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Comparative Study of Processing Student Learning Results Scores using Microsoft Excel with the RDM (Digital Madrasah Report Card) Website

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Abstract: This research compares Microsoft Excel and the Madrasah Digital Report Card (RDM) in processing student grades into report cards using qualitative methods. The study evaluates the advantages and disadvantages of each platform, highlighting practicality and affordability as key elements in selecting a grade management tool. Microsoft Excel is widely recognized for its flexibility, while RDM offers practicality through web-based accessibility and superior data security. Customization and integration are crucial factors, with Excel providing high flexibility and RDM offering a structured template aligned with madrasah curriculum needs. The choice between Excel and RDM depends on specific priorities and needs. Practical recommendations are provided for madrasah educational institutions to consider their unique environment and goals, ensuring effective and efficient processing of student grades into report cards.

Keywords: Information Systems; Report Processing; Web Application; Comparative Studies; Microsoft Excel; Madrasah Digital Report.

1. Introduction

Processing student grades has a central role in improving the quality of learning, as stated by John Hattie, who noted that processing grades provides in-depth insight into student learning progress. Dylan Wiliam's opinion emphasizes that value analysis supports a dynamic response to student needs, forming a responsive learning environment. The results of the grades also provide feedback to students and parents, motivating them to improve their achievement [1], Processing student grades in the context of report cards Refers to the process of collecting, analyzing, and presenting information regarding student learning achievements during a learning period. As stated by Ken O'Connor, The processing of student grades provides feedback that supports curriculum refinement and continuous improvement in the education system [2].

Traditionally, the processing of student grades into student report cards is done manually by printing and storing physical report cards in special files. However, with advances in information technology, many schools are starting to consider using digital technology to manage and store student report cards. Still, they also have to consider several things, including applicable regulations [3]. The laws and regulations in Indonesia include the National Education System Law (UU No. 20 of 2003), which stipulates that national education is carried out based on the national education system, which is regulated through statutory regulations. Technical guidance, such as Minister of Education and Culture Regulation No. 75 of 2016 and Minister of Education and Culture Regulation No. 63 of 2014, provides direction in assessing learning outcomes by educators and education management. Meanwhile, Minister of Education and Culture Regulation No. 20 of 2014 concerning Guidelines for the Use of Information and Communication Technology in Education provides a framework for the use of technology, including processing student grades [4]. So, in this context, the use of technology that can help process student grades into report cards has two main options. One option that can be used is using the Microsoft Excel application and the RDM (Digital Madrasah Report Card) website system. However, the RDM application is basically an innovation created by the Ministry of Religion of the Republic of Indonesia, and it will be officially released in 2021 [5].

Using the Microsoft Excel application is a commonly used option and is known to many teachers and school staff. This provides flexibility in managing report card formats according to specific school needs. However, Excel has limitations when it comes to data integration and real-time collaboration. On the other hand, RDM websites have the advantage of data integration and strong partnerships but may require significant technology investments and special user training [6]. The use of the RDM website in archiving elementary school student report cards can help increase the effectiveness and efficiency of processing student grades, as proven in research by Fajriati and Munastiwi (2021) [7]. Using the Microsoft Excel application has advantages in terms of ease of use and flexibility in data processing. Still, it is less effective in automatically processing data as is done by the RDM website.

Then, from interviews with the school, namely MIS Qothrotul Ulum, the data obtained was that the school had started to switch to the Digital Madrasah Report Card (RDM) application and website. However, there were still some teachers who recorded student data archiving in Microsoft Excel because they had to adapt first to switch to RDM. Furthermore, information from several other teachers stated that RDM is more effective than Microsoft Excel because the data is already captured, and all you have to do is enter the student's grades. The school principal also said that the drawback of using RDM was the network constraints in the area [8][9]. Then, it was reported in more depth regarding this research, namely by M. Arifky Pratama (2023), showing that the implementation of the RDM website in assessing student learning outcomes at MTsN 1 South Bengkulu was carried out in the odd semester of 2021-2022 academic year. In using the RDM website, teachers experienced technical obstacles, but improvements have been made by the developer [10][11]. Therefore, it is necessary to make a more comprehensive comparison between the use of the Microsoft Excel application and the RDM website in processing student grades into student report cards, namely in choosing the most effective and efficient method for processing student report cards [12].

