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Challenges, opportunities, and effects of alternative assessment approaches in teaching practices: a systematic literature review

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ABSTRACT

Alternative assessment, encompassing methods such as portfolios, project-based evaluations, and peer assessments, aligns with 21st-century student-centered learning goals by holistically and authentically evaluating students' progress. This research applies the systematic review literature method with the preferred reporting items for systematic reviews and meta-analyses (PRISMA) protocol. The study analyzed 47 peer-reviewed articles published between 2019 and 2023, sourced from Web of Science, Scopus, and Education Resource Information Centre (ERIC) databases. The thematic analysis revealed three main themes: i) challenges in implementing alternative assessments, including teacher readiness and assessment skills; ii) opportunities for enhancing creativity and variety in teaching approaches; and iii) positive effects on teachers' motivation and understanding of student learning. The findings highlight the need for targeted professional development to support teachers in effectively implementing alternative assessments. This review contributes to the growing body of knowledge on innovative assessment practices and their impact on teaching and learning in contemporary educational settings.

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1. INTRODUCTION

The landscape of educational assessment has undergone significant transformation, with a growing emphasis on alternative assessment approaches that complement or replace traditional testing methods [1]–[4]. This shift, which began in the late 20th century and has accelerated in recent years, reflects a changing understanding of learning and assessment in education [5]. Alternative assessment can be defined as any non-traditional method of evaluating student learning, including but not limited to portfolios, project-based assessments, peer evaluations, and performance tasks [6].

These alternative methods aim to provide a more comprehensive and authentic evaluation of student learning, aligning with contemporary educational goals of fostering critical thinking and problem-solving skills [7], [8]. The shift towards more holistic assessment practices recognizes the multifaceted nature of student development, encompassing cognitive, physical, emotional, and spiritual aspects of learning [9], [10]. This evolution in assessment paradigms has profound implications for teaching practices, necessitating a thorough examination of its challenges, opportunities, and effects.

The complex interplay between assessment practices and educational outcomes has been the subject of extensive research, underpinned by various theoretical frameworks such as constructivism and social learning theory [11]. Previous studies have explored various aspects of alternative assessment, including the

use of evaluation rubrics [12], implementation challenges [13], [14], and the effects of online alternative assessment approaches [15]–[18]. Researchers have also investigated the broader impacts on teaching and learning outcomes [19]. These studies collectively underscore the potential of alternative assessment to enhance educational quality and effectiveness.

Despite this growing body of research, there remains a need for a comprehensive synthesis of findings to provide a holistic understanding of alternative assessment approaches in teaching practices. This study aims to address this gap by conducting a systematic literature review (SLR) focused on the challenges, opportunities, and effects of alternative assessment approaches in teaching practices [20], [21]. By synthesizing existing knowledge, this research seeks to answer the following key questions:

- What are the main challenges educators face when implementing alternative assessment approaches?
- What opportunities do alternative assessment methods present for enhancing teaching practices and student learning?
- What are the observed effects of alternative assessment approaches on teaching practices and educational outcomes?

The findings of this systematic literature review will not only consolidate current knowledge but also identify areas for future research and inform best practices in educational assessment. The results have potential implications for educators seeking to implement alternative assessment methods, policymakers considering assessment reforms, and researchers investigating the impact of assessment practices on educational outcomes. By providing a comprehensive analysis of alternative assessment approaches, this study aims to contribute to the ongoing dialogue about effective teaching and assessment practices in the 21st century educational landscape.

2. METHOD

The systematic literature review process, as described by Othman *et al.* [22] involves identifying, analyzing, formulating, and critically assessing relevant past studies to answer research questions, utilizing the preferred reporting items for systematic reviews and meta-analyses (PRISMA) guideline by Hamid *et al.* [23] which is recognized for its rigorous and detailed process [24], and offers advantages in social sciences research [25], including access to quality data sources and time-saving benefits for authors. Furthermore, the SLR emphasize PRISMA's ability to help researchers determine necessary studies based on research questions [26], following a four-step flowchart of identification, screening, eligibility, and inclusion [27], [28].

