EMERALD**HANDBOOKS**

THE EMERALD HANDBOOK OF ACTIVE LEARNING FOR AUTHENTIC ASSESSMENT

EDITED BY
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The Emerald Handbook of Active Learning for Authentic Assessment

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Chapter 1

Introduction to Active Learning and Authentic Assessment: Concepts and Applications

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Abstract

This chapter describes the intentions and content of this handbook. This chapter also introduces the two main concepts addressed in this handbook: "Active learning" and "authentic assessment." Concerning the latter concept, this chapter suggests a spectrum of authentic assessment, linked to different active learning approaches, from approaches highly immersive with real-world tasks to approaches with more simulated or contrived environments. This spectrum may help module designers identify which kind of active learning approach for authentic assessment would work better, considering the constraints, under which the module will operate, and the resources available.

Keywords: Active learning; authentic assessment; authentic assessment spectrum; expectations of active learning methods for authentic assessment; active learning approaches

Introduction

This handbook is created by teachers, for teachers who are interested in enriching their practice using active learning approaches that contribute to building

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effective authentic assessment. Active learning considers a series of educational methods where students take the foreground during the learning activities. Students play an active role in the learner-centered process, engaging beyond passive listening and note-taking, through firsthand learning experiences. Even though active learning approaches have been explored in detail (Cumming & Maxwell, 1999; Dewey, 1933; Gulikers et al., 2004; Schön, 1987; Vygotsky, 1978), this handbook adds a particular twist by exploring how to achieve the learning objectives and learning outcomes in the classroom, through learning activities and performance assessments relevant to the students. For this purpose, this handbook introduces the notion of authentic assessment, where students provide evidence of their knowledge through thoughtful understanding and can do something effective, transformative or novel with a problem or complex situation (Wiggins, 1989/2011). As this text follows a handbook format, it is practical, not theoretical, and its pages show how to introduce active learning experiences for authentic assessment in our teaching practice.

The rationale behind adding a layer of complexity to teaching practice concerning authentic assessment is twofold: First, higher education institutions (HEIs) should positively impact students' learning relevance and skills development and contribute to the communities where they are located. Approaches like challenge-based learning (CBL) and service learning have proved effective in increasing students' awareness of the real-world challenges humanity faces in different domains, and in triggering their interest, motivation, and engagement in solving such difficulties. However, other forms of authentic assessment may also have a positive impact, by asking students to develop genuine intellectual products that simultaneously evidence their knowledge and target relevant challenges. For this purpose, this handbook presents examples of different active learning approaches that contribute to authentic assessment.

Second, authentic assessment is becoming more relevant due to concerns arising from the emergence of new Artificial Intelligence (AI) tools. These AI tools have increased the perception of academic misuse and plagiarism risks. Accordingly, there are cases where HEIs have reacted to such threats by reverting to in-person assignments; however, this seems a knee-jerk reaction that impoverishes the teaching and learning process. Instead, other assessment approaches can reduce risks and enhance the learners' educational benefits. Accordingly, all the chapters of this handbook present and discuss how to develop authentic assessments that effectively deal with bad academic practice.

By following the takeaways and insights provided in the different chapters of this book, as a teacher, you will be able to build an engaging active learning experience to support authentic assessment and enrich students' learning experiences. Therefore, in this handbook, specialists will share with you different active learning approaches, such as CBL, collaborative learning, experiential learning, gamification, learning by experience, problem-based learning, project-based learning, learning by teaching, research-based learning, service learning, and student debate. These and other contributions from international experts focus on specific implementations done in HEIs; however, it is important to state that all the approaches presented can adjust to pedagogic and andragogic environments indistinctively.

