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Development of a Web-Based Independent Curriculum Learning Assessment Application System for Raudhatul Athfal Teachers

Widya Fitriani Bakir, Sukiman
Panca Sakti University Bekasi

ABSTRACT

This study designs a web-based application model that is able to support the Merdeka Curriculum assessment effectively and efficiently and has obtained justification from experts and been tested on a limited scale. The method used is research and development (R&D) with the Borg and Gall model, which focuses on developing the Merdeka Curriculum learning assessment application for RA teachers. This research reached the preliminary field test stage to produce an application prototype, which still requires repeated testing on a wider scale. The results of validation by material experts show that this application is very feasible for use by RA teachers, with scores of 93.3% and 90%, respectively. Validation by media experts resulted in a score of 83.3%, indicating that the app is in the feasible category but requires some improvements. The field test showed that this application is very functional and easy to use by teachers for assessment management, with a user score of 95%. Based on these results, this study successfully developed and evaluated a web-based Merdeka Curriculum assessment application that is effective and in accordance with the needs of teachers in Raudhatul Athfal.

Keywords: *Independent Curriculum, Assessment Application, web-based*

Corresponding author
Name: Widya Fitriani Bakir
Email: tikawijayanthir18@gmail.com@gmail.com

INTRODUCTION

The Merdeka Curriculum, launched in 2022, marks a new era in Indonesian education, including at the Early Childhood Education (ECED) level. This curriculum brings a breath of fresh air by emphasizing student-centered learning and shifting the focus from mere value achievement to holistic character and competency development. This change has consequences for PAUD teachers, who are now faced with new demands in implementing learning. Teachers are no longer only required to deliver material but must also be able to facilitate students' diverse learning needs, design creative and innovative learning, and conduct comprehensive assessments to measure students' learning progress (Rahmah & Ummah, L., Rahmadani, S., 2022).

One of the most challenging aspects for ECD teachers in the Merdeka Curriculum is

the implementation of formative and summative assessments. Formative assessment, which is conducted periodically during the learning process, aims to monitor students' learning progress and provide constructive feedback. Summative assessment, on the other hand, is carried out at the end of learning to measure student learning outcomes. Both types of assessment require ECD teachers to have adequate knowledge and skills in developing valid and reliable assessment instruments, analyzing assessment data, and providing useful feedback to students (Ahmadi, 2022).

Difficulties in managing assessment data: Child assessment data is stored in various formats and locations, such as notebooks, observation sheets, and portfolios. This makes the data difficult to access, analyze, and use for reflection and learning improvement. Teachers have to spend hours searching and compiling data from various sources, making it difficult to get a comprehensive picture of children's development (Ahmadi, 2022).

Lack of access to diverse and contextualized assessment instruments ECD teachers need assessment instruments that suit children's learning needs and learning contexts. However, there are currently many assessment instruments that are generic and do not meet the specific needs of ECD children. This makes it difficult for teachers to accurately and comprehensively assess children's development (Watini, S., 2023). Limited in providing effective and personalized feedback to children, PAUD teachers need to provide timely, constructive, and personalized feedback to children to help them learn and develop. However, limited time and resources often make it difficult for teachers to provide quality feedback to each child (Sumarni, 2023).

In addition to the above problems, preschool teachers are also burdened with the many assessment formats that must be filled in. This adds to teachers' workload and takes up time that could be used for more meaningful activities, such as interacting with children and planning lessons. These problems can hinder the implementation of the Merdeka Curriculum and hinder children's learning progress. Therefore, an appropriate solution is needed to assist PAUD teachers in conducting effective and efficient assessments (Shofa, et.al, 2023).

The solution to this problem is the development of a web-based Independent Curriculum Learning Assessment Application System for Raudhatul Athfal Teachers called System Information Assessment Report - Raudhatul Athfal (SIAR-RA). This system can help RA teachers overcome various problems in the learning process. The features provided by SIAR-RA, such as the ability to create and manage assessment instruments centrally, automate assessment data processing, and provide personalized feedback to children, will greatly assist teachers in improving the efficiency and effectiveness of the learning process. In addition, the analysis of assessment data conducted by the system also helps teachers in reflecting and improving learning so that the quality of learning can be continuously improved. Thus, SIAR-RA can be an effective solution in improving the quality of learning in Raudhatul Athfal institutions.

