Effectiveness of E-Rapor Implementation: Literature Review

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Abstract


Kata kunci: E-Rapor, Kualitas Pendidikan, Penilaian, SLR

Keywords: E-Rapor, Quality of Education, Assessment, SLR

1. INTRODUCTION

In the era of globalization, technological advancements have brought various conveniences to human life (Naibaho, 2017; Virtue, 2020). However, humans are never satisfied with what they have. Therefore, the technology that is deemed highly beneficial still needs enhancement to meet human needs (Neelakandan et al., 2020; Shute & Rahimi, 2017; Srivastav et al., 2021). Technological development is not only embraced and enjoyed by the business and government sectors but has also permeated the realm of education due to the crucial integration of information in supporting the creation of competitive future generations (Ali et al., 2023; Benbunan-Fich, 2001). Technology can assist in various ways, such as problem-solving and facilitating activities efficiently and more quickly (Sarmiento-Márquez et al., 2023; Terrin & Triventi, 2023). The rapid advancement of information system technology has led many institutions to employ technology for data management. The
emergence of technologies such as websites, e-learning (Jatnika et al., 2018), and various social media platforms have transformed the educational delivery paradigm and patterns (Jatnika et al., 2018; Srivastav et al., 2021).

In the present times, educational institutions must be capable of offering the latest teaching methods in the changing times. Additionally, educational institutions must provide swift and up-to-date educational services and information (Dabney et al., 2023; Moravec et al., 2015). One crucial piece of information in the realm of education, especially within schools, is student grades. Accessibility to valuable information for each student represents a form of school transparency (Reeve et al., 2020; Shute & Rahimi, 2017). Researchers have developed various information systems and applications to manage educational institutions, particularly schools. An example of an information system used in education is the Basic Education Data (Dapodik) system from the Ministry of Education, Culture, Research, and Technology (Kemendikbud). In addition to Dapodik, the E-Rapor (Electronic Report) information system is also utilized in all schools to assist teachers in inputting and evaluating student grades, as well as generating reports.

The Ministry of Education and Culture has officially released the E-Rapor application for elementary, middle, and high schools. The E-Rapor system simplifies the process for teachers to collect and evaluate student learning outcomes (Agustini et al., 2020; Febriyanto et al., 2020). According to previous study a report summarizes student progress and development over a semester, encompassing information on the attainment of specified competencies within the curriculum (Kunandar, 2014). Reports are created as the school's responsibility to parents/guardians, the school committee, the community, and other relevant institutions, serving as a communication and collaboration tool beneficial for student progress and school development (Wirasasmiati & Uska, 2018; Yaqin, 2021). Online E-Rapor securely stores data and relieves students and teachers of concerns. The online reporting information system involves four users/actors: administrators, teachers, students, and parents (Agustini et al., 2020; Nungu et al., 2023). Each user has distinct needs and limitations based on the system interface and its functional description and limitations. The process of assessing student-learning outcomes, whether by teachers or educational units, becomes more organized, precise, accurate, and swift when supported by computer applications.

The e-Rapor program is a web-based software application for generating competency achievement reports for students based on the educational unit’s level developed by each school (Supriyono et al., 2019; Tuloli et al., 2022; Wirasasmiati & Uska, 2018). The Electronic Report (E-Rapor) is the outcome of evaluating the educational process through planning, assessment, and reporting of student learning outcomes by subject teachers following established assessment guidelines and standards (Azhar Juliantri et al., 2017; Manurung & Setyadi, 2022). Despite the assistance that E-Rapor provides to teachers in compiling student grade reports, usability issues still affect its use. Users often need help with knowledge planning, skills, knowledge assessment, student skills menus, and the system's security. Teachers also require operator assistance for the inputting and assessment, impacting the time required to create the final learning outcome report.