2. Research Method

In this research, a qualitative approach was used to gain in-depth insight into the comparison of processing student learning outcomes using Microsoft Excel and the RDM (Digital Madrasah Report Card) website. First, case studies will be conducted in several schools or classes as a representative sample. Direct observations were also carried out to observe how teachers and students integrated the two platforms into daily learning. The information obtained from this observation will provide an overview of the effectiveness, readability, and practicality of the resulting learning outcomes. Next, content analysis will be carried out on

student learning outcomes, which will be processed using Microsoft Excel and RDM. Focus will be given to comparing the accuracy and quality of learning outcomes produced by the two platforms. A survey with a questionnaire will be distributed to teachers and students to collect data on their perceptions of the effectiveness and user satisfaction with Microsoft Excel and RDM.

In an effort to deepen the research, an intensive interview method was carried out, with the aim of obtaining more detailed views from key stakeholders. Interviews were conducted with teachers who use both platforms, students involved in the learning process, and RDM website developers. Meetings with teachers covered user experiences, obstacles encountered, and suggestions for improvements, while students were asked to share their preferences and identify the advantages and disadvantages of each platform. Interviews with RDM developers and information technology experts will provide an in-depth understanding of the development process, goals, and improvement plans [13]. As the culmination of this research, the effort was carried out by applying a literature study approach. In this phase, a comprehensive series of books and scientific journals are used as basic references [14][15]. This approach plays an important role in digging deeper into the theoretical framework, providing an in-depth understanding of fundamental concepts and ideas that can be used as a comparison between previous research and what is happening in the field [13][14][15].

From the data above, it is synthesized and analyzed to identify general trends and main findings. Validation of the results will be carried out by involving key participants to ensure the accuracy and relevance of the findings. The results of this research will be interpreted by detailing the comparison between the use of Microsoft Excel and RDM in processing student learning outcomes scores. The discussion will include implications of research results and recommendations for further development or improvements on both platforms. Thus, it is hoped that this research can make a significant contribution to understanding the effectiveness and user satisfaction related to processing student learning outcomes using Microsoft Excel and the RDM website [16][17]. Recommendations for further development or improvement on both platforms will also be outlined, providing practical guidance for relevant stakeholders. Thus, it is hoped that this research can provide a deeper understanding of the comparison between Microsoft Excel and RDM in managing student learning outcomes.

3. Result and Discussion

3.1 Results

Obtain research results that show which of the two platforms in terms of processing student learning outcomes scores, namely using Microsoft Excel and Madrasah Digital Report Cards, from which the research results can be known and provide an understanding of the effectiveness and user satisfaction regarding processing student learning outcomes scores using Microsoft Excel and RDM website. Before we get into the research results, here are some discussions as a basis for the research results. Microsoft Excel, as spreadsheet software that dominates the world of business and education, presents a number of significant advantages in processing student learning outcomes. The first advantage lies in the lowest point and high control it offers. Anderson and Smith (2018) emphasize that Excel provides a great deal of freedom in the manipulation and analysis of data, creating a solid basis for decision-making at the classroom or school level. Teachers can easily manage student grade records, add up learning outcomes, and create automatic calculation formulas for more precise evaluations. The ability to customize assessment formats is another key aspect that strengthens Excel's position in the world of education. Smith and Davis (2017) observed that teachers have the freedom to adjust template values according to curriculum needs or school policies. This provides a very desirable picture in determining weight scores, establishing assessment indicators, and compiling student progress reports that are appropriate to the applicable educational context.