The development of a web-based Merdeka Curriculum Learning Assessment System for RA Teachers provide benefits in the form of increasing the efficiency and effectiveness of the assessment process, the quality of centrally stored assessment data, access to diverse and contextual assessment instruments, better quality of feedback to children, and improving the

overall quality of learning. SIAR-RA can save ECD teachers time and effort in preparing and conducting assessments, allowing teachers to focus on more meaningful learning activities. With centrally stored and structured data, teachers can easily access, analyze, and use the data for reflection and learning improvement. Teachers can also access assessment instruments that suit children's learning needs and learning contexts, making learning more relevant and effective. In addition, teachers can provide timely, constructive, and personalized feedback to children based on assessment results, so they can more easily understand and improve their learning. By assisting teachers in reflecting and improving learning based on assessment data, this system can help improve the quality of learning in RA in a sustainable manner (Ningrum, 2022).

There are several problems faced by RA teachers in assessing students in the field. First, many teachers find it difficult to conduct assessments for all students, which are also carried out every day. Many of these teachers still use the old way by manually writing on paper. Secondly, the results of interviews with some Raudhatul Athfal educators from several schools show that most teachers feel that they run out of time to recap the results of children's assessments. Not all schools use computers, and most private schools object to photocopying the sheets due to the low operational cost of children's tuition fees. Third, PAUD assessment is conducted daily, and each aspect of development must be assessed. This overwhelms teachers in recording the assessment, and they can spend a lot of paper to assess each child and each different aspect of development. Usually, teachers record the assessment in a ledger and on multiple sheets because of the many indicators that must be assessed.Research on the development of a web-based Merdeka Curriculum learning assessment application system for PAUD teachers has a high urgency.

This is due to several factors. First, there are difficulties experienced by PAUD teachers in conducting assessments for all students every day, and there are still many uses of manual methods in assessment, which can hinder the efficiency and effectiveness of the assessment process. Secondly, interviews with some Raudhatul Athfal educators showed that there are difficulties in recapitulating the results of children's assessments due to time constraints and existing infrastructure in schools, especially in private schools that have low operational costs. Third, the importance of comprehensive and accurate assessment in assessing every aspect of early childhood development that is carried out every day, thus requiring a system that can assist teachers in recording and analyzing assessment data more efficiently. Thus, this research can provide an effective solution in improving the quality of assessment and learning in PAUD and can be a reference for the development of a better assessment system in the future.

METHOD

The method used by researchers is the research and development (R&D) method. It is a scientific way to research, design, produce, and test the validation of products that have been produced or to validate and develop products. In this study, the procedure used is a development with the Borg and Gall model approach, with adjustments to the research steps. The R&D method with the Borg and Gall model used includes a preliminary process,

development, field tests, and dimensions.

