

Development of Portfolio-Based Authentic Assessment and its Integration in Innovative Learning Design

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Abstract

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Authentic assessment through portfolio-based approaches has emerged as a strategic alternative for measuring student learning outcomes in a comprehensive and contextual manner. The integration of portfolio assessment into innovative learning design offers valuable opportunities for students to demonstrate both their learning processes and real achievements. This study aims to examine the development of authentic, portfolio based assessment and its integration into innovative instructional design through a literature review methodology. The findings reveal that portfolio assessment strengthens both formative and summative evaluation while simultaneously enhancing students' metacognitive, reflective, and collaborative abilities. Portfolios are not merely tools for assessment but also act as dynamic components of the learning process, promoting student centered and personalized learning. Moreover, the study can be recommends an integrative framework that combines curriculum, pedagogy, and educational technology to optimize the implementation of portfolio assessment. The integration of such frameworks is essential for advancing assessment practices aligned with 21st-century education goals.

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1. Introduction

21st-century education demands a complete paradigm shift, not only in the learning process but also in its assessment system. This change is a response to global demands that emphasize the importance of meaningful, collaborative, and competency-based learning integrated with real life. In this context, authentic assessment is seen as an important and relevant instrument to comprehensively measure student competency attainment, including not only cognitive but also affective and psychomotor aspects. Authentic assessment allows teachers to observe student performance in situations resembling the real world, making assessment results more meaningful and applicable (Villarroel et al., 2018). One concrete form of authentic assessment that is now receiving widespread attention from educators and education researchers is portfolio-based assessment. Portfolio assessment does not only evaluate the final outcome or learning product but also documents the entire student learning process.

Through this approach, teachers and students can reflect on the development of skills, achievements, and challenges faced during the learning process. The portfolio becomes an important tool to see how far students develop over time, both in terms of conceptual understanding and metacognitive skills (Lukitasari et al., 2021). A portfolio itself is a systematically and structurally curated collection of student works, designed to show a series of learning processes and final results achieved. Each element in the portfolio reflects active student involvement in learning. Moreover, these works also demonstrate critical thinking skills, the ability to work collaboratively in groups, and creativity that develops during the learning

process. This aligns perfectly with the demands of current educational goals that emphasize the importance of developing 21st-century competencies. Within the framework of innovative learning design, the portfolio becomes an adaptive and flexible assessment medium. It can adjust to different learning styles, individual student characteristics, and allows for personalization in the learning process. In other words, a portfolio can be a very effective tool to support a differentiated learning approach, which provides space for students to learn according to their individual strengths, interests, and needs.

In Indonesia, the relevance of using authentic portfolio-based assessment has become increasingly apparent, especially since the implementation of the 2013 Curriculum, which emphasizes core competencies and basic competencies, as well as strengthening character education. This curriculum was then refined and strengthened in the Merdeka Curriculum, which gives teachers and schools the freedom to design learning that is contextual, meaningful, and student oriented. The Merdeka Curriculum also emphasizes the use of project-based learning, problem-solving approaches, and contextual assessment. In this context, portfolio assessment is considered very suitable and relevant for implementation. This is because a portfolio can fully accommodate these learning principles. However, the reality in the field shows that portfolio implementation has not achieved optimal results. One of the main reasons is the limited competency of teachers in designing appropriate assessment instruments, as well as the skills in evaluating and providing objective and targeted feedback on portfolios (Henri et al., 2017).

Innovative learning design fundamentally demands integration between clear learning objectives, challenging learning activities, and appropriate and authentic assessment strategies. In this regard, portfolio assessment has great potential to strengthen this integration. This is because the portfolio approach is not only a means to measure learning outcomes but also a part of the learning process itself. Assessment through portfolios can support the principles of active learning, student-centered learning, and authentic learning. Therefore, integrating portfolio assessment into learning design is not just an option but a necessity in innovative learning (Bangalan & Hipona, 2020). However, the development of authentic portfolio-based assessment certainly cannot be done haphazardly. A systematic approach based on empirical evidence and strong learning theories is required. This development must consider a deep understanding of constructivist learning theory, which emphasizes the active role of students in constructing knowledge. In addition, differentiated learning strategies that consider student diversity, and the use of technology to support digital portfolios, are also important aspects that must be carefully considered.

