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INNOVATIVE TECH-SAVVY EDUCATION: DESIGNING A SMART ASSESSMENT SYSTEM

Syaiful Islami[1*], Ambiyar[2], Sukardi[3], Anggi Agni Zaus[4], Anggun Agni Zaus[5], Mahesi Agni Zaus[6]
Technical and Vocational Education and Training, Universitas Negeri Padang, Indonesia[12356]
Department of Electrical Engineering, Faculty of Engineering, Universitas Negeri Padang, Indonesia[1,3]
Department of Mechanical Engineering, Faculty of Engineering, Universitas Negeri Padang, Indonesia[2]
Department of Electronics Engineering, Faculty of Engineering, Universitas Negeri Padang, Indonesia[6]
Master of Social Work, Western Sydney University, Australia[4]
syaiful_islami@ft.unp.ac.id

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**Corresponding Author*

ABSTRACT
The purpose of this research is to create a smart assessment system linked to a project-based learning model through a website. It is anticipated that this system will raise the proficiency and productivity of learning evaluation through the implementation of digital technology. The approach applied in this research includes the identification of needs, and the designing of the system, followed by software development and testing. According to the findings of the research, it is evident that the system developed for smart assessment can offer several complex and combined assessment facilities within the system, which would help the educators for easier examination of the student's performance on a real-time basis. In addition to that, this system also enhances the common work of the students with the educators on completing the project assigned by the latter. Hence, the incorporation of website-based online assessments tries to extend the validity of the PBL implementation approach as well as contribute positively towards embracing positive enhancement in education.
Keywords: *Smart Assessment, Web, Embracing Technology In Education, Project Based Learning*

1. Introduction

In the contemporary environment characterized by constant transformations in the education process, the use of innovations is deemed unfeasible for the need to enhance efficiency to be met. Another new approach to teaching that is now on the rise is Project-Based Learning (PjBL) it is a learning process where students solve real-life issues that challenge thinking abilities, creativity, and collaboration (Oduro et al., 2024). Despite its benefits, one significant challenge persists: evaluating students in terms of their multiple abilities and outputs in PjBL. Unfortunately, the traditional approaches to evaluation that remain virtually unchanged to the present day – that is, written tests and tests in general – can hardly accommodate all the potential that PjBL offers and all the types of learning that it seeks to foster (Basu & Barton, 2010). This discrepancy in assessment tools shows the imperative necessity for the development of alternative, versatile, efficient strategies in assessment in project-based learning. The main problem lies in the use of conventional tools for the assessment of student's knowledge, which implies paper and pencil testing and encompasses quizzes and, often, examinations (French et al., 2024). However, PjBL targets several competencies such as problem-solving competence, critical thinking competence, teaming competence, and reflection on competence, which are not easily measured by traditional assessment tools. Current methods of testing are usually one-time and sequential and are incapable of capturing the student's progress or the concurrent training process (Sukackė et al., 2022a). As a result, teachers struggle to develop an all-encompassing approach to diagnose learners' performance, and by extension, are equally limited in addressing such an approach to learners. This raises an important question: How can USG be incorporated into PjBL practice so that multiple forms of assessment can appropriately reflect the full range of student learning and development?

Closing this gap entails a revolution within the current assessment regimes toward more adaptive and hence probabilistic systems. One of them is the web-based smart assessment system that might help solve the problem of PjBL assessment (Markula & Aksela, 2022). Compared to conventional approaches, which may be cumbersome and highly structured, the use of a web-based system has certain advantages. First, it can offer, data feedback which is an essential aspect of PjBL since the process incorporates reflection and cycles. It is effective immediately after a lesson or activity which helps inform learning and grow from existing knowledge essential for project-based learning where students constantly update a project. Second, assessment can be done in person, or online, using multiple forms and types of assessment such as tests and quizzes with multiple choices and essays, media productions, videos, and peer assessments (Maros et al., 2023). This variety is important in PjBL where most of the time students are expected to showcase their learning through one type of output or another. This is made possible by the ability of the system to support various forms of assessment which will enhance effective conclusions concerning the cognitive and practical competencies that learners gain throughout their projects. For example, class notes and lectures can be easily evaluated based on fact checks, as opposed to video presentations or multimedia projects that allow teachers to explore students' creative potential and problem-solving skills, their ability to communicate, etc. However, the flexibility that comes along with the use of the web-based assessment means that the students can take part in a certain assessment regardless of the place or time (Alarfaj et al., 2024). This feature is quite helpful for students or learners with physically challenged, distance learners, or those who need flexibility of time for their learning. Such flexibility eliminates any silver disadvantaged by the limitation in time or any other factor because the assessment can be done at one's convenience (Chaijum & Hiranyachattada, 2020).

