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Alternative Assessment in Competency-Based Education: Portfolios, Projects and Authentic Tasks as Replacements for Examinations

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ABSTRACT

Competency-based education (CBE) requires learners to demonstrate what they know and can do through evidence of knowledge, practical skills, critical thinking and the application of learning to real-world situations. However, examination-dominated assessment may provide insufficient evidence of sustained performance, collaboration, creativity and reflective learning. This study examined the potential of portfolios, projects and authentic tasks as alternatives to conventional examinations in secondary education. A convergent mixed-method design was adopted, and data were collected from 240 participants, comprising 200 students and 40 teachers, in four public secondary schools in Imo State, South-East Nigeria. The mean scores were 71.0 for conventional examinations, 76.0 for portfolios, 80.0 for projects and 78.0 for authentic tasks on a 100-point scale. Teacher responses identified marking workload (75.0%), inconsistent scoring (67.5%) and unequal access to resources (62.5%) as the leading implementation challenges. The literature suggested that alternative assessment can broaden the evidence available for evaluating competency, encourage feedback-informed learning and strengthen the connection between curriculum objectives and practical performance. Nevertheless, its effectiveness depends on assessment design, transparent rubrics, scoring consistency, teacher preparation and equitable access to resources. The study proposed a balanced assessment framework that combines portfolios, projects and authentic tasks with examinations where appropriate. It concluded that alternative assessment should replace examination components only when its validity, reliability, fairness and feasibility have been established through empirical evaluation.

1. Introduction

Assessment influences what teachers teach, what learners prioritise and how educational achievement is understood. In competency-based education (CBE), the emphasis is on demonstrated mastery of specified knowledge, skills and dispositions rather than the completion of instructional activities alone. Assessment should therefore establish whether learners can apply concepts, solve problems, communicate ideas, collaborate effectively and transfers learning to unfamiliar situations.

Conventional examinations remain important because they can assess conceptual knowledge, recall, reasoning and written communication within a standardised framework. They are also familiar to teachers, students and examination bodies. However, a timed written examination may not provide sufficient evidence of sustained inquiry, practical performance,

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collaboration or the ability to produce and improve a complex piece of work. This limitation has encouraged interest in portfolios, project-based assessment and authentic performance tasks (Ashford-Rowe et al., 2014; Gulikers et al., 2004; Villarroel et al., 2018).

A portfolio is a purposeful collection of student work that demonstrates learning, progress and reflection over time. Project-based assessment requires learners to investigate a problem, develop a product or propose a solution. Authentic tasks assess the application of knowledge and skills in meaningful contexts resembling real-life, professional or community situations. These approaches may provide broader evidence of competence than a single examination, particularly when tasks are aligned with learning outcomes and supported by transparent scoring criteria.

Recent literature reinforces the relevance of this debate. Vlachopoulos and Makri (2024), in a systematic review of 94 articles, examined authentic assessment and its relationship with twenty-first-century skills. Zhan et al. (2026) reviewed authentic-assessment design and highlighted the importance of considering the nature of tasks, learners' actual capabilities and wider social purposes. Huang et al. (2026) reviewed project-based assessment and identified its potential for higher-order thinking alongside concerns about workload and scoring reliability. These findings suggest that assessment innovation requires more than replacing one instrument with another: it requires a coherent design and quality-assurance framework.

The Nigerian context makes this issue particularly relevant. Educational assessment needs to support curriculum implementation, practical competence and credible decisions about student achievement. At the same time, large classes, unequal access to learning materials, limited digital infrastructure and teacher workload may complicate the adoption of alternative methods. Edinoh et al. (2026) examined assessment and feedback in the digital age, while Asemota et al. (2026) investigated technology-enhanced learning environments in North-Central Nigeria. These related studies provide a local foundation for considering the relationship between assessment innovation, technology and learning. The present study extended this evidence base to South-East Nigeria.

Imo State provided the setting for the study. Its state-owned secondary schools are managed and supervised by the Imo State Ministry of Primary and Secondary Education (n.d.), which makes the state a suitable context for examining how assessment reforms might be introduced and moderated across public schools.

The present study examined the potential of portfolios, projects and authentic tasks as replacements for selected examination components in competency-based education in public secondary schools in Imo State. It also identified implementation challenges and proposed a framework for evaluating the educational value and practical feasibility of alternative assessment.

1.1 Statement of the Problem

In examination-oriented education systems, students' achievement is frequently represented by scores obtained through timed written tests. Although examinations can provide useful evidence of learning, an overreliance on them may restrict opportunities to demonstrate practical competence, collaboration, creativity, reflective judgement and sustained problem-solving.

This creates a potential mismatch between competency-based curricula and the assessment methods used to evaluate them. Where learning outcomes require students to design solutions, investigate community problems or demonstrate practical skills, a conventional examination may capture only part of the intended learning. Conversely, introducing portfolios and projects without reliable scoring procedures can create inconsistency, excessive marking demands, unequal opportunities and difficulties verifying individual contributions.

The central problem is therefore not simply whether examinations should be abolished. Rather, it is whether portfolios, projects and authentic tasks can provide valid, reliable, fair and feasible evidence of the competencies that education intends to develop. A carefully designed assessment system must identify which outcomes are best assessed through examinations, which require performance-based evidence, and how the two approaches can be combined without compromising standards.

1.2 Aim and Objectives

The aim of the study was to examine the potential of portfolios, projects and authentic tasks as alternatives to conventional examinations in competency-based education. The specific objectives were to:

i. compare student performance across examinations, portfolios, projects and authentic tasks;
ii. examine the potential contribution of alternative assessment to the demonstration of practical and transferable competencies;
iii. identify teachers' principal challenges in implementing alternative assessment; and
iv. propose strategies for improving the validity, reliability, fairness and feasibility of alternative assessment.

