systems. The research also emphasizes the importance of strategic planning to ensure a sustainable digital transformation of schools.

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## INTRODUCTION

Education systems around the world are increasingly leveraging technology to improve administration, learning, and teaching in the era of digital transformation. Student assessment and academic reporting are one of the areas that have undergone major changes. Schools typically use manual report card systems that are time-consuming, prone to human error, and often non-standard and non-transparent. Schools in remote areas or with limited resources face this problem especially. This is because they have more limited access to digital tools, which makes the assessment process even more difficult. To address this issue, Indonesia's Ministry of Education has introduced various digital platforms to help manage education data. One of them is the e-Report card, which allows teachers to enter, calculate, and create electronic report cards for their students. The app works in collaboration with Dapodik, a national education database, which ensures that data is consistent, accurate, and updated in real-time. By enabling competency mapping, automated score processing, and descriptive feedback, e-Rapor is expected to reduce the administrative burden on teachers while improving the overall reliability of assessment results. This is also in line with the government's broader efforts to digitize school operations and improve the quality of educational services. SMPN 4 Muara Wis has used e-Rapor, which is an important step towards the digital modernization of schools. The school previously faced a number of problems with manual assessments. These include inconsistent assessments, delays in the dissemination of report cards, and difficulties in tracking student progress over time. Schools use e-Rapor to improve assessment, data accuracy, and academic accountability. Although e-Rapor has potential, running it is difficult; the success of the system's adoption is hampered by issues such as educators who do not have enough digital literacy, inadequate infrastructure, and resistance to change. Therefore, further investigation is needed to understand how e-Rapor affects assessment practices, the challenges that arise during implementation, and the methods that can be used to address those challenges. This study seeks to evaluate the impact of the e-Rapor application on the efficiency and accuracy of assessment practices at SMPN 4 Muara Wis. It looks at how the system is integrated into daily teaching routines, how it affects teacher productivity, and whether it can help data-driven educational decision-making. To gain an in-depth understanding of the stakeholders directly involved in the assessment process, the study uses a qualitative approach, which uses observation, interviews, and document analysis. This research is expected to increase knowledge about the use of educational technology, especially in schools in developing countries. In addition, they provide practical advice for policymakers, school leaders, and educators on how to optimize the benefits of e-Rapor while reducing the constraints associated with its implementation.

## LITERATURE REVIEW

### Digital Transformation in Education

In the school environment, the use of digital technology improves the learning process and management efficiency. UNESCO (2020) states that digital

resources play an important role in promoting equitable and quality education. The existence of network technology—also known as the Internet—that connects millions of computers has enabled the rapid development of today's information technology. In addition, information technology has become a universal technology, which means it can be used in various aspects of human life, including education. The field of education has developed rapidly compared to previous decades. Modern education has moved towards education supported by information technology. The reason is, information technology will become a teaching tool in all schools in the coming years because of its very helpful nature in learning.

Digital transformation in education is an inevitable change in this modern era. According to Sanjaya (2018), digital transformation refers to the integration of digital technology in all aspects of education, from the teaching and learning process to school administration. With the application of technology, schools are able to improve operational efficiency and provide a better learning experience for students. Data from Arifin and Junaidi (2020) show that 78% of schools that implement digital technology in learning have experienced an increase in student participation. This shows that technology not only simplifies the learning process but also attracts students to be more actively involved in learning.

One real-world example of digital transformation in education is the use of the E-Rapor application. The app not only serves as a tool for recording grades, but also as a platform for the analysis of students' academic data. With E-Rapor, teachers can quickly access information about student development and provide more timely feedback. Mardiana and Sari (2020) noted that the use of technology in assessment can reduce human error and improve assessment accuracy. This is especially important, especially in the context of an increasingly competitive education, where the accuracy of assessments can affect students' futures.

In addition, digital transformation also provides opportunities for schools to adapt to changing societal needs. Purnamasari (2021) explained that distance learning triggered by the COVID-19 pandemic has accelerated the adoption of technology in education. Schools that were previously hesitant to apply technology are now forced to do so to ensure the continuity of education. This shows that digital transformation is not just a choice, but also a necessity to survive in unforeseen situations.

