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Quizzy as a Digital Diagnostic Assessment Instrument in Primary Education

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ABSTRACT

Diagnostic assessment is an important part of the implementation of the Independent Curriculum because it functions to identify the initial abilities, learning needs, and characteristics of students before the learning process is implemented. However, the implementation of diagnostic assessments in elementary schools still faces various obstacles, such as the limitations of interactive, efficient, and easy-to-analyze instruments. This article aims to examine the use of Quizzy as a digital diagnostic assessment instrument in primary education. The research uses a systematic literature review method with a qualitative descriptive approach through searching for accredited scientific articles on Google Scholar, SINTA, and Garuda published in the 2021–2025 range. The results of the study show that Quizzy has significant potential in supporting cognitive and non-cognitive diagnostic assessments through gamification features, instant feedback, and automated data analytics that make it easier for teachers to map students' learning abilities and needs. In addition to increasing the effectiveness of diagnostic data collection, the use of Quizzy is also able to increase the motivation, participation, and active involvement of elementary school students during the assessment process. However, the implementation of Quizzy still faces challenges in the form of limited technology infrastructure and teachers' digital competencies. Therefore, support for training and the development of digital facilities is needed so that the use of Quizzy as a diagnostic assessment instrument can run optimally in elementary schools.

Keywords: Quizzy, Digital Diagnostic Assessment, Gamification, Independent Curriculum.

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INTRODUCTION

Diagnostic assessments play a crucial role in the implementation of the Independent Curriculum in basic education because it is the first step to recognizinge the initial conditions of students including basic abilities, strengths and weaknesses, learning styles, and individual characteristics as the basis for differentiated and relevant learning planning (Yani et al., 2023). Within the framework of the Independent Curriculum, diagnostic assessments are positioned alongside formative

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and summative assessments as complementary components of assessment to support student-centered learning development and reporting of learning progress (Anawaty et al., 2023). By knowing the initial profile of students through diagnostic assessments, teachers can design modules, strategies, and learning activities that adapt to the needs of diverse students so that the implementation of learning becomes more effective and inclusive (Lestari et al., 2023). In addition, the development of educational technology opens up opportunities for the use of digital tools and interactive platforms that can increase the efficiency of the implementation of diagnostic assessments, as well as facilitate documentation and follow-up of learning more responsively.

Several elementary schools still apply conventional diagnostic assessments such as simple written tests and manual observations, which often take a lot of time and make it difficult to process and analyze assessment data (Olmo-Muñoz et al., 2023). These traditional methods tend to produce instruments that are less interesting to students so engagement and motivation to learn are low, while teachers struggle to provide quick and targeted formative feedback (Julita, 2024). The limited time teachers have to design, implement, and process assessment results as well as technical challenges in assessing individual development further exacerbate the effectiveness of conventional diagnostic assessments (Amjad et al., 2025). These conditions demand digital technology-based innovations including standardized quiz platforms that can improve the efficiency of data collection and analysis, provide instant feedback, and increase student motivation and engagement through game elements such as points, levels, and badges (Çavuş et al., 2023). However, the application of gamification also has obstacles in its practicality, including the need for teacher training, availability of facilities and infrastructure, curriculum suitability, time management, and the risk of technical problems during implementation that must be anticipated in the design and implementation of digital solutions such as Quizzy (Amjad et al., 2025). Overall, the application of diagnostic assessments based on digital quizzes provides potential solutions to improve the efficiency, formative validity and motivation of elementary school students as long as they are supported by teacher training and adequate infrastructure.

Digital assessments offer practical advantages for the Primary School context because they can provide quick feedback, automated analysis, and interactive experiences that increase student engagement in line with the need for inclusive and differentiated digital learning media for students with special needs as well as strengthening Pancasila student profiles (Mandalika et al., 2024). The concept of gamification and interactive elements in digital platforms can increase student motivation and participation, support project-based learning and literacy habits that were previously focused on through the School Literacy Movement (GLS) resulting in a more engaging and adaptive learning environment for diagnostic assessments (Lanya et al., 2023). Platforms such as Quizzy, which have interactive features and potential for formative and diagnostic assessments, can serve as a supporting tool to map elementary school students' literacy and numeracy abilities as well as provide remedial and personalized enrichment data as long as instrument design, assessment rubrics, and teacher training are taken into account so that digital assessments are aligned with curriculum objectives and good assessment practices (Mandalika et al., 2024). Therefore, gamification-based digital assessments such as Quizzy can provide

benefits in increasing student involvement, accelerating analysis and feedback, and supporting the mapping of literacy and numeracy skills in a more adaptive, personalized, and aligned with the goals of the Independent Curriculum if supported by good instrument design and teacher readiness.