The research questions of this SLR are developed based on PICo. PICo is a mnemonic used to form SLR research questions based on qualitative synthesis and it can be used to obtain important aspects or elements that must be present in SLR research questions [29], [30]. PICo is based on three main concepts, namely 'P' stands for population/problem, 'I' stands for interest, and 'Co' stands for content. Based on these concepts, three main aspects, namely teachers (population), alternative assessment (interest), and challenges, opportunities, and effects (context) are used as the basis for the formation of the main research questions for this SLR.

2.1. Identification

Identification is a crucial process in a SLR to identify and diversify keywords suitable for sourcing articles and references. Well-chosen keywords enhance the accuracy of retrieved articles and references. This SLR's identification process was guided by the research questions, resulting in the selection of four main keywords: alternative assessment, challenges, opportunities, and effects. To ensure comprehensive coverage, these keywords were expanded and diversified through several methods. Synonyms and related words were identified by examining past studies, consulting the Scopus database, and seeking expert opinions. This multi-faceted approach helped capture a wide range of relevant terms. The results of this identification process are detailed in Table 1, which provides a transparent and replicable overview of the expanded keyword set.

The sourcing of articles and references was conducted through three main databases: Web of Science (WoS), Scopus, and Education Resource Information Centre (ERIC). These databases were selected based on their distinct advantages. According to Gusenbauer and Haddaway [31], Web of Science, Scopus, and ERIC are powerful tools, offering comprehensiveness, stability, and advanced functions compared to other database platforms. Gusenbauer and Haddaway [31] further emphasized the quality control and systematic indexing systems of Web of Science and Scopus. While, Shaffril *et al.* [32] noted some weaknesses in ERIC, particularly regarding quality control, but Ismail and Osman [33] highlighted its strengths. These include article quality, coverage of multiple languages, and a broad range of fields of study. Consequently, ERIC was included as a supporting database to broaden the scope of this SLR.

Advanced search techniques were employed across these databases to ensure a thorough and precise search. These techniques included the use of Boolean operators (AND, OR), phrase searching, truncation, wildcards, and field code functions (Table 1). To complement the database searches, manual searches using the handpicking method were conducted on ScienceDirect. Additionally, the snowballing method was applied to selected articles, further expanding the pool of potential references.

The search strategy yielded an initial set of results: 7,323 articles from Scopus, 185 from Web of Science, and 136 from ERIC. This substantial initial pool of 7,644 articles demonstrates the comprehensive nature of the search strategy. All of these articles will proceed to the screening stage, the second phase of the systematic review process, where they will be further evaluated for relevance and quality.

Table 1. Article search for SLR

Database	Search string
Web of Science (n=185)	Results for ((“alternatives" OR "opportunity" OR "option" OR "substitute”) AND (“assessment" OR "evaluation" OR "estimate" OR "appraisal”) AND (“challenges" OR "objection" OR "threat" OR "protest”) AND (“opportunities" OR "convenience" OR "event" OR "excuse”) AND (“impacts" OR "brunt" OR "shock"))
Scopus (n=7,323)	TITLE-ABS-KEY (((“alternatives” OR “opportunity” OR “option” OR “substitute”) AND (“assessment” OR “evaluation” OR "estimate" OR "appraisal") AND ("challenges" OR "objection" OR "threat" OR "protest") AND ("opportunities" OR "convenience" OR "event" OR "excuse") AND ("impacts" OR "brunt" OR "shock"))
ERIC (n=136)	((“alternatives" OR "opportunity" OR "option" OR "substitute”) AND (“assessment" OR "evaluation" OR "estimate" OR "appraisal”) AND (“challenges" OR "objection" OR "threat" OR "protest”) AND (“opportunities" OR "convenience" OR "event" OR "excuse”) AND (“impacts" OR "brunt" OR "shock"))

2.2. Screening

The screening process for this SLR begins with 7,644 articles identified in the initial search. Screening involves applying inclusion and exclusion criteria to select relevant articles [34]. The primary inclusion criteria focus on several key aspects. First, the publication year is limited to 2019 to 2023, aligning with the study maturity concept [35] and capturing a significant increase in publications on alternative assessment approaches in teaching. To control quality, only journal articles published in English are included, avoiding confusion in reading and understanding. The review focuses on articles with relevant empirical data, excluding review articles to concentrate on primary research findings. Furthermore, selected articles must explicitly discuss alternative assessment approaches in teaching. These criteria ensure that the chosen articles offer relevant findings to the SLR as shown in Table 2.