However, challenges remain in this transformation process. Kurniawan and Widiastuti (2019) stated that not all educators are ready to adapt to new technology. Many teachers still find it difficult to use digital applications, which can hinder the learning process. Therefore, training and technical support are essential to ensure that all educators can make the most of technology. Finally, digital transformation in education must be balanced with the development of relevant curriculum. Gordon and Roberts (2021) emphasize that the curriculum should be designed to facilitate technology-based learning, so that students not only learn about technology, but also how to use it to solve real problems. Thus,

digital transformation can create a more dynamic and innovative learning environment, which will ultimately improve the overall quality of education.

### **The Role of e-Rapor**

The Indonesian Ministry of Education created an application called e-Rapor that allows digital-based student assessment and reporting. This is synchronized with Dapodik (Basic Education Data) and supports the Independent Curriculum and the 2013 Curriculum (Ministry of Education and Culture, 2023). E-Rapor is a web-based application released by the Ministry of Education and Culture in 2017. This application is installed on the computer that will be used as the main server. Everyone who has an account for this application can access it through a computer, laptop, or mobile phone connected to the internet (Monalisa, 2021). According to Hendriyanto (2023), this application allows teachers to plan, process, and report on their students' learning outcomes. It is intended for all levels in all educational pathways, both formal and informal, and uses the Independent Curriculum.

According to Nasution (2019), e-Rapor provides convenience in collecting and processing value data, which was previously done manually. With this system, teachers can save time and reduce the possibility of errors in recording grades. Data shows that the use of e-Rapor can reduce the time required to compile a score report by up to 40% compared to traditional methods (Wibowo & Yulianto, 2020).

In its implementation, e-Rapor also plays an important role in providing faster feedback to students and parents. This is especially important because timely feedback can help students understand areas where they need to improve. Prawito and Fitriani (2021) noted that in several elementary schools that have implemented e-Rapor, parents can access their children's grades in real-time, so that they can be more actively involved in their children's learning process. Thus, e-Rapor not only serves as an assessment tool but also as a communication bridge between schools and parents.

Furthermore, e-Rapor also contributes to increasing transparency in assessment. With a standardized system, all students are assessed based on the same criteria, thus reducing the potential for bias in assessment. This is in line with the findings of Harahap and Ningsih (2021), who show that the use of e-Rapor can reduce injustice in assessment, because all data and assessment processes are recorded and can be accounted for. This transparency is essential to building trust between students, parents, and the school.

Statistics from the study show that 75% of teachers who use e-Rapor feel that this system has improved the accuracy of their assessments (Clark & Schwab, 2019). This shows that e-Rapor not only affects the efficiency of the assessment process but also the quality of the assessment itself. With more accurate data, schools can make better decisions regarding curriculum and student development. For example, if data shows that many students are struggling in a particular subject, schools can take proactive steps to adjust teaching methods or provide additional support. The implementation of e-Rapor is also in line with global trends in education that are increasingly leading to digitalization. Yusuf (2021) emphasized that digital assessment

systems such as e-Rapor are an important step towards more modern and responsive education. By adopting technology in assessment, schools not only improve efficiency and accuracy but also prepare students to face challenges in an increasingly digital world. Therefore, the role of e-Rapor in education is very significant and must continue to be encouraged to improve the quality of education in Indonesia.

### **Benefits of e-Report Card**

Research shows that e-Rapor improves data accuracy, minimizes administrative burden, and provides transparency to stakeholders (Putri & Nugroho, 2022). Some of the advantages of this system are automatic data retrieval, which eliminates the need for manual input; a good data backup system; and the ability to support a variety of printing features, such as mid-semester, end-of-semester report cards, and even competency exam certificates. It also allows schools to produce standardized reports according to government requirements.

One of the main benefits of e-Rapor is increased efficiency in the assessment process. According to Dewi (2020), the use of digital systems for assessment allows teachers to save time in processing grade data and reports. With e-Rapor, value input can be done directly and automatically, reducing the possibility of human error that often occurs in manual data processing. This is in line with the findings of Agustin and Putra (2021) who show that e-Rapor can speed up the assessment management process by up to 40%, so that the available time can be allocated for more productive learning activities.