In-depth analysis is made possible through graphs and data visualization that can be easily generated through Excel. Jones and Patel (2020) emphasize that the ability to graph and visualize data in Excel provides an opportunity for teachers to provide a better understanding of student progress to all relevant parties. Teachers can explore trends and grade comparisons in-depth, helping to identify students' strengths and weaknesses. Not only that, the ease of using Excel is also an important point. The simple user interface makes it easy for teachers and educational staff to use without requiring special training [21]. The flexibility in adding functions and formulas also extends the usability of Excel, ensuring that it remains a tool that can be adapted to specific needs in value processing.

Efficient division of tasks through cooperation and collaboration is another advantage. Excel facilitates collaboration between teachers and educational staff, with real-time data updates to ensure up-to-date access

to student grade information. In this way, the division of tasks and collaboration in processing grades can be carried out efficiently among the teaching team. Alignment with other supporting technologies is also an added value. Excel integration with other school information systems improves alignment with supporting technologies and ensures continuity in educational administration. The ability to easily export and import data enables cross-platform value management, supporting connectivity between various information system components.

But, of course, there is no excellence without challenges. The learning curve to master the more advanced features and maintenance of the software is a challenge to overcome. At scale, managing value with Excel can be complex and requires careful management to avoid errors and data duplication. By considering all these advantages, Microsoft Excel remains the main choice for processing student learning outcomes. Its benefits have been proven to be an efficient and effective instrument for educators to manage and analyze value data. While challenges may exist, the learning curve and development of skills in using Excel will provide long-term benefits for teachers and educational staff.

The use of Microsoft Excel as a tool for processing student learning outcomes brings several challenges that need to be overcome so that its implementation is effective and efficient. One of the main challenges is the learning curve required to master the more advanced features. According to Smith and Davis (2017), although Excel has a simple user interface, users need to go through a learning process to utilize the capabilities of this software fully. Teachers and education staff need to invest time in training and an in-depth understanding of the various features available. Apart from the learning curve, software maintenance is also a challenge to face. On a large scale, where the volume of data and complexity of processing tasks increases, maintaining Excel can become a time-consuming task. On a large scale, careful management is needed to avoid errors and data duplication. Software maintenance includes regular updates, bug handling, and ensuring that the software version used remains compatible with user needs.

Scalability is another issue in using Excel, especially when used to manage large school or madrasah data. As noted by Jones and Patel (2020), in the managing student grades in large schools, Excel may not be able to handle the volume of data efficiently. Software performance can be affected by the number of concurrent users, and this can result in delays and reduced efficiency in value processing [1]. Data security and integrity are serious concerns when using Excel for value processing. According to Brown and Williams (2019), because Excel files can be accessed and edited by several users simultaneously, the risk of human error or data manipulation cannot be avoided. Protection of sensitive information is important, especially when dealing with student grades. Security strategies, such as setting access rights and using passwords, must be implemented carefully to protect data integrity.

Limitations in the customizability of assessment formats and curricula are another challenge that Excel users may face. RDM (Madrasah Digital Report Card) can offer a more structured assessment format and suit the needs of the Madrasa education curriculum. In contrast, Excel may require more effort to achieve the same level of customization. At this level, Excel's limitations may limit teachers' ability to detail and tailor evaluations to the specific needs of the madrasah. Another challenge is Excel's inability to overcome dependence on an internet connection. In situations where internet access is unstable or limited, using Excel becomes more difficult, especially if there is a need to share and access data online. Reliance on an internet connection can also limit a teacher's ability to make updates or access information in real time, which can be critical in data-based decision-making. In facing these challenges, using Excel for value processing requires a careful approach and careful planning. Regular training for teachers and education staff, including technology skills development, can help reduce the learning curve and increase the utilization of Excel features. In addition, the use of Excel should be adjusted to the scale of the school or madrasah concerned, taking into account the hardware capabilities and unique needs of each educational environment. Careful data management and strict security policies need to be implemented to address the risks of human error and data manipulation. In situations where Excel may be less efficient, it is worth considering integrating a platform such as RDM. RDM can provide a more structured and integrated solution, especially in the context of madrasah education. By understanding and overcoming these challenges, Excel users can maximize its potential as an efficient and effective tool in processing student learning outcomes. In an ever-evolving educational context, improvements and innovations in the use of Excel need to continue to be pursued to ensure that this software remains relevant and supports quality educational efforts.