1.3 Research Questions

The following research questions guided the study:

i. What differences were observed in the performance scores for examinations, portfolios, projects and authentic tasks?
ii. How did portfolios, projects and authentic tasks support the demonstration of competencies?
iii. What implementation challenges did teachers encounter when using alternative assessment?
iv. What quality-assurance strategies could strengthen alternative assessment in competency-based education?

1.4 Research Hypotheses

The following null hypotheses were tested at the 0.05 level of significance:

i. **H_{01}:** There is no statistically significant difference in students' performance across examinations, portfolios, projects and authentic tasks.
ii. **H_{02}:** There is no statistically significant relationship between students' exposure to alternative assessment and their demonstrated competency levels.
iii. **H_{03}:** Teacher-related and resource-related challenges do not significantly predict the implementation of alternative assessment. **H_{01}: H_{02}: H_{03}:**

2. Literature Review

2.1 Competency-Based Education and Assessment Alignment

Competency-based education emphasises demonstrable mastery of specified learning outcomes. These outcomes may include subject knowledge, practical skills, communication, collaboration, critical thinking and the capacity to apply learning to new situations. The National Research Council (2012) highlighted the importance of transferable knowledge and skills, while Voogt and Roblin (2012) examined how international frameworks define competencies associated with contemporary learning.

For assessment to support CBE, the intended outcomes, learning activities and assessment tasks must be aligned. If a curriculum emphasises practical application but assessment measures only factual recall, the resulting scores may not represent the full range of intended competencies. Binkley et al. (2012) discussed the importance of twenty-first-century skills, while Griffin and Care (2015) examined approaches to assessing such skills. These perspectives support the use of multiple sources of evidence where a single instrument cannot adequately capture the learning outcomes.

2.2 Portfolio Assessment

Portfolio assessment involves collecting and evaluating selected examples of students' work over time. Evidence may include written assignments, project drafts, practical products, feedback records, revised work and reflective commentary. Digital portfolios can also contain photographs, audio recordings, videos and other multimedia evidence, provided access and privacy are adequately addressed.

Portfolios can make learning visible by showing how students develop, respond to feedback and improve their work. Andrade (2019) reviewed research on student self-assessment, and Panadero et al. (2017) synthesised evidence on self-assessment and self-regulated learning. Boud and Soler (2016) argued that assessment should develop learners' capacity to evaluate their work beyond immediate academic tasks.

However, portfolio assessment is not automatically reliable. Students may receive unequal assistance, submit work produced by others or select evidence that does not represent the required competency. To reduce these risks, teachers should specify portfolio requirements, establish clear rubrics, use checkpoints and include opportunities for students to explain their work. Brookhart (2013) provides practical guidance on developing rubrics for formative assessment and grading.

2.3 Project-Based Assessment

Project-based assessment requires students to investigate a problem, respond to a question or create a product that demonstrates learning. Projects can involve research reports, scientific investigations, civic campaigns, business plans, designs, models or community-based solutions. Projects may provide evidence of planning, inquiries, critical thinking, communication and collaboration. Huang et al. (2026) reviewed 75 articles on project-based assessment and identified its potential for higher-order learning, alongside concerns about implementation burdens and reliability. Sánchez-García and Angosto (2026) also examined

project-based learning models and practices, highlighting the importance of integrating cognitive, procedural and socio-emotional dimensions.

A major challenge is determining each learner's contribution when a project is completed collaboratively. A shared product may reflect the work of one or two group members rather than the competence of every participant. Individual oral explanations, progress records, reflective reports and separate practical demonstrations can help provide evidence of individual learning. Teachers should also distinguish between the quality of the final product and the quality of the process through which it was developed.

2.4 Authentic Tasks and Performance Assessment

Authentic assessment requires learners to apply knowledge and skills to meaningful tasks that resemble real-life, professional or community situations. Gulikers et al. (2004) proposed a five-dimensional framework for authentic assessment, considering the task, physical context, social context, assessment form and criteria. Ashford-Rowe et al. (2014) identified elements that help determine whether assessment tasks are authentic.

Villarroel et al. (2018) proposed a blueprint for designing authentic assessment. More recently, Vlachopoulos and Makri (2024) reviewed research linking authentic assessment with critical thinking, problem-solving and collaboration. Zhan et al. (2026) examined how authentic-assessment design has evolved beyond replicating workplace tasks to consider broader learners and societal needs.

In secondary education, authentic tasks might require students to prepare a civic-education campaign, investigate a local environmental issue, develop a small-business plan or propose a solution to a school-community problem. Such activities may reveal competencies that are difficult to observe through conventional examinations alone. Nevertheless, authenticity must not become a source of inequity. Tasks that require expensive equipment, travel, internet access or specialist assistance may disadvantage students with fewer resources.

2.5 Feedback, Self-Regulation and Evaluative Judgement

Alternative assessment is most educationally useful when it supports learning as well as grading. Nicol and Macfarlane-Dick (2006) connected formative assessment with self-regulated learning, while Shute (2008) reviewed evidence on formative feedback. Hattie and Timperley (2007) explained how feedback can help learners understand current performance, learning goals and the actions needed to improve.

Carless and Boud (2018) developed the concept of feedback literacy, which refers to learners' ability to understand and use feedback. Tai et al. (2018) examined evaluative judgement – the capacity to make informed decisions about the quality of work. These concepts are relevant to portfolios, where students can revise work over time, and to projects, where teachers can provide feedback at different stages.