In addition to efficiency, e-Rapor also improves accuracy in assessment. With an integrated system, every value entered can be directly checked and compared against the predetermined assessment standards. Kurniawan (2020) explained that e-Rapor allows real-time data validation, so that input errors can be minimized. This is especially important in the context of education, where the accuracy of assessments has a great impact on student development. For example, if a student gets a lower grade due to an input error, this can negatively impact that student's motivation and confidence.

Another benefit of the implementation of e-Rapor is increased transparency in the assessment process. With e-Rapor, parents can easily access their child's grade report online. Sutopo (2021) stated that this transparency not only improves communication between schools and parents but also encourages accountability from schools. Parents can see their child's academic progress firsthand and provide the necessary support. It also creates a more open and collaborative learning environment, where parents and teachers can work together to support student progress.

Furthermore, e-Rapor also provides benefits in terms of data analysis. With data stored in digital format, schools can easily analyze overall student performance. Harahap and Nurdin (2019) emphasized that this data analysis can help schools in identifying trends and patterns in learning. For example, if many students are struggling in a particular subject, the school can take the necessary steps to improve teaching methods or provide additional support for

students. This is not only beneficial for troubled students, but it can also improve the overall quality of education.

Finally, e-Rapor also supports professional development for teachers. With accurate and easily accessible data, teachers can more easily evaluate the effectiveness of their teaching methods. Rizki and Indra (2020) noted that teachers can use data from e-Rapor to design better learning strategies that are more in line with students' needs. This creates a positive feedback cycle, where teachers can continuously improve their teaching practices based on the results obtained from more accurate and efficient assessments.

With the various benefits offered, the implementation of e-Rapor in schools is not just a technological trend, but also a strategic step to improve the quality of education in this digital era.

## **METHODOLOGY**

The implementation process, benefits, and problems of the e-Rapor application at SMPN 4 Muara Wis are studied through a qualitative descriptive method. Qualitative methods are used to describe the depth and complexity of participants' experiences as well as contextual elements that influence the application of digital assessment instruments in real-world school settings.

### **Research Design**

Case studies allow for an in-depth investigation of the use of e-Rapor in a specific school environment. This method allows researchers to investigate the system adoption process, how it impacts various stakeholders, and what components support or hinder its effectiveness.

### **Setting and Research Participants**

This research was conducted at SMPN 4 Muara Wis, a public junior high school located in Lebak Mantan Village, Muara Wis Kutai Krtanegara District, East Kalimantan, Indonesia. The school has about 111 students and 10 teachers, and recently, as part of a national digital transformation initiative, used the e-Rapor system. Purposive sampling was used to select participants, which mainly consisted of people who were directly involved in the implementation and use of the e-Rapor system. These include:

- a. 11 subject teachers (from core and elective disciplines)
- b. 2 administrative staff (involved in student records and school reporting)
- c. 1 principal (as initiator and project leader)
- d. 1 IT support staff (responsible for technical assistance and training)
- e. All participants had at least one semester of experience using the e-Rapor system at the time of the study.

### **Data Collection Techniques**

Three main data collection techniques were used to triangulate the findings:

#### **In-Depth Interviews**

All participants underwent a semi-structured interview. The interview is guided by a series of flexible open-ended questions that aim to discuss the user experience, the existing support structures, and the advantages and disadvantages. Each interview is recorded (with consent) and transcribed verbatim for analysis, and lasts between 30 and 60 minutes.

### **Participant Observation**

The researcher tracked the teacher during the e-Report training session, class entry time, and the day of making the report card. Collaborative problem-solving behavior, real-time challenges, and teacher interaction with the platform were the focus of observation.

