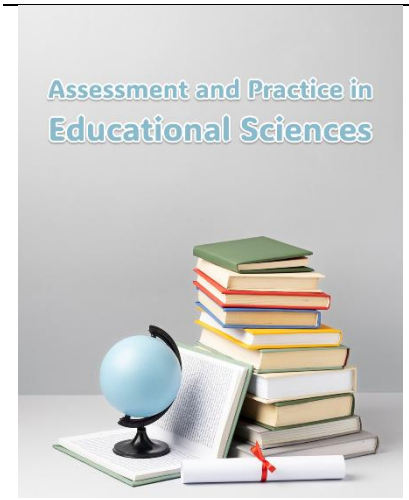
Assessment and Practice in Educational Sciences



The Multidimensional Nature of Learning Outcome Assessment in Practice-Based Courses

ABSTRACT

This study aimed to explore the multidimensional nature of learning outcome assessment in practice-based courses, focusing on the perceptions and experiences of educators and curriculum designers. A qualitative research design was employed using semi-structured interviews to gather in-depth insights from 23 participants, including university instructors, curriculum planners, and evaluators from Tehran. Participants were selected through purposive sampling based on their experience with assessment in practice-based disciplines. Data collection continued until theoretical saturation was reached. All interviews were audio-recorded, transcribed, and analyzed thematically using NVivo software. An inductive coding approach was used to identify key categories and themes. The analysis revealed three overarching themes: (1) Assessment Design and Alignment, including subthemes such as alignment with learning outcomes, tool diversity, and task authenticity; (2) Stakeholder Engagement in Assessment, including student involvement, instructor collaboration, and external feedback integration; and (3) Challenges and Innovations, encompassing issues such as time constraints, subjectivity, and digital tools. Participants emphasized the importance of constructive alignment, authenticity, and transparent criteria in assessment design. Stakeholder participation—especially from students and industry partners—was considered essential for relevance and effectiveness. Despite notable innovations, challenges such as inconsistency, lack of training, and institutional limitations remained prevalent. Learning outcome assessment in practice-based courses is inherently multidimensional, requiring flexible, authentic, and context-sensitive approaches. Educators navigate complex dynamics involving alignment, stakeholder expectations, and resource constraints. Addressing these challenges requires institutional support, ongoing professional development, and culturally responsive assessment strategies to ensure equity and educational impact.

Keywords: Practice-based learning; learning outcomes; authentic assessment; qualitative research; higher education; stakeholder engagement; assessment innovation.

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Introduction

In recent years, the discourse surrounding assessment in higher education has undergone a fundamental shift, moving beyond traditional examinations and standardized tests toward more authentic, competency-based approaches—especially in practice-based courses. These courses, which include disciplines such as engineering, health sciences, education, fine arts, and architecture, require students to demonstrate not only cognitive knowledge but also psychomotor and affective skills in real-world or simulated contexts (Biggs & Tang, 2011). In such domains, assessing learning outcomes is not a unidimensional task; rather, it involves capturing a broad spectrum of student capabilities that are often complex, tacit, and context-specific (Boud & Falchikov, 2006). This complexity necessitates multidimensional and context-sensitive assessment frameworks that go beyond measuring what students know to also examine how they apply, reflect, adapt, and innovate in practical settings.

The concept of learning outcomes in higher education has been shaped significantly by the shift toward constructivist paradigms of learning. According to Biggs (1996), learning outcomes should be aligned with both teaching activities and assessment tasks in what is known as "constructive alignment." In this model, students are viewed as active participants in the learning process, and assessment serves not merely as a grading mechanism but as a powerful tool for learning. However, applying constructive alignment in practice-based settings presents unique challenges due to the open-ended nature of tasks, the involvement of multiple stakeholders (e.g., students, faculty, industry supervisors), and the situational variability inherent in real-world environments (Knight, 2002).

Traditional summative assessments, such as multiple-choice tests or written exams, are often insufficient in evaluating complex professional competencies. As a result, formative assessments, authentic tasks, peer assessments, and portfolios have gained traction as more suitable alternatives in practice-based education (Gulikers, Bastiaens, & Kirschner, 2004). Authentic assessment, in particular, emphasizes the use of tasks that closely resemble the types of challenges students will face in their professional careers (Wiggins, 1998). Such assessments often require students to integrate knowledge, demonstrate performance, and provide justifications for their decisions—skills that are fundamental to professional competence (Baartman et al., 2007). Yet, despite the growing popularity of these tools, there remains a lack of consensus on how best to structure, implement, and evaluate learning outcome assessments in practice-based curricula.