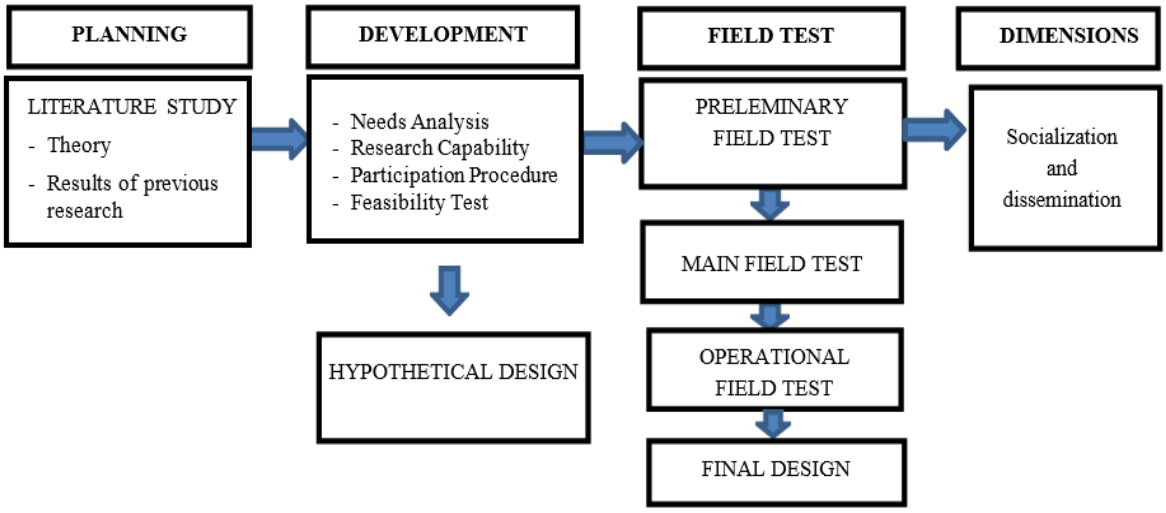

Figure 1. Design of Borg and Gall Model Research and Development Method

RESULT AND DISCUSSION

The procedure for developing a web-based Merdeka Curriculum learning assessment application system for Raudhatul Athfal teachers is carried out through several systematic stages. The procedure in the Borg and Gall model includes planning, designing, developing, and testing as follows:

1. **Planning**

   The first step is to identify the learning assessment needs of Raudhatul Athfal teachers. This is done through discussions, interviews, and surveys of teachers to find out the challenges they face in conducting assessments and the features they expect from the system. After that, reviewing various references related to the Merdeka Curriculum and assessment systems relevant to early childhood education to ensure that the application development is in line with education policies and standards.The next step is to create a development schedule, budget, and resource allocation (experts, developers, and technological devices) to ensure the development process is on target.

2. **Design**

   In the design stage, the first thing to do is to develop a system display that includes main modules such as assessment, reporting, and dashboard modules. This view is designed to facilitate integration between various functions and allow for future scalability of the application.

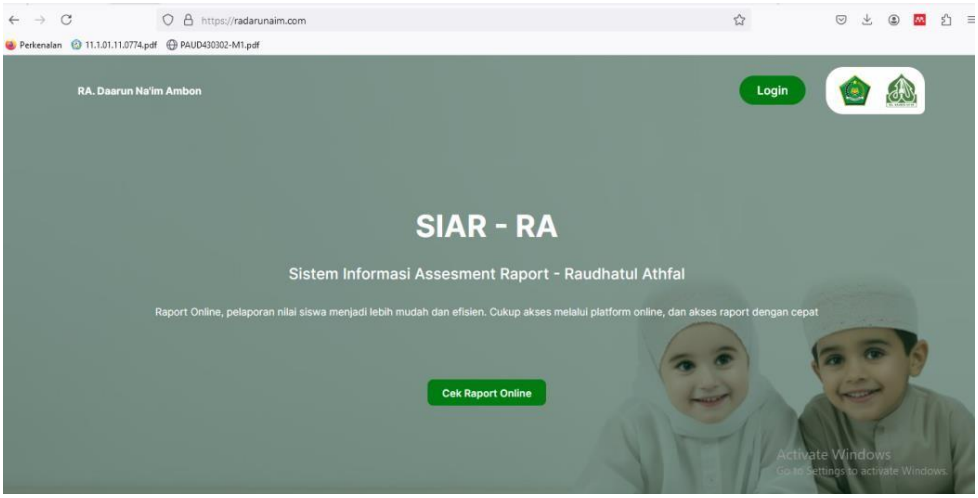

Figure 2. Homepage of SIAR RA Application

Application development begins with the creation of modules according to the design, including several key stages. The next stage is testing for functional testing, user acceptance testing (UAT), compatibility testing, security testing, improvements, and enhancements made to the application to ensure that all features function properly and the application can be used optimally by teachers.