Mapping students initial conditions is the basis for determining the appropriate learning level, content, process, and product so that learning can run optimally (Astuti et al., 2023). Diagnostic assessments, both cognitive to assess the mastery of prerequisites and non-cognitive to assess learning readiness, interests, learning styles, and social-emotional conditions, serve as an entry point for teachers in developing appropriate learning strategies and groups (Alfarisi, 2024). However, the monotonous implementation of assessments can cause pressure and reduce student morale therefore, more interesting and fun assessment instrument innovations are needed. One of the proposed technological solutions is the use of gamification-based digital assessment tools to increase children's involvement and comfort in early learning diagnoses.

Digital quiz platforms such as Quizzy are one of the innovations in diagnostic assessment with interactive features such as gamification, leaderboards, instant feedback, and automated analytics that can support formative and diagnostic assessments in real time and increase student motivation and participation (Tuhuteru et al., 2023). Research on the development of digital learning media at the basic level reports that interactive products show high validity, practicality, and effectiveness and can improve learning outcomes, indicatinge the potential of digital quiz platforms to improve learning outcomes when designed and implemented properly (Khofifah et al., 2023). In addition, efforts to improve teacher competence through assessment workshops and the introduction of digital assessment platforms show that teacher readiness is a key factor in the successful implementation of digital assessments at the elementary school level (Yahya et al., 2022). Although preliminary evidence supports the benefits of digital quiz platforms for motivation, participation, and learning outcomes, specific studies on Quizzy as a digital diagnostic assessment instrument in primary education are limited. Therefore, this study is important for testing the validity, practicality, and impact of quiz learning in the context of Indonesian elementary schools.

METODE

This research method uses a systematic literature review approach with a qualitative descriptive framework to gain a comprehensive understanding of the use of Quizzy/Quizizz as a digital diagnostic assessment instrument in primary education. Data search was carried out on academic databases with a combination of keywords such as "Quizzy/Quizizz "digital diagnostic assessment "gamification "basic education "learning assessment and "Independent Curriculum thus maximizing thematic linkages between publications. The inclusion criteria were articles published between 2021 and 2025, originating from accredited or reputable international journals, substantially relevant to the use of digital quiz platforms for learning assessment or evaluation, and available in full text with DOIs or accessible academic sources. The

data analysis technique follows the stages of identification, reduction, classification, and thematic synthesis of the initial collection based on keywords, selection according to inclusion/exclusion criteria, thematic grouping, and thematic analysis to examine the patterns, relationships, and tendencies of scientific findings related to the effectiveness of digital quiz platforms (Abdillah et al., 2022). To increase the validity of the study, triangulation of sources was applied by comparing the results of similar and relevant studies, resulting in a more reliable synthesis of the potential, advantages, and obstacles of the implementation of Quizzy/Quizizz as a digital diagnostic assessment instrument in elementary education according to the demands of the Independent Curriculum and the latest gamification learning practices.

RESULTS AND DISCUSSION

The Role of Diagnostic Assessment in Primary Education

Diagnostic assessments serve as an important first step in identifying the initial abilities, learning needs, and characteristics of learners before the learning process begins, thus becoming the basis for relevant learning planning. Studies on the implementation of the Independent Curriculum show that teachers use diagnostic assessments to determine Learning Outcomes, design teaching modules, and prepare differentiated learning according to student readiness (Saputra et al., 2023). In addition, in special conditions such as distance learning during the pandemic, the literature recommends periodic diagnostic assessments to check students' cognitive and non-cognitive conditions so that learning interventions can be targeted (Sapitri, 2022). Therefore, diagnostic assessments play an important role in identifying students' initial abilities and learning needs as the basis for differentiated learning planning.

The diversity of abilities, learning styles, and speed of understanding among elementary school students demands different learning approaches. Diagnostic assessments facilitate the identification of these differences so that teachers do not provide less uniform treatment to individual needs. Field research in schools that implement the Independent Curriculum reports that the results of diagnostic assessments are a guide in designing module-based learning, short and long projects, and help implement more contextual, collaborative learning, and foster students' independence and curiosity (Fadhli, 2022). Similar findings show that diagnostic assessments cover both cognitive and non cognitive aspects, thus providing a comprehensive picture of students learning readiness (Saputra et al., 2023). Therefore, this diagnostic assessment can help teachers understand the diversity of students abilities, learning styles, and cognitive and non-cognitive readiness.