Visiting the Notions of Active Learning and Authentic Assessment

When exploring the genealogy of active learning, we can trace the origins to the seminal work of Dewey. According to him, "the only way to increase the learning of pupils is to augment the quantity and quality of real teaching" (Dewey, 1933, p. 36). He used the notion of "real teaching" to suggest that learning needs links to vivid students' experiences. According to him, topics too remote from students' experiences do not arouse active curiosity, and therefore, there is no interest in capturing the meaning of what they learn (pp. 32–33). However, this idea of linking learning with activities in the real world is not new. For instance, during the medieval ages in Western society, the learning and progression of "craft" professions such as baker, blacksmith, carpenter, mason, shoemaker or weaver followed a strict guild hierarchy. This journey started with "apprentices" who had to complete their training by demonstrating sufficient proficiency to complete a specific number of projects. Those who were successful acquired the position of "journeyman." The last step of this hierarchy was the "master craftsman." This position, reserved for the most skilled artisans, demanded passing the guild's examinations. Similarly, today, educational institutions implement different degrees and levels to match studies' progression with knowledge acquisition. However, such progress does not necessarily show links with real-world interventions. Rather than ask learners to exhibit proficiency in dealing with an external complex situation, students take a passive stance, where information passes from the teacher to the learners inside the classroom and progress uses ad hoc examinations. It is then, to show the acquisition and implementation of skills in the real world, what makes the description of a learning process "active" or "passive."

However, closing the learning process is not trivial when the learners must develop more intellectual than physical products. No standard (i.e., a fully accepted response model) is available for evaluating the level of skills. Therefore, introducing real experiences is challenging but fundamental for effective learning, as "knowledge is created through the transformation of experience" (Kolb, 1984). Enabling students to develop their skills requires mirroring real-world situations (Benkert & van Dam, 2015); therefore, learning processes and activities must consider how we learn and develop cognitive capabilities. Such integrative design should combine the *here-and-now* concrete experience with the immediate personal experience to provide meaning to what is learnt (Kolb, 1984). Accordingly, Kolb proposed the "experiential learning cycle," based on previous works of Lewin and Piaget. Kolb's experiential learning cycle incorporates four key abilities that learners need to be effective: (1) concrete experience abilities (CE), reflective observation abilities (RO), abstract conceptualization abilities (AC), and active experimentation abilities (AE) (Kolb, 1984) (see Fig. 1.1). To instill these abilities in the students' toolbox results in more effective learning.

Effective experiential learning activities should consist of more than providing interesting and relevant experiences. Supporting students in grasping transformative experiences without reflecting upon them may become easily forgotten (Gibbs, 1988). In this context, and building on Lewin's work, Gibbs proposed a

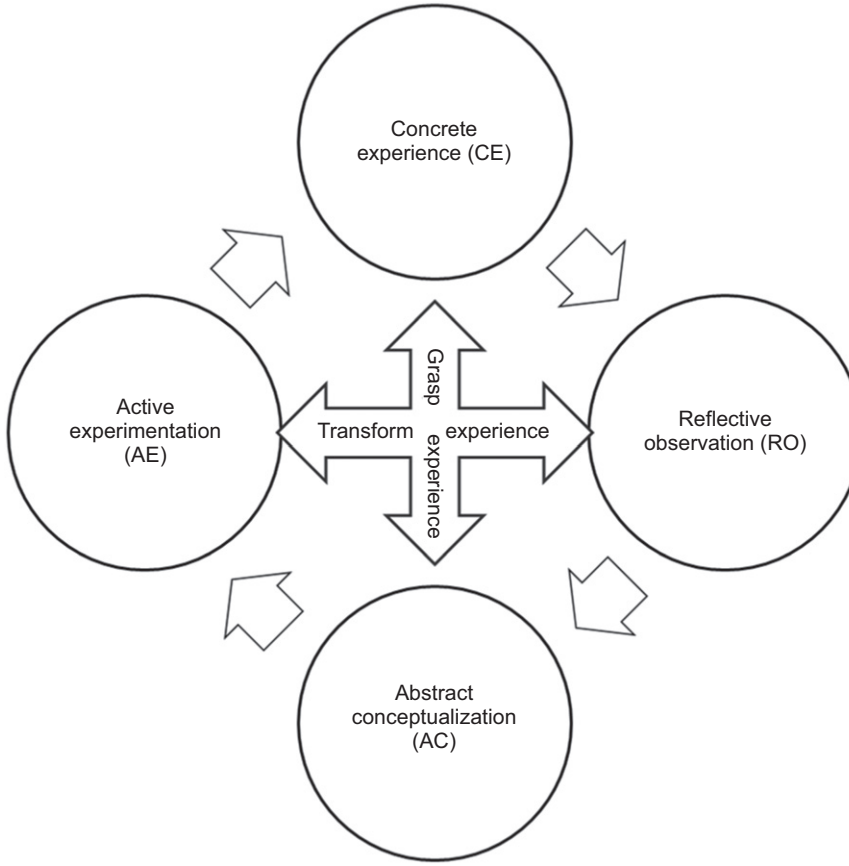

Fig. 1.1. The Experiential Learning Cycle. *Source:* Adapted from Passarelli and Kolb (2023).

reflective cycle, where learners are systematically conducted to review and reflect upon the experience by (1) describing what happened, (2) identifying their reactions and feelings, (3) evaluating if the experience was good or not, (4) making sense of the situation, (5) concluding what was learned at the general and personal levels, and (6) proposing what to do in a similar situation in the future. The combination of experiential learning and its reflection provides the basic framework for building diverse active learning approaches.