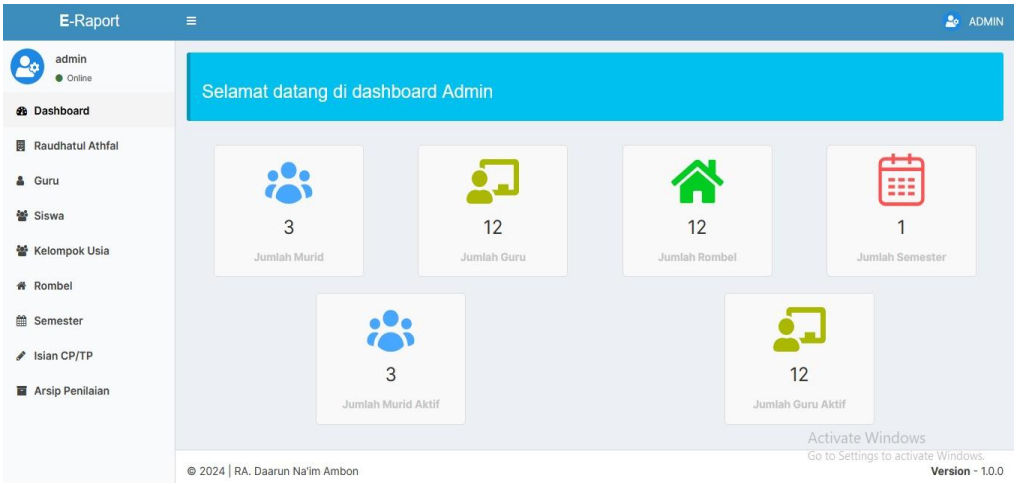

Figure 3. Dashboard Admin of SIAR RA Application

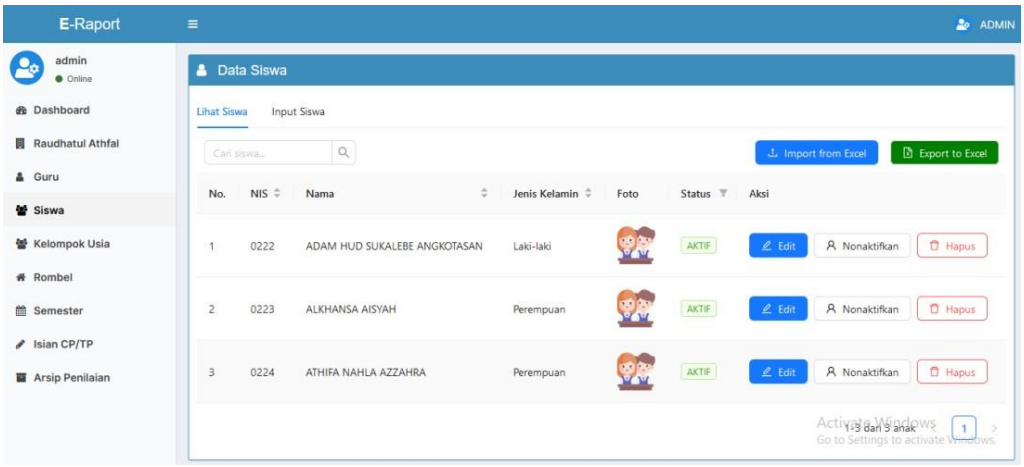

Figure 4. Student Data Menu

At the final design stage, the developed product or process has gone through various trials and revisions and is now ready to be implemented more widely. This application now shows solid performance and optimal functionality. With a well-proportioned interface and layout, as well as good navigability, the app is ready to be used by teachers at Raudhatul Athfal Daarun Na'im in a wider environment. This final design ensures that the app not only meets functional needs but also provides a satisfying user experience. Preparation for wider implementation includes training and technical support measures to ensure a smooth and effective transition in its use in the field.