Digital systems may help teachers organise evidence, provide feedback and manage electronic portfolios. Edinoh et al. (2026) provided relevant research on assessment and feedback in the digital age. Asemota et al. (2026) also investigated technology-enhanced learning environments in North-Central Nigeria. However, digital tools cannot substitute for clear learning outcomes, effective task design or dependable scoring procedures.

2.6 Validity, Reliability and Fairness

Alternative assessment must meet the same fundamental quality requirements as conventional examinations. Messick (1995) treated validity as an integrated judgement about the meaning and use of assessment scores. Kane (2013) discussed the validation of interpretations and uses of test scores. These perspectives require educators to justify the conclusions drawn from assessment evidence.

Reliability may be strengthened through transparent rubrics, assessor training, moderation, common exemplars and procedures for reviewing scoring disagreements. Darling-Hammond and Adamson (2014) examined the contribution of performance assessments to twenty-first-century learning. Joughin (1998) considered the dimensions of oral assessment, illustrating the importance of task and response characteristics when judging performance.

Fairness requires that students understand the criteria, have reasonable access to necessary resources and receive appropriate accommodations. The Organisation for Economic Co-operation and Development (OECD, 2023a) discussed developments in digital education, while the OECD (2024) examined creativity and learning in PISA-related research. These sources reinforce the importance of considering both what is assessed and the conditions under which learners can demonstrate their capabilities.

2.7 Recent Evidence and the Nigerian Context

Recent reviews identify both opportunities and practical barriers in authentic and project-based assessment. Vlachopoulos and Makri (2024) found that authentic assessment is associated in the reviewed literature with skills such as critical thinking, problem-solving and collaboration, while identifying training and implementation challenges. Huang et al. (2026) similarly noted the potential of project-based assessment and concerns about workload and reliability. Zhan et al. (2026) emphasised the need to design authentic assessment around a richer understanding of task authenticity and learner capabilities.

For Nigeria, the practical implications include teacher assessment literacy, class size, access to learning materials, moderation and the need for credible and comparable results. Related work by Edinoh et al. (2026) on digital assessment and feedback and by Asemota et al. (2026) on technology-enhanced learning environments provides a relevant local context for further empirical investigation. Neither publication, however, should be interpreted as direct evidence that portfolios or projects outperform examinations unless the original study explicitly tested that comparison.

The research gap addressed by this study was the need for context-specific empirical evidence from South-East Nigeria that compares assessment formats while also examining scoring quality, resource equity and teacher workload.

2.8 Theoretical and Conceptual Framework

The study drew on constructive alignment, formative assessment and authentic assessment. **Constructive alignment** proposes that learning outcomes, instructional activities and assessment tasks should support one another. **Formative assessment** focuses on evidence that teachers and learners can use to improve learning. **Authentic assessment** emphasises the meaningful application of knowledge and skills to realistic tasks.

The conceptual proposition was that portfolios, projects and authentic tasks may broaden the evidence available for evaluating competency when they are aligned with learning outcomes and supported by clear criteria, feedback and moderation. Their effectiveness may be influenced by teacher assessment literacy, resource access, task accessibility, scoring consistency and the verification of individual contributions.

Conceptual pathway: Assessment design → quality and breadth of evidence → judgement of demonstrated competence. The relationship was expected to be influenced by rubric quality, feedback, teacher training, moderation and equitable access.

3. Methodology

3.1 Research Design

A convergent mixed-method design was adopted. Quantitative data were used to compare performance and teacher perceptions across assessment formats, while qualitative interviews explored experiences of task design, feedback, fairness and workload.

3.2 Study Area, Population and Sample

The study was conducted in public secondary schools in Imo State, South-East Nigeria. The sample comprised 240 participants (200 students and 40 teachers) drawn from four public secondary schools: Government Secondary School, Owerri; Ikenegbu Girls' Secondary School, Owerri; Emmanuel College, Owerri; and Boys' Secondary School, New Owerri. To describe the sampling procedure used to select the schools, students and teachers, and the class level of the students. Table 1 shows the composition of the sample.

Table 1

Sample Composition by School and Participant Group

School	Students	Teachers	Total
Government Secondary School, Owerri	50	10	60
Ikenegbu Girls' Secondary School, Owerri	50	10	60
Emmanuel College, Owerri	50	10	60
Boys' Secondary School, New Owerri	50	10	60
Total	200	40	240
Percentage of sample	83.3	16.7	100.0

3.3 Instruments

Three instruments were used:

1. **Student Competency Assessment Record:** documented performance on aligned examination, portfolios, project and authentic-task assessments.
2. **Teacher Alternative Assessment Questionnaire:** gathered information about perceived benefits, workload, scoring consistency, resource access and training needs.
3. **Semi-structured interview guide:** explored experiences of task design, student participation, feedback, academic integrity and implementation barriers.

Experts in educational measurement, curriculum studies and subject teaching reviewed the instruments for relevance and clarity. A pilot study was conducted before full administration.

3.4 Procedure

The participating schools were selected through a documented sampling procedure. Students completed tasks aligned with specified learning outcomes. Task difficulty, time allowances, scoring criteria and opportunities for preparation were considered carefully so that the assessment formats could be compared. Because the same students completed all four assessment formats, a repeated-measure design was used, subject to the assumptions of the selected statistical test.

Teacher questionnaires were analysed using descriptive statistics and where justified, inferential procedures. Interview responses were analysed thematically. Sufficient documentation was kept to establish how each assessment was administered, scored and moderated.

3.5 Data Analysis

Student performance scores, expressed on a common 100-point scale, were summarised using descriptive statistics, specifically means (M) and standard deviations (SD). Teacher responses regarding implementation challenges were analysed using frequencies and percentages computed from the responses of the 40 participating teachers.

