Incorporating GenAI into Experiential Learning for Authentic Assessment

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The emergence of generative artificial intelligence (GenAI) requires innovative educational environments to leverage this technology effectively to address concerns like academic integrity, plagiarism, and others. Additionally, higher education needs effective pedagogies to achieve intended learning outcomes. This emphasizes the need to redesign active learning experiences in the GenAI era. Authentic assessment and experiential learning are two possible meaningful alternatives in this context.

Keywords: experiential learning; authentic assessment; constructive alignment; generative artificial intelligence

1. Introduction

Generative artificial intelligence (GenAI) is proposed to enhance experiential learning activities for authentic assessment in higher education (HE). Current concerns arise from the use of GenAI tools in educational activities; the potential risks for academic integrity, intellectual property, and plagiarism; and the adverse effects on students’ learning, skill development, and knowledge acquisition. With this in mind, a step forward should be taken to leverage the application of this technology in education settings.

GenAI is revolutionizing different aspects of daily life, as reported in news media headlines, including professional practice, education, and science, by generating various texts, images, audio, algorithms, or combinations of them. However, GenAI has raised concerns about developing trust in these artifacts, controlling their creation and managing their adoption.

GenAI can be defined as “the field of science which studies the (fully) automated construction of intelligence.” GenAI involves machine learning and pre-trained large language models based on a large corpus of text data, learning grammar, vocabulary, and various linguistic elements to later generate coherent and contextually relevant human-like content in response to the complex prompts it receives. Among the specific application tools of GenAI, ChatGPT 3.5 (Chat Generative Pre-Trained Transformer) is the most famous because it was one of the first tools that were made free and easily accessible online. Nonetheless, an improved paid version (Chat GPT 4) is now available.

ChatGPT, for instance, can be used in education to write assignments, articles, and presentation slides; elaborate and answer exams; or solve coursework problems. These possibilities raise concerns given its intellectual transformative power and limitations concerning its information sources, insufficient training, false responses, misleading information, and the potential generation of spam, hate speech, and other harmful associations that might be implicit in its contained data. However, other academic concerns also point to the scientific reliability and ethical implications of knowledge homogenization, rethinking learning outcome assessments and (higher-order) thinking processes.

Moreover, the use of GenAI should take some considerations, for pedagogical reasons, to prioritize human agency and responsible use. These considerations include contributing to humankind’s needs and learning effectiveness; supporting intrinsic (learning) motivation; the technology that humans control; the learning purpose and the learner’s profile; and promoting human interactive engagement, higher-order thinking, and human accountability usage and impact. Hence, appropriate GenAI interactions should consider a definition of proper knowledge domain applications, clear outcomes, suitable tools and comparative advantages, users’ requirements, human pedagogical methods, and ethical risks.

Some recent research results show that ChatGPT can provide answers in exams that exceed the mean responses of students, which poses a significant challenge to traditional assessment methods in HE. These findings highlight the need to redesign curricula and methods of assessment through, for instance, reintroducing invigilated, in-person
assessments, augmenting experience with chatbots, and increasing the prevalence of practical projects that artificial intelligence struggles to replicate well.

Nevertheless, GenAI tools can also enhance student learning by aiding in preparing for and writing assignments and improving their quality and narratives [15]. Using this technology for personalized, self-directed, and adaptive learning and ubiquitous on-demand support is also a potential gain. For example, GenAI tools can provide information and customized learning plans, generate feedback, and offer complementary learning resources to students at any time [19][11].

Previous works on information technology point to its diverse applications to enhance learning effectiveness and efficacy, for instance, by using artificial neural networks to predict academic performance [25]; web-enabled self-regulated learning [13]; games, mixed reality, social media, and other tools for ICT-supported pedagogical practices [14]; and simulation games [15]. However, the use of AI opens new learning enhancement opportunities.

An alternative to using GenAI in education, beyond exams and assignment writing, is building supportive and engaging learning environments that complement traditional pedagogical methods. This proposition can provide a dynamic and interactive platform to foster knowledge acquisition and acknowledge the existing concerns on plagiarism and academic integrity [8][16]. However, this perspective requires effective teacher leadership to guide the adequate use of GenAI tools. Additionally, GenAI can ignite the creation of innovative authentic assessments and irreplicable learning experiences by asking students to demonstrate comprehension and apply knowledge to complex and fictitious cases [16]. Authentic assessment refers to examining student performance on worthy intellectual tasks [17].

This learning environment refers to experiential learning that goes beyond simple memorization and fosters a deeper understanding of academic subjects through reflective and practical activities [10]. Experiential learning emphasizes what students must do to construct their knowledge and achieve their intended learning outcomes [14]. Therefore, assessments that evaluate higher-level cognitive skills like analysis, creation, and evaluation can help engage students in meaningful learning experiences while making it more difficult for GenAI tools to deal with them.

Accordingly, GenAI tools can support teachers (or academics) as agents-to-think-with through a constructionist view, fostering more interactive and engaging learning experiences and promoting more profound understanding, critical thinking, and hands-on activities in students' fields [19]. Hence, learning activities and assessment methods should promote higher-level learning, whether teaching in-person or online, that can make a significant impact on students' learning outcomes. With this in mind, there is a pending task for instructional designers and teachers to develop authentic assessment and experiential learning practices using GenAI tools to support students' learning effectively [16].