Furthermore, each existing literature review has strengths and weaknesses, with challenges and constraints tailored to the location and research subject (Jaffar & Sabandi, 2019; Manurung & Setyadi, 2022). Therefore, action is required to ensure that E-Rapor is effectively accepted and utilized by users. Numerous solutions can be offered and implemented to enhance the effectiveness of the E-Rapor application in educational institutions, thereby supporting the performance of educators and educational units in schools. The novelty of this research focus of this literature review underscores five research questions to be thoroughly examined, encompassing the implementation of E-Rapor, the positive and negative impacts of E-Rapor utilization, the effectiveness of E-Rapor in
enhancing the education evaluation process, the role of E-Rapor in decision-making support, and the variation in student learning outcomes when the E-Rapor application system is compared to traditional or manual assessment methods.

2. METHODS

This study used the literature review method as the primary technique. A literature review summarizes theory, research results, and other studies to formulate the problem being researched (Breslin & Gatrell, 2023; Cropanzano, 2009). The data used in this study are secondary, namely data obtained from the results of research conducted by previous researchers. Data from various sources are combined into one document to solve existing problems. Furthermore, literature reviews comprehensively assess the existing literature on methodological practices (Aguinis et al., 2023; Hudha et al., 2023). These reviews, formally or informally, delve into methodological issues, synthesize the key findings from the literature, and subsequently offer recommendations to enhance these practices. The significance of methodological literature reviews is underscored by three primary contributions they make to the academic landscape. Firstly, they serve as invaluable resources for substantive researchers, aiding them in refining and expanding their methodological toolkit (Breslin & Gatrell, 2023; Wright, 2016). Secondly, by delineating the optimal approaches and "best practices," these reviews play a pivotal role in mitigating concerns related to questionable research practices (Butler et al., 2017). Thirdly, Methodological literature reviews are crucial in pinpointing knowledge deficiency and research requisites. This encompasses advancements in methodology and novel substantive insights from improved methodological approaches (Aguinis et al., 2023; Kunisch et al., 2018).

This article was compiled through a systematic review of various scientific literature and journals from the Google Scholar database. Publish or Perish software assistance facilitated this process on May 28, 2023. Data collection was carried out carefully, relying on high-quality journal sources. The keyword "E-Rapor" was entered using the advanced search feature, resulting in an initial pool of 115 articles. To filter the selection, several filters (such as minimal cites, documents assessed for eligibility, and documents excluded due to relevance) were applied, as shown in Figure 1.

![Data Identification Graph](image_url)
Base on Figure 1, as a result six articles were left in the final stage of the selection process after a rigorous screening process. The timeframe selected for this investigation covers the period from 2010 to the end of 2022. However, this selection journey still needs to be completed. The authors broadened their search to include a broader range of data sources from both national and international journals. This extended search includes keywords such as "E-Rapor," "Student progress reports," and "Online reports." As a result, this additional search resulted in seven more articles explicitly exploring the use of E-Rapor report cards. As a result, the cumulative total of articles subject to author review reached 13.

3. RESULTS AND DISCUSSION

Results
Publication Trends

The number of article publication documents regarding implementing the E-Rapor application obtained from high-quality journal database sources is 13 articles. The results of this growing literature are tabulated in Figure 2. The year range set by the authors is from 2010-2022.

Figure 2. Visualization of E-Rapor Research Development

Figure 2 shows that studies on E-Report began to be intensively carried out at the beginning of 2016. The highest number of published articles was in 2021, with four documents (Ambabunga & Sampetoding, 2021; Diniputri & Suhendi, 2021; Hikmah et al., 2021; Yaqin, 2021), the second highest number being two documents in 2019, 2020 and 2022 with two documents. In 2019 (Jaffar & Sabandi, 2019; Supriyono et al., 2019) in 2020 (Agustini et al., 2020; Febriyanto et al., 2020) in 2022 (Manurung & Setyadi, 2022; Tuloli et al., 2022). Articles discussing the effectiveness of using the E-Rapor card application in schools began to be intensively carried out in 2016, 2017, and 2018, namely, one document (Azhar Juliantri et al., 2017; Hadi Prasetijo et al., 2016; Wirasasmiata & Uska, 2018). Overall, the trend has fluctuated from 2010 to 2022.