2. Literature Review

2.1. Concepts and Principles of Authentic Portfolio-Based Assessment

Authentic assessment refers to an assessment process designed to evaluate student performance in real-world contexts or through the completion of meaningful tasks that reflect the actual application of knowledge and skills (Villarroel et al., 2018). In contemporary education that emphasizes the development of 21st-

century competencies, authentic portfolio-based assessment has become one of the most relevant approaches. This approach not only facilitates the process of documenting student learning growth but also emphasizes the importance of self-reflection, continuous revision, and systematic development of metacognitive skills (Rahman & Yunus, 2020).

As an assessment tool, a portfolio represents a constructivist view of the learning process, meaning that students do not passively receive knowledge but actively construct knowledge through involvement in meaningful learning activities. This approach also provides ample space for self-evaluation and the interpretation of learning experiences (Vera et al., 2019). The main components of a portfolio include clear learning objectives, authentic evidence of student work, reflective notes that show understanding of the learning process, and explicit and structured assessment rubrics as an objective reference for evaluating the quality of work (Lukitasari et al., 2021). Furthermore, in the context of learning digitalization, portfolios can now be developed in the form of e-portfolios, which allow formative and summative feedback to be delivered in real-time by teachers, and accessed and reviewed by students flexibly.

2.2. Integration of Portfolios in Innovative Learning Design

Innovative learning design represents the adaptation of education to contemporary developments, particularly the social dynamics and technological advancements of the 21st century. Learning today can no longer be separated from digital, collaborative, and multidisciplinary contexts. Therefore, various modern approaches such as project-based learning, collaborative learning, and STEAM

(Science, Technology, Engineering, Arts, Mathematics) learning models are becoming increasingly relevant and widely used at various educational levels. In this context, portfolios play an important role as both an assessment medium and an in-depth documentation tool. Portfolios allow students and teachers to design and record learning experiences that are not only informative but also meaningful and authentic.

Law and Liang (2020) emphasize that integrating portfolios into innovative learning design can help systematically and contextually record the learning process. To ensure its effectiveness, teachers need to apply the principle of backward design, an approach that starts with determining learning objectives and assessment criteria before designing learning strategies. Portfolio assessment can be used to assess deeper learning dimensions such as critical thinking, creativity, and reflection. Furthermore, Liu et al. (2017) found that the use of technology such as LMS and e-portfolios not only facilitates the documentation process but also increases student motivation, task management, and sense of responsibility for their own learning.

2.3. Challenges and Strategies for Developing Portfolio Assessment

Although portfolios offer many significant pedagogical advantages, their implementation in schools and universities still faces various complex challenges. These challenges arise from both technical and non-technical aspects. One of the main obstacles often encountered is teachers' lack of understanding in developing objective assessment rubrics that align with learning objectives. Teachers are often unaccustomed to differentiating evaluation criteria for reflective, formative, and process-based portfolios. In addition, another very common constraint is the limited

time teachers have to thoroughly evaluate each element in the portfolio, especially in large classes. Not to mention the limited technical skills in managing and archiving portfolio data digitally or in e-portfolio format, which is widely implemented in online learning today (Henri et al., 2017). Furthermore, some teachers are still confused about distinguishing the function of a portfolio as a learning documentation tool and as a formative assessment tool that deeply evaluates both the process and learning outcomes.

To address these challenges, it is necessary to systematically strengthen teacher capacity through continuous training on designing authentic assessments, including the development of clear and fair rubrics, techniques for providing constructive formative feedback, and the use of technology and digital platforms in portfolio management (Driessen, 2017). Collaboration among teachers is also an important strategy to ensure that the developed portfolio instruments are more adaptive, contextual, and relevant for students. The basic principles of effective portfolio assessment include clarity of purpose, alignment with learning indicators, and active student involvement in a constructive self-reflection and assessment process.

3. Methods

This study employs a literature review (library research) method aimed at exploring and synthesizing various previous studies on authentic portfolio-based assessment and its integration into innovative learning design. This approach was chosen because it can provide a more comprehensive understanding of theoretical

perspectives, empirical practices, and current trends in the application of portfolio assessment in various formal educational contexts. The main data sources in this study come from journal articles obtained through the Google Scholar platform, with strict selection criteria to ensure the relevance and quality of the sources. Selected articles with relevant topics, namely covering authentic assessment, portfolio-based assessment, and its integration into innovative learning design. In addition, selected articles were open access or available in full-text format for comprehensive analysis, and published by accredited national journals or reputable international journals.