The screening process resulted in the removal of 448 articles that did not meet the set criteria, leaving 47 articles for the next stage of the review. This significant reduction from the initial dataset is typical in SLRs, as it narrows down the focus to highly relevant articles. By applying these criteria, the review maintains a balance between comprehensiveness and specificity, ensuring that the selected articles directly contribute to understanding alternative assessment approaches in teaching within recent years.

Table 2. The inclusion criteria

	Inclusion criteria
Year of publication	Within the past 5 years (2019 to 2023)
Type of publication	Journal article
Language	English
Type of finding	Empirical finding
Focus of finding	Data related to the assessment of alternatives, challenges, opportunities, and impacts in teacher learning and teaching

2.3. Eligibility

Following the initial screening, the remaining 47 articles undergo an eligibility process, which serves as a second screening to ensure relevance and usability in this SLR. This process involves reviewing the article titles and abstracts. In cases where relevance remains unclear after examining these elements, the methodology, results, and discussion sections are also consulted. During this phase, 33 articles were excluded for various reasons: some did not focus on alternative assessment, others centered on university lecturers rather than school teachers, some were duplicate records, and a few were studies conducted in higher education institutions instead of secondary schools. Additionally, articles in the form of scoping reviews were also removed. As a result of this thorough evaluation, 14 articles were deemed eligible and selected to proceed to the next stage: quality assessment as presented in Figure 1.

