

A Holistic Approach to Authentic Assessment

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Abstract

Authentic assessments require students to use the same skills, knowledge and attributes that they would use in a workplace context. Such assessments have positively affected the quality and depth of student learning, skills development, employability, and workplace readiness. Authentic assessments have also been heralded as a potential solution to minimise academic integrity issues caused by artificial intelligence software such as ChatGPT. Despite these benefits, substantial barriers exist to implementing authentic assessments in higher education. This article discusses the critical elements of authentic assessments and the steps involved in planning authentic assessments. This article is based on the author's professional experiences and reflections on implementing an authentic assessment initiative at a business school in a New Zealand University. Further information was obtained from document analysis, observations and informal conversations with colleagues. The article recommends that it is essential to develop a holistic approach at the programme level when designing authentic assessments.

Keywords: *Authentic Assessment, Skills, Teaching and Learning, Business Education, Academic Integrity, Higher Education*

INTRODUCTION

A significant change currently taking place in higher education is the shift towards authentic assessment. Moving towards authentic assessment is a response to several issues raised in higher education. Among these issues are dissatisfaction with the standard multiple-choice or MCQ testing method; the desire to measure student learning using alternative ways; the aim to equip students with the ability to apply what they learn in real-world situations; the criticisms aimed at higher education regarding graduates' workplace readiness and the emergence of free artificial intelligence (AI) writing software such as Chat GPT (Palm, 2008; Pham et al., 2021; Singh et al., 2014; Swaffield, 2011; Wiewiora & Kowalkiewicz, 2019). In addition, with real-world and contextualised tasks, authentic assessments facilitate meaningful learning experiences (Ifelebuegu, 2023).

Employers believe recent graduates lack fundamental skills, such as critical thinking and analysis, problem-solving, communication and collaboration (Gonzales, 2020; Singh et al., 2014), and cannot adapt to working life. The transmission of knowledge and theory does not prepare university graduates for future employment. To address this gap, teaching, learning, and assessment methods must be authentic and meaningful, and they should prepare students to adapt to the needs of the changing world (Oraison et al., 2019). Most importantly, assessment tasks should go beyond the classroom and be linked to real-world situations and workplace contexts. The World Economic Forum (2020) emphasises that the top skills rising in prominence in the leadup to 2025 are 'critical thinking and analysis as well as problem-solving, and skills in self-management such as active learning, resilience, stress tolerance and flexibility' (p. 5). Thus, the focus should be on the knowledge, skills and attitudes

students need in future workplaces (Vos, 2015).

With artificial intelligence (AI) software such as ChatGPT, academic integrity has been a serious issue in Higher education. Authentic assessment has been gaining recognition as a potential solution to minimising academic integrity issues (Sotiriadou et al., 2020). Authentic assessments can help students develop critical thinking skills and foster a deeper understanding of the subject matter, which can reduce the temptation to use automated tools like ChatGPT to generate superficial responses. Authentic assessments, rooted in real-world tasks and applications, demand students to engage deeply with course material and apply their knowledge to complex, context-specific scenarios. By embedding higher-order skills such as critical thinking, problem-solving, and creativity, authentic assessments make it considerably more challenging for AI tools to generate prefabricated responses (Ifelebuegu, 2023).

The objectives of this article are to identify and discuss critical elements of authentic assessment. The article aims to outline the steps of a holistic approach employed to plan authentic assessment at a business school in a New Zealand University. In addition, the article discusses the issues institutions may face in designing and implementing authentic assessments in higher education. Based on the author's professional experiences and reflections, the article offers recommendations for overcoming some of these challenges. It should be noted that the article did not intend to enter the debate to determine if exams are inauthentic compared with some other assessment types. The article begins by defining and discussing authentic assessment in higher education. This includes the key literature that informs what makes an assessment authentic. The next section of the article provides details of the authentic assessment initiative, the critical elements of authentic assessment, and the process followed to plan authentic assessments in the business school. The last part of the article includes a discussion on potential challenges when planning authentic assessments, which is followed by concluding remarks and recommendations.