Apart from flexibility and feedback, web-based smart assessment systems also bring greater efficiency to the learning process. Against traditional assessment approaches, such a process is administratively demanding in terms of grading, paperwork, and coordination which reduces the time for teaching-learning interaction between educators and learners (Arochman et al., 2024). Since grading and automation of other important facets of an assessment regime can be relegated to a smart system, instructors can easily save time to engage in more meaningful tasks like guiding their learners, enhancing the construction of PjBL, and refining PjBL. In addition, the effectiveness of such systems is that the educators can get detailed statistics of student's performance and be more effective in identifying areas students require more attention (Jalinus & Nabawi, 2018). The relevance of these developments is felt even more when analysing prior studies in that field. This has shown that online formative assessments have the possibility of enhancing learning in PjBL. But despite these advances, most of these systems are still constrained by scalability, flexibility, and usability issues (Yu, 2024). Some of the current platforms are not optimally designed to cater to the various assessment possibilities in PjBL, and some may provide feedback in real-time but are not elastic enough to accommodate the various forms of assessments. For instance, underlined how online quizzes facilitated motivation and participation; however, the identified systems are not suitable for evaluating project-based assignments or innovative solutions (Marnewick, 2023).

This research expands on this work in the proposed a more holistic and integrated assessment framework that both counteracts these shortcomings while at the same time enriching the learning experience. The new web-based smart assessment system proposed in this study aims to present new characteristics that enhance effectiveness while increasing flexibility (Riar et al., 2022). Furthermore, the integrative assessment system will include features for assessments by peers in which the students will be able to assess the contributions of each member of the group assignments. Besides, this mechanism of peer review creates cooperation but also actual thinking concerns – key components of PjBL. In addition, the system will have an easy-to-use interface, and the automated feedback mechanisms will allow teachers and students to participate efficiently in the assessment process. A major area of significance of this research can therefore be identified in the creation of an assessment system for PjBL that incorporates aspects of smart technology to augment the quality and availability of feedback. The proposed system differs from traditional systems in that it provides coverage of learning outcomes in terms of a comprehensive evaluation of the potential and capacities of the

student encompassing the cognitive, psychomotor, and social domains of learning. From the information regarding the performance of students, the system shall also give instructors real-time information as a way of enhancing personalization of learning thereby increasing chances of directly targeting the areas of difficulty for particular students (Al Shloul et al., 2024). Therefore, the purpose of this study will be to offer theoretical and practical implications for the creation of a web-based smart assessment system for supporting PjBL by the principles set as a scientific goal. Due to the capacity of this system to support the flexibility, efficiency, and comprehensiveness of the evaluation of student learning, their positive impact on the quality of the education in PBL environment can be massive. The findings of this research will provide valuable insights into how digital technologies can be leveraged to improve assessment practices and learning outcomes, ultimately enriching the educational experience in the age of digital knowledge acquisition (Zamiri & Esmaeili, 2024).

2. Literature Review

Project-Based Learning (PjBL) is an instructional approach to education where students prompt themselves to solve real-world problems in projects and apply critical thinking, problem-solving and communication skills, and collaboration. This learning model deviated from the more conventional and repetitive mechanism of learning to an active form of learning. Because learners are exposed to situational practice, PjBL enhances understanding through the use of applied theory thus enabling deep learning (Lee & Lee, 2024). Another advantage of implementing PjBL, therefore, is the improvement of the motivation of learners. As it has been established that most of the projects focus on actual problems, the student is more likely to be interested in what they are working on. Furthermore, PjBL is implicitly transcendent; it means that students are supposed to use their knowledge of several subjects intentionally to make learning more integrated. Because of proper content integration across various disciplines, PjBL fosters the use of 21st-century trade competencies like creativity, critical thinking, communication, and collaboration. Nevertheless, as will be seen, PjBL poses several challenges, especially concerning the assessment of students (Baidal-Bustamante et al., 2023). Evaluating learning in PjBL is a little complicated as compared to regular classroom learning because in PjBL learning process is being assessed as well as the learning outcome. Such kinds of tests cannot measure the numerous competencies cultivated in PjBL as they are not designed to assess the continuous learning process but rather a product of that process.

Process-based assessment is very important in PjBL because it enables educators to evaluate student contributions continuously throughout the project development. I believe that knowing how a student works in a team, and how he or she distributes time and drafts approaches to tackle issues is crucial to raising the degree of understanding of the process of learning. Nevertheless, the existing approaches to assessment tend not to consider the above aspects and concentrate on the outcome, be it an oral report, a written report or documentation, or a prototype. It is also a limitation because it is the process of learning using PjBL that counts not necessarily a final product that is yielded by undertaking the caloric computation(Schleiss et al., 2022).