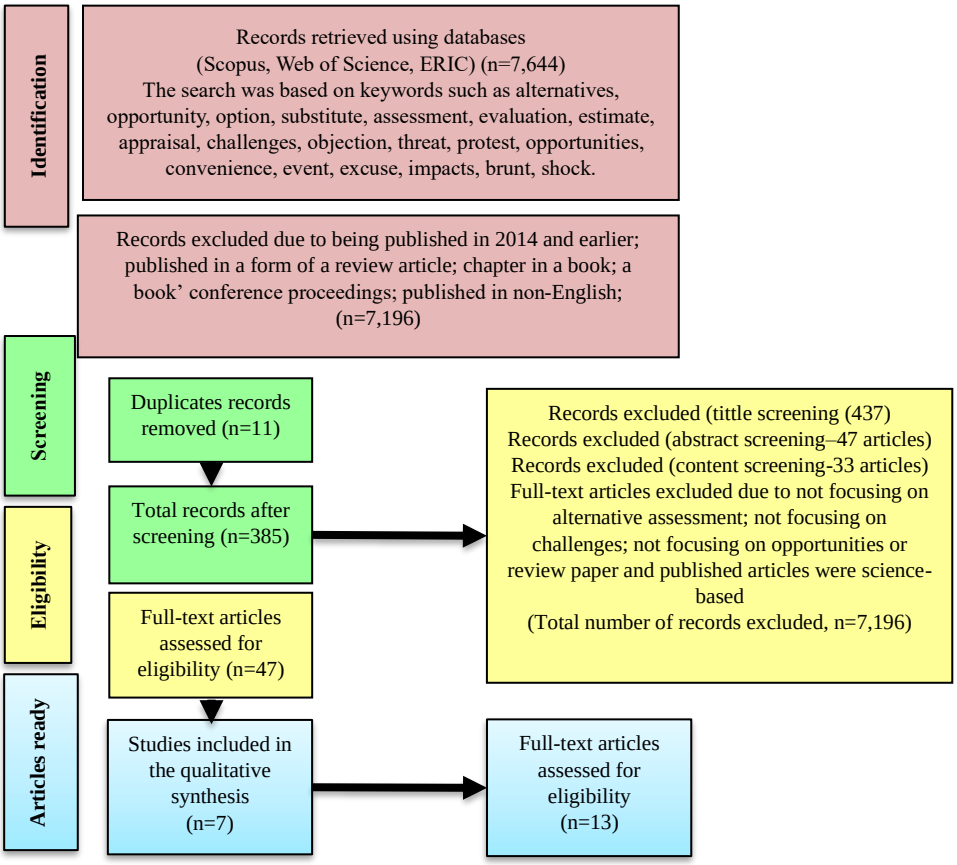

Figure 1. Flowchart of the study selection process

2.4. Quality evaluation of article

The evaluation of selected articles for quality is crucial in minimizing bias and identifying methodological weaknesses [36], [37]. To facilitate this process, three panels of researchers were chosen to assess the articles using the mixed methods appraisal tools (MMAT), which accommodates various research designs [38], [39]. The evaluation process consists of two stages: first, articles must meet two basic criteria-clarity of research questions and data's ability to answer these questions. Subsequently, articles are categorized by study design (qualitative, quantitative, or mixed methods) and evaluated based on five specific criteria. Panels use a three-option response system (Yes, no, or cannot tell) for each criterion, reaching mutual agreement or seeking second opinions in cases of disagreement. To be included in the SLR, articles must meet at least three of the five criteria. Out of 47 evaluated articles, only 14 met this threshold and were incorporated into the SLR as shown in Tables 3-5, respectively.

Table 3. Qualitative article quality evaluation results

Basic criteria/research	[1]	[4]	[5]	[7]	[10]	[11]	[12]	[14]
Are the research questions clearly stated?	Y	Y	Y	Y	Y	Y	Y	Y
Did the obtained data answer the research questions?	Y	Y	Y	Y	Y	Y	Y	Y
Qualitative criteria								
Did the study use the qualitative approach appropriately to answer the research question?	Y	Y	Y	Y	Y	Y	Y	Y
Is the qualitative data collection methodology sufficient to answer the research questions?	Y	Y	Y	Y	Y	Y	Y	C
Are the results obtained from the data sufficient?	Y	Y	Y	Y	Y	Y	Y	C
Did the data substantiate the result interpretations?	Y	Y	Y	Y	C	Y	Y	Y
Is there continuity between the source, collection, analysis, and interpretation of qualitative data?	Y	Y	Y	Y	C	Y	Y	Y
Result	/	/	/	/	/	/	/	/

Note: Y=Yes; N=No; C=Cannot tell

Table 4. Quantitative article quality evaluation results

Basic criteria/research	[8]
Are the research questions clearly stated?	Y
Did the obtained data answer the research questions?	Y
Quantitative criteria	
Is the sampling strategy used relevant to answer the research question?	Y
Is the selected sample representative of the population studied?	Y
Did the study use the appropriate measurements?	Y
Is there a low risk of biased nonresponse?	Y
Did the study use appropriate statistical analysis to answer the research question?	Y
Result	/

Note: Y=Yes; N=No; C=Cannot tell

Table 5. Mixed-method article quality evaluation results

Basic criteria/research	[2]	[3]	[6]	[9]	[13]
Are the research questions clearly stated?	Y	Y	Y	Y	Y
Did the obtained data answer the research questions stated?	Y	Y	Y	Y	Y
Mixed-method criteria					
Is there a reason to use mixed methods to answer research questions?	C	N	Y	C	Y
Did the study combine different study components effectively to answer the research questions?	Y	Y	Y	Y	Y
Did the study interpret the combined qualitative and quantitative results accurately?	Y	Y	Y	Y	Y
Did the study address the differences and elements of inconsistency between the quantitative and qualitative results?	Y	Y	Y	Y	Y
Did the different study components comply with the quality criteria for each study design involved?	C	Y	Y	C	Y
Result	/	/	/	/	/