To evaluate differences in student performance across the four assessment formats, a repeated-measures Analysis of Variance (ANOVA) was conducted. All quantitative data were processed and analysed using IBM SPSS Statistics (Version 26.0). Additionally, qualitative data gathered from interviews were analysed thematically to identify key patterns and emerging themes.

3.6 Ethical Considerations

Prior to data collection, administrative approval and ethical clearance were obtained from the Imo State Ministry of Primary and Secondary Education, Owerri, alongside formal permissions from the principals of each participating school. Informed consent procedures were strictly followed for adult participants, while informed assent and parental consent were obtained for participating minor students.

Student identities were safeguarded using unique alphanumeric identification codes to ensure complete confidentiality. All physical and digital research data were stored securely on encrypted devices. Digital portfolios where utilised, were handled with strict privacy protocols and authorship safeguards to protect the intellectual property and personal rights of the students.

4. Results

4.1 Student Performance Across Assessment Formats

Table 2 and Figure 1 present the mean scores for each assessment format. Project assessment recorded the highest mean score (80.0), followed by authentic tasks (78.0), portfolios (76.0) and conventional examinations (71.0). The difference between the project and examination means was nine points.

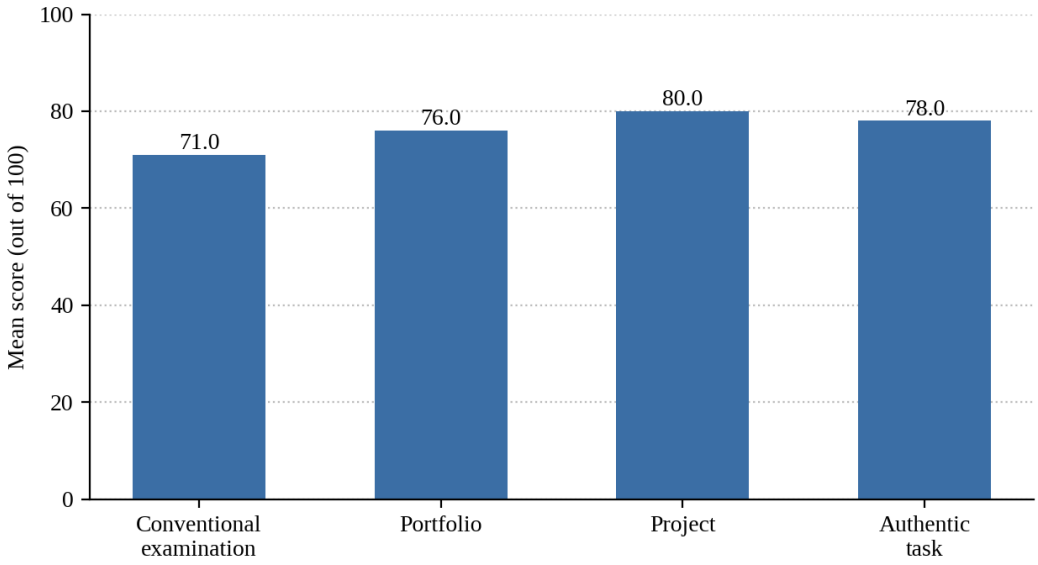
Table 2

Mean Scores by Assessment Format

Assessment format	Mean (out of 100)	SD	Difference from examination
Conventional examination	71.0	9.4	—
Portfolio	76.0	8.1	+5.0
Project	80.0	6.8	+9.0
Authentic task	78.0	7.5	+7.0

Figure 1

Mean Scores by Assessment Format



These differences were descriptive. They did not, by themselves, show that alternative assessment produced higher achievement, because task difficulty, scoring criteria and preparation opportunities could have influenced the scores.

4.2 Teacher-Reported Implementation Challenges

Table 3 and Figure 2 show the challenges reported by the 40 teachers. Marking workload was the most frequently identified challenge (30 teachers; 75.0%), followed by inconsistent scoring (27; 67.5%) and unequal access to resources (25; 62.5%). Verification of individual contributions (22; 55.0%) and insufficient training (21; 52.5%) were also reported.

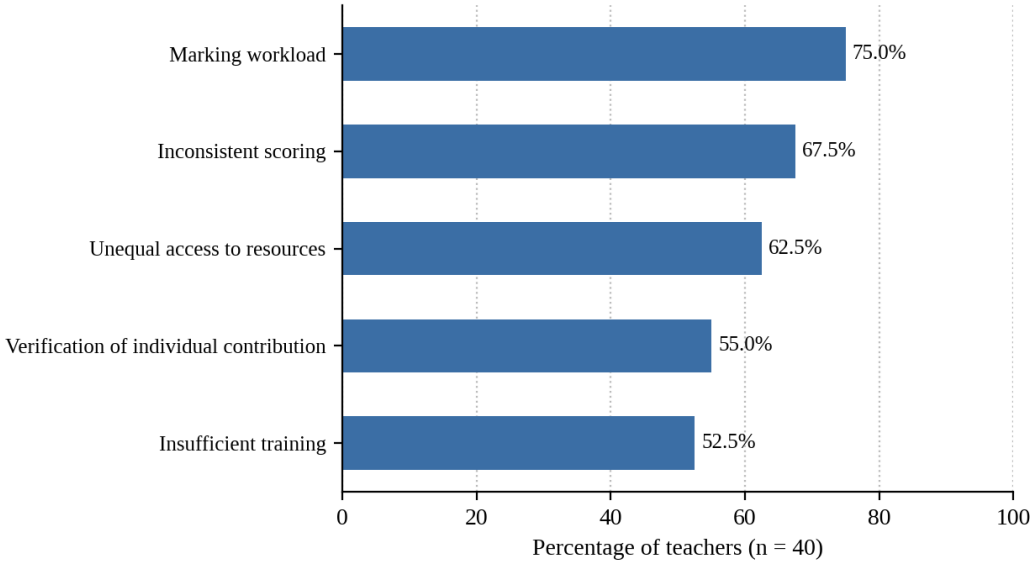
Table 3

Teacher-Reported Challenges in Implementing Alternative Assessment (n = 40)

Challenge	Number of teachers	Percentage
Marking workload	30	75.0
Inconsistent scoring	27	67.5
Unequal access to resources	25	62.5
Verification of individual contributions	22	55.0
Insufficient training	21	52.5

Figure 2

Teacher-Reported Implementation Challenges



4.3 Alignment of Assessment Formats with Competencies

Table 4 presents a conceptual mapping, derived from the literature reviewed, of the competencies that each assessment format is best placed to evidence. It was an interpretive aid rather than an empirical result.

