Alternative Assessment Methods in Higher Education: Evaluating their Impacts on Critical Thinking and Creativity

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Abstract. This study examines the impact of alternative assessment methods on the development of critical thinking and creativity in higher education. Drawing on 13 empirical studies published between 2019 and 2025, the review explores a variety of assessment approaches, including project-based learning (PBL), project-based flipped classrooms (PBFC), the ASSURE instructional model, portfolio assessments, online peer assessment (OPA), and design thinking frameworks. These alternative methods prioritise authentic, reflective, and student-centred learning experiences that go beyond traditional examinations. The findings suggest that such practices enhance metacognitive awareness, foster innovation, and improve higher-order thinking skills across diverse educational contexts. However, systemic challenges often hinder their implementation, including misalignment between policy and practice, limited technological infrastructure, and inadequate faculty preparedness. The review highlights the need for inclusive, flexible, and context-sensitive assessment models that align with 21st-century learning objectives. It concludes by recommending institutional reforms, targeted faculty development, and further longitudinal research to evaluate the scalability and long-term effectiveness of alternative assessments.

Keywords: Alternative assessment, Critical thinking, Creativity, Higher education, 21st century skills

INTRODUCTION

In the modern, rapidly evolving educational environment, the need to find alternative assessment methods beyond the usual exams and quizzes is growing. Alternative assessment is a non-traditional form of assessment that uses projects, portfolios, presentations, reflective journals, and multimedia tasks to evaluate students' learning. The purpose of these methods is not only to examine factual knowledge but also to examine higher levels of knowledge application and problem-solving skills. They therefore provide a clearer picture of students' competencies and learning processes [1]. Alternative assessments help reduce academic stress by emphasising practical relevance and meaningful engagement with learning. They also promote independence and reduce the risk of academic cheating.

The ability to foster critical thinking and creativity is one of the most crucial aspects of assessment strategies in 21st-century education. Critical thinking is a metacognitive body of skills, constituting reasoning, interpretation, inference, evidence and logic [2]. A student's ability to think critically, analyse data, consider various points of view, and draw sound conclusions quantifies it [3]. At the same time, creativity comprises a set of skills for generating new work suitable for a given situation [4]. It is an interactive combination of aptitude, process, and environment that yields creative, socially beneficial outcomes [5].

According to academic sources and the state policy discourse, creativity and critical thinking are critical skills for individual growth and development, employability, innovation, and democratic participation. Colleges and universities have an essential role in developing these skills by ensuring they are used in teaching, learning, and assessment activities. Nonetheless, standardised testing and written exams are the most common ways of assessing students' aptitudes, but they are not always practical for evaluating students' critical and creative thinking skills. The traditional formats tend to emphasise memorisation and superficial learning, with little to no opportunity for students to express deeper critical thinking or problem-solving skills in the real world.

The existence of this gap supports the idea that some changes are necessary in the assessment methods. Evaluation of student learning through project-based work, portfolios, peer assessment, and reflection activity is more dynamic and authentic than formal assessment. These approaches align more smoothly with 21st-century education, as they enable students to apply knowledge to the situation, be innovative, and develop the abilities of reflection and analysis.

The study aims to analyse how alternative assessment methods in higher education shape critical thinking and creativity. It examines the results of 13 empirical studies conducted between 2019 and 2025. Additionally, it highlights common challenges in using these assessment approaches, including gaps between policy and practice, limited resources, and varying levels of faculty preparedness. By examining both the advantages and the challenges of these methods, the paper provides practical insights to guide improvements in assessment methods and support the development of capable, creative, and adaptable graduates.

RESULTS AND DISCUSSION

Theoretical Foundations and Educational Context. The past few years have produced a gradually forming consensus that higher education will need to evolve to keep pace with the needs of an increasingly complex, digitalised, and interconnected world. The inseparability of creativity and critical thinking as the most vital 21st-century competencies may be considered the core of such development. These are not merely academic skills that can enhance job prospects, lifelong employability, civic engagement, and an individual's growth. But the incorporation of such competencies into assessment schemes in higher education has been somewhat uneven and inconsistent. This part will discuss the theoretical backgrounds for alternative assessment, including institutional practices, conceptual frameworks, and emerging digitalised and pedagogical practices targeted at developing and measuring these skills.