Furthermore, the effectiveness of assessment depends not only on the tools used but also on how these tools are implemented, interpreted, and perceived by students and instructors alike. Assessment practices are deeply embedded in institutional cultures and often reflect broader epistemological beliefs about what constitutes valid knowledge and how it should be measured (Boud & Associates, 2010). For example, a portfolio might be used simply as a repository of student work in one context, while in another it might be a dynamic, reflective learning tool supported by scaffolded feedback and iterative development. This variation points to the need for qualitative explorations that illuminate how assessment is actually understood and practiced by those involved in it, rather than how it is intended in policy documents or curriculum frameworks.

A particularly important consideration in assessing learning outcomes in practice-based courses is the issue of authenticity and task relevance. As Torrance (2007) notes, authentic assessment tasks must not only reflect real-world practices but also engage students in meaningful ways that motivate them to demonstrate their best work. However, achieving authenticity is often constrained by time, resources, and institutional regulations. Faculty members must strike a balance between feasibility and validity, ensuring that assessment tasks are both manageable and meaningful (Sadler, 2009). Moreover, assessments must also be fair, transparent, and inclusive, especially in increasingly diverse classrooms. Transparency in assessment criteria and expectations has been shown to reduce student anxiety and increase motivation, yet it remains inconsistently practiced across institutions (Rust, O'Donovan, & Price, 2005).

Another layer of complexity in assessing practice-based learning is the role of feedback. High-quality feedback is essential for student development and is especially critical in formative assessments. According to Nicol and Macfarlane-Dick (2006), feedback should be timely, specific, and dialogic, allowing students to close the gap between current and desired performance. In practice-based courses, feedback may come not only from instructors but also from peers, external stakeholders, or self-reflection mechanisms. The multi-source nature of feedback presents both opportunities and challenges, requiring careful coordination and a shared understanding of quality and standards (Evans, 2013).

Moreover, assessment in practice-based disciplines is increasingly shaped by technological innovations. E-portfolios, simulation tools, video recordings, and learning management systems (LMS) have enabled more dynamic and integrated assessment models. Digital portfolios, for instance, allow students to document growth over time, receive feedback in real time, and reflect on their learning in multimodal formats (Barrett, 2007). However, the adoption of technology also raises questions

about digital equity, data privacy, and the risk of over-reliance on quantitative metrics. Faculty members may also lack the training and support needed to fully leverage these tools, leading to inconsistent and superficial implementation (Johnson et al., 2016).

Despite the increasing scholarly and policy interest in improving learning outcome assessments, there is still a dearth of empirical studies that explore how these assessments are operationalized in practice-based educational contexts. Most existing research focuses on designing assessment tools or evaluating their effectiveness in controlled settings. What remains underexplored is the subjective and contextualized nature of assessment as experienced by those who enact it—educators, curriculum developers, and students. This gap is particularly pronounced in non-Western contexts, where educational traditions, institutional norms, and cultural values may influence assessment practices in unique ways (Zhao, 2012).

In the Iranian higher education context, practice-based courses are gaining prominence in line with global trends emphasizing skills development, innovation, and employability. However, there remains significant variability in how learning outcomes are assessed across institutions and programs. Given the growing importance of practice-based education, there is an urgent need to understand how assessment is conceptualized and practiced by key stakeholders in this environment. Such understanding can inform policy development, instructor training, and curriculum design to ensure that assessment practices are aligned with educational goals and responsive to contextual realities.

This study addresses this gap by exploring the multidimensional nature of learning outcome assessment in practice-based courses through a qualitative lens. Using semi-structured interviews with 23 curriculum designers, instructors, and evaluators from universities in Tehran, the study aims to uncover how assessment is experienced, understood, and operationalized in real educational contexts. Specifically, it investigates the diverse tools and strategies used for assessment, the roles of different stakeholders, the challenges faced, and the innovations being adopted. By focusing on practice-based disciplines, the study contributes to a more nuanced and grounded understanding of assessment that reflects the complexity of real-world educational practice.

Methods and Materials

Study Design and Participants

This study employed a qualitative research design to explore the multidimensional nature of learning outcome assessment in practice-based courses. The interpretive approach was selected to gain an in-depth understanding of participants' lived experiences and professional insights. Purposeful sampling was used to recruit 23 participants from Tehran, including university instructors, curriculum designers, and educational evaluators who have direct experience with assessing student learning in practice-oriented academic settings. Participants were selected based on their expertise and involvement in practical course delivery and assessment, ensuring maximum variation in perspectives. The sample size was determined based on the principle of theoretical saturation, which was achieved when no new themes or insights emerged from additional interviews.