Note: Y=Yes; N=No; C=Cannot tell

2.5. Data extraction and analysis

The data extraction process, conducted by two researchers, focuses on the abstract, research results, and discussion sections of quality-evaluated articles, with additional relevant parts read as needed. This SLR aims to examine previous research findings related to alternative assessment's challenges, opportunities, and effects in teaching practices. The extracted data is tabulated for easier analysis. Given that this SLR is an integrative review combining various research designs, qualitative synthesis is deemed the most appropriate analysis method [40]–[42]. Thematic analysis, one of the best qualitative synthesis techniques for analyzing findings from different research designs [43], [44], is employed to identify patterns based on similarity or relevance of extracted research findings. This process involves examining individual findings, grouping similar or related ones, and assigning appropriate themes. Thus, three main themes emerged: i) challenges of alternative assessment in teaching practices; ii) opportunities for teachers to implement alternative assessment; and iii) effects on teachers. These themes underwent validation by two experts in SLR and education, who confirmed their suitability and relevance to the research questions.

3. RESULTS AND DISCUSSION

The SLR analyzed 14 articles published between 2019 and 2023 in various educational journals, employing diverse research methodologies with a predominance of mixed-method approaches. The studies focused on online alternative assessment approaches, technology's impact on teaching, assessment rubrics, and knowledge related to assessment for learning. The selected journals were indexed in reputable databases, with most publications listed in quartile 1 or 2, indicating their high standing in the field. The use of mixed methods in many studies underscores the value of combining qualitative and quantitative approaches to yield empirical results [12], [14], [15], [45], [46].

Thematic analysis revealed three main themes: challenges of alternative assessment in teaching practices, opportunities for teachers in teaching through alternative assessment, and the effect of alternative assessment on teachers' teaching practices. The COVID-19 pandemic has emphasized the need for alternative assessment, transforming conventional teaching and learning methods into online formats [12], [15], [17], [18], [35]. These findings underscore the importance of adapting assessment strategies to meet the evolving needs of students and educators, particularly in the face of global challenges.

3.1. Theme 1: the challenge of alternative assessment in teaching practices

The implementation of alternative assessment in teaching practices faces two primary challenges: teachers' willingness to adopt new methods and their knowledge of assessment techniques. Alternative assessment, a form of classroom assessment, requires teachers to diversify their approaches and implement multi-task evaluations such as coursework and project work. However, many educators struggle with this

transition. Goodwin [47] emphasized the importance of correctly using assessment rubrics, while Poth and Searle [45] highlighted the lack of instructional guidance in assessment design. This gap in skills and readiness raises issues of validity, reliability, and equality in assessment practices. To address these concerns, Hilbert *et al.* [35] proposed using machine learning to minimize inconsistencies in educational assessment.

The second challenge lies in teachers' depth of assessment knowledge, which encompasses understanding how to teach effectively and assess students accurately. Chen *et al.* [15] noted the need for improved knowledge of assessment methods and content delivery evaluation. Mohebi and Elsayary [14] revealed that nearly half of the teachers surveyed lacked adequate knowledge in pedagogical approaches and content matter, often struggling to design age-appropriate assessments. Additionally, teachers may lack the necessary training or confidence to effectively implement these new assessment techniques [48]. This deficiency typically stems from limited access to training and professional development opportunities related to alternative assessment. Addressing these challenges requires focused efforts to enhance teachers' skills and understanding through targeted training programs. By improving teachers' competencies in alternative assessment, educational institutions can foster more effective and comprehensive evaluation methods, ultimately benefiting student learning, and development.

3.2. Theme 2: opportunities for teachers in teaching for alternative assessment

Alternative assessment offers teachers new opportunities to evaluate student progress beyond traditional testing methods, providing a more comprehensive understanding of student abilities over time. Teachers' efficacy in implementing these methods is crucial, as highlighted by Hanauer *et al.* [49] who found that confidence in subject knowledge significantly impacts teaching self-efficacy. The flexibility of alternative assessment enables diverse activities such as quizzes, project assessments, and continuous evaluations, catering to different learning styles and goals. Innovative approaches, like using podcasts as an assessment tool, can significantly increase student motivation and engagement while developing students' communication skills in a real-world context [50]. Online simulations and virtual interactive clinics provide valuable opportunities for students to build competence in a safe environment, particularly in fields like social work where practical experience is crucial [51].