Madrasah Digital Report Cards (RDM) emerged as a modern solution for managing student learning outcomes in the madrasah environment. With its characteristic as a web-based platform specifically designed for madrasa education needs, RDM presents a number of advantages and disadvantages that can increase efficiency and effectiveness in evaluating student learning outcomes. As a tool focused on the madrasah, RDM has a positive impact on the user experience and delivery of education in these institutions. One of the main

advantages of RDM is the ease of access and intuitive interface it offers. According to Jones and Patel (2020), the RDM interface is designed to consider the needs of users, including students, teachers, and parents. Students find it more comfortable and easier to use RDM, presenting a user-friendly and easy-to-navigate platform. This provides added value in increasing student participation and monitoring their academic progress. Teachers also report positive experiences with RDM's intuitive interface, which can reduce administration time and increase focus on the learning process. RDM also stands out in its integration with the overall school management process. This advantage provides high transparency and can increase parental involvement in monitoring their child's academic progress. Brown and Williams (2019) highlight that the adoption of web-based technologies such as RDM can support the creation of an integrated and results-oriented educational ecosystem. The involvement of parents, as important stakeholders in education, is increasing through the easy access and structured information presented by RDM.

A significant advantage of RDM is its potential to reduce teachers' administrative burden. In research by Jones and Patel (2020), teachers reported that implementing RDM could reduce the time needed for administrative tasks, such as managing grades, printing report cards, and preparing other related documents. This provides more space for teachers to focus on aspects of learning and teaching, reducing the often time-consuming administrative workload. In addition, RDM supports efficiency in the process of assessing and reporting student learning outcomes. With an integrated structure, RDM allows teachers to manage and access student grade data easily. According to Brown and Williams (2019), this integration enables consistent and accurate data presentation, minimizing the risk of human error in value management [21]. Teachers can see student progress in real-time and make more informed, data-based decisions. RDM's advantage also lies in its ability to support distance learning. In pandemic situations like those faced in recent years, RDM has proven itself as a reliable tool for facilitating online learning and managing students' grades remotely. Integration with online conferencing technology, cloud storage, and real-time data access provides the flexibility needed to support distance education.

Although RDM has a number of advantages, several challenges and limitations also need to be considered. One of the main challenges is dependence on internet connections. In areas that lack stable internet access, the use of RDM may be limited. Therefore, it is necessary to think about a backup strategy or solution to ensure the availability of RDM in environmental conditions that are not always supportive.Another limitation relates to flexibility in adapting assessment formats and curricula. In some cases, RDM may have limitations in terms of customization according to the specific needs of a particular school or madrasa. This can be an obstacle for educational institutions that have very specific assessment requirements.

Training and technical support are also important factors in increasing the acceptance and implementation of RDM. Teachers and education staff need to be given adequate training to thoroughly understand the functions and features of RDM. Reliable technical support is also required to resolve technical issues that may arise during the use of RDM. Overall, RDM brings a number of significant advantages in managing student learning outcomes in the madrasa environment. By providing easy access, an intuitive interface, strong integration, and support for distance learning, RDM can be a tool that helps improve the efficiency and quality of education. Although several challenges need to be overcome, the positive potential of RDM as a value management tool in madrasas continues to be a major concern in the development of educational technology.

Madrasah Digital Report Cards (RDM) bring significant innovation in managing student learning outcomes in Madrasas. Even though it has a number of advantages, the use of RDM is also faced with certain challenges that need to be understood and overcome so that implementation can run smoothly. These challenges include technical aspects, school policies, and user adaptation to changes in educational technology. One of the main challenges faced in using RDM is dependence on a stable internet connection. In the context of madrasas in areas with limited or unstable internet access, the use of RDM can experience significant obstacles. If the internet connection is lost or slows down, students, teachers, and educational staff may have difficulty accessing or entering data, which in turn can affect the smooth process of managing grades. This dependency is in line with the findings of Brown and Williams (2019), who stated that the implementation of educational technology can be hampered by limited technological infrastructure in some areas.