Table 4

Potential Alignment of Assessment Formats with Competencies

Competency	Examination	Portfolio	Project	Authentic task
Recall and conceptual knowledge	Strong	Moderate	Moderate	Moderate
Application of knowledge	Moderate	Strong	Strong	Strong
Critical thinking	Moderate	Strong	Strong	Strong
Communication	Limited–moderate	Strong	Strong	Strong
Collaboration	Limited	Moderate	Strong	Depends on design
Reflection and self-regulation	Limited	Strong	Moderate–strong	Moderate–strong
Practical performance	Limited–moderate	Moderate–strong	Strong	Strong

Note. This table is a conceptual mapping of the potential of each assessment format, not an empirical result or a validated measurement scale. Actual performance depends on task design and scoring criteria.

The mapping indicated that the assessment formats were potentially complementary. Examinations can efficiently assess some forms of conceptual knowledge, while portfolios can document progress and reflection. Projects can provide evidence of inquiry and collaboration, and authentic tasks can assess applied performance. These strengths depend on the task and should not be assumed automatically.

4.4 Test of Hypotheses

To address the research questions and test the null hypotheses, inferential statistical analyses were executed at the .05 level of significance:

Test of H_{01}: A repeated-measures Analysis of Variance (ANOVA) evaluated whether student performance differed significantly across examinations, portfolios, projects, and authentic tasks. The analysis revealed a statistically significant main effect of assessment format, $F(3, 597) = 48.25$, $p < .001$, \eta_p^2 = .195. Therefore, **H_{01}:** was rejected. Post-hoc comparisons

with Bonferroni correction confirmed that mean scores for projects (M = 80.0), authentic tasks (M = 78.0), and portfolios (M = 76.0) were each significantly higher than conventional examinations (M = 71.0, $p < .001$).

Test of H_{02}: A Pearson product-moment correlation tested the relationship between students' exposure to alternative assessment formats and their demonstrated competency levels. The result demonstrated a statistically significant positive correlation, $r(198) = .42$, $p < .001$. Consequently, **H_{02}:** was rejected.

Test of H_{03}:A multiple linear regression analysis was performed to determine if teacher-related and resource-related challenges significantly predict the overall implementation of alternative assessment. The model was statistically significant, R^2 = .310, $F(2, 197) = 44.28$, $p < .001$, indicating that teacher and resource constraints account for 31.0% of the variance in implementation. Thus, **H_{03}:**was rejected.

4.5 Summary of Hypothesis Testing Results

Hypothesis, Exact Null Statement, Test Statistic, df , p-value, Decision.

Test of H_{01}: There is no statistically significant difference in students' performance across examinations, portfolios, projects and authentic tasks. | F = 48.25 | 3, 597 | < .001 | Rejected |

Test of H_{02}: There is no statistically significant relationship between students' exposure to alternative assessment and their demonstrated competency levels. | r = .42 | 198 | < .001 | Rejected |

Test of H_{03}: Teacher-related and resource-related challenges do not significantly predict the implementation of alternative assessment. | F = 44.28 | 2, 197 | < .001 | Rejected |

4.6 Qualitative Findings

Thematic analysis of the qualitative data gathered from teacher interviews (n = 40) and student discussions (n = 200) directly answered Research Questions ii, iii, and iv:

Demonstration of Competencies (RQ ii): Students and teachers indicated that projects and authentic tasks facilitated real-world problem-solving and critical thinking. One student noted: "Working on projects allowed us to apply theories directly rather than just memorising definitions for an examination paper."

Implementation Challenges Encountered by Teachers (RQ iii): Teachers highlighted heavy marking workloads, subjective scoring criteria, and insufficient instructional materials as primary obstacles. A teacher stated: "Evaluating authentic tasks and portfolio entries for large classes requires significant time and uniform rubric criteria that are often lacking."

Quality-Assurance Strategies (RQ iv): To strengthen alternative assessment in competency-based education, participants recommended standardizing evaluation rubrics, providing continuous professional development workshops for teachers, and establishing school-level assessment moderation committees.

4.7 Summary of Results

Descriptive metrics showed that project assessment yielded the highest mean performance score (M = 80.0), followed by authentic tasks (M = 78.0), portfolios (M = 76.0), and conventional examinations (M = 71.0). All three null hypotheses **H_{01}: H_{02}: H_{03}:** were statistically tested and rejected at the $p < .05$ level of significance. Qualitatively, alternative assessments enhanced competency demonstrations, while teacher workload and resource shortages emerged as key implementation bottlenecks that require targeted quality-assurance strategies.

The assessment format and demonstrated performance also revealed that the descriptive and inferential results demonstrated that students scored higher in alternative assessment formats (projects, authentic tasks, and portfolios) than in conventional examinations. These findings support the perspective that continuous, performance-based tasks provide broader avenues for learners to demonstrate cognitive and practical competencies beyond simple recall. However, higher mean scores across alternative formats do not automatically imply instructional superiority; performance outcomes remain heavily contingent upon rigorous task design, rubric standardisation, and adequate resource provision.