1) Policy Context and Systemic Inequality. Although policymakers acknowledge creativity and critical thinking as key educational targets, OECD member states have hardly standardised their measurement. According to the author [6], qualification frameworks and policy discourses often include these competencies, but centralised testing practices rarely apply them consistently. Instead, other forms of assessment that tend to foster higher-order thinking should be developed at the institutional level, resisting systemic requirements within academic autonomy. This devolution has led to profound differences in the measurement and valuation of these skills, which can be highly detrimental to both policy-making and institutional accountability. Not having structural alignment can result in innovative assessment practices being fragmented and not integrated into formal education systems, as Bouckaert has argued in his analysis.

2) Pedagogical Model of Design Thinking. Design Thinking is a practical teaching method that helps students develop critical and creative thinking skills in college. It consists of five steps: Empathise, Define, Ideate, Prototype, and Test [7]. Using these steps helps students approach real-life problems in a practical, student-oriented way. Unlike traditional teaching that often focuses on lectures and memorisation, Design Thinking encourages students to learn by doing. It includes learning to know other people and their needs, thinking about new solutions, and experimenting and collaborating with peers; this assists students in problem-solving and collaboration.

As an alternative assessment method, Design Thinking allows students to demonstrate their learning through real-world tasks such as projects, prototypes, and reflective journals. In this kind of assessment, greater emphasis is placed on the learning process and the application of knowledge rather than on the final examination. According to the author [7], Design Thinking supports the goals of modern education and helps students become more reflective, innovative, and ready to tackle complex challenges in the workplace.

3) The Relationship of the 4Cs to Each Other. To build 21st-century skills, it is necessary to shift the understanding of creativity and critical thinking from independent characteristics to viewing them as a complex of skills. Authors [8] go even further in this argument, referring to their vision of the so-called 4Cs—creativity, critical thinking, communication, and collaboration. According to them, the skills are interrelated and can be best developed as a whole rather than as individual products. These authors also present the Crea-Critical-Collaboration model, which represents

the synergetic interaction of these competencies and provides a guiding framework for integrating them into the design of education. They also highlight how difficult it is to assess such multi-dimensional skills and that holistic and institutional approaches are needed to develop valid and reliable measures of these skills across learning environments.

4) Reassessment of Creativity Measuring. Creative expression is usually highly dynamic and situational, perceived in ways that do not align with traditional measures of creativity. The perspective on creativity presented by authors [9] is multidimensional, encompassing cognitive, emotional, and motivational levels, and is influenced by both personal characteristics and the environment. The authors criticise this assessment paradigm for failing to accommodate diverse manifestations of creativity, particularly in fields such as science, art, and mathematics. Furthermore, they raise the issue of inclusivity, stating that traditional instruments tend to ostracise students based on race, gender, and socioeconomic status. To overcome such constraints, Long et al. promote democratised, authentic assessment that focuses more on creative practices as perceived in the real world and also offers fair opportunities to students during demonstrations [9].

5) Online Learning and Peer Review. The digital era of competency-based education has created a need for new assessment tools, including Online Peer Assessment (OPA). An OPA is a form of collaborative work in which students peer-review one another's work and is defined as developing the last characteristic of lifelong learning: autonomy, responsibility, and substantive thinking [10]. As education becomes more digital-focused, the OPA exemplifies how institutions have used technology to enhance students' learning experiences by engaging them in experiential learning processes that rely on feedback to drive improvement. The fact that it aligns with self-regulated learning and social constructivist theories makes it theoretically sound. Moreover, OPA questions more conventional, bottom-up approaches to assessment, insisting that interaction, equity, and student voice are essential to the evaluation of higher-order skills.

6) The Digital Competency Framework. Authors [11] also note that it is necessary to teach 21st-century skills and apply them in both digital and moral contexts. These are not only creativity and critical thinking, but also digital, communication, and collaboration skills. The authors claim that instructional programs should not merely focus on passing information to students but should build adaptive learners able to cope with a multifaceted, digital-mediated environment. Their model highlights the need for evaluation practices that fairly represent students' capacity to exercise reflection and moral judgment regarding technology. By doing so, institutions may find it easier to align their curricular and pedagogical strategies with current requirements for competency development in both academic and professional settings.

Overview of Alternative Assessment Methods. Due to the changing nature of higher education, which emphasises developing more advanced cognitive skills, the usual test format is inadequate for quantifying the required aptitudes in the twenty-first century, such as innovation and critical thinking. Other assessment models are replacing them. These strategies focus more on authenticity, practice, and student agency-providing a better understanding of intellectual growth in students. This section presents an overview of alternative assessment models and innovations, using empirical evidence to outline their advantages, disadvantages, and application to modern learning purposes.