The COVID-19 pandemic has accelerated the adoption of alternative assessment methods, especially in online learning environments. Several studies [12], [15], [17], [18], [35] have explored various online assessment approaches, with Sarier and Uysal [18] emphasizing the need for consistent, fair, and clearly defined criteria in virtual teaching environments. The adoption of open educational resources and practices enables more student-centered, flexible approaches to assessment, allowing for greater customization of learning experiences [52]. E-assessment tools facilitate new forms of feedback and formative assessment, enabling more frequent and targeted evaluation of student progress [6].

Interprofessional peer teaching programs, which can be adapted to online formats, offer another avenue for alternative assessment, evaluating not only students' knowledge but also their ability to communicate and teach others [53]. However, Macken *et al.* [54] noted that some methods, like self- and peer-assessment, received less positive responses from students in online settings. As education continues to evolve, teachers need to adapt their assessment strategies to ensure effective evaluation of student learning across diverse contexts, balancing the opportunities presented by alternative assessments with the challenges of implementation in various learning environments.

3.3. Theme 3: the effect of assessment in teaching practices

The implementation of alternative assessment approaches has multifaceted and profound effects on teaching practices, significantly enhancing educators' creativity, critical thinking, and overall effectiveness. These innovative methods encourage teachers to be more inventive in their instructional strategies, often igniting students' interest and motivation, which in turn provides positive reinforcement for educators [14]. As teachers adapt their practices to align with alternative assessments, they frequently find themselves restructuring their courses and reconsidering their pedagogical approaches, leading to more innovative and effective teaching methods [5]. This shift promotes a more holistic evaluation of student learning, encouraging teachers to consider a broader range of skills and competencies [55], which can lead to a more comprehensive understanding of student capabilities and learning outcomes. The effectiveness of these methods is evidenced by Mohebi and Elsayary [14], which observed teachers employing diverse techniques to manage their classrooms effectively. Moreover, technology-enhanced assessment allows for more frequent, embedded evaluation throughout the learning process [56], providing teachers with real-time insights into student progress, and enabling more responsive and adaptive teaching strategies.

Furthermore, alternative assessment approaches contribute significantly to increasing teachers' understanding and motivation in their professional roles. As reported by Mohebi and Elsayary [14], performance evaluation of trainee teachers positively affects their performance, enhancing their

comprehension of how to utilize the internal classroom environment for planning and preparation, as well as their professional responsibility in conducting assessments. These approaches provide educators with the opportunity to obtain more holistic information about students' achievements, including communication skills, creativity, critical thinking, and teamwork. This comprehensive view of student progress not only informs teaching practices but also motivates educators to continually refine their methods. The impact of alternative assessment on teacher development is further supported by Macken *et al.* [54] who found that trainee teachers successfully understood and implemented assessment for learning with their primary school students during a physical education module, demonstrating the practical application of these approaches across various subjects. These assessment practices significantly influence how teachers structure learning activities and interact with students [6], often requiring more active student participation and collaboration, which fosters a more interactive and engaging classroom environment. As a result, teachers become more adept at planning and assigning tasks that test skills beyond basic knowledge, expanding their practices to cover comprehensive aspects of learning and preparing students for life after school.

4. CONCLUSION

This SLR has illuminated the challenges, opportunities, and effects of alternative assessment approaches in teaching practices, revealing significant implications for educational policy, teacher training, and classroom practices. The findings underscore the need for comprehensive professional development programs to enhance teachers' skills in designing and implementing alternative assessments, while also highlighting the potential of technology integration to minimize inconsistencies. The flexibility and holistic nature of alternative assessments offer opportunities for more inclusive and engaging learning environments, particularly in the context of increased digital adoption accelerated by the COVID-19 pandemic. The profound effects on teaching practices, fostering increased creativity and critical thinking among educators, suggest a transformative potential in overall education quality. Future research should focus on long-term impact studies, subject-specific effectiveness, technology integration in resource-constrained environments, cross-cultural comparisons, improvements in teacher preparation programs, scalability and sustainability of practices, and in-depth studies on student perspectives. By addressing these areas, educators and policymakers can work towards creating more effective, inclusive, and innovative educational environments that better prepare students for real-world challenges in the 21st century.

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