Common aspects of active learning approaches are critical thinking, problem-solving, collaborative learning, autonomy, and others (Binder et al., 2017). The main differences usually lie in the use, or not, of real-life situations and the need for real, concrete solutions. For instance, project-oriented learning or problem-based learning often use predefined controlled situations or fictitious

problem situations (Vilalta-Perdomo et al., 2022), CBL confronts students with an open, relevant problem for which there is no premade (universal) solution (Salinas-Navarro & Garay-Rondero, 2020; Silva-Ovando et al., 2022), and experiential learning fosters a deeper understanding through reflective and practical activities (Geerling et al., 2023).

As indicated above, an interesting challenge for active learning approaches is providing more than just interesting and relevant experiences. It is also important to confirm that abilities and knowledge acquired through such experiences use relevant confirmatory instruments for proper evaluation. To provide evaluation methods where accountability anchors on real performance exhibits (Newmann, 1998), examiners (i.e., designers) should be "authentic" and consider using evaluation methods that "provide situational or contextual realism of the proposed task, not the technical quality of the designer's items" (p. 20). Accordingly, Wiggins (1990) considers that authentic assessments replicate real-world complexities and expected performances that experts usually face in their practice (Koh, 2017). Therefore, the direct evaluation of students' performance should be based on intellectual tasks rather than indirect assessments, as the latter cannot provide strong confirmatory evidence.

However, when discussing the levels of authenticity of different active learning methods, a spectrum of authenticity becomes apparent (see Table 1.2). On one extreme, we may find methods where students fully immerse in activities compatible with real-life experiences (e.g., CBL and capstone projects); on the other extreme, students operate in learning environments that simulate real-world challenges (see Table 1.1).

Using this spectrum of authenticity allows educators to design more balanced assessments. Practical constraints on the learning environment (i.e., availability of resources) would match better with producing meaningful and relevant learning experiences for students.

One immediate benefit of using this spectrum of authenticity, for teachers developing new modules or adjusting previous ones, is identifying which type of authentic assessment instrument to implement when considering the stringent conditions (e.g., financial and regulatory), under which educational institutions operate and learning activities must subscribe.

Table 1.1. Spectrum of Authenticity.

Highly Immersive, Real-World Tasks	⟷	**More Simulated or Contrived Environments**
Challenge-based learning. Capstone projects. Field trips. Research-based learning. Service learning.	Dialogic learning. Learning by teaching. Modeling software.	Argumentation and debate. Gamification. Role-playing.

Table 1.2. Expectations and Chapters in the Book for Exploring Authenticity in Different Active Learning Methods.

Active Learning Method	**Expectations**	**Chapter**
Argumentation and Debate	More simulated. It encourages students to engage in critical thinking and persuasive communication but may involve more simulated environments.	Chapter 3. Debate and Argumentation in E-Learning Times: An authentic assessment perspective.
Capstone Projects (Project-Based Learning)	Highly immersive. It engages students in authentic, complex projects reflective of real-world contexts.	Chapter 11. Strategic Integration of Project-Based Learning and Authentic Assessment in Capstone Proposal Development.
Challenge-Based Learning	Highly immersive. Students engage with real-world tasks.	Chapter 4. Authentic Assessment in Challenge-Based Learning: How to assess 21st-century skills in innovation and entrepreneurship education.
Collaborative Learning in Field Trips	Highly immersive. It offers opportunities for firsthand, experiential learning in real-world settings.	Chapter 5. The Authentic Assessment Potential of Fieldtrips: Energy justice in action.
Dialogic Learning	Mixed experience. It fosters authentic dialog and critical inquiry, enhancing understanding and knowledge construction.	Chapter 6. Dialogic Learning: A tool for authentic assessment.
Gamification	More simulated. It often involves simulated or game-like environments to enhance engagement and motivation.	Chapter 7. Active Learning and Authentic Assessment Through Gamification: A board game experience.
Learning by Teaching	Mixed experience. It offers opportunities for students to engage in teaching and mentoring activities, providing authentic learning experiences.	Chapter 10. Learning by Teaching: Active learning and authentic assessment.