Data Collection

Data were collected through semi-structured interviews, allowing for open-ended yet focused discussions on participants' approaches, challenges, and reflections regarding assessment practices in practical courses. The interviews were conducted face-to-face in Persian, each lasting approximately 45 to 75 minutes. An interview guide was developed in advance, including questions about assessment criteria, tools used, feedback mechanisms, and the alignment between intended learning outcomes

and actual assessment practices. Follow-up and probing questions were used to explore deeper meanings and clarify ambiguities. All interviews were audio-recorded with participants' consent and transcribed verbatim for analysis.

Data analysis

Thematic analysis was conducted to identify and interpret patterns across the dataset. NVivo software was used to organize and manage the qualitative data. The coding process followed an inductive approach, starting with open coding to generate initial categories directly from the data. These codes were then grouped into axial codes based on conceptual similarities, and finally refined into overarching themes that reflect the multidimensional aspects of learning outcome assessment. The analysis was iterative and reflexive, involving multiple rounds of review to enhance credibility and trustworthiness. To ensure rigor, member checking and peer debriefing were employed, and an audit trail was maintained throughout the research process.

Findings and Results

Theme 1: Assessment Design and Alignment

Alignment with Learning Outcomes. Participants emphasized the need for assessment tasks to closely reflect intended learning outcomes. Many highlighted efforts to design evaluations that directly target applied competencies and professional standards. One instructor explained, "We assess what students are expected to do in the field—not just what they know in theory." Key indicators of alignment included mapping assessment tasks to learning objectives, ensuring skill-performance coherence, and maintaining curriculum relevance.

Assessment Tool Diversity. A wide range of tools was used to capture the multifaceted nature of learning in practice-based courses. Participants mentioned rubrics, checklists, simulations, peer assessment forms, and digital portfolios as common instruments. As one participant noted, "No single tool can capture all dimensions of learning—especially when students are building real-world competencies." Tool diversity allowed for better coverage of both technical and interpersonal skills.

Task Authenticity. Authenticity was described as a crucial component in effective assessment. Tasks modeled on real-world scenarios or industry challenges were favored for their relevance and motivational value. One faculty member stated, "We design projects that simulate what they would face in clinical or studio settings." Such authenticity increased student engagement and preparedness.

Formative vs Summative Balance. Participants discussed the importance of balancing formative and summative approaches. While summative assessments were necessary for grading, formative evaluations provided crucial developmental feedback. A participant observed, "Mid-course feedback lets students adjust their work and improves final outcomes significantly." Continuous low-stakes assessments were used to monitor progress over time.

Criteria Transparency. Transparent criteria emerged as a significant facilitator of fair assessment. Participants reported that explaining rubrics and expectations in advance empowered students. One interviewee reflected, "When students understand the criteria, they perform better and feel less anxious." Transparency was achieved through detailed marking schemes, open discussions, and examples of past work.

Instructor Autonomy. Several participants valued the flexibility they had in selecting assessment methods best suited to their discipline and student population. This autonomy allowed them to innovate and adapt assessments as needed. One remarked, "Sometimes, I create my own checklist for skills I know matter most in our field." While autonomy was appreciated, it also required institutional trust and accountability.

Theme 2: Stakeholder Engagement in Assessment

Student Involvement. Many participants integrated students into the assessment process through peer feedback, self-assessment, and collaborative rubric development. This engagement was seen to enhance reflection and accountability. As one participant explained, “When students help design the assessment, they own their learning more.”

Instructor Collaboration. Cross-instructor collaboration helped ensure consistency and shared standards. Joint assessment meetings and co-designed rubrics were reported, particularly in multidisciplinary programs. One faculty member mentioned, “We meet across departments to agree on what constitutes a good practical performance.”

Institutional Support. Institutional frameworks such as training workshops, shared guidelines, and policy documents played a supportive role in standardizing assessments. Participants expressed a need for more sustained support. A concern was voiced by one participant: “We sometimes feel left alone when designing assessments. A little guidance would help.”

Industry or External Stakeholder Input. Some programs incorporated evaluations from external professionals, particularly in fields like engineering, health sciences, and the arts. These external perspectives provided credibility and alignment with workplace expectations. One instructor commented, “Our internship supervisors fill out evaluation forms—it’s real-world feedback that we can use.”