Although important, the implementation of conventional diagnostic assessments faces various obstacles such as the difficulty teachers face in compiling interesting instruments, processing results quickly, and the potential for student boredom and anxiety due to traditional written tests. Therefore, the literature recommends assessment innovations, including digital assessments and alternative formats that are more interactive and adaptive to the development of educational technologies. Studies on the Independent Curriculum and practice in schools show the use of non-cognitive,

formative, and digital assessments as strategies to improve the relevance and efficiency of assessments, although their implementation is still in the development and adjustment stages in many elementary schools (Purba et al., 2023). Thus, digital assessment innovations that are more interactive, adaptive and efficient are needed in accordance with the development of educational technology and the demands of an independent curriculum.

Quizzy as a Digital Diagnostic Assessment Platform

Quizzy is a gamification-based digital quiz platform designed as a diagnostic assessment tool for primary education. The concept of using games or game elements in learning has proven to be feasible and valid as a learning medium for elementary school students according to a study on the development of websites that follow the ADDIE model The studyshows that the prototype of a website game meets the criteria of high validity for grade 4 elementary school students (Dewi et al., 2023). In addition, the literature on the use of gamification platforms and training on their use shows that gamification platforms can improve teachers' digital competence and produce game and quiz-based learning products that are practical for use in the context of distance and face-to-face learning (Khairunisa et al., 2022). In addition, training on the use of online assessment platforms makes it easier for teachers to choose and operate various online assessment features in the future.

Quizzy's advantage lies in the integration of gamification elements such as points, leaderboards, virtual rewards, and instant feedback Which are empirically linked to increased student motivation and engagement. Research and literature reviews show that the application of gamification in the educational environment increases students' motivation, concentration, and academic performance Assessments that are packaged as games tend to make students more enthusiastic and less anxious when answering questions so assessment data can better reflect students' authentic abilities (Dewi et al., 2023). Teacher training and mentoring in the use of gamification platforms or online assessment platforms also contribute to the adoption of interesting features that support an interactive and informative assessment experience for students and teachers (Khairunisa et al., 2022). Therefore, gamification-based Quizzy has the advantage of increasing student motivation, engagement, concentration and comfort in assessments so that the results obtained better reflect authentic abilities.

Quizzy makes it easier for teachers to manage assessment results through automated analytics that present scores, answer accuracy levels, the distribution of learning outcomes, and question difficulty indicators. Thus, teachers can recognize students' initial abilities and develop more targeted teaching interventions. This is in line with the need to strengthen teachers' competencies in diagnostic assessments and the use of digital platforms as recorded in competency assessment workshops and online platform training Which show an increase in teachers' understanding and skills to design and follow up on assessment results (Yahya et al., 2022). Thus, the integration of gamification and analytics features in Quizzy supports the purpose of diagnostic assessments in identifying students' difficulties to design subsequent learning reinforcement more effectively.

Quizzy Implementation on Cognitive Diagnostic Assessment

The implementation of Quizzy in cognitive diagnostic assessments can be used to measure students' mastery of basic concepts before learning begins by compiling questions based on learning outcomes or prerequisite materials and then mapping the results into ability categories (high, medium, low). This is in line with the purpose of diagnostic assessment in the Independent Curriculum which requires initial diagnostics to determine students' initial competencies so that teachers can plan appropriate learning follow-ups (Hasmawati & Muktamar, 2023). Field research shows that teachers use the results of diagnostic assessments to design different learning experiences for groups of students and that diagnostic assessments are effective in improving students' knowledge when followed by appropriate follow-up (Forniawan & Wati, 2024).

The use of Quizzy provides efficiency benefits because the data collection and processing are automated, reducing the need for manual checks and accelerating the analysis of assessment results. In addition, the live feedback feature on the quiz app allows students to know the correct answers and understand their mistakes independently thus, the tool doubles as an evaluation instrument and learning medium that can strengthen the understanding of concepts. This efficiency and instant feedback support the practice of formative assessments at the beginning and during the learning process as recommended in the Independent Curriculum implementation policies and studies (Ramadhan, 2024).

The use of Quizzy also supports differentiated and inclusive learning because the diagnostic data produced can be used as the basis for the preparation of teaching strategies that are tailored to the needs of students; thus, students who have difficulty receiving additional assistance while those who have mastered the material get more complex challenges (Ardianti & Amalia, 2022). However, the literature highlights the need to pay attention to the quality of the question instruments so that diagnostic assessments are truly valid and useful for follow-up learning studies Some questions tend to be easy and have low differentiation therepore, they require variation and improvement of question items as well as the implementation of regular follow-up (Forniawan & Wati, 2024).