Benefits of using E-Rapor Application

Each article describes the advantages and benefits of the results of each research. Table 2 and Table 3 describe the results of the 13 articles studied. Table 2 explains the literature from 2020-2022. Previous study focuses on risk management in developing and operating E-Rapor applications (Manurung & Setyadi, 2022). Risk management includes a
series of strategic steps to ensure the success and security of the E-Rapor application, including identification and analysis of risks that may arise during the development phase and risks related to application operations. Technical risks, data security, application performance, and system availability are examples of risk management risks. In addition, risk management and management E-Rapor ensures that the E-Rapor application remains safe and can be used properly (Agustini et al., 2020; Hikmah et al., 2021). Previous study aim to explain the results of the evaluation conducted regarding the extent to which this E-Rapor system can be used quickly and effectively by its users, namely teachers, school administrators, or people involved in managing academic data, including factors that influence teacher acceptance (Tuloli et al., 2022). Towards implementing E-Rapor applications. Previous study explains implementing an E-Rapor system using the Moodle platform to monitor children's development at the PAUD level (Diniputri & Suhendi, 2021). The Moodle platform is an open-source Learning Management System that organizes courses, training, and learning. This platform is frequently used in various educational institutions, such as schools, colleges, and training institutes, to efficiently provide distance learning, online training, and course management.

Using the E-Rapor application, teachers and school employees can send and monitor student grades electronically. The E-Rapor application allows schools to continue assessing and reporting student grades without compromising the quality of their services. In addition, this application allows parents and students to access their grades online, reducing delays in reporting grades. Furthermore, the use of this e-Rapor application can be supported by a website (Febriyanto et al., 2020; Yaqin, 2021). This innovative website allows educators and schools to improve the efficiency and quality of the student assessment and reporting process. This website offers a digital platform that allows input, management, and access to assessment information related to E-Rapor. By using the platform in this way, educators can enter student grades into the system, save assessment records, and delete student grade data. For more details, see Table 2.

**Table 2. Summary Table 2020-2023**

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<tr>
<th>No</th>
<th>Author and Title</th>
<th>Year</th>
<th>Core Discussions</th>
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<tbody>
<tr>
<td>1.</td>
<td>(Manurung &amp; Setyadi, 2022) Title: E-Rapor Card Application Risk Management Analysis Using Domain Plan and Organize (PO9)</td>
<td>2022</td>
<td>The objectives are enhancing the E-Rapor application's quality and lowering the possibility of data and input errors. The study's conclusions include data security threats, data entry mistakes, accounts that have been forgotten, and the possibility of a virus infection on the device. The suggested action recommendations include enhancing the security of the E-Rapor application, providing funding for antivirus software, and providing training for educators.</td>
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<td>2.</td>
<td>(Tuloli et al., 2022) Title: Measuring the Usability Level of the E-Rapor Application System Using Usability Testing and SUS Methods</td>
<td>2022</td>
<td>This article focuses on research on the usability of E-Rapor applications. This research found that the E-Rapor application operates efficiently and effectively and obtains high user satisfaction. Thus, this article highlights that the E-Rapor application performs well in the school environment where the research is conducted.</td>
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| 3. | (Diniputri & Suhendi, 2021)  
Title: Implementation of an *E-Rapor* system to find out moodle-based child development. | 2021 | This article raises the main topic regarding implementing the *E-Rapor* system using the Moodle platform, which aims to monitor the development of children at the Early Childhood Education (PAUD) level. In this article, the steps taken have been explained in detail, starting from the preliminary study stage, analysis of the problems encountered, to the presentation of the results of the User Acceptance Test. |
| 4. | (Ambabunga & Sampetoding, 2021)  
Title: Utilization of the *E-Rapor* application system to facilitate the process of inputting student grades during the COVID-19 pandemic | 2021 | This article describes how *E-Rapor* can improve the accuracy and efficiency of data processing and student assessment. Overall, the authors conclude that, despite the success of the value entry process, it is still essential to monitor the teacher's proficiency with the *E-Rapor*. Thus, for educators and school personnel to effectively use the *E-Rapor* application, they require training and support. Furthermore, it is imperative to conduct routine monitoring and evaluations to guarantee the continued effectiveness and efficiency of the *E-Rapor* in entering student grades. |
| 5. | (Yaqin, 2021)  
Title: Utilization of the Website as a Supporting Media for Online Report Card Assessment | 2021 | The use of the website as a tool to facilitate online report card assessment is covered in this article. The focus is streamlining the assessment process, boosting teacher productivity, and facilitating parent monitoring of their child's growth. Parents are introduced to online report card websites, and teachers receive computer training as part of the implementation process. Pictures showing the implementation procedures at the research sites are also included in this article. |
| 6. | (Hikmah et al., 2021)  
Title: *E-Rapor* Program Management | 2021 | This article discusses the planning and management of the *E-Rapor* card program, which includes why planning the *E-Rapor* program is important, the obstacles in running the program, as well as the steps taken to ensure the evaluation runs smoothly. The findings of this study indicate that the *E-Rapor* program is an innovation that supports the 2013 Curriculum. The challenges faced include teachers' lack of understanding of technology, slow server connections, and parental understanding. |
| 7. | (Febriyanto et al., 2020)  
Title: Planning of the Web-based *E-Rapor* Assessment | 2020 | This article discusses designing and implementing a web-based academic information system called *E-Rapor*. |
This system is used to enter and process student grade data, making it easier for teachers to make student reports and allowing parents to monitor their children's academic and non-academic developments. This document also mentions using context diagrams and prototypes in the system design process.