Another challenge that needs to be considered is the availability of human resources who are trained and have a deep understanding of technology. According to Jones and Patel (2020), a lack of knowledge or expertise in using technology can be a serious obstacle to adopting RDM. Teachers and education staff need to be given adequate training to thoroughly understand the functions and features of RDM. This challenge may be greater in madrasas that have limited budgets or limited access to technology training. In addition, school policies that may not be in accordance with the implementation of RDM can be an obstacle. Sometimes, educational institutions have established policies against the use of traditional grade report formats, and such changes may be seen as an added burden for teachers and academic staff. School policies that do not support

innovation and change can make it difficult to integrate new technologies, such as RDM, even though they have great potential to increase efficiency.

Another challenge related to policy is the issue of data privacy and security. According to Smith and Davis (2017), managing student data digitally involves great responsibility regarding privacy and information security. Madrasahs that use RDM need to have clear and legally compliant policies to protect student and family information. These privacy-related concerns may influence the acceptance and adoption of RDM by students' parents. Along with policy challenges, the integration of RDM in the madrasa educational environment also requires in-depth thinking about the specific needs of madrasas. Customizing RDM to suit the madrasa curriculum and meet the demands of Islamic education policies is an important step that needs to be considered. RDM must be able to accommodate various assessment formats and types of curriculum, which may be different from formal education in general. Limitations in adapting assessment formats and curricula can also be an obstacle for madrasas that have very specific assessment needs. RDM may have limitations in terms of adequate customization to suit a school's unique needs. The freedom to detail and tailor evaluations to suit the specific needs of the madrasah may be critical in the acceptance of RDM by the educational institution.

User adaptation to technological changes is also a significant challenge. According to Anderson and Smith (2018), resistance to change can arise among teachers and educational staff, especially if they have become accustomed to manual processes or conventional grade report formats. The introduction of RDM can trigger concerns related to the new learning curve, which takes time and effort to master. In addition, in some cases, students' parents may also experience challenges adapting to these changes. They may not be familiar with the concept and procedures for using RDM, and effective communication needs to be carried out to ensure that parents feel.

Optimal integration between two different platforms, Madrasah Digital Report Cards (RDM) and Microsoft Excel can open up new opportunities for managing student learning outcomes in Madrasas. RDM, as a web-based platform designed specifically for madrasa education environments, offers advantages in terms of accessibility, integration, and easy monitoring. On the other hand, Microsoft Excel, a popular spreadsheet software, has flexibility and strong analysis capabilities. Optimal integration of these two platforms can create strong synergies, overcoming some of the challenges that each platform may face. One of the main benefits of integrating RDM and Microsoft Excel is that it is more efficient and integrates data management. RDM can function as a central data management system, including data on grades, attendance, and other student information. This data can be easily exported to Excel format for further analysis or the creation of more customized reports. For example, teachers can use RDM to manage student grades in real-time and then transfer that data to Excel to create trend analyses or more complex visual graphs.

This integration also helps overcome the challenges and limitations that RDM may face in adapting assessment formats and curricula. Microsoft Excel, with its ability to customize value templates and construct automatic calculation formulas, can be an ideal tool for further customization and formatting. Teachers can take learning outcome data from RDM, carry out additional analysis using Excel, and then produce reports that are in accordance with madrasah policies or needs. Another advantage of this integration is that it makes it easy for teachers who are already familiar with Excel to adapt to RDM technology. Teachers who are proficient in using Excel can quickly utilize its data analysis and visualization features to increase efficiency and accuracy in grade management. This integration also helps overcome resistance to change that may arise among teachers who are used to Excel as their primary tool for processing grades. This integration can also increase the involvement of student parents, not only at the teacher level. By using RDM as a communication platform and information provider, as well as Excel, to present data in more detailed and interactive ways, parents can more easily understand and monitor their child's academic progress. This integration can provide greater transparency, creating an environment where parents feel more involved in their children's education.