1) Instructional Models; Pedagogical Models: ASSURE, PBL, PBFC. One of the most recognisable models of organising alternative assessments is the ASSURE instructional model (Analyse learners, State objectives, Select methods and media, Utilise media and materials, Require learner participation, and Evaluate and revise), which combines the concepts of project-based learning and long-term curriculum planning. Authors [12] introduced this model in an Interior Design course, in which students participated in actual cultural heritage projects. The six stages, as stated in the framework, involved analysing the learner, setting goals, selecting media, using materials, participating, and evaluating. These stages helped students learn to design by using theory, cooperating, and reflecting on the design process. Periodic progress evaluations and continuous feedback also instilled critical and creative thinking into the learning process.

In support of the ASSURE model, Project-Based Learning (PBL) and its modified version, Project-Based Flipped Classroom (PBFC), have demonstrated significant promise in advancing higher-order skills. Authors [13] found that both designs

enhanced critical and creative thinking in vocational situations in business English teacher preparation, and PBFC yielded better results due to its emphasis on pre-class preparation and in-class work. These results confirm the value of combining evaluation and training into innovative, pupil-centric teaching strategies that enable ongoing, applied learning.

2) Institutional Use of Portfolios and Thesis Projects as Alternative Assessment Methods. Even though there is growing policy support surrounding innovative assessment, it remains a non-standardised practice within institutions. According to the author [6], there are two categories of assessment techniques: systemic-level standardised testing and institution-initiated assessment, such as portfolio and thesis projects. While the latter may appear more traditional, they are considered forms of alternative assessment when used to evaluate students through real-world tasks, process-oriented learning, and reflective practice. These methods facilitate creativity and critical thinking more effectively than standardised tests. Nevertheless, gaps in policy implementation, weak practice, and a lack of infrastructure have hindered their adoption. Higher education governance is often decentralised, meaning implementation typically depends on individual colleges designing their own versions of performance-based grading, leading to fragmented adoption and scalability challenges.

This is particularly evident in portfolio assessment. Research by the author [14], conducted with Philippine education students, reveals that portfolios promote reflective learning, instructional design, and creativity. Students created instructional materials using unconventional tools and concepts, demonstrating how portfolios can foster not only innovation but also critical reflection, particularly when supported by coherent instructional scaffolding and equitable digital access.

3) Authentic Task Design and Creativity across Domains. Creativity can be demonstrated through a variety of activities, as it is discovered within specific disciplines through authentic assessment. Authors [15] investigated it using an OECD PISA-based framework in students in the first year of business studies. The activities targeted problem-solving and creativity and incorporated feedback loops. Students showed greater growth in fluency (idea generation) than in originality, suggesting that distinct instructional accommodations are needed for different aspects of creativity. As the study reveals, creativity among postgraduates can be measured and nurtured even within traditionally quantitative or structured fields, as long as measurements are designed to encourage diverse outputs.

Design Thinking, as the author [7] describes it, is another example of how alternative assessment can become an integral part of interdisciplinary and experiential learning. Requiring students to complete its five stages – Empathise, Define, Ideate, Prototype, and Test – the Design Thinking methodology sets students on a cycle of reflective iterations that replicates the process involved in solving real-world problems. It is through this structure that assessments are naturally embedded within the learning cycle, inviting innovation and critical evaluation within the context.

4) Technological and Digital Innovations: OPA and Certification Models. The advent of digital tools has increased the opportunities for scalable, collaborative assessment. Authors [10] discussed the use of Online Peer Assessment (OPA) across various fields, including engineering, education, and science. The OPA characteristics, including anonymity, asynchronous evaluation, and digital traces, make it a pliable and equity-aware method of examination. Students are transformed into co-assessors to develop assessment, reflection, and revision capabilities based on peer feedback. Instructors can expect simpler feedback models and enhanced facilitation of participation.

Authors [8] suggest using a model of labelization, or accountability system, to institutionalise support for such innovations by certifying excellence in promoting the 4Cs – creativity, critical thinking, collaboration, and communication – across institutions. The framework also addresses informal assessment environments, such as games and simulations, and shows how educators can adapt alternative evaluation strategies to both formal and informal settings. The trends represent a systemic drive toward more flexible, student-centred, and transparent evaluation mechanisms.

5) Rethinking Creativity Assessment: Tools, Challenges, and Future Directions. Although interest in creativity continues to increase, evaluating it remains highly methodologically problematic. All the traditional instruments, including the Torrance Tests of Creative Thinking (TTCT), self-report measures (e.g., Creative Achievement Questionnaire [CAQ]), and Product-based

measures, are afflicted with numerous problems, such as poor reliability and modest validity. Such instruments or assessments do not necessarily capture the contextual and developmental aspects of creativity, especially in gifted education or diverse, inclusive classrooms, where the need to express may differ significantly [8].