Challenges in assessing PJBL with the assistance of Technology

Moreover, the combination of the technique in the educational assessments has brought new trends in valuing both the process and outcome in PjBL. Web-based and the other technology-enabled assessments I have discussed in this paper have the following advantages over conventional assessments. These offer the potential for ongoing formative assessments of the students, more prompt feedback, and increased assessment discretion (Gomez-del Rio & Rodriguez, 2022). Technology used in the delivery of web-based instruction can monitor students' performance by providing educators with a real-time view of the way students work together in teams to design, plan, and execute a project. Web-based formats for carrying out PjBL assessments are very useful in that they can allow immediate feedback results to be given. In student learning processes, it has been noted that feedback must be provided as soon as possible since it helps students to come across the gap between their strategies and the learning goal and change the strategy before going further. According to the PjBL study, feedback could

then be useful in enhancing the students' mode of handling project work as this would encourage students to become more reflective and thereby produce work that is more developmental in nature. Compared to the general approaches to assessment that offer feedback after a considerable amount of time, a web-based system can provide feedback in real-time where required for the dynamic and relatively complicated environment of PjBL (Muñoz-Carril et al., 2021).

One of the greatest benefits of technology integration in PjBL is the flexibility of the assessment strategy as discussed below. They also provide ease in completing the assessment since the student can take it from any place and time online educational assessment has advantages such as flexibility of time, and space which makes it favourable for distance learners, or those with physical disabilities (García-Peñalvo, 2021) . Furthermore, the use of online assessments can accommodate a broad spectrum of assessment types, ranging from multiple-choice to media-based assignments because teachers are capable of validating not only cognitive prowess but also performance skills.

Challenges with Current Technology-Delivered Assessment Systems

However, there are several issues still attached to the use of technology-enhanced assessment systems as discussed below. Current designs of assessment in information systems refer mostly to tests that are in contrast with the social and process-based nature of PjBL. For instance, although online semiotic systems that include web-based platforms share the feedback Cycle on each assignment, they seldom offer the sociometries of the groups and credit the contribution of each member in group-related projects (Jalinus & Nabawi, 2018). Furthermore, while it is possible to find several useful online assessment systems that allow considering students' performance through time, the instruments used often lack information concerning learning. Educational analytics – a method in which a range of big sets of data is used to define certain patterns of students' behavior – could help with this problem. With analytics, educators can get a better insight into how the students engage on the project, how they engage with their peers, and which competencies they are demonstrating throughout the project implementation process (Agni Zaus et al., 2019). Despite this, there is scant research into the application of analytics for formative assessment of PjBL and more work is necessary to discover others.

The current systems also possess a shortcoming where they fail to offer feedback that exhibits variability to meet individual assessments of a particular learner. Some of the web-based implementations are in turn composed of adaptive assessments where the tasks that are presented to the students change according to the student's performance, however, many of these established systems are still crude. Some do not capture all the various centripetal learning processes that PjBL may entail because each learner has a distinct learning progression with group and personal interests and background knowledge, as well as input to the group's work (Jalinus et al., n.d.)

Smart Assessment for PjBL: Emerging Trends

The ongoing advancements in smart assessment framework are devoted to mitigate the above traditional drawbacks by integrating certain technologies like Artificial Intelligence (AI), Machine Learning (ML), and Educational Analytics (EA). Ideally, smart assessment will incorporate more elaborate, more diverse, and more authentic assessment practices that are more consistent with the characteristics of PjBL, which is collaborative and process-based by nature. Such systems can process material from various sources, including electronic communication, submission of works, peers' critiques, etc., which allows offering more profound and accurate evaluations of student learning. That is why one of the main indicators of the effectiveness of smart assessment is the ability to use AI technologies in adaptive learning and providing personalized feedback. AI would be able to uncover various data concerning student performance and give recommendations on how to improve real-time feedback while students will be able to get a feedback that suits them. This is more relevant when implementing PjBL since students can be at different developmental statuses and ought to be provided with support towards surmounting certain impediments which they are experiencing while executing projects (Islami et al., 2024).Another relatively new phenomenon is the incorporation of collaborative

tools to the assessment platforms. Organization based smart assessment systems may help achieve peer assessments and group evaluations by enabling students to rate fellow group members. But that also works in critically assessing and evaluating ideas, and also in enhancing appreciation of the collaborative process which is one of the underlying pillars of PjBL (Yondri et al., 2019).