### 2. Experiential Learning

HE demands pedagogical approaches that consider real-world situations to gain relevant learning and build new capabilities in students for their future professional careers [21]. Moreover, these approaches should allow for long-lasting learning in diverse environments and from multiple perspectives [22].

Accordingly, experiential learning is considered a more effective alternative than any other educational approach for high-impact education as it enhances students' motivation to construct meaningful learning [23]. This type of learning might be seen in terms of experience-based, reflective, and problem-solving activities.

This type of learning requires moving from a knowledge-broadcasting kind of teaching, where students passively sit and listen, to a constructivist alternative in which students learn by thoughtfully executing tasks while being immersed in a meaningful situation. There is the assumption that by providing students with experiential learning, they will have the motivation and engagement to achieve their expected learning results [24]. Hence, experiential learning turns into a first-hand alternative to support active learning.

Experiential learning is widely acknowledged as part of a continuous meaning-making process in specific contexts, whereby students develop an interest in and recognize learning relevance through personal and environmental experiences [25]. Kolb's experiential learning cycle, which involves four stages, including concrete experience (CE), reflective observation (RO), abstract conceptualization (AC), and active experimentation (AE), is the backbone of experiential learning [14]. Each cycle stage depends on its predecessor and follows a continuous logical pattern step by step. CE refers to a new experience or situation that triggers a stimulus to actively engage in a task rather than merely reading or watching. RO is about reflecting on the new experience and recognizing any possible discrepancies and gaps between the learner's understanding and the experience. AC concerns new ideas or modified thoughts coming out from the reflection. It also includes interpreting and updating experiences from new knowledge. Finally, AE refers to what the
learner applies to the outer world. It is also known as the testing stage to apply conclusions to new experiences. Thus, learning comprises intellectual activities that guide learners’ actions, whereas practical activities and tasks provide feedback for conceptual knowledge in a specific context.

3. Authentic Assessment

An assessment is authentic when student performance is directly examined on worthy intellectual tasks rather than indirect, proxy, or simplistic substitutes from which valid inferences are made. Authentic assessments enable learners to address realistic tasks, ambiguity, or actual intellectual challenges to judge, clarify, and take purposeful action toward mastery in a learning situation. Therefore, student understanding is seen as the ability to explore, criticize, or extend theories and assumptions, and knowledge is thus displayed as reflective know-how. All authentic assessments are performance assessments because they require students to construct extended responses effectively, perform a task, or produce a product.

Consequently, in this view, authentic assessment allows for more sophisticated and effective ways to use knowledge, for instance, in contextualized problem-solving and decision-making situations to develop complex and critical thinking.

Additionally, authentic assessments use authentic performance standards that are inherent to successful performance (of what students can do), including multifaceted scoring systems disaggregated for judging learning achievements rather than relying on scoring tests. Accordingly, authentic assessments should, for instance, require students to mirror the priorities and challenges found in the activities of academic disciplines and professional practice or simulate real-world tests of ability, among others.

Authentic assessment comprises crucial principles in pedagogical design. It incorporates realism by presenting situations or scenarios of real-life or professional contexts, accompanied by pertinent and relevant questions. Additionally, it entails a cognitive challenge aimed at fostering higher-order skills, such as knowledge application, decision making, and problem solving. Through authentic assessments, students showcase understanding, retrieve prior knowledge, establish connections between theories and practice, formulate solutions, draw conclusions, and delineate subsequent steps or actions. Lastly, authentic assessment involves evaluative judgment, encouraging students to establish criteria and standards for assessing their own performance, thereby promoting self-regulated learning.

In brief, authentic assessment surpasses traditional methods by being multifaceted and dynamic. Grounded in multiple criteria, it focuses on students’ progress toward mastery, presenting realistic, contextualized, and complex intellectual challenges. Unlike fragmented tasks, authentic assessment identifies strengths rather than serving as a punitive measure.

4. Constructive Alignment

There is a need to articulate the ideas of experiential learning and authentic assessment to provide a structure to interplay with GenAI tools and integrate these into learning experiences and activities. A step forward in this direction can be found in the concept of constructive alignment.

If students are to engage in experiential learning for authentic assessment, teachers’ fundamental task is to develop suitable learning experiences that are likely to achieve the intended learning outcomes (ILOs). Constructive alignment is based on three central elements: (i) intended learning outcomes (ILOs), (ii) teaching and learning activities (TLAs), and (iii) assessment tasks (ATs). Alignment is achieved by ensuring ILOs reflect the desired learning outcomes, while TLAs facilitate achieving those outcomes, and ATs assess students’ attainment of the ILOs. Teaching and learning activities become crucial in accomplishing the requisite ILO verbs, whereas the AT challenge is to show evidence of students’ achievements authentically.

Constructive alignment suggests that meaningful learning occurs when students actively construct knowledge and meaning through coherent, authentic, and contextualized experiences. By aligning ILOs, TLAs, and ATs, educators can promote higher-order thinking, deep understanding, and acquiring relevant skills. Overall, this view can help integrate experiential learning and authentic assessment.

This proposition helps to identify the possible interplay of GenAI tools within a structure of constructive alignment in which learning technology enhances pedagogies and extends learning environments. Hence, GenAI tools can be linked to navigate “what to learn”, as defined by ILOs, support “how to learn” according to the experiential learning cycle in TLAs, and effectively construct responses, execute tasks, or create products as indicated by ATs in “how to assess learning”.
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