### **Document Analysis**

Relevant documents are reviewed to support interview and observation data. These include:

1. e-Rapor training materials
2. School implementation schedule
3. Sample report card before and after the adoption of e-Report Card
4. School meeting minutes discuss digital reporting
5. Evaluation feedback form from teachers

### **Data Analysis Procedure**

The data analysis follows a thematic analysis approach (Braun & Clarke, 2006), which involves the following steps:

- a. Introduction to Data: Read and re-read interview transcripts and field notes to immerse yourself in the data.
- b. Initial Coding: Manually coding meaningful segments and organizing them into key categories (e.g., "time saving", "system difficulty", "teacher attitude").
- c. Generate Themes: Break down code into broader analytical themes such as "efficiency," "accuracy," "implementation challenges," and "teacher development."
- d. Review and Refine Themes: Cross-check themes with observational data and documents to ensure consistency and credibility.
- e. Interpreting Results: Conclude how e-Rapor affects assessment practices and identify patterns across participants.
- f. To increase trust, techniques such as member checking (returning summaries to participants for validation) and triangulation across various data sources are used.

## **RESULTS AND DISCUSSION**

In this section, you must provide us with each step taken to accomplish your studies. You must not put too much of the result of descriptive statistics here; on the other hand, it should be summarized in an easier-to-read table or graphs. You must not forget the numbers for every table and chart presented in your paper.

### **1. Efficiency in Assessment Processing**

e-Rapor has improved the efficiency of assessment tasks. According to observations and teacher interviews before the e-Rapor, the report card process takes three to four weeks, including manual data input, score calculation, commentary preparation, and document formatting. This process is shortened to about five to seven working days after the use of the e-Rapor.

The teacher cited the following features as essential for this efficiency improvement:

- a. Automatic tabulation of scores based on weighted criteria and grading

- b. The pre-established report format is in line with the national curriculum
- c. Access real-time data across subjects and grades
- d. Batch input capability, allowing multiple student grades to be entered simultaneously
- e. This efficiency allows teachers to shift more of their time and focus to instructional planning, remedial strategies, and classroom engagement.

## **2. Data Accuracy and Integrity**

The digital nature of e-Report significantly reduces human error and improves the accuracy of student records. According to interviews, previous teachers often made mistakes in the calculation of final grades, which often required manual corrections from school administrators. Automated calculations with e-Rapor ensure consistency across fields of study and adherence to assessment rubrics. Additionally, integration with Dapodik's system ensures that student data, including subject registration, demographics, and attendance, has been populated and synced from the start. This avoids inconsistencies between the official government database and class records. In addition, administrators provide reports on improved auditability. It is easy to obtain data from previous years and can be used to monitor student performance around the clock, educational interventions, and academic forecasts.

## **3. Impact on Teacher Productivity and Professionalism**

The adoption of e-Rapor has increased teacher productivity and morale. More than 80% of participating teachers said that e-Rapor made their assignments easier and made them more confident in their accurate assessments. Some of the main effects include:

- a. Reduce duplicate documents and tasks.
- b. Increased collaboration between subject teachers through a shared digital platform.
- c. Increased transparency in reporting to parents and guardians
- d. Capacity building through structured training and peer mentoring programs.
- e. In addition, teachers develop new competencies in digital literacy, database management, and system-based assessment strategies, which align with professional development standards for 21st-century educators.

## **4. Challenges in Implementation**

Despite the benefits, schools faced several obstacles during the early stages of implementation:

- a. Limited infrastructure: Inconsistent internet connectivity and lack of adequate school-owned computers hinder simultaneous access for multiple users.
- b. Digital literacy gap: Some senior teachers struggle with basic digital operations and need additional support.
- c. Resistance to change: Initial skepticism arises, especially around trust in automated assessments and concerns about data loss.

- d. Technical support constraints: The school has only one IT support staff, which creates delays in troubleshooting during periods of high demand, such as end-of-semester evaluations.
- e. These challenges highlight the need for a more comprehensive digital readiness assessment before full-scale adoption.

### **5. Comparative Analysis with Other Studies**

A previous study by Putri & Nugroho (2022) found that e-Rapor improved the clarity of assessment and administrative effectiveness in Indonesian schools. Similarly, Setiawan (2021) emphasizes that leadership and infrastructure are essential for successful edtech adoption, reinforcing the idea that technology alone is not enough without the support of a good ecosystem. Summary of Findings Key Findings of the Theme Efficiency reduces report generation time from 3–4 weeks to 5–7 days. Accuracy eliminates manual calculation errors; real-time data synchronization. Impact of Teachers: Increased productivity, increased digital literacy. Infrastructure challenges, training gaps, and resistance to Training changes. Mentoring solutions, phased implementation.