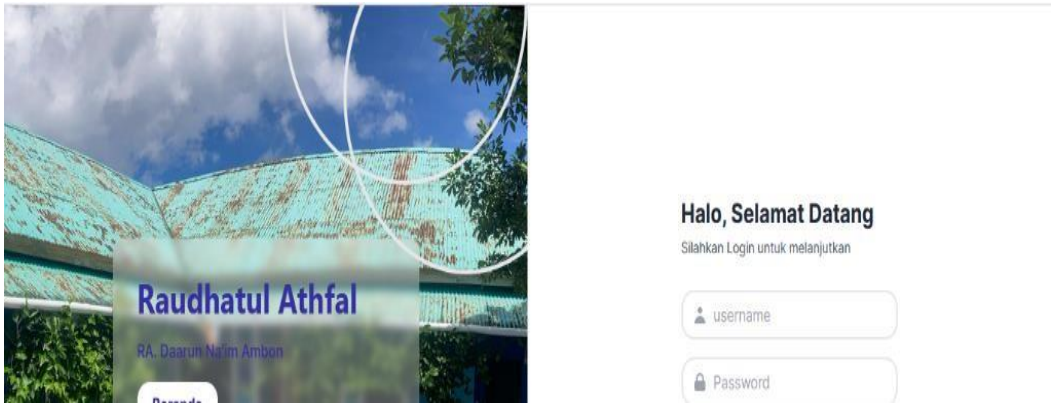

Figure 5. Admin and Teacher Login

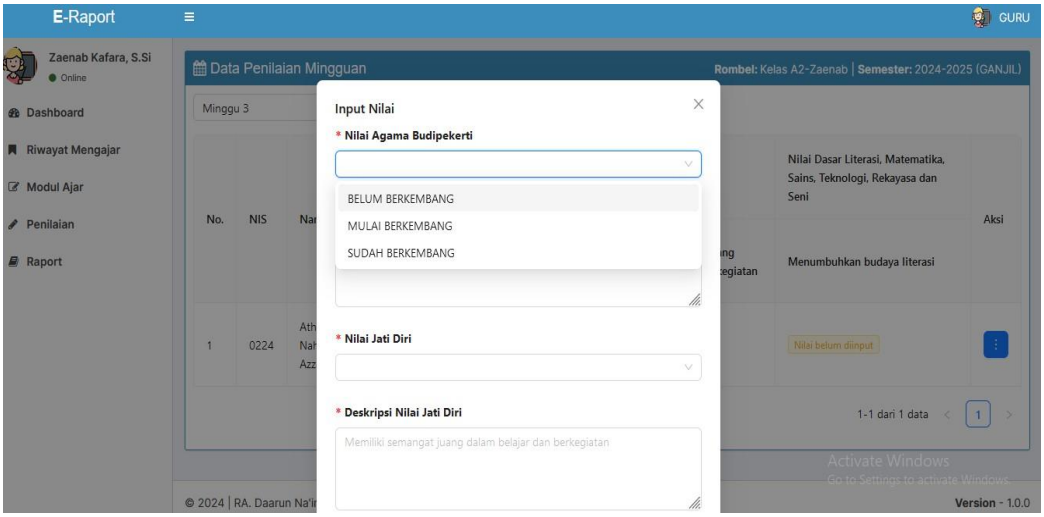

Figure 6. Grade Input Display

3. Preliminary Field Test

The preliminary field test was conducted to test the web-based Merdeka Curriculum assessment application that had been developed. This field test involves limited experiments with end users, namely teachers, to identify problems and make initial revisions to the product. The trial results show that the assessment application has run well in several aspects. Teachers reported that the app was quite easy to run, with a well-proportioned interface and layout. The quality of the app's appearance also received positive feedback, with the design generally considered attractive and functional. In addition, the navigation buttons functioned well, making it easy for users to access the app's various features.