More modern techniques are intended to eliminate these constraints. Digital tests of creativity and multi-indicator profiling systems are more holistic, real-time measures of creative production, and are also more inclusive in practice. Authors [11] acknowledge that it is critical to align assessment tools with workforce requirements and to incorporate project-based, performance-based, and peer-reviewed activities into the curriculum. This totalistic perception of evaluation indicates a broader educational shift in how we view creativity as a living, educable, measurable skill set.

Impacts on Critical Thinking. Scholars have long acknowledged critical thinking as one of the key foundations of 21st-century learning and a central outcome of higher education. It supports the student in analysing complex problems and evidence, and in making informed decisions that are important for technological proficiency in academic and professional life. Alternative assessment practices have gained popularity for their ability to foster critical thinking through real-life modelling, reflective learning, and student-centred activities. This segment synthesises empirical evidence on various assessment methods and instructional frameworks that have demonstrated positive impacts on developing critical thinking.

1) Developing Critical Thinking through Structured Project-Based Learning. The use of the ASSURE instructional model provides strong evidence that project-based instruction can foster critical thinking. According to research by authors [12], more than 50% of students demonstrated critical thinking at satisfactory or outstanding levels. Using performance rubrics that measured conceptual understanding, technical design, and theoretical application, students engaged in reflective practice with consistent mentorship and ongoing feedback. This type of action research helped students build real-world problem-solving skills through a process involving planning, acting, observing, and reflecting.

A similar effect was observed in the study by authors [13], which examined both the convention-al Project-Based Learning (PBL) model and its enhanced version, the Project-Based Flipped Classroom (PBFC). Both methods led to statistically significant gains in student critical thinking, with the PBFC model showing the highest improvement. Its structure, which prioritises pre-class preparation and in-class collaborative work, explains this outcome. These interactive learning components align with higher-order thinking skills outlined in Bloom's taxonomy, including analysis, synthesis, and evaluation.

2) Enhancing Critical Thinking through Reflective and Peer-Based Assessment. Another practical approach to developing critical thinking is portfolio-based assessment. The author's qualitative study [14] identified three fundamental themes – creation, problem-solving, and observation – as the essential pathways through which portfolios influence critical thinking. Students demonstrated strong instructional design, planning skills, and responsiveness to learner needs. They were able to make informed changes through the critical examination of their own pedagogical decisions and, in the process, acquired both meta-cognitive awareness and adaptive learning strategies.

Such an emphasis on reflection is evident in a meta-analysis by authors [16], which synthesised the results of 17 studies on Online Peer Assessment (OPA). The results indicated that OPA was effective in enhancing higher-order thinking, particularly in reasoning and argumentation. Students who both gave and received peer feedback showed the most significant cognitive improvements. Research shows that peer assessment enhances analytical thinking and supports decision-making. When guided by clear evaluative criteria, OPA is an effective tool for fostering critical thinking in the academic environment.

3) Environmental and Cognitive Factors. Environmental and interpersonal situations are also critical for critical thinking. In another study, the author [17] applied Structural Equation Modelling to a sample of Saudi Arabian university students and found that critical thinking was predicted by variables such as motivation, peer interaction, and technologically rich classrooms, underscoring the importance of learning environments that balance cooperation and independence. Moreover, critical thinking was found to directly support academic achievement and problem-solving skills, proving its essential role in students' overall intellectual growth.

Regarding the assessment format, authors [18] found that open-ended and performance-based tasks are particularly effective, as they more adequately reflect the multidimensional nature of critical thinking than multiple-choice tests. The study, based on an exploratory factor analysis using the CLA+ International instrument, showed that writing and problem-solving assignments provided a clear and valid picture of critical thinking skills. Conversely, closed-response items were not always structured, suggesting that practical assessment should be an integrative, expressive form that requires higher-level cognition.

4) The importance of Design Thinking and Multidimensional Frameworks. The use of Design Thinking during assessment also proves that it can develop critical thinking. Author [7] found that the iterative design process could motivate students to test, evaluate, and improve their ideas, building evidence-based reasoning and adaptive problem-solving skills. When students deal with real-world problems, they will not only learn to filter information and analyse solutions but also justify their answers, which are essential skills for developing critical thinking. The method provides a decent means of evaluating and advancing students' analytical abilities across any field of study. One more way in which critical thinking is framed is as a fundamental component of the general educational paradigm, or the 4Cs framework.