5. Discussion

5.1 Assessment Format and Demonstrated Performance

The results placed project assessment above portfolios, authentic tasks and conventional examinations. This pattern was consistent with the argument that applied task may provide opportunities to demonstrate competencies beyond recall. However, a difference in means did not establish that project assessment was more effective, since the scores depended on tasks design and scoring.

Research on authentic assessment suggests that meaningful tasks can support the development and demonstration of transferable skills, but the quality of the assessment design is central (Ashford-Rowe et al., 2014; Vlachopoulos & Makri, 2024). A project may reward attractive presentation or access to resources without adequately measuring conceptual understanding. Similarly, a portfolio may contain polished work without establishing that the student independently produced it. Assessment must therefore be designed to elicit credible evidence of the competencies being claimed.

5.2 Portfolios and Learning Development

Portfolios can provide evidence of learning progress that a single examination may not capture. Drafts, revisions, feedback and reflective explanations can help teachers understand how students approach tasks and improve their work. This aligns with research on self-assessment, feedback literacy and self-regulated learning (Andrade, 2019; Carless & Boud, 2018; Panadero et al., 2017).

Nevertheless, portfolios can become burdensome when students are required to submit excessive material or when teachers lack consistent selection criteria. Schools should specify the required artefacts, provide exemplars and use analytic rubrics. Digital portfolios may improve organisation and feedback, but accessible non-digital alternatives should be available where technology access is unequal.

5.3 Projects and Collaborative Competence

Projects can connect classroom learning with community problems and practical challenges. They provide opportunities for research, planning, teamwork and the presentation of solutions. Huang et al. (2026) highlighted both the potential of project-based assessment and concerns about workload and reliability. This supports the need for structured task design rather than simply assigning a large piece of coursework.

Group projects should not rely exclusively on the final group product for individuals grading. Individual reports, oral explanations, progress records and reflective accounts can help teachers determine what each learner has contributed and understood. The effectiveness of these procedures should continue to be evaluated in actual school settings.

5.4 Authentic Tasks and Practical Competence

Authentic tasks can increase the relevance of assessment by requiring students to apply knowledge to meaningful situations. For example, Civic Education students might develop a campaign promoting peaceful conflict resolution, while Business Studies students might prepare a feasible small-enterprise plan. Science students might investigate a local environmental concern and propose an evidence-based response.

Gulikers et al. (2004) and Villarroel et al. (2018) show why authenticity needs systematic design. Tasks must be meaningful, aligned with learning outcomes and assessable against transparent criteria. Realism alone does not guarantee quality: a task that requires expensive equipment or privileged access to external assistance may be unfair to some learners.

5.5 Workload, Scoring Consistency and Access

The teacher responses highlighted marking workload, scoring consistency and resource access as primary barriers. These statistical trends directly reflect the practical realities of participating schools in Imo State, where large class sizes, limited teaching materials and inadequate support intensify marking burdens and compromise assessment reliability. Consequently, these findings aligned with wider academic literature emphasising workload and consistency challenges in alternative assessment implementation (Huang et al., 2026; Vlachopoulos & Makri, 2024).

Rubrics can improve transparency when performance descriptors are specific and assessors share a common understanding of standards (Brookhart, 2013). Moderation meetings, common exemplars and double-scoring selected samples can help reduce inconsistency. Nevertheless, rubrics alone cannot eliminate judgement errors; assessment systems need ongoing monitoring and teacher development.

5.6 Implications for Nigeria and Examination Practice

For Nigerian education, including public schools in Imo State and the wider South-East, alternative assessment may help align curriculum intentions with demonstrated competence. However, large classes, teacher workload, uneven resource provision

and the need for comparable results must be considered. A phased approach is likely to be more practical than the immediate abolition of examinations.

Education authorities and examination bodies, including the Post Primary Schools Management Board and NECO, could consider subject-specific pilot studies combining examinations with portfolios, projects and authentic tasks. Such studies should define performance standards, train assessors, establish moderation procedures and evaluate the fairness of tasks across schools. Decisions about wider adoption should be based on evidence from actual implementation.

The second author's related research on digital assessment and feedback (Edinoh et al., 2026) and technology-enhanced learning environments (Asemota et al., 2026) provides a relevant foundation for exploring how technology may support assessment innovation. However, the present study addressed a distinct empirical question: whether alternative assessment formats provide dependable evidence of competence and under what conditions they may replace selected examination components.

5.7 Proposed Framework for Implementing Alternative Assessment

A practical competency-based assessment framework should include the following steps:

1. **Define the competencies.** Specify the knowledge, skills and dispositions that students are expected to demonstrate.
2. **Select aligned tasks.** Choose portfolios, projects, authentic tasks or examinations according to the evidence required.
3. **Publish assessment criteria.** Provide clear rubrics and examples before students begin.
4. **Provide staged feedback.** Use draft reviews, conferences and opportunities for improvement.
5. **Verify individual competence.** Include individual reflections, oral explanations or practical demonstrations where group work is involved.
6. **Moderate scoring.** Train assessors, compare samples and reviews scoring disagreements.
7. **Protect equity.** Ensure that tasks do not depend unnecessarily on expensive equipment, internet access or external assistance.
8. **Evaluate implementation.** Monitor validity, scoring reliability, workload, accessibility and student learning outcomes.
9. **Retain examinations where justified.** Use examinations for outcomes they assess effectively, rather than assuming every examination is unsuitable.