Table 1. Preliminary Field Test Results

No	Aspects	1	2	3	4	Suggestion
1	Level of Ease of Program				✓	
2	Front View and Layout				✓	
3	Accuracy of Background Selection			✓		Background sometimes lacks contrast with the text
4	Quality of Application Display				✓	
5	Accuracy of Color Use				✓	
6	Appropriateness of Font Type				✓	
7	Image Quality			✓		Some images need quality improvement

8	Ease of Use				✓	
9	Navigation Button				✓	
10	Function of All Buttons				✓	
Total				**6**	**32**	
Total					**38**	

Based on the score obtained by the Preliminary Field Test, it is converted into the following percentage:

$$\frac{38}{40} x\ 100 = 95\%$$

The preliminary field test results for the web-based Merdeka Curriculum assessment application show a total score of 38 out of 40, which is converted to a percentage of 95%, indicating that the application is in the "**WORTHY**" category with very good assessments in almost all aspects.

4. Dimensions

At the dimensions stage, the product or process developed has gone through various trials and revisions and is now ready for wider implementation. The web-based Merdeka Curriculum assessment application, after going through the Preliminary Field Test stage and making revisions based on feedback, has reached an adequate final design and meets the expected quality standards. All necessary improvements, including background adjustments, image quality improvements, and visual design enhancements, have been well implemented.

The app now exhibits solid performance and optimized functionality. With a well-proportioned front and layout and good navigational ease, the app is ready to be used by teachers at Raudhatul Athfal Daarun Na'im in a wider environment. This final design ensures that the app not only meets functional needs but also provides a satisfying user experience. Preparation for wider implementation includes training and technical support measures to ensure a smooth and effective transition in its use in the field.

The development of a web-based Merdeka Curriculum learning assessment application system for Raudhatul Athfal teachers aims to facilitate teachers in conducting competency-based assessments and formative assessments. This system is designed with various features that can meet the specific needs of teachers, including assessment management, automatic recapitulation, and fast and accurate student progress reports. In addition, the formative assessment features provided are also adapted to assess competency achievement and student character development in accordance with the principles of the Merdeka Curriculum.

One of the important objectives of developing this application is to facilitate easy

access for teachers to assessment data, anytime and anywhere, through a responsive web-based platform. This application reduces teachers' administrative burden in the assessment process and provides greater transparency in monitoring student development. In addition, the system is integrated with the Merdeka Curriculum assessment standards,including project assessment, observation, and self-assessment, which are highly relevant to early childhood education in Raudhatul Athfal. The development of the web-based Merdeka Curriculum assessment application for Raudhatul Athfal teachers can be linked to relevant research and theories from the last five years, especially those discussing technology integration in education and competency-based assessment.

Blended learning and digital assessment theories from various recent studies suggest that the use of technology in education can improve the effectiveness of learning and evaluation. For example, a study by Wang et al. (2020) asserts that web-based evaluation systems support teachers in conducting more efficient continuous assessment, with report automation and data analysis features that facilitate decision-making related to student learning. In the context of Curriculum Merdeka, this application provides a flexible platform for teachers to assess students' progress at regular intervals, according to their individual needs.

CONCLUSION

Based on the results of research conducted using the Research and Development (R&D) method of the Borg and Gall model, it is concluded that this study succeeded in developing and evaluating a web-based independent curriculum learning assessment application that suits the needs of teachers in Raudhatul Athfal (RA). The results show that the needs analysis shows that teachers in Raudhatul Athfal experience obstacles in the learning assessment process, especially related to consistency in recording student development, difficulty in processing assessment data, and lack of time in documenting learning outcomes in a structured manner. Based on these findings, there is a fundamental need for an effective, efficient, and accessible assessment system that can assist teachers in monitoring student development in accordance with the independent curriculum. After going through the preliminary field testing stage, the learning assessment application developed was declared feasible for use by Raudhatul Athfal teachers. Feedback from teachers also shows that this application simplifies the assessment process, increases time efficiency, and provides more structured and neat assessment results. This feasibility assessment includes aspects of ease of use, functionality, and accuracy in storing and processing assessment data. Thus, this application is considered effective and suitable to support teachers in assessing independent curriculum learning.

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