8. (Agustini et al., 2020) 
Title: Evaluation of the Teachers' Acceptance of E-Rapor Card Applications with the Hot-Fit Model Approach 
Year: 2020 
This article discusses the evaluation of the application of the E-Rapor Card application to teachers in junior high schools through the Hot-Fit Model approach. The focus of this article is to identify the factors that influence teachers' acceptance of the E-Rapor Card application. The article also provides concrete recommendations for improving the implementation of these applications in the school environment.

Moreover for the results of E-Rapor literature from 2016-2019 is show in Table 3.

Table 3. Summary Table 2016-2019

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<th>Year</th>
<th>Core Discussion</th>
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<tr>
<td>1.</td>
<td>(Jaffar &amp; Sabandi, 2019)</td>
<td>2019</td>
<td>The main subject of this article is how teachers can use E-Rapor effectively. According to the study's findings, employing E-Rapor cards improves system quality, information quality, service quality, user happiness, and performance, among other areas. This study shows how the application of E-Rapor in this school's setting has improved the different aspects examined, which in turn helps to raise the efficacy and efficiency of the assessment and reporting process in schools.</td>
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<td>2.</td>
<td>(Supriyono et al., 2019)</td>
<td>2019</td>
<td>To facilitate the deployment of E-Rapor, several actions must be performed. The school must first update its computer infrastructure to process student-grade data by adding server and client computers. In addition, for the E-Rapor process to function correctly, reliable and quick internet access must be enhanced. To ensure a successful implementation, educators and school personnel's proficiency with E-Rapor must also be enhanced—the security component.</td>
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<td>3.</td>
<td>(Wirasasmiata &amp; Uska, 2018)</td>
<td>2018</td>
<td>The study method involved a user-based survey with a think-aloud approach,</td>
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<td>4.</td>
<td>(Azhar Juliantri et al., 2017) Title: Web-Based Curriculum-2013 E-Rapor Card Development</td>
<td>2017</td>
<td>The usefulness and efficiency of utilizing E-Rapor to manage report card grades is this article's main topic of discussion. Furthermore, covered in this article is the 4D model's (define, design, develop, and disseminate) methodology for creating E-Rapor. The study's findings demonstrate that using web-based E-Rapor cards for assessment processing makes it easier for teachers and homeroom teachers to manage report cards and implies student abilities more clearly through numerical data and narrative descriptions.</td>
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<tr>
<td>5.</td>
<td>(Hadi Prasetijo et al., 2016) Title: Application of the waterfall model approach in the development of E-Rapor systems</td>
<td>2016</td>
<td>This article discusses the application of the Waterfall model in the development of information systems, especially in the context of making an E-Rapor system for student grade reports. This document details the stages of system development, from planning to system testing and maintenance. In addition, this article also reveals common challenges in developing an E-Rapor system and suggests solutions.</td>