The e-Rapor application at SMPN 4 Muara Wis shows a major change in the academic assessment process compared to the previous one, which was done manually. This study shows that the use of e-Rapor not only increases teacher productivity but also makes the management and dissemination of student learning outcome data more accurate.

First, teachers at SMPN 4 Muara Wis said that the input of grades, printing, and the dissemination of learning outcome reports became faster and more systematic. Before using e-Rapor, teachers must recap grades manually, which is often time-consuming and prone to administrative errors. The system can automatically process grades after implementation because it has been integrated with relevant student data, lesson schedules, and basic curriculum competencies.

Second, the e-Rapor application increases transparency and accountability. To reduce cheating or misjudgment, each value input process can be traced back. In addition, school principals and supervisors can monitor online how each teacher completes the report card filling. Finally, the use of e-Rapor helps teachers avoid errors in the calculation of final grades because it allows for more accurate assessments. The system is designed to achieve Calculation of values based on predetermined weights, which minimizes the possibility of subjective bias or technical errors. This strongly supports the principle of fair and unbiased judgment.

However, there are several problems when using e-Rapor at SMPN 4 Muara Wis.. One of them is the limited infrastructure and digital literacy of teachers. Some teachers, especially the elderly, face difficulties in running the e-Rapor system in the most efficient way. In addition, the unstable condition of the internet network in remote places such as Muara Wis also makes it difficult to synchronize and update data. To address this issue, the school provides regular training and technical assistance. The success of using digital systems such as e-Rapor depends on improving teachers' abilities in information

technology. Overall, the findings of this study are in line with previous studies (such as Wulandari, 2022; Nugroho & Saputra, 2021) who found that digitizing the assessment system can help improve the quality of academic services in schools. E-Rapor at SMPN 4 Muara Wis modernizes the assessment system and improves the work culture based on data and technology.

## CONCLUSIONS AND RECOMMENDATIONS

Some responsive strategies:

- a. Scheduled training workshops: Periodic internal capacity building sessions tailored for beginners and advanced users.
- b. Peer mentoring program: Younger, tech-savvy teachers are designated as "digital champions" to help others.
- c. Offline data entry mechanism: Teachers are trained to use the offline version of e-Rapor during internet outages.
- d. Phased rollout: Schools initially pilot the system at a single grade level before full school implementation, allowing for a smoother transition.
- e. The principal's collaborative leadership approach also plays a crucial role in ensuring stakeholder support and fostering a culture of digital innovation.

## FURTHER STUDY

Although this study shows that using e-Rapor at SMPN 4 Muara Wis improves the efficiency and accuracy of assessment, there are still many aspects that need to be further researched in the follow-up study. Evaluation of the Impact on Student Learning Outcomes: This study focuses on the administrative and technical aspects of the e-Rapor system, but it is important to further examine how the use of e-Rapor directly and indirectly affects students' learning motivation, discipline, and academic achievement. Do students become more responsible for their learning process if grades become clear and parents have access to learning progress? Integration of e-Rapor with Other School Management Information Systems (SIMS): e-Rapor can be integrated with more SIMS systems, such as teacher evaluation systems, student attendance systems, and online learning systems. Follow-up studies can investigate how this integration can help school management make faster and more informed decisions.

Technology and Digital Infrastructure Readiness Advanced studies can focus more on analyzing the readiness of digital infrastructure, such as internet networks, hardware, and the digital literacy of teachers and education personnel. This research can be used to develop a digital readiness model that can be used as a reference for the implementation of e-Rapor in other schools, especially those with similar limitations.

Evaluation of Teacher Training and Mentoring: The success of the use of e-Rapor is highly dependent on the ability of teachers to use the system. Studies should be conducted to find out how effective the training provided is, regardless of the method used, the duration and the sustainability of the mentoring. Is training based on hands-on practice more effective than training based on theory? How much influence does the school's ICT team help?

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