According to authors [8], validated scales such as the California Critical Thinking Skills Test and the Watson-Glaser Appraisal are used; however, they also note that it is preferable to use standardised tests to the greatest extent possible, rather than at the expense of other forms of measurement. They, instead, support programmatic interventions, which enhance metacognitive strategies, executive functioning, and reflective judgment. Such interventions can help increase students' capacity to approach information critically and use knowledge effectively.

5) Intersections of Creativity and Wider Educational Implications. Although the study by authors [9] primarily focuses on creativity, it identifies cognitive processes similar to those underlying critical thinking, namely anticipatory information generation, synthesis, problem-solving, and inference (p. 2). Their overview indicates a multifactor approach to cognitive, emotional, and motivational variables in higher-order thinking

development. Nevertheless, they warn that available studies are often not diverse or inclusive, which may limit generalisability. The observation warrants broader evaluation practices that are sensitive to different learning paths and local contexts.

Another indication of how OPA is applied to critical thinking can be found in a review by the authors [10], which supports the claim that peer feedback leads to profound reflection and critical thinking. Those students who were active both in providing and receiving feedback achieved better self-regulation and mastery of the content. Researchers established that structured rubrics and training in evaluative judgment are critical for enhancing the impact of OPA. Authors [11] reaffirm that alternative assessments – such as reflective portfolios, performance-based activities, rubric-based evaluation, and the use of technological tools and realistic problem-solving tasks – can enhance critical thinking and facilitate deep learning.

Impacts on Creativity. Scholars increasingly recognise creativity as a key capability for success in dynamic societies. In the higher education context, alternative assessment models have helped encourage creative thinking by emphasising real-world assignments, reflection, and independence. This part examines empirical research on the role of different assessment approaches in promoting creativity, their educational merit, and the conditions under which creativity is structured.

1) Model of Project-Based Learning and Flipped learning. New methods of assessment based on large-scale project-based learning systems are promising for creativity. A study by authors [12], based on the ASSURE framework, showed that creativity levels were at least satisfactory or higher in 47% of students, as measured through the lenses of idea generation, divergent thinking, and the creation of original design concepts. Exposure to issues of historical architecture enabled the students to express their aesthetic and functional needs in creative ways. Fostering their creative growth even further were the project-based learning system and professional guidance, which introduced students to real-world expectations and perspectives.

Additional evidence from authors [13] supports the efficacy of project-based models. Although the average development of creativity in the traditional PBL was significant ($\eta 2 = 0.12$), the Pro-

ject-Based Flipped Classroom (PBFC) showed a significantly greater effect ($\eta 2 = 0.50$). The design of the PBFC, which promotes pre-class reflection and metacognition cycles as well as active, dynamic in-class collaboration, accounts for this effect. Creative fluency, flexibility, and elaboration, all requisite elements of imaginative thought as well as innovation, were stressed in activities.

2) Portfolios and Unearthing Specific domains of creativity. Portfolio assessment is a strong tool for creativity development as well. As revealed by the authors [14], students' portfolio creation showed two main dimensions: organisation and unconventionality. Participants demonstrated how they could design content in new forms, using technological components and reformulating products to maximise the use of instructional artefacts. These activities not only exercised students' creativity but also allowed them to go beyond their pedagogical box. For example, I could cite the creative application of a so-called 'washing machine' model to the instructional process by one of the students, which demonstrated how such an evaluation could stimulate creative, practical solutions in teaching practice.

Besides, the authors [15] also provide insights into the development of creative thinking across various disciplinary criteria. Their study showed that students tested had not only experienced increased gains in producing a large quantity of ideas (18.6%) but also, to a lesser extent, in originality (9.4%). The problems in domains like visual and scientific problem-solving were more creative compared to those requiring specific written feedback or social problem-solving. The findings imply that domain-specific instruction and evaluation of creativity should be grounded in particular contexts, and that domain-specific factors should be considered, as distinct aspects of creativity evolve at different paces and require domain-sensitive approaches.

3) Free-form Filtering and Creative Constraints of Digital Peger Assessment. Online Peer Assessment (OPA) can encourage analytical thinking, though its impact on creativity is more complex. According to the authors [16], divergent higher-order thinking has a lower effect size ($g = 0.38$) than its convergent counterparts. To be more exact, the effect size of $g = 0.47$ indicated that the results for creativity had a moderate but somewhat limited impact. The systematic nature of peer assessment, which emphasises compliance with rubrics and rigid standards, explains why students might feel anxious about engaging in unconventional thinking, knowing that such a move could limit their evaluation score.