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The research results of show that using E-Rapor is successful in many ways, such as performance, user satisfaction, system quality, information quality, and service quality (Jaffar & Sabandi, 2019). This study shows that using and implementing E-Rapor in schools is beneficial in various aspects. This will lead to more efficient and effective assessment and reporting in schools. To support the use of the E-Rapor application in schools, several support actions need to be taken, namely updating the school's computer infrastructure, there needs to be an increase in a stable and fast internet network, as well as increasing the knowledge and skills of teachers and school staff regarding the use of E-Rapor so that it can be implemented. The studies in the first three years discussed the development of implementing E-Rapor and the results of evaluating the implementation of E-Rapor in schools. It is documented that implementing E-Rapor in schools helps provide a better understanding of how software is used, how teachers are trained, and how technology infrastructure is managed. The main focus of the research is the evaluation of the implementation of E-Rapor, which analyzes the concrete benefits obtained from implementing E-Rapor and also identifies challenges that may arise during implementation, such as technical problems or resistance to data analysis will start with data from the people involved in this process, such as teachers, students, and parents. The results will be used to
make concise conclusions and recommendations to help schools increase the use of *E-Rapor* (Azhar Juliantri et al., 2017; Wirasasmia & Uska, 2018).

**Discussion**

This literature review article explores using the *E-Rapor* application to generate student grade reports. Throughout the article, several crucial aspects concerning using the *E-Rapor* application will be examined. Firstly, the article delves into how the implementation of *E-Rapor* is carried out based on findings from existing literature, providing insights into the practical aspects of its use. Subsequently, it investigates the positive and negative impacts of employing *E-Rapor*, drawing from a comprehensive literature review to present a balanced assessment (Breslin & Gatrell, 2023; Diniputri & Suhendi, 2021). Furthermore, the article delves into the effectiveness of *E-Rapor* in enhancing the educational evaluation process, leveraging literary analysis to offer a nuanced perspective. The study also addresses the extent to which *E-Rapor* can contribute to more precise decision-making in the context of educational quality improvement concerning findings in the existing literature. Lastly, it seeks to determine if disparities exist in the learning outcomes achieved by students when the *E-Rapor* application system is implemented as opposed to traditional or manual assessment methods, thereby providing valuable insights into the comparative educational outcomes. Each key point will be elaborated on in detail in this article, drawing from various relevant literary sources (Ambabunga & Sampetoding, 2021; Jatnika et al., 2018). By reading this article, readers are expected to understand better the utilization of the *E-Rapor* application in creating student grade reports, as well as the associated benefits and challenges.

Adopting *E-Rapor* has resulted in a notable reduction in paper consumption, minimizing the potential for typographical errors. However, a series of negative implications necessitates consideration. Financial resources are requisite for the development and sustained maintenance of the platform—the reliance on a stable internet connection. Comprehensive training for educators and parents is imperative to ensure seamless navigation and optimal utilization (Kunisch et al., 2018; Shute & Rahimi, 2017). Furthermore, safeguarding data integrity and privacy is paramount to shielding students' personal information from compromise. Despite these drawbacks, the affirmative impacts of *E-Rapor* far outweigh the adversities. Hence, *E-Rapor* remains a potent and effective tool, elevating the efficacy of educational evaluations. This, in turn, facilitates well-informed decision-making and contributes substantively to enhancing education quality, as it furnishes accurate data for facile analysis (Naibaho, 2017; Reeve et al., 2020). Moreover, it aptly supports the comprehensive training of student development and teacher performance, underscoring its pivotal role in advancing education.