Research Gaps and Contribution of the Current Study

Therefore, the paper finds that researchers have made some progress in the development of smart assessment systems towards increasing the efficiency of the assessment process. For example, although prior literature reviews the positive effects of technology integrating assessment into PjBL, there is limited literature that examines the issues of assessing collaboration and group dynamics. The present study also identified a gap in the literature about how the smart systems of assessment extend their interoperability across the full spectrum of formative and summative assessments (Jalinus et al., 2019).To fill these gaps, this study focuses on designing a smart assessment system specially to meet the challenging assessment domain of PjBL. The proposed system will integrate an AI system that will offer an individual feedback option, peer review option, and performance tracking at individual and group level for the entire project. Since this system will incorporate the process in addition to the product of learning it will be more effective in determining the potential and effectiveness of PjBL for the student thus enabling optimality of the technique(Jalinus et al., 2022).

3. Method

PjBL is one of the XLs of activity that is explicitly directed at people's needs during the formation of a requirements specification; therefore, it contributes to the efficiency and credibility of a system (Syahlan et al., 2023). The first phase of their development involves a review of existing literature to determine best practices in UX/UI design, and state-of-the-art smart assessment systems. A questionnaire with a moderate level of structure is used to select 40 students and 10 educators for generating functional and non-functional requirements. The questions are as follows and they aim to share and focus on investigating specific issues related to UX/UI design, including but not limited to navigation, accessibility, and aesthetics of the interfaces as well as the system assessment. Other procedural measures like getting written consent from participants are also put to ensure that they adhere to research ethics. This is followed by the Development model of the system, which is the Waterfall model because of its linear approach to the development process. There is the identification of requirements, the creation of a technical architecture, and a design for the User experience/Graphic User Interface. This model is more appropriate than the Agile model which is more fluid, for this project would call for more planning and phased testing. Each phase is closed before the opening of the next phase to increase the overall quality of the results (Thesing et al., 2021).

The development phase locates the UX/UI design into a web prototype employing current technologies in the website and focuses on data security elements to safeguard users' data and the results of the assessment. It is carried out through unit testing, integration testing, and usability testing: 25 test users are students; 5 test users are educators. Criteria include reliability, accessibility, site map navigation, and user satisfaction. According to the test results, there is a general functionality of most of the system features while some changes are recommended in the user interface.

Due to the nature of the system, qualitative feedback from the users of the system was used to refine the system to the expected quality of the system. In the last phase, because of the real use of the system in the already developed PjBL environment, users are instructed to achieve the highest utilization of the features of the system. Maintenance is done through feedback from users to keep the system relevant as well as in case new needs arise in the future that can be met. According to the defined stages of the Waterfall Model, this smart assessment system is believed to contribute to the incorporation of the project-based learning experience, increased student engagement, and immediate and precise feedback.

4. Result and Discussion

The outcomes of designing and developing a smart assessment system, linked closely with website-based PjBL are several significant findings that can be discussed in the following ways. First, based on the results of tests, the interface designed for the application satisfies the basic principles of UI/UX and can be regarded as easily understandable and usable by students and educators. The message shared by the users is that clear navigation and simple structure help use the assessment functions, upload project assignments, and get real-time feedback.

Use Case Diagram

Users; students and teachers engage in the process by logging in to a system using their account username and password. After logging in, the user is taken to the home page which indicates pertinent data concerning the assignments' status, assessments' schedules, and announcements. With the help of a special page containing descriptions and instructions for uploading the assignments, the students can upload the works they completed freely. On the other hand, educators get to view all the assignments uploaded by the students, they get to upload assessments as well as give constructive feedback. This feedback and assessment are immediately available to be viewed by the students through the assessment page. In addition to that, it has a discussion forum to enable users to work together especially when working on projects being undertaken. Thus, the described system contributes to the interactive and rather dynamic process of learning, the interaction between the student and a teacher, as well as collaboration between the users.