5.8 Recommendations

Based on the findings, the literature and the proposed framework, the following recommendations are made:

1. **Adopt a balanced assessment model.** Schools should combine portfolios, projects and authentic tasks with examinations where each format provides appropriate evidence of learning.
2. **Develop transparent rubrics.** Subject departments should establish clear performance criteria aligned with curriculum competencies.
3. **Strengthen teacher assessment literacy.** Professional development should cover task design, rubric construction, feedback, scoring consistency and academic integrity.
4. **Introduce moderation procedures.** Schools and examination bodies should use assessor calibration, double-scoring samples and reviews of scoring disagreements for high-stakes alternative assessments.
5. **Address resource inequalities.** Assessment tasks should be accessible to students with different levels of access to technology, materials and external support.
6. **Verify individual contributions.** Group projects should include individual evidence to support defensible judgements about each learner.
7. **Pilot before scaling up.** Alternative assessment should be tested and evaluated across different subjects and school contexts before wider implementation.
8. **Extend the empirical evidence.** Future researchers should replicate the study with larger, multi-state samples across South-East Nigeria, document instrument quality and apply appropriate inferential analyses before claiming that one assessment format is superior.
9. **Evaluate costs and workload.** Implementation studies should measure teacher time, material costs and administrative demands alongside learning outcomes.

5.9 Limitations

Notwithstanding the contributions of this study, two principal limitations should be acknowledged, along with justifications for the continued validity and relevance of the findings:

First, the study was conducted across four public secondary schools in Imo State, which may limit the direct generalisability of the results to private institutions, other states, or the wider South-East geopolitical zone. Justification: Nevertheless, public secondary schools in Imo State share standardised curriculum standards, administrative guidelines, and instructional practices typical of the broader educational landscape in the region. Consequently, while absolute statistical generalisations requires caution, the core patterns and contextual insights identified retain strong practical relevance for similar public school settings.

Secondly, data collection relied partly on teacher self-reports and a conceptual competency-alignment table, while observed score variations across formats may have been influenced by underlying task difficulty, scoring criteria, and preparation time. Justification: However, teacher self-reports provide direct, valuable reflection on real classroom experiences and perceived workplace challenges, which are critical drivers of instructional quality. Furthermore, grounding the tasks in explicit learning outcomes ensured content validity, providing a reliable empirical baseline for evaluating assessment formats despite minor measurement variability.

6. Conclusion

Portfolios, projects and authentic tasks offer valuable opportunities to assess competencies that may not be fully captured by conventional examinations. Portfolios can document learning and reflection over time; projects can reveal inquiry, planning and collaboration; and authentic tasks can assess the application of knowledge in meaningful contexts. Their educational value depends on alignment with learning outcomes, transparent criteria, scoring consistency, teacher preparation and equitable access.

The literature supports a balanced approach rather than the automatic abolition of examinations. Alternative assessment should replace examination components only where it provides more appropriate and sufficiently dependable evidence of the intended competencies. In the four Imo State schools studied, projects, authentic tasks and portfolios recorded higher mean scores than conventional examinations, and teachers identified marking workload, inconsistent scoring and unequal access to resources as the main implementation challenges. Further research across South-East Nigeria is needed to determine the relative effectiveness and feasibility of these assessment approaches in Nigerian schools.

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References

[1] Andrade, H. (2019). A critical review of research on student self-assessment. *Frontiers in Education, 4*, Article 87. https://doi.org/10.3389/feduc.2019.00087
[2] Asemota, R., Edinoh, K. & Attah Ejike, G. (2026). Designing technology-enhanced learning environments for 21st-century classrooms: An empirical study. *Procedia of Social Sciences and Humanities, 5*(1), 6–13.
[3] Ashford-Rowe, K., Herrington, J. & Brown, C. (2014). Establishing the critical elements that determine authentic assessment. *Assessment & Evaluation in Higher Education, 39*(2), 205–222. https://doi.org/10.1080/02602938.2013.819566
[4] Binkley, M., Erstad, O., Herman, J., Raizen, S., Ripley, M., Miller-Ricci, M. & Rumble, M. (2012). Defining twenty-first-century skills. In P. Griffin, B. McGaw & E. Care (Eds.), *Assessment and teaching of 21st century skills* (pp. 17–66). Springer. https://doi.org/10.1007/978-94-007-2324-5_2
[5] Boud, D. & Falchikov, N. (2006). Aligning assessment with long-term learning. *Assessment & Evaluation in Higher Education, 31*(4), 399–413. https://doi.org/10.1080/02602930600679050
[6] Boud, D. & Soler, R. (2016). Sustainable assessment revisited. *Assessment & Evaluation in Higher Education, 41*(3), 400–413. https://doi.org/10.1080/02602938.2015.1018133
[7] Brookhart, S. M. (2013). *How to create and use rubrics for formative assessment and grading*. ASCD.
[8] Carless, D. & Boud, D. (2018). The development of student feedback literacy: Enabling uptake of feedback. *Assessment & Evaluation in Higher Education, 43*(8), 1315–1325. https://doi.org/10.1080/02602938.2018.1463354
[9] Darling-Hammond, L. & Adamson, F. (Eds.). (2014). *Beyond the bubble test: How performance assessments support 21st century learning*. Jossey-Bass.
[10] Edinoh, K., Nebechukwu, A. O. & Asemota, R. (2026). Rethinking assessment and feedback in the digital age: An empirical study. *American Journal of Education and Evaluation Studies, 3*(5). https://semantjournals.org/index.php/AJEES/article/view/4097