The data collection stages were carried out systematically, starting from the identification of keywords used in the search, such as “authentic assessment,” “portfolio-based assessment,” “innovative learning design,” and “e-portfolio,” used in two languages, English and Indonesian. After that, articles were selected based on an abstract review to assess topic suitability with the focus of this research. Furthermore, content analysis was conducted, involving an in-depth review of the article's content, including methods, research results, and conclusions offered by each author. The results of this analysis were then synthesized and grouped into three main themes: the definition and principles of portfolio assessment, integration into innovative learning, and challenges in its implementation.

Some articles were used in this literature synthesis. The analytical approach applied was qualitative descriptive, emphasizing the interpretation of conceptual data and empirical findings contained in the articles. Data validity in this study was maintained by applying theoretical triangulation from various sources, and validating

understanding by referring to tested conceptual models, such as the Backward Design model (Turner et al., 2017). Thus, this study is expected to provide theoretical and practical contributions, especially for teachers, lecturers, and curriculum developers in integrating portfolio assessment into more innovative learning practices relevant to the needs of 21st-century education.

4. Results and Discussion

Based on the synthesis were selected journals that were deeply reviewed, it was found that authentic portfolio-based assessment has a very significant impact on various important aspects of education. This impact is not only limited to increasing student engagement but also directly contributes to improving the quality of the learning process implemented and to the achievement of competencies targeted in the curriculum. In the context of innovative learning, a portfolio not only functions as an assessment instrument but also becomes an integral part of the entire learning process itself, seamlessly integrated with all student learning activities. The first finding from these various literature reviews reveals that a portfolio has the ability to represent the student learning process more comprehensively and holistically compared to conventional or traditional assessments. In this regard, Liu et al. (2017) state that a portfolio provides ample space and opportunity for students to display authentic evidence of their entire learning journey.

This evidence includes the planning stage of learning, self-reflection on learning outcomes, the revision process of errors, and the final product of the learning process. This process not only assesses the final result but also values how

students learn and develop throughout the process. This ultimately encourages students to develop personal responsibility and build a sense of ownership over their learning process. In addition, the use of explicit and structured assessment rubrics in portfolio assessment also encourages open communication between teachers and students in understanding and agreeing on the success criteria for the learning implemented. Other research conducted by Bangalan and Hipona (2020) also strengthens these findings. They show that portfolios directly support the principles of student-centered learning.

In project-based learning models, for example, portfolios play a strategic role as a space for students to systematically and sequentially document each stage of project completion. This documentation process strengthens and hones higher-order thinking skills, which include the ability to analyze, synthesize information, and evaluative skills needed in real life. The integration of portfolio assessment with project-based learning (PjBL) and problem-based learning (PBL) approaches shows its effectiveness in encouraging the development of critical thinking skills, collaborative skills, and problem-solving in authentic situations (Anazifa & Djukri, 2017). A portfolio not only functions as an assessment tool but also proven to be able to improve metacognitive aspects within students. In research conducted by Lukitasari et al. (2021), it is emphasized that the reflection process in portfolio assessment provides space for students to evaluate their own understanding, realize mistakes or errors that occurred, and design better learning strategies for the future.

This reflective dimension is one of the unique and superior qualities of portfolio assessment compared to other traditional assessment forms. Moreover, in

the context of the latest curriculum in Indonesia that encourages differentiated and personalized learning approaches such as those found in the *Merdeka* Curriculum, portfolio assessment becomes very relevant because it can accommodate various diversities of learning achievements and learning styles possessed by each individual student. From the perspective of educators or teachers, various studies also note that portfolio assessment offers both challenges and opportunities. Leavey and Hourigan (2020) in his research reveals that many teachers experience obstacles and difficulties in structuring a portfolio that is considered effective and efficient. This indicates that a deeper understanding of the stages of collecting learning evidence, appropriate reflection techniques, and objective and fair assessment methods is needed. In addition, the portfolio-based assessment process is considered to require more time and effort compared to conventional assessments that usually only focus on the final result.