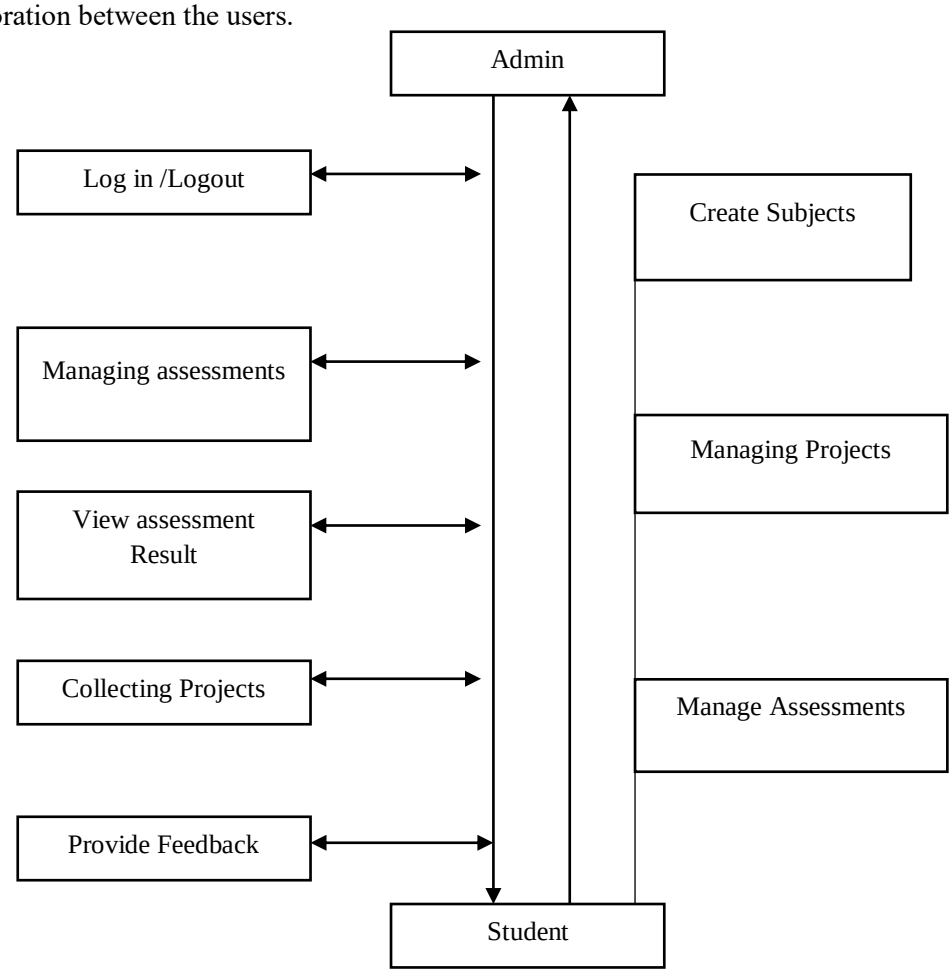

Fig. 1. Use Case Diagram

Interface

These are the three major components of the homepage of the Website-based PjBL smart assessment system: On this principal site, users will directly get a brief, yet adequate, overview on the home dashboard. This left section of the dashboard provides information about the assignment, grading, and the announcements made so that a user can be aware of his or her next

step to take. There is also a basic horizontal menu at the top of the web page that enables users to move through different primary web pages that include; Home, assignments, assessments, and discussion boards. Hence every aspect of the home page design is aimed at making simplicity and convenience for both the student and the educator when using any feature or getting to any part of the website. Thus, the clean and uncluttered design of the homepage combined with properly structured information makes it possible to use this page as the main control centre that would allow the users efficiently control their assignments and assessments.