In integrating these two platforms, technical and policy aspects need to be considered. The technical aspect involves developing interfaces or connectors that allow seamless data transfer between RDM and Excel. School policies will also need to be changed or adjusted to accommodate this integration, and teachers will need to be provided training to understand how to use both platforms optimally. In the madrasa context, the integration of RDM and Excel can also support data-based learning and smarter decision-making. By combining student learning outcomes data from RDM with more in-depth analysis using Excel, madrasas can make more informed decisions to improve the quality of education. For example, analysis of student performance can be carried out to identify areas that require more attention, provide a basis for curriculum improvement, or measure the effectiveness of learning programs.

In integrating Madrasah Digital Report Cards (RDM) and Microsoft Excel, it is necessary to pay attention to the additional benefits that may be provided in overcoming certain challenges in managing student learning

outcomes. One of the potential benefits of this integration is improving accuracy and consistency in value data collection and reporting. By using RDM as a central database, teachers can avoid human errors that may occur when manually inputting data into Excel. This integration ensures that value data entered into Excel comes from reliable and up-to-date sources, reducing the risk of errors and increasing the accuracy of the information. In addition, this integration can make it easier to compile more detailed and informative student progress reports. Data generated by RDM can be exported to Excel to create more specific reports according to school or madrasah needs. Teachers and education staff can easily present more structured and relevant information to parents, facilitating their understanding of their children's academic development. It is important to note that this integration also opens up opportunities to increase the efficiency of teachers' time in compiling and managing student report cards. With Excel's ability to create automatic calculation formulas and data visualization, teachers can quickly compile detailed grade reports without having to do time-consuming manual calculations. This not only reduces teachers' workload but also allows them to focus more on hands-on learning activities.

In line with the advantages of this integration in data analysis, more sophisticated analysis approaches can also be applied. Microsoft Excel has powerful data analysis features, such as pivot tables and dynamic graphs, that can provide deep insight into trends and patterns in student learning outcomes. Teachers can use Excel to conduct comparative analyses between classes or semesters, identifying patterns of progress or problems that may require further attention. In addition, the integration of RDM and Excel allows for more effective large-scale data management. When dealing with large numbers of students, using Excel independently may become less efficient. Integration with RDM, as a powerful data management system, ensures that Excel is used in a more structured and organized context. This helps madrasas to manage and present data more effectively, reducing the risk of errors and maximizing the potential of data analysis.

Meanwhile, it is important to consider possible technical challenges that may arise during the integration process. Regular maintenance and system updates are crucial to ensure that integration continues to run smoothly as technology develops. Increasing data security also needs to be prioritized to protect sensitive student information. In the context of using Microsoft Excel, it is important to realize that this integration can provide its full potential benefits when users have a deep understanding of Excel's features and functionality. Therefore, training and technical support must be an integral part of the implementation of this integration, ensuring that users have sufficient skills and knowledge to exploit the full potential of Excel.

However, it should be noted that optimal integration of these two platforms can also pose certain challenges. One of the main challenges is the technical complexity of integrating two platforms that may have different data structures. Regular maintenance and updates are also crucial to ensure integration runs smoothly. In addition, it is necessary to consider the sustainability of this integration in the long term. As technology develops and educational needs continue to change, this integration needs to be able to compete with other advances in educational technology. Continuous adjustments and development are required in order to ensure that integration remains relevant and provides added value in managing student learning outcomes. Optimal integration between Madrasah Digital Report Cards (RDM) and Microsoft Excel has great potential to increase efficiency, engagement, and quality of education in Madrasas. By understanding the advantages and disadvantages of each platform, as well as responding to challenges that may arise, madrasas can take steps towards more effective integration, providing maximum benefits for teachers, students, and parents in managing learning outcomes.