Feedback Loops. Feedback was described as most effective when it was timely, dialogic, and actionable. Participants noted that feedback not only helped students grow but also informed instructional decisions. “Sometimes I change the assignment based on what I see in student performance,” a participant shared.

Emotional and Motivational Factors. Assessment was acknowledged to have emotional impacts. Empowering students through constructive feedback and reducing anxiety were noted as essential. One participant noted, “We’re not just evaluating skills—we’re also shaping confidence and motivation.”

Cultural Sensitivity in Feedback. Participants stressed the need to consider students' diverse backgrounds when providing feedback. Context-aware and respectful communication was seen as a facilitator of more effective learning. “Some students are not used to direct criticism—we try to frame things in a growth-oriented way,” one educator remarked.

Theme 3: Challenges and Innovations in Practice-Based Assessment

Time and Resource Constraints. Time limitations were a common challenge in conducting comprehensive assessments. Participants described the workload of grading practical tasks and the logistical issues of managing large student cohorts. “Sometimes it feels like we’re racing against the clock just to give basic feedback,” a participant explained.

Subjectivity and Bias. Despite the use of rubrics, concerns about subjective grading remained. Participants reported inconsistencies in how different assessors interpreted performance. One participant stated, “Even with criteria, two instructors might give different scores for the same project.” Peer assessments also posed risks of favoritism or leniency.

Technological Integration. Digital tools were increasingly used to support assessment, such as e-portfolios, online rubrics, and automated feedback systems. While these were generally welcomed, some participants expressed concern about over-reliance on technology. “Technology helps, but it can’t replace human judgment in evaluating creativity,” one instructor warned.

Professional Development Needs. Many educators indicated a need for ongoing training in assessment practices. They wanted to learn more about rubric design, feedback delivery, and using assessment data for improvement. One participant remarked, “We never really got formal training in how to assess practical skills.”

Adaptability Across Disciplines. Assessment strategies needed to be tailored to disciplinary contexts. Participants reported differences in how learning outcomes were operationalized in arts, engineering, or health sciences. “What counts as ‘good performance’ in architecture is very different from nursing,” one participant explained.

Ethical Considerations. Ethical concerns such as fairness, transparency, and informed consent (especially when recording or sharing student work) were highlighted. “We always make sure students know when their work is being reviewed by outsiders,” noted a participant, emphasizing the importance of protecting student rights and dignity.

Discussion and Conclusion

This study sought to explore the multidimensional nature of learning outcome assessment in practice-based courses by analyzing the perspectives of 23 faculty members and curriculum designers in Tehran. Thematic analysis of the qualitative data revealed three overarching dimensions—assessment design and alignment, stakeholder engagement, and challenges and innovations—each encompassing multiple subdimensions. The results provide compelling evidence that assessment in practice-based learning environments is not a linear or one-dimensional endeavor, but rather an iterative, socially constructed process influenced by contextual, cultural, and pedagogical factors.

The findings demonstrate that instructors in practice-based courses prioritize alignment between assessment tasks and intended learning outcomes, echoing Biggs and Tang’s (2011) theory of “constructive alignment,” which posits that learning activities and assessment tasks should reinforce one another to promote deep learning. Instructors emphasized the deliberate mapping of competencies to tasks, revealing a strong conceptual commitment to outcome-based education (OBE). This aligns with earlier findings by Boud and Falchikov (2006), who advocate for assessments that mirror the skills and knowledge learners are expected to demonstrate post-graduation. The insistence on authenticity, evident in participants’ descriptions of real-world simulations and industry-based tasks, further reinforces the value of authentic assessment, as discussed by Gulikers et al. (2004) and Wiggins (1998). These tasks support not only technical competence but also critical thinking and professional judgment.

Participants also indicated the need for diverse assessment tools to reflect the varied dimensions of practical performance. The use of rubrics, portfolios, peer assessments, and observational checklists reflects a shift from traditional summative models to more formative and competency-based approaches. This practice is supported by literature asserting that multimodal assessments are crucial in capturing the full spectrum of learning in complex environments (Baartman et al., 2007). Importantly, the study participants stressed the transparency of assessment criteria, which supports earlier findings that students benefit from clarity in expectations and evaluation metrics (Rust, O'Donovan, & Price, 2005). Providing students with clear rubrics and consistent feedback helped reduce anxiety and fostered engagement, a point also emphasized by Nicol and Macfarlane-Dick (2006).