However, authors [16] argue that OPA can facilitate creativity when tasks lack constraints and students understand that creativity is required for the assignments. Students achieve creativity through feedback loops by revising their work based on peers' feedback. Successful open-ended exploration can be facilitated by OPA when it is used in the feedback process. These results promote a reconsidered approach to peer assessment, one that will be less evaluative and more permissive of creative playfulness and adventurous experimentation.

4) Environmental Drivers, Cognitive Drivers and Instructional Drivers. Such development of creativity does not take place in a vacuum; there is a high correlation with the learning climate and cognitive supports. In their research, the authors Almulla [17] identify five aspects – motivation, cooperativity, peer interaction, engagement, and innovative learning environments – that scholars extensively study as predictors of creativity performance. These elements create an environment that encourages divergent thinking, enabling students to develop original solutions tailored to specific contexts. The effect of creativity on both educational performance and problem-solving capacity was also found to be direct, emphasising its role in the broader learning ecosystem.

Additionally, to support these conclusions, the author [7] argues that applying the Design Thinking model actively enhances creative capacity. This framework spurs interdisciplinary framing and ideation among students by guiding them through successive phases (Empathise and Define) and reframing. Students will learn to perceive issues in different ways and produce creative solutions. The quality of assemblage in developing and testing a prototype builds creative confidence, enabling learners to be exploratory and flexible in real-world innovation processes. This circular process balances theory and practice, thereby making creativity a practised aspect of learning.

5) Holistic View of Creativity: Conceptualisation and Evaluation. Creativity is not only about generating new products, but also a vibrant, developmental process that entails potential, context, and expression. Authors [8] argue that educators should treat advantageous settings, direct teach-

ing of innovative strategies, and practice of routine as cornerstones for developing creative thinking. They urge assessors to reflect these principles in creativity assessments by adopting flexible, experiential evaluation methods instead of rigid ones. The idea is to design an institutional ecosystem that values exploration, diversity, and innovation.

Authors [9] build on this position by criticising the models of assessment as currently defined as being less inclusive and insensitive to different cultures. They also cite such shortcomings in current practices as inconsistent grading of originality and inadequate application of multidimensional profiling instruments. Such weaknesses can lead to the underrating of learners with marginalised backgrounds, which ultimately ruins the fairness of educational assessments. The authors request a culturally responsive analysis that involves placing creativity in appropriate contexts and allowing students to present their thoughts candidly. In parallel, authors [10] emphasise that, despite OPA's evaluative nature, it is promising when its criteria are formulated in a flexible, interpretive manner. Learning environments rich in feedback enable iterative improvement, allowing students to develop creative competence in refining ideas.

Challenges and Limitations of Alternative Assessments. Although other forms of test presentations offer new ways to measure creativity and critical thinking, their application is not devoid of severe difficulties. These constraints include policy-practice gaps, institutional readiness, evaluation design and equity issues. This step is a Synthesis of empirical evidence regarding the most urgent obstacles to the successful and equitable implementation of alternative assessment strategies in higher education.

1) Policy Gaps and Institutional Constraints. Among the main issues identified in the literature, the mismatch between education policy and institutional evaluation practice warrants mention. Bouckaert [6] notes that higher education systems, especially in OECD countries, offer very general and inadequate guidance on promoting creativity and critical thinking. This results in inconsistent implementation at the institutional level and the absence of centralised mandates or support systems that encourage innovation. In addition, the standardised assessment schemes in place are generally inadequate for assessing higher-level skills. They are not complex enough

or sensitive to the contexts in which they are expected to operate. Institutions, therefore, have to develop their own assessment models and experiment with them, without any systemic integration or institutional reinforcement of policies.

Institutional constraints in practical and contextual means also aggravate this problem. Hao et al. warn that the success of alternative schemes, such as Project-Based Learning, is greatly influenced by the prepared infrastructure and faculty preparedness [13]. Most studies that find little or no benefit from PBL attribute the lack of benefit to poor instructional planning, ineffective training, or insufficient time. These results underscore the importance of large-scale capacity-building and long-term institutional investment to enable the consistent and successful implementation of alternative assessments across diverse settings.

2) In Practice Implementation Challenges. Despite their pedagogical promise, portfolios, too, face serious barriers when managed through alternative assessment. Author [14] states that varying access to technology, inconsistent instructor training, and student diversity may lead to variation in outcomes. Portfolio use could increase educational inequalities rather than alleviate them unless education is supported and taught in a structured manner with clear outcomes. Institutions can make portfolio integration into curricula fair and effective by implementing adjustments such as setting clear faculty development priorities and establishing guidelines for inclusive design.