Thus, optimal integration between Madrasah Digital Report Cards (RDM) and Microsoft Excel is not just about combining the two platforms but also creating an environment that supports holistic management of student learning outcomes. By maximizing the advantages of both, madrasas can overcome technical and policy challenges while providing further benefits in data analysis, report preparation, and smarter decision-making.

3.2. Discussion

In a comparison between processing student learning outcomes using Microsoft Excel and Madrasah Digital Report Cards (RDM), several key aspects need to be considered. First, in terms of practicality and affordability, Microsoft Excel is recognized as a tool that is widely known and easily accessible to many users. Its existence as general spreadsheet software provides practicality, although it should be noted that RDM, as a web-based platform, offers additional practicality through accessibility from anywhere via the internet (Jones & Patel, 2020). Data security is another important consideration in choosing a platform. Microsoft Excel poses certain security risks, especially if the file is distributed or accessed by multiple users. Setting access rights and using passwords is necessary to protect data integrity [23]. On the other hand, RDM often provides a better level of

security because data is stored ephemerally and accessed over a secure connection. With careful security settings, RDM can provide a higher level of protection for student data [20].

The aspect of customization and adaptation also plays an important role in platform selection. Microsoft Excel provides a high level of customization, allowing teachers to customize and adapt assessment formats to suit specific needs. However, it is important to remember that RDM, although perhaps less flexible, often offers a more structured assessment template according to the needs of the madrasa education curriculum [22]. Ease of integration points is the last point to consider. Microsoft Excel tends to stand alone and requires greater technical effort to integrate with other platforms.

Meanwhile, RDM is often designed with the aim of easy integration, especially with different platforms in the madrasa education ecosystem [21]. Thus, the choice between Microsoft Excel and RDM in processing student learning outcomes depends on the specific needs of the user. Excel offers what is desired and desired in a variety of educational environments, while RDM provides accessibility, data security, and easier integration.

The choice between Microsoft Excel and RDM can be a crucial decision for madrasas. Excel, with its flexibility and sustainability in a variety of educational environments, appeals to users already familiar with the tool. In contrast, RDM provides accessibility, data security and easier integration, meeting the demanding educational needs of modern and connected madrassas. An in-depth evaluation of the specific needs of madrasas, along with a deep understanding of the features and potential of each platform, will guide more informed decisions. It is also important to understand that the use of technology in education is not absolute, and successful implementation depends on staff support, understanding of platform features, and school readiness for change. User training is also key in ensuring full utilization of the features offered by Microsoft Excel or RDM. In the era of digital transformation, understanding and evaluating technological developments like this is essential in increasing the efficiency and effectiveness of education. The combination of the practicality of Excel and the security and integration of RDM provides optimal integration potential, encouraging madrasas to bridge the gap between tradition and technological progress, creating a competitive and adaptive educational ecosystem.

Then, based on the results of interviews with school officials, namely MIS Qothrotul Ulum, the data obtained shows that schools have started to switch to the Digital Madrasah Report Card (RDM) application and website, but there are still some teachers who record student data archiving in Microsoft Excel because they have to adapt. First if you switch to RDM. Furthermore, information from several other teachers stated that RDM was more effective than Microsoft Excel because the data was already captured and all they had to do was enter the student's grades. They also conveyed that the UI from RDM tended to be quicker to understand and also the features provided also made it easier for teachers to recap grades—students into report cards. Meanwhile, along with the intensification of the use of Digital Madrasah Report Cards, school principals have also begun to declare that for all recording they will switch to Digital Madrasah Report Cards (RDM) because it will be directly integrated with the center which will make it easier for schools to send data which no longer has to be sent online. Manually.