Table 1.2. *(Continued)*

Active Learning Method	Expectations	Chapter
Modeling Software	Mixed experience. It provides a mix of simulated and real-world experiences, which depend on the context and application.	Chapter 17. The Use of Business Modeling Software to Facilitate Active Learning, Challenge-Based Learning, and Authentic Assessment on a Taught MSc Entrepreneurship and Innovation Module.
Role-playing	More simulated. It simulates real-world scenarios to develop problem-solving and decision-making skills.	Chapter 8. An Exploration of Role-Playing Within the Context of Management Consultancy Learning and Teaching.
Service-Learning	Highly immersive. It involves students in real-world service activities that address community needs.	Chapter 12. Service-Learning: Pedagogy for student growth and success.

Organization of the Book

This handbook explores what active learning and authentic assessment stand for (see Section 1). It also illustrates active learning for authentic assessment implementations through different teaching and learning approaches (see Section 2). It identifies and discusses diverse implementation challenges and ways to deal with them (see Section 3). It also presents disciplinary aspects and implementation strategies (see Section 4). The closing chapter reflects on what active learning for authentic assessment may do outside classrooms and in the world (see Section 5).

Section 1 consists of the following chapters:

- Chapter 1 introduces the topic and the structure of this handbook.
- In Chapter 2, Marín-Rodríguez, Guízar Morán, and Gerardou present a scientometric analysis concerning active learning and authentic assessment. It reports a revision of contemporary literature between 2002 and 2023, through the compilation and processing of data from Scopus and Web of Science databases. Furthermore, it presents a map of the keyword network and

develops overlay and density visualizations using VOSviewer and Bibliometrix software. Finally, this chapter suggests areas of interconnectedness between active learning and authentic assessment with other pedagogical paradigms such as problem-based learning, experiential learning, and authentic learning.

Section 2 illustrates designs, implementations, and evaluation processes using a series of examples collected from different teaching and learning approaches. The chapters included are as follows:

- In Chapter 3, Trindade presents an activity at Università Bocconi (Italy) designed to foster critical thinking among higher education students. Through *argumentation reconstruction and debate*, students reflect on real-world operation management challenges. Furthermore, the chapter offers insights to address the complexities of implementation for this kind of activity in both face-to-face and online classes.
- In Chapter 4, Scroccaro, Engzell, and Norrman focus on the *CBL* approach and suggest that even though most university teachers know how to assess their engineering students' knowledge acquisition, there is a need to improve how to assess their 21st-century skills development (e.g., leadership, problem-solving, empathy, and communication). Accordingly, the authors compare four innovation and entrepreneurship (I&E) education experiences in the University of Trento (Italy) and Linköping University (Sweden). The main findings are, first, the relevance of facilitation and coaching; second, the need of development-oriented feedback to acquire new knowledge and improve their skills; third, the significance of formal and informal formative assessment; and finally, the use of entrepreneurial competences (ENTRECOMP), a tool design to assess the effectiveness of I&E education initiatives that develop soft skills, in an authentic, transparent, and safe manner.
- In Chapter 5, Tolis explores the authentic assessment potential of *fieldtrips* as a type of experiential learning. In this chapter, the author describes a five-day fieldtrip as part of a research methods module from two UG Sustainability programs at the School of Earth and Environment, University of Leeds (United Kingdom). The author reflects on how, via the fieldtrip experience, students gained deep knowledge on methods skills and bridged the gap between theory and practice by integrating the theoretical underpinnings of justice debates in the exercise.
- In Chapter 6, Hatcher situates *dialogic learning* (DL) in the adult learning classroom and demonstrates its value as an active learning approach for authentic assessment. In this chapter, the author demonstrates the use of the DL to meet adult learner needs. For this purpose, the author develops a case study concerning the careful creation of authentic assessment strategies for a course at the Texas State University (United States). This chapter suggests the benefits in terms of improved critical thinking skills in dialogic classroom students. This chapter also recommends further professional development to increase the adoption of DL in the classrooms.