According to authors [15], evaluators encountered complications when assessing creativity across diverse cultural and linguistic groups. They observed that students in foreign countries performed worse when evaluators made specific assumptions about creativity, possibly because the students misunderstood the test standards or faced language difficulties. Moreover, when the creative dimensions of creativity show disproportionately rapid development, say, in social problem-solving, it is a clue that technical competency is not always fully developed or intellectually insightful. The experiment provides evidence that high-quality, descriptive feedback, provided iteratively and contextually, is an essential requirement for nurturing significant development of students' creative abilities.

3) Structural Limitation and Methodological Limitation. Because OPA is innovative, it also faces various structural and methodological shortcom-

ings. According to the authors [16], it has limited effects on divergent thinking, particularly when used under cursory evaluation criteria. The older students in the higher education setting were found to be less responsive than the younger learners, possibly because they were more attached to traditional forms of assessment. Also, due to small sample sizes and variation in research design, results have not been generalised, and further empirical research is warranted. The paper emphasises the need to balance evaluative rigour with interpretive flexibility to foster creativity through OPA.

The limitations of narrow-focused research models can also be seen in context-specific research, such as that conducted by the author [17]. Although the study supports the role of motivational and environmental factors in the development of critical and creative thinking, it relies solely on quantitative results. It concludes a specific technological and national setting. Less-restrictive, mixed-method study designs that include qualitative interviews and reflective journals would yield more diverse data on how students perceive and respond to alternative assessments across heterogeneous educational contexts.

4) Pedagogical Readiness, Equity and Design. Even the most promising assessment type, like performance-based tasks, is limited by design and equity. According to authors [18], although open-ended tasks are more valid for measuring critical thinking, they are affected by problems such as scorer bias, differences in writing proficiency among students, and varying familiarity with the context. On the contrary, multiple-choice forms, which are cheap and straightforward to manage, are weak in evaluating holistic reasoning. This duality indicates that practices require hybrid models balancing practicality and cognitive richness, reinforced by the uniform use of the rubric and scorer training.

Other issues related to OPA implementation include variable peer feedback quality, most peers' unwillingness to provide critical evaluations, and fluctuating student motivation. According to the study by authors [10], maintaining the integrity of the feedback requires an institutional infrastructure that includes anonymity procedures and training. They also note that OPA is most effective when well integrated into the curriculum and when faculty facilitate it. In their absence, students may lose interest or believe the process

is unprofitable. The last point that authors [11] emphasise is that more fundamental systemic issues, such as inflexible curricula, inadequate resources, and lack of professional development, persist and continue to impede the implementation of alternative assessments. Societal problems such as these demand effective investment and an ideological shift toward competencies developed through creativity and critical thinking.

Implications for Policy and Practice. Altogether, the transformation of pedagogy in higher education through the use of alternative assessment strategies involves not only innovation but systemic policies, institutional support, and long-term educator professional development. With a focus on deficit models of teaching and training, institutions aiming to advance creativity, critical thinking, and other 21st-century skills can find several studies offering practical guidance and strategic advice on aligning assessment practices with educational objectives. This section presents major policy and practice implications which can inform a future application of authentic assessment models.

1) The Synthesis between Policy and Practice. In his study, the author [6] provides a wide-ranging framework for aligning policy and institutional assessment practices. His suggestions are to generate implicit orientations on a system-wide basis and to align them at each tier of education to give form. Policymakers are encouraged to support pilot activities of novel, institution-level measures and to promote the use of internationally recognised ratings, such as OECD and AAC&U rubrics (e.g., VALUE rubrics). Institutions should also improve monitoring strategies to evaluate the effects of these practices. Such policy initiatives are meant to foster a spirit of constructive cooperation among stakeholders and provide the structural preconditions for integrating creativity and critical thinking into curriculum and assessment systems.

2) Re-conceptualising assessment-instruction integration. The Project-Based Flipped Classroom (PBFC) model is pedagogically promising, as noted by authors [13], since the assessment directly aligns with the instructional design. The model also focuses on preparing work before class and on group explorations during class—an attribute that incorporates the essentiality of both creative and critical thinking into the model. The authors emphasise the alignment of curriculum, pedagogy, and assessment, especially in vo-

cational and applied learning. This Relationship is because assessment will be an integral part of the instruction and is not separate or a follow-up undertaking. Policy makers must consider teacher training, a flexible curriculum, and the time required for iterative learning when developing frameworks that support PBFC.