Interestingly, many faculty expressed a preference for maintaining a degree of autonomy in designing assessments, especially in disciplines with evolving or highly contextual practices such as art, architecture, and nursing. This autonomy, while fostering creativity and relevance, also introduces variability, supporting Knight’s (2002) assertion that inconsistency in assessment practices remains a persistent issue in higher education. Still, the ability to adapt tools and criteria allowed educators to stay responsive to students’ needs and to evolving disciplinary norms.

The second major theme revealed the significance of multi-level stakeholder engagement in shaping meaningful assessments. This echoes calls by Boud and Associates (2010) and Carless (2015) for participatory assessment design that includes students, faculty, and external partners. Participants underscored the importance of student involvement through self-assessment and peer review, which they believed enhanced motivation and ownership of learning. This aligns with research suggesting that metacognitive awareness and self-regulation are strengthened when students are actively involved in evaluating their own work (Nicol & Macfarlane-Dick, 2006).

The role of collaborative instructor engagement also emerged as vital for maintaining coherence and shared standards, especially in multi-instructor or interdisciplinary courses. Faculty reported that collaborative rubric development and regular

feedback meetings contributed to greater fairness and clarity in assessment. These practices are consistent with findings by Evans (2013), who noted that assessment literacy among faculty is enhanced when dialogue and calibration are built into teaching cultures.

Furthermore, external stakeholder input, particularly from employers and internship supervisors, was cited as an important addition to the assessment process. This reflects a growing trend toward work-integrated learning (Patrick et al., 2009) and reaffirms the need for assessments that reflect workplace expectations. However, this also raises challenges regarding standardization and consistency, as industry evaluators may have different benchmarks than academic assessors. Still, the engagement of such stakeholders enhances the authenticity and relevance of the learning experience, a cornerstone of high-quality practice-based education.

Institutional support—or its absence—was another recurring concern. While some institutions offered training and guidelines, many participants expressed a desire for more structured support in assessment design and implementation, highlighting a gap between policy and practice. This supports previous studies which emphasize that institutional alignment and capacity-building are crucial for successful assessment reform (Johnson et al., 2016). Likewise, feedback practices were viewed as essential, especially dialogic feedback loops that allowed students to improve iteratively. These reflections support Carless's (2015) call for feedback processes that are two-way, formative, and embedded into the learning cycle.

Cultural considerations also surfaced, particularly regarding emotional and motivational dimensions of feedback. Faculty reported needing to adjust their tone and style to match students' expectations and emotional readiness. This echoes the findings of Zhao (2012), who argued that cultural values shape how feedback is interpreted and responded to in educational settings. As such, culturally responsive feedback is critical to fostering trust and inclusivity.

Participants openly discussed a range of challenges, many of which are consistent with the wider literature. Time constraints and resource limitations were perhaps the most frequently cited issues, particularly regarding grading and providing individualized feedback. As Torrance (2007) noted, while authentic assessments are pedagogically sound, they often require significant time investment, which is rarely accounted for in institutional workload models.

Subjectivity and bias were also acknowledged as inherent risks in evaluating complex student performances. Even with rubrics, instructors noted variability in scoring, echoing Sadler's (2009) warning that preset criteria alone cannot eliminate ambiguity in judgment. Similarly, peer assessment, while valuable, was said to occasionally reflect interpersonal dynamics rather than objective appraisal—a phenomenon also discussed by Dochy et al. (1999).

At the same time, the study highlighted emerging innovations, particularly in the use of technology. Digital portfolios, video submissions, and LMS-integrated assessments were being adopted to streamline documentation, foster reflection, and support formative feedback. However, some participants expressed concerns about over-reliance on technology or lack of training, reinforcing findings by Johnson et al. (2016) on the need for digital assessment literacy among educators.

Participants also expressed a strong need for professional development focused on assessment. Although many had extensive teaching experience, few had received formal training in designing or delivering performance-based assessments. This gap suggests that assessment literacy should be considered a core component of academic development programs, as emphasized by Boud and Associates (2010).

Finally, the challenge of disciplinary adaptability was evident in discussions around tailoring assessment strategies to specific fields. Faculty in arts-based or clinical disciplines described using discipline-specific frameworks and criteria, which sometimes conflicted with institutional mandates for uniform assessment. This tension supports earlier work by Baartman et al. (2007), who advocated for flexible models that accommodate disciplinary nuances without compromising accountability.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adheried in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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