However, teachers who have received training state that portfolio assessment provides broader and deeper insights into student abilities, including assessing affective aspects and process skills, which have often been overlooked in formal assessments. Research conducted by Law and Liang (2020) also highlights the important role of technology in supporting the implementation of digital portfolios or e-portfolios. In an increasingly developing digital learning environment, portfolios can be developed using various platforms such as Google Classroom, Mahara, or Moodle. This technology allows teachers and students to access portfolios anytime and anywhere, provide quick and direct formative feedback, and store learning archives for long periods. Not only that, digital portfolios can also support the

development of 21st-century skills such as digital literacy, visual communication skills, and effective online collaboration.

However, various technical challenges are still found in practice. Henri et al. (2017) notes that teachers in various regions often experience constraints in terms of access to technology, limited available devices, and low levels of digital literacy among teachers and students, especially in areas that are still lagging in infrastructure. Therefore, to overcome this disparity, policy support from the government and educational institutions in the form of technical training and provision of supporting facilities is needed. Collaborative strategies such as peer assessment and the use of digital rubric applications can also be an effective solution to reduce teacher workload and increase objectivity in the assessment process. From the student side, the results of the studies show that the use of portfolios significantly increases intrinsic learning motivation. When students can see their learning progress concretely through documentation stored in the portfolio, they will feel more confident and encouraged to continuously improve and enhance their learning outcomes. Research by Sari et al. (2022) even shows that students using e-portfolios show an increase in self-reflection ability, perseverance in completing tasks, and better and structured time management.

This is an important indicator in building a profile of independent, responsible, and autonomous learners who can direct their own learning process. The integration of portfolios in innovative learning design certainly cannot be done haphazardly, but rather needs to be systematically and planned. This process includes several important stages, starting from planning relevant assessment objectives and

indicators, developing a portfolio format that suits student characteristics, compiling transparent and standardized assessment rubrics, mentoring during the portfolio completion process, to providing constructive reflective feedback. The Backward Design model is a very suitable learning design approach to be applied in this context because this model emphasizes the importance of preparing assessments first before determining the learning strategies and activities to be used. Research by Driessen (2017) also provides an important view that teachers should directly involve students in the process of determining the portfolio format and content.

This participatory approach is considered to increase students' sense of ownership and responsibility for their own learning process. In addition, the application of regular reflection practices both weekly and monthly in the portfolio also proven to help students internalize the meaning of their learning experiences, so that they not only learn cognitively, but also affectively and metacognitively. From all the studies analyzed, it can be concluded that authentic portfolio-based assessment is a comprehensive, adaptive, and highly supportive approach to innovative learning. Although in practice it still faces various challenges, both in terms of technical aspects and human resource readiness, portfolios still offer an alternative assessment that is more humane, reflective, and contextual. Therefore, systematic efforts are needed to strengthen the integration of portfolios into the education system through continuous teacher training, provision of adequate technological facilities and infrastructure, and progressive education policy support that favors meaningful and transformative learning assessment.

5. Conclusion

Authentic portfolio-based assessment is an assessment approach capable of comprehensively evaluating student competencies, emphasizing the learning process, self-reflection, and contextual achievement. This literature study shows that portfolios have advantages in supporting innovative learning, especially in the development of critical, collaborative, reflective, and metacognitive thinking skills. The integration of portfolios in innovative learning design not only strengthens the achievement of learning objectives but also positions students as active subjects in the learning process. Through project-based and digital technology-based approaches, portfolios provide space for creative expression and learning autonomy. However, its effectiveness largely depends on teacher competency in designing assessments, the availability of digital infrastructure, and policy support that promotes continuous formative assessment practices.

Challenges in portfolio implementation, such as assessment complexity and technological readiness, need to be addressed with strategies for increasing teacher capacity, professional collaboration, and integration with digital learning management systems. Therefore, portfolio assessment should not be viewed as an administrative burden, but as a reflective learning medium that enriches both the learning process and outcomes. The findings of this study reinforce the recommendation to integrate portfolio assessment into innovative curricula and learning designs to build transformative education that is adaptive to the needs of the 21st century.

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