Moreover, it enhances data processing efficiency, saving valuable time and teacher resources. This subsequently diminishes errors in student data processing. Additionally, *E-Rapor* contributes to increased competitiveness among schools by delivering high-quality assessments of student learning. However, this article does not delve into the negative impacts of utilizing *E-Rapor* (Shute & Rahimi, 2017; Terrin & Triventi, 2023). The specific effectiveness of *E-Rapor* in enhancing the educational evaluation process still needs to be addressed within this context. While this article focuses on the planning and design of the web-based *E-Rapor* system, it needs more data or analysis regarding its efficacy. Through the various positive impacts resulting from *E-Rapor*, the *E-Rapor* System can significantly bolster the precision of the decision-making process.

Furthermore, the *E-Rapor* application holds the potential to elevate assessment quality and streamline the creation of student assessment result reports. However, it remains vital to consistently prioritize data security and the confidentiality of student scores throughout using the E-Rapor application (Supriyono et al., 2019; Tuloli et al., 2022). The primary focus of
this application is to facilitate the preparation of assessment result reports. Overall, the E-Rapor application exhibits considerable potential to bolster the educational evaluation process and serve as a decision-making support tool. Successful implementation hinges upon maintaining data integrity, ensuring security, and fostering user competence in operating the application.

Conversely, potential negative impacts arise if an implementation needs to be improved. There needs to be more internet access and technological constraints to ensure system usage. Concerns about child data privacy and security may emerge. More reliance on technology could reduce face-to-face interactions between teachers and parents. Moreover, high implementation and maintenance costs warrant attention. The article highlights E-Rapor’s positive impact on educational evaluation’s effectiveness (Hikmah et al., 2021; Wirasasmiata & Uska, 2018). E-Rapor’s implementation enhances the evaluation process by improving essential components. However, E-Rapor remains one tool in the educational evaluation and decision-making process. Decisions should be grounded in various factors, including test results, observations, and direct interactions with children. While E-Rapor significantly bolsters evaluation, its integration requires a holistic understanding of child development.

The discussion results from these thirteen articles lead to the conclusion that E-Rapor can be utilized as a tool for periodically assessing students’ abilities. Furthermore, when implemented correctly and appropriately, E-Rapor can stimulate various ideas within the realm of education. This literature review serves as a foundation for gaining a better understanding of the usage of E-Rapor in education. It aids in discovering new methods to leverage E-Rapor for learning, understanding its positive and negative impacts during the application, and developing E-Rapor-based education through relevant theoretical frameworks and literature reviews. The study also emphasizes the enhancement of the quality of education by employing E-Rapor as a regular evaluation tool and a precise decision-making aid. However, it is essential to note that the scope of this study is confined to the implementation process of E-Rapor for enhancing educational quality. The author recommends that further research delve deeper and complement these findings by examining the comprehension of learning outcomes and educational management before and after E-Rapor implementation. Additionally, it has suggested to assess the effectiveness of E-Rapor when compared to manual assessment systems.

4. CONCLUSION

The combined findings of the reviewed articles collectively confirm the positive results of using the E-Report card application in advancing the learning process and broader educational activities. Nevertheless, the successful implementation of such systems necessitates vigilant consideration of diverse internal and external factors, which wield substantial influence over the seamless operation of the E-Rapor framework. This vigilance, in turn, facilitates the realization of manifold advantageous impacts, particularly in elevating educational assessment procedures and decision-making to enhance overall educational quality. Despite addressing four of the five primary research inquiries posited in this literature analysis, an avenue for further exploration remains open. Future studies are encouraged to delve deeper into the comparative disparities in learning outcomes and educational administration, notably investigating pre- and post-implementation disparities in student achievements attributed to the E-Rapor application. Furthermore, a comprehensive exploration of the contrasting facets between the E-Rapor system and traditional manual assessment methods holds promise in unearthing valuable insights for refining educational evaluation practices.
REFERENCES