Quizzy Implementation on Non-Cognitive Diagnostic Assessments

Non-cognitive diagnostic assessments aim to obtain information about psychological conditions, learning habits, learning styles and interests, and emotional readiness of students that affect learning success, thus becoming the basis for designing differentiated learning and appropriate interventions (Watu et al., 2024). By utilizing interactive surveys or polling features on platforms such as Quizzy, teachers can systematically collect data on students' motivations, interests, and social-emotional aspects before starting learning so that grouping and strategy selection can be tailored to students' learning profiles (Yokoyama et al., 2023).

Engaging and child-friendly visual displays such as the use of emojis, images, and interactive illustrations in questionnaires encourage students' comfort in expressing their non-cognitive states and help elicit more honest and natural responses This is important considering that the interpretation of non-cognitive assessment results

requires professional attention from teachers or counseling staff (Hilman et al., 2023). Variations in learning styles are evident in the elementary school population thepore, the design of questions and assessment media must accommodate this diversity so that the data collected are valid for designing differentiated learning (Watu et al., 2024).

Impact on teaching practices and conformity with the Independent Curriculum: Non-cognitive data obtained through Quizzy allows teachers to build better communication and understand the learning characteristics of students in depth, so that the learning process becomes more humane and oriented towards holistic student development in line with the principles of the Independent Curriculum which places students at the center of learning (Alifiana et al., 2023). By mapping interests, learning styles, and emotional readiness through initial assessments, teachers can choose appropriate learning models and social-emotional interventions, increasing motivation and the effectiveness of learning in elementary school (Hilman et al., 2023).

Challenges of Utilizing Quizzy in Elementary Education

The main challenge of using Quizzy as a digital diagnostic assessment instrument in primary education is closely related to the limitations of technological infrastructure in many schools. Several field studies during the COVID-19 pandemic have shown that uneven Internet access and the availability of digital devices are often significant obstacles to the implementation of online-based learning and assessment at the primary level, so that digital solutions such as Quizzy cannot be operated optimally across primary school contexts, especially in disadvantaged areas (Muskania & Ms, 2021). Similar findings were reported in early childhood studies and early childhood groups that showed disruption in the implementation of virtual learning when signals or devices were inadequate, although quiz platforms such as Quizzy could increase engagement when the infrastructure allowed (Nurhayati et al., 2023).

Teachers' digital competence is the second factor that plays a role in determining the success of the implementation of Quizzy The empirical literature indicates that many primary school teachers need improved ICT capabilities to design digital quizzes, manage platform features, and interpret assessment data outputs. Research on the digital transformation of education during the pandemic found a strong need for continuous training for teachers to effectively utilize various applications, as well as adjust assessment and management methods for online learning (Yola, 2022). In addition, a case report on virtual learning confirms that creative and mentored teachers can take advantage of digital quizzes to increase student motivation but this depends on the availability of adequate training and technical support (Nurhayati et al., 2023).

The third challenge relates to the aspects of supervision and reliability of digital assessment results: without proper monitoring mechanisms or question design, the potential for response mismatches increases, thereby reducing the validity of the diagnostic data. The literature therefore suggests that teachers design assessments that examine thought processes, implement a variety of interactive question formats and authentic assignments, and combine the platform's automated analytics with professional observation and parental involvement to ensure the integrity of

assessments This approach is recorded in the experience of implementing various online learning platforms during the pandemic as a practice of mitigating supervisory constraints and assessment validity (Romadhon et al., 2021). Overall, the study shows that while Quizzy has great potential as an interactive diagnostic assessment tool that meets the needs of the 21st century, its successful implementation depends on infrastructure improvements, strengthening teacher competencies through continuous training, and assessment design that addresses the issues of supervision and answer validity (Nurhayati et al., 2023).

CONCLUSION

Based on the results of the literature review that has been conducted, it can be concluded that Quizzy shows great potential as a digital diagnostic assessment tool at the primary education level. The use of Quizzy allows for more interactive, effective and efficient diagnostic assessments than traditional approaches. Gamification features such as points, scoreboards, live feedback and attractive visual designs make the assessment process more enjoyable while increasing the motivation and active participation of elementary school students. Quizzy is not limited to cognitive diagnostic assessments but can also be used in non-cognitive assessments to reveal students' emotional states, learning interests and characteristics. The platform's automated data analysis feature helps teachers map students' learning needs more quickly and in a structured manner. However, the application of Quizzy as a digital diagnostic assessment tool still faces obstacles, especially the limitations of technology infrastructure, Internet access and teachers' digital ability to operate technology-based platforms. The success of its implementation depends on the provision of digital facilities, teacher training and the management of programmed assessments so that the benefits can be maximized in the learning process in elementary schools.

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