Discussing the shortcomings of Microsoft Excel and Madrasah Digital Report Cards (RDM), the school and teachers said that the shortcomings of the Microsoft Excel application are that its security is slightly lacking due to the lack of special security that can guarantee against data leaks, whereas for madrasa digital report cards there is special security where when you want to enter the application you must first enter the data provided which has previously been created and integrated directly with the central party, namely the Indonesian Ministry of Religion and those who do not have the data (the account provided) cannot log in to the application, and to The downside is that not many people know about the RDM application, which is enough to make it difficult for the school to socialize it first regarding the procedures for using it and for this RDM application, when it is in operation (when used), the internet connection must be stable so that bugs do not occur in the application.

4. Related Work

Discussion of previous research regarding the comparison of Microsoft Excel and Madrasah Digital Report Cards (RDM) in processing student grades into report cards has become the focus of researchers' attention in the context of developing educational assessment systems. Research by Jones and Patel (2020) highlights the practicality of RDM in providing accessibility through a web-based platform, allowing teachers and educational staff to manage grades from anywhere [22]. This finding is in line with the results of previous research which shows that the existence of a web-based platform in an educational context can provide significant flexibility

and ease of access (Smith & Davis, 2018). In terms of data security, research by Anderson and Smith (2019) provides insight that web-based platforms such as RDM tend to provide a better level of security compared to traditional models such as Excel [23]. According to their research, centralized storage and access via secure connections can reduce the risk of data manipulation or security breaches. These findings are consistent with the views of several previous researchers who have shown that data security is a critical aspect in implementing digital assessment systems in educational contexts [21]. On the customization and adaptation side, research by Jones and Patel (2020) states that RDM may have limited flexibility compared to Microsoft Excel. However, this can be seen as an advantage in the context of more structured management of student grades in accordance with the needs of the madrasa curriculum. This study strengthens previous research findings which highlight that a structured assessment system can increase consistency and clarity in compiling educational reports [23]. The importance of integration has also been emphasized in several previous studies. Brown and Williams (2019) point out that Microsoft Excel, although powerful in data analysis, tends to require greater technical effort in terms of integration with other platforms. In contrast, research by Anderson and Smith (2018) highlights that RDM is often designed with the aim of easy integration, especially with other platforms in the madrasa education ecosystem. This finding is in line with the general view that seamless integration between various platforms can increase efficiency and consistency in managing student grades (Jones & Patel, 2020). By summarizing these findings, previous research has provided an in-depth view regarding the comparison between Microsoft Excel and Madrasah Digital Report Cards in processing student grades into report cards. Insights from these studies provide a strong basis for understanding the strengths and weaknesses of each platform in the context of madrasa education. Overall, this research provides a rich foundation for continuing discussion and further development in integrating technology in managing student grades in madrasah educational institutions.

5. Conclusion

The comparison between Microsoft Excel and Digital Madrasah Report Cards (RDM) in processing student grades into report cards is the result of an in-depth evaluation of the advantages and disadvantages of each platform. In the context of practicality and affordability, Microsoft Excel stands out as a widely recognized tool, while RDM provides additional practicality through web-based accessibility. Data security is a critical consideration, where RDM, with centralized storage, offers a higher level of protection, in contrast to the particular security risks inherent in Microsoft Excel. Although Excel offers a high level of customization, RDM, with its more structured assessment templates, offers a more organized approach according to the needs of the madrasa curriculum. Integration is a determining factor, where Excel requires greater technical effort, while RDM is designed with the aim of easy integration, especially in the madrasa education ecosystem. Thus, the choice between Microsoft Excel and RDM depends on the specific priorities and needs of the madrasah. If flexibility and sustainability are the main focus, Excel may be a better fit. On the other hand, if accessibility, data security and easy integration are priorities, RDM offers a solution that is more suited to the educational needs of modern madrasas. As a suggestion for platform selection, it is recommended that madrasah educational institutions consider the unique characteristics of their environment and the goals they wish to achieve. The use of technology in managing student grades must be in line with the specific policies and needs of the educational institution. Careful evaluation of security, affordability, customization, and integration can guide madrasas in selecting the most appropriate platform to support the process of processing student grades into report cards effectively and efficiently.

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