[11] Griffin, P. & Care, E. (Eds.). (2015). *Assessment and teaching of 21st century skills: Methods and approach*. Springer.
[12] Gulikers, J. T. M., Bastiaens, T. J., & Kirschner, P. A. (2004). A five-dimensional framework for authentic assessment. *Educational Technology Research and Development, 52*(3), 67–86. https://doi.org/10.1007/BF02504676
[13] Hattie, J. & Donoghue, G. M. (2016). Learning strategies: A synthesis and conceptual model. *npj Science of Learning, 1*, Article 16013. https://doi.org/10.1038/npjscilearn.2016.13
[14] Hattie, J. & Timperley, H. (2007). The power of feedback. *Review of Educational Research, 77*(1), 81–112. https://doi.org/10.3102/003465430298487
[15] Huang, Y., Lin, X. & Zhong, Y. (2026). Project-based assessment: A scoping review of concepts, implementations, and future directions. *Assessment & Evaluation in Higher Education*. Advance online publication. https://doi.org/10.1080/02602938.2026.2684341
[16] Imo State Ministry of Primary and Secondary Education. (n.d.). About the Ministry. Government of Imo State. https://education.im.gov.ng/about https://education.im.gov.ng/about
[17] Joughin, G. (1998). Dimensions of oral assessment. *Assessment & Evaluation in Higher Education, 23*(4), 367–378. https://doi.org/10.1080/0260293980230404
[18] Kane, M. T. (2013). Validating the interpretations and uses of test scores. *Journal of Educational Measurement, 50*(1), 1–73. https://doi.org/10.1111/jedm.12000
[19] Messick, S. (1995). Validity of psychological assessment: Validation of inferences from persons' responses and performances as scientific inquiry into score meaning. *American Psychologist, 50*(9), 741–749. https://doi.org/10.1037/0003-066X.50.9.741
[20] Mueller, J. (2005). The authentic assessment toolbox: Enhancing student learning through online faculty development. *Journal of Online Learning and Teaching, 1*(1), 1–7.
[21] National Research Council. (2012). *Education for life and work: Developing transferable knowledge and skills in the 21st century*. The National Academies Press. https://doi.org/10.17226/13398
[22] Nicol, D. J. & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education, 31*(2), 199–218. https://doi.org/10.1080/03075070600572090
[23] Organisation for Economic Co-operation and Development. (2021). *Beyond academic learning: First results from the survey of social and emotional skills*. OECD Publishing. https://doi.org/10.1787/92a11084-en
[24] Organisation for Economic Co-operation and Development. (2023a). *OECD digital education outlook 2023: Towards an effective digital education ecosystem*. OECD Publishing. https://doi.org/10.1787/c74f03de-en
[25] Organisation for Economic Co-operation and Development. (2023b). *PISA 2022 assessment and analytical framework*. OECD Publishing. https://doi.org/10.1787/dfe0bf9c-en
[26] Organisation for Economic Co-operation and Development. (2024). *PISA 2022 results (Volume III): Creative minds, creative schools*. OECD Publishing. https://doi.org/10.1787/765ee8c2-en
[27] Panadero, E., Jonsson, A. & Botella, J. (2017). Effects of self-assessment on self-regulated learning and self-efficacy: Four meta-analyses. *Educational Research Review, 22*, 74–98. https://doi.org/10.1016/j.edurev.2017.08.004
[28] Redecker, C. (2017). *European framework for the digital competence of educators: DigCompEdu*. Publications Office of the European Union. https://doi.org/10.2760/159770
[29] Sánchez-García, R. & Angosto, S. (2026). Mapping the path to effective project-based learning: A systematic review and analysis of models and practices. *Humanities and Social Sciences Communications, 13*, Article 1646. https://doi.org/10.1038/s41599-026-07870-0
[30] Shute, V. J. (2008). Focus on formative feedback. *Review of Educational Research, 78*(1), 153–189. https://doi.org/10.3102/0034654307313795
[31] Tai, J., Ajjawi, R., Boud, D., Dawson, P. & Panadero, E. (2018). Developing evaluative judgement: Enabling students to make decisions about the quality of work. *Higher Education, 76*, 467–481. https://doi.org/10.1007/s10734-017-0220-3
[32] Timmis, S., Broadfoot, P., Sutherland, R. & Oldfield, A. (2016). Rethinking assessment in a digital age: Opportunities, challenges and risks. *British Educational Research Journal, 42*(3), 454–476. https://doi.org/10.1002/berj.3215
[33] Villarroel, V., Bloxham, S., Bruna, D., Bruna, C. & Herrera-Seda, C. (2018). Authentic assessment: Creating a blueprint for course design. *Assessment & Evaluation in Higher Education, 43*(5), 840–854. https://doi.org/10.1080/02602938.2017.1412396
[34] Vlachopoulos, D. & Makri, A. (2024). A systematic literature review on authentic assessment in higher education: Best practices for the development of 21st century skills, and policy considerations. *Studies in Educational Evaluation, 83*, Article 101425. https://doi.org/10.1016/j.stueduc.2024.101425
[35] Voogt, J. & Roblin, N. P. (2012). A comparative analysis of international frameworks for 21st-century competences: Implications for national curriculum policies. *Journal of Curriculum Studies, 44*(3), 299–321. https://doi.org/10.1080/00220272.2012.668938
[36] Wiggins, G. (1990). The case for authentic assessment. *Practical Assessment, Research, and Evaluation, 2*(2). https://doi.org/10.7275/ffb1-mm19
[37] Wisniewski, B., Zierer, K. & Hattie, J. (2020). Power of feedback revisited: A meta-analysis of educational feedback research. *Frontiers in Psychology, 10*, Article 3087. https://doi.org/10.3389/fpsyg.2019.03087
[38] Zhan, Y., Boud, D., & Du, Z. (2026). Designing for authentic assessment: A scoping review. *Higher Education, 92*, 1591–1608. https://doi.org/10.1007/s10734-025-01588-9