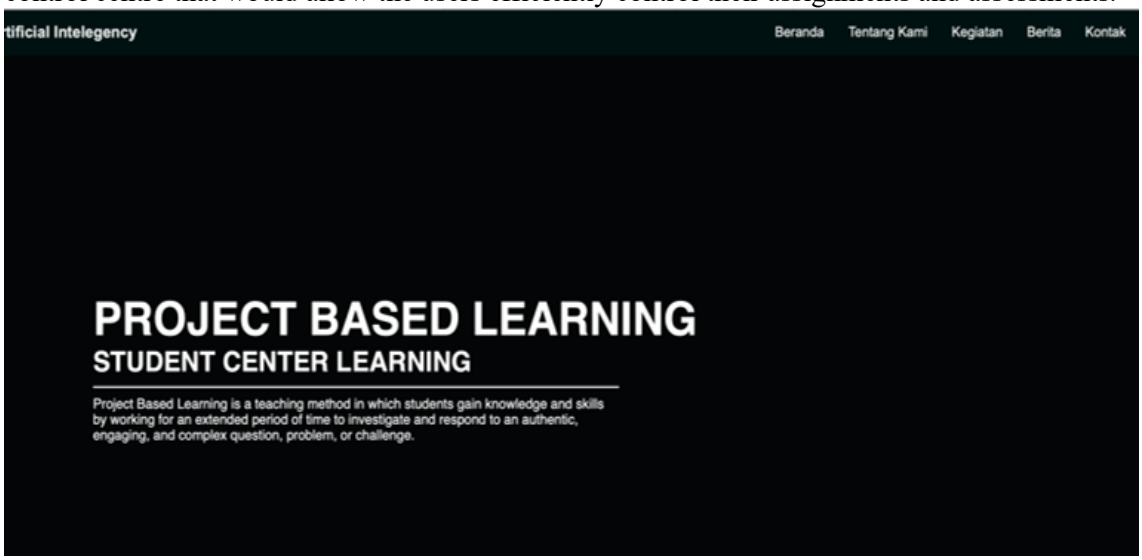

Fig. 2. Dashboard

The activity page of the website-based Project Based Learning (PjBL) smart assessment system is devoted to managing all the activity related with the projects and assignments of the users. On the selected page, users will be able to get through the list of all the actions performed, such as the uploaded submissions and received grades or feedback from the teachers. Every activity entry is sorted by date so the users can observe their improvement over time easily. In the same way, these activity pages also include links that lead to the details of each assignment or assessment and enable users to access more information or do the required actions. These associations webs' engaging, simple layouts and navigation chords ensure collective organization and updating of project-based learning.

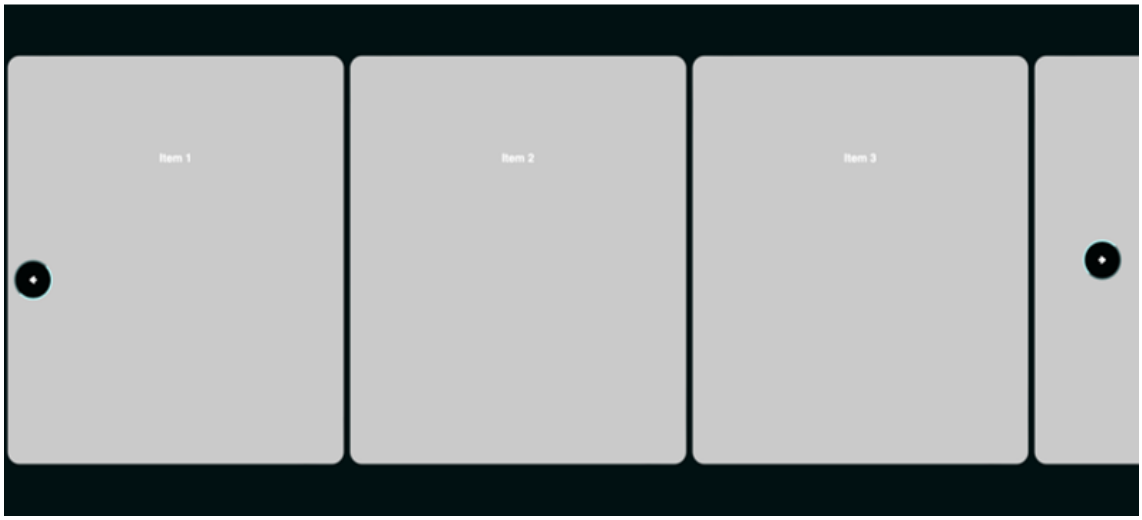

Fig. 3. Activity

The news page of website-based Project Based Learning (PjBL) smart assessment system serves as the prominent source of the latest information connected with the use of the system by users. Here, visitors are free to read different crucial messages, updates and news concerning the activities and changes in the learners' environment. Each story conforms to a clean editorial layout with simple headlines and basic roll-ups on the announcement so users can prevent

viewing content brief and to the point, the essence of each announcement is easy to appreciate. Users can also click on the headline to get the full details where there is extended and related information presented. This particular news page is beneficial as it is sleek and simple; there is never any confusing key details or a mess of versions when it comes to students and educators staying updated on all of the changes within their system of learning. This page also provide efficient method of communication between the inventors of various educational institutions and users in order to enhance better interacting.