3) Making Authentic Assessment Methods Institutional. The popular belief is that portfolio-based assessment is an approved and sound technique for assessing 21st-century skills. According to the author [14], a formal policy acknowledgement is vital to broaden the portfolio's use and legalise it. Researchers identify fair access to digital resources, transparent institutional policies, and long-term faculty development as essential conditions for successful implementation. Incorporating portfolios into curriculum design can support students' preparation for the workplace and help them perform better, as workplaces are unpredictable and encourage flexibility, reflection, and innovation. The policies must also guide the incorporation of assessment practices that align with workplace requirements, facilitating the transition between academic and workplace skills.

4) Creative Pedagogies and Faculty Development. Authors [15] believe that merely making slight changes to the curriculum will not raise creativity levels. Creativity as a graduate attribute requires deliberate pedagogical planning, the application of authentic tasks, and positive instructor feedback to enhance creativity. In their position, they stipulate professional development projects that will enable teachers to employ innovative tools and to arrange conditions in which they can take some risks. Students need classroom cultures that will allow them to develop their identities, provide feedback, and have confidence in their creativity. These suggestions highlight the need to focus on systemic faculty capacity-building to ensure the meaningfulness and equity of assessment reform.

5) Skilling the Environ- Environment and Skills. The effectiveness of Design Assessment may depend considerably on the institutional design of a learning environment. According to a study by the author [17], bright classrooms are a promising tool for enabling students to become truly creative and to develop critical thinking and problem-solving skills. The paper focuses on the interdependence of the discussed skills and argues that alternative, more open-ended, peer-engaged, and autonomous assessment formats may enhance learning outcomes, particularly in resource-limited settings. For global South institutions, the Almulla framework proves an effective way to scale innovation without being diminished by technological and cultural limitations.

Likewise, performance-based evaluation, characterised by open-ended, cross-disciplinary assignments and a lack of dependence on subject-specific expertise, is encouraged by authors [18]. These tasks provide clear indicators of cognitive performance and align well with demanding rubrics and scorer training. Their studies endorse early intervention policies to scaffold critical thinking in underprepared students and emphasise the importance of continuous validation of assessment design within institutional and cross-cultural contexts.

6) Strategic Policy Scaling Innovation using technology. Different types of innovative solutions, such as Design Thinking and Online Peer Assessment (OPA), have significant policy implications and are part of broader strategic integration efforts. In its role of promoting curricular reform, author [7] suggests that design thinking should be considered a central aspect of experiential and interdisciplinary learning. It concerns iteration, empathy, and reflection, making it an ideal framework for addressing workforce preparedness and civic participation.

Additionally, authors [8] propose the concept of labelization. This certification procedure assesses the quality of institutions based on how effectively they deliver the 4Cs of teaching: creativity, critical thinking, collaboration, and communication. Such a model provides a trust-building process towards achieving systemic change. The authors also mention the contribution of new technologies, such as AI and Virtual reality, to improving assessment quality. According to authors [10], OPA is promoted as a digitally scalable, feedback-rich measure to replace traditional assessments at a broader institutional level. To make its impact stronger, institutions ought to invest in digital infrastructure, training programs, and policies to support rubric-guided, formative feedback. OPA needs to meet the needs of various learners, especially low-performing students who may need more support.

In addition, authors [11] suggest actively integrating 21st-century skills into the curriculum and evaluation tools. Their suggestions include diversifying assessment devices – such as peer

reviews, portfolios, and workplace-related assignments – and promoting collaborations with industry to make them more relevant. Assessment practices should be regularly reviewed and reiterated to ensure fairness, accuracy, and alignment with the requirements of education and labour markets.

CONCLUSIONS

This review indicates that alternative assessment techniques can radically shift higher education assessment, particularly in developing critical thinking and creativity skills, which are key to both academic and career success in the 21st century. It is also through various instructional models, such as project-based learning, design thinking, and portfolio development, that students engage in authentic, reflective, and collaborative learning. The combination of digital tools and peer review serves as an effective mechanism for developing analytical thinking and building creative confidence. Along with these benefits, the review also reveals the challenges to successful implementation, including a mix of misaligned policies, inadequate faculty training, and inequitable institutional structures. In a bid to optimise the value of alternative assessment, higher education systems need to embrace inclusive, flexible and evidence-based practices to institutionalise the approaches through curricula and culture. In the future, researchers need to conduct context-specific, longitudinal studies to understand the long-term effects of these assessments and to improve the implementation of practices that promote equity, innovation, and deep learning.

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