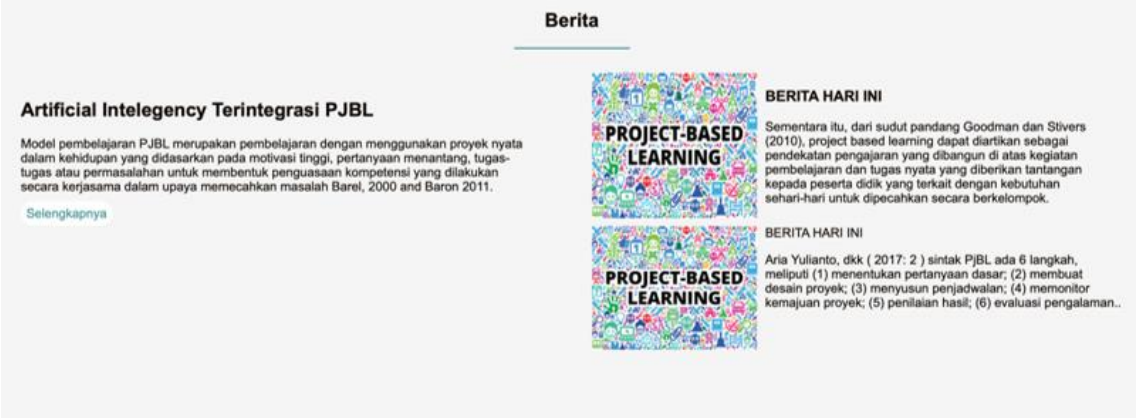

Fig. 4. News

Homepage Contacts for designing and developing effective Project Based Learning (PjBL) online assessment tools based on a homepage that acts as a communication hub of the users and the developers. On this page, the user is provided with different related contact details if one wants to get assistance, report some issue, or seek additional information concerning the PBL assessment system. This contact homepage essentially contains details like the Email address, Phone number, and physical address of corresponding with the company or contact, and a contact form where the user can directly put in his information. This way it is expected that with a complete and easily approachable contact homepage, the users can give their inputs in the form of demands or problems that can be addressed and solved instantly or at the earliest.

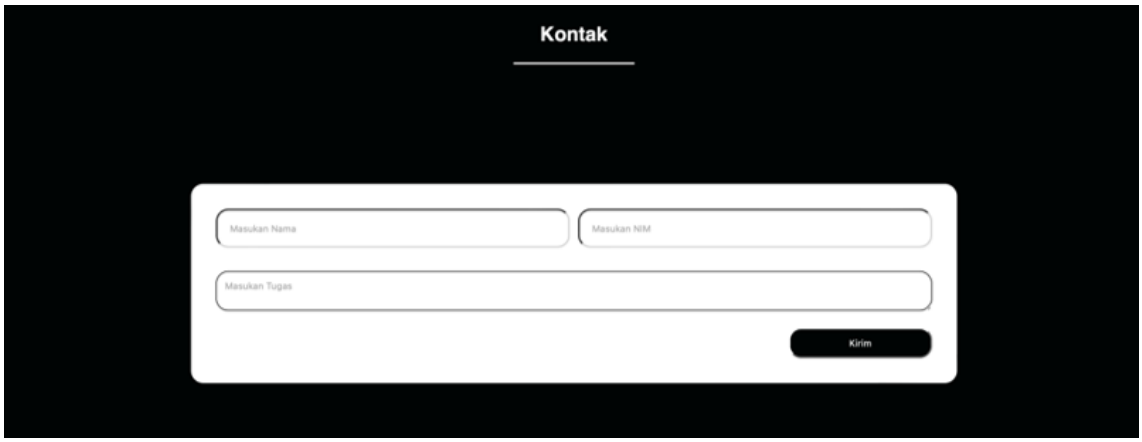

Fig. 5. Contact

Understanding User Needs

While venturing into the formulation of a smart assessment system from the perspective of PjBL, it is crucial to focus on user requirements. Group surveys and interviews conducted with 40 students and 10 educators revealed that there is no tool capable of supporting project-based assessment. The users particularly the educators mentioned the need for an assessment tool that provided an evaluation of the different facets of a project including teamwork, problem-solving abilities, and the project's delivery in its broad sense. Such requirements were underlying the design of essential system functionality, namely flexible credit assessment frameworks and data analytics that addressed these requirements (Halimatusyadiyah et al., 2022) (Rama et al., 2024)

System Design and Key Features

System Design and Key Features Showing a preview of the first two pages only since this section is included only in some reports. System Design & Key Features The given System Design and Key Features section of the report contains a description of the specific features of the system in the process of serving clients, as well as the peculiarities of its functioning, key system components, and productivity. The layouts of the UI and UX of the system were made using principles of a simple, accessible, and responsive design. Users gave positive responses on several areas including the educator and student dashboard which enables teachers and students to get access to various Access to Assessment tools and Progress reports. However, one possible weakness in the current system's worth and work rearrangement is the relative location of the assessment rubrics. Albeit being functional, customization solutions were perceived to be still complex by its users and hence they wanted the rubric made friendlier. Custom Rubric assists a teacher in defining the desired learning outcomes based on which students will be graded, and can be used for both individual and group assignments. Also, it has a Feedback and Evaluation tool that gives students real-time feedback and the means to assess and improve every next step of the project (Almulla, 2020; Maulana et al., 2023; Gustinov et al., 2023).

The feasibility of system testing and performance could be argued based on results from previous years as this would require substantial time to evaluate rigorously. Several technical issues were raised during the testing phase, especially on issues to do with the functionality of the system when used by many users at the same time. All these technical problems were effectively resolved through system optimization. This paper draws findings from an experiment conducted among 25 students and 5 educators in a usability test to get insight into the performance of the developed system components of which it was noted that many of them work well. However, the feedback system demanded a few modifications to make the interaction better and properly set. Although users valued the increase in speed, applicability, and ability to deliver feedback, some users stated they would like to have even more customizations regarding the interface of the dashboard (Sukackė et al., 2022b).

Consistency with Educational Frameworks on Learning and Evaluation

This smart assessment system is not inconsistent with current digitized education policies adopted by governments and educational organizations. These policies focus on technology-enhanced learning and assessment and the significance of learning environments that can support the quality of learning. This system provides a clear, efficient, and evidence-based solution in formative and summative assessments. Thus, it could be a useful instrument in enhancing the quality of the assessments and learning in the context of PjBL. For the implementation of this system, sufficient technical facilities must be available in educational institutions. A high-speed internet connection is a necessity to guarantee the easy running of the program. Also required is hardware such as a computer or tablet that will enable the best running of the system. Contrary to other solutions, the proposed system requires thorough training of educators and technical staff to properly use the system and resolve any technical problems. This also means an institution has to pay a lot of attention to data security and privacy, and there must be policies developed that would ensure that any sensitive form of data is well protected (Prøitz, 2023).

Several institutional issues were also realized during the implementation process especially those of the financial constraints or limited funding and the cultural opposition to adopting new technologies. A majority of these centers have a low budget that they can spend on the advancement of digital means. In response to this, institutions can either engage with technology vendors or apply for educational funding that can encourage the adoption of technology. This is accompanied by resistance to innovation among educators which asserts its challenge to technological change. Perhaps, but what is apparent is that teachers are going to require extensive training and constant guidance to accommodate these new collectivistic systems. Also, for institutions that do not have well-developed digital systems, the process of integration of new technologies can be held step by step with the help of the mixed approach that combines both the online and offline models. Some of the deviations include the following

When developing and implementing the system, the following consequences were observed. On the positive side, the real-time feedback greatly enhanced the students' participation and responded to the objectives of fastening up the learning cycle. It used to take ages to make corrections and improvements, but with the feedback, the students got a heads up on how to make improvements faster, make the right improvements on the projects than giving time to the teacher, and even gain a better in understanding of the subject matter. The system also promoted more favorable interaction between students for example in project groups. However, it was discovered that some teachers especially those with low levels of computer literacy found it difficult to manipulate the system. In some of the institutions, technical constraints like network connectivity issues and the absence of functional hardware devices restricted the efficient analysis of the system. In addition, some of the students noted that in the early stage of development of the system, there were several design issues, particularly in the assessment rubric of the user interface which delayed their submission of projects.

Therefore, the system has managed to enhance student awareness, and at the same time offered the instructors a more effective means of assessment. Several gadgets and gizmos that include the use of feedback and references in the tasks have enhanced student interest and participation;-at the same time, it has enhanced the rate of assessments helping the educators to manage their classrooms better. However, there are still some issues: Firstly, the introduction of new technology to educators; Secondly, data security. The time required for educators to learn how to use all the functions given by the system is another important issue that has to be managed constantly. On the other hand, the student data is secure and accurate to support the general use of the system in future years of learning. Consequently, further development is crucial to make the mentioned system useful as the educational process develops. One important improvement is the integration with other educational applications and sites, and the availability of a mobile version for those who actively use portable electronics. Also, more sophisticated analytics for student performance could be created to provide better assistance in improving learning results and adapting teaching strategies correspondingly. Considering the users' opinions and practicing the solutions of the key institutional issues, it is possible to extend this system's positive influence on the results of project-based learning and the effectiveness of the assessment activity in a wide range of schools and universities.

5. Conclusion

This study achieves the design and implementation of a smart assessment system combined with the project-based learning model via a website. As a result, it strengthens the learning evaluation system by utilizing new information technologies that provide diverse and more efficient opportunities for evaluating results and assessing students' outcomes in the process of learning. Also, it increases students and their teachers' cooperation in project assignments. The usage of this smart assessment system is expected to enhance the applicability of the PBL concept and enhance the quality of education since the assessment process alongside collaborative working is expected to be more effective and efficient.

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