1. Why Authentic Assessment?

Authentic assessment is defined as 'an assessment requiring students to use the same competencies, or combinations of knowledge, skills, and attitudes, that they need to apply in the criterion situation in professional life' (Gulikers et al., 2004, p. 69). This definition emphasises the connection between what is assessed in the classroom and the workplace tasks that must be completed. Skills development is critical to authentic assessment (Sokhanvar et al., 2021). In the context of business education, accreditation bodies, such as the Association to Advance Collegiate Schools of Business (AACSB) and EQUIS, emphasise the need for graduates to be equipped with problem-solving, critical analysis, management, life-long learning, teamwork and communication skills so that students are ready for their future careers (Association to Advance Collegiate Schools of Business et al., 2020; EQUIS, 2019). Evidence suggests that authentic assessments improve communication, collaboration and critical thinking skills (Sokhanvar et al., 2021), contribute to the quality and depth of learning (Wiggins, 1993), and increase graduate employability by developing workplace readiness (Schultz et al., 2021).

Authentic assessment also helps minimise academic integrity issues (Ifelebuegu, 2023; Sotiriadou et al., 2020). Authentic assessment tasks often require students to demonstrate their learning through practical and real-world tasks, and outsourcing assessments to third parties becomes far more challenging (Sotiriadou et al., 2020). Furthermore, authentic assessment encourages students to work together as they solve real-world complex problems. The collaborative approach reduces the incentive to cheat. Research also suggests that authentic assessments motivate students to complete the assessment tasks themselves to better prepare for future work (Lodge, 2023; Villarroel et al., 2018). Another critical aspect of authentic assessment is reflection. Strampel and Oliver (2007) emphasise that reflection 'strongly influences learning by increasing understanding, inducing conceptual change, and promoting critical evaluation and knowledge transfer' (p. 973). Poikela (2004) argues that reflective and social knowledge is not sufficiently measured in traditional assessment and that this gap can be addressed through more authentic assessment. Since reflection is a way of examining one's experience (Boud, 2006), it can be an integral part of authentic assessment.

In addition, authentic assessments allow students to receive ongoing feedback from their peers and teachers. Students often engage in self and peer-assessment activities as part of authentic assessments. When students engage in self, peer and group assessment tasks, they learn not only to

evaluate the quality of their own work but also to provide, receive and manage feedback, which are vital aspects of today's work contexts (Ketonen et al., 2023).

2. What Makes An Assessment Authentic?

Authenticity is an essential characteristic of assessment design that can promote learning and graduate employability (Sambell et al., 2012). Wiggins (1998) emphasises that *authentic tasks* and *performer-friendly feedback* are two fundamental components of 'educative' assessments (p. 21). He provides six standards associated with authentic assessment, summarised below. Assessments are authentic if:

- i. The assessment tasks reflect the ways knowledge and skills are utilised in real-life situations.
- ii. The tasks require judgment and innovation, where students may be involved in solving unstructured problems.
- iii. The tasks require students to engage in the subject, where they explore and carry out tasks within the subject.
- iv. The context of the assessment task is replicated from a real-world context or simulated to make it as close as possible.
- v. The tasks require students to demonstrate effectively and efficiently a range of skills and knowledge, including negotiation and judgment related to complex problems.
- vi. The tasks allow students to practise and provide them with opportunities to learn and receive feedback, enabling them to improve their performance.

According to Wiggins (1998), assessment tasks can fall along a continuum depending on the degree of authenticity. Wiggins (1998) provides three scenarios to demonstrate this point: an inauthentic assessment task would be to ask students to 'explain a data set'. A more authentic version of this assessment would be to ask students to 'design a house using specific mathematical formulas and shapes'. The most authentic version of the assessment would be to 'design and build a model house that meets standards and client demands' (p. 28). Similarly, Mueller (2006, para 14) expands on the continuum of authenticity and provides the following attributes for traditional and authentic assessments. The extent to which an assessment task is traditional or authentic depends on how closely it reflects these attributes.

Traditional	Authentic
Selecting a Response -----	Performing a Task
Contrived -----	Real-life
Recall/Recognition -----	Construction/Application
Teacher-structured -----	Student-structured
Indirect Evidence -----	Direct Evidence

Authenticity is also characterised by realism, contextualisation and problematisation when teaching and assessing course content (Benner et al., 2009; Villarroel et al., 2018). *Realism* entails connecting knowledge with activities related to life and work, *contextualisation* involves applying knowledge in an analytical and thoughtful manner, and *problematisation* refers to the idea that what is learnt can be utilised to solve a problem or meet a need (Villarroel et al., 2018). Assessments are, therefore, authentic and meaningful when the tasks are linked to the real world and designed to include several elements of authenticity.

3. The Context

This article explores critical elements of authentic assessment based on a holistic approach to designing such assessment at a business school in a public university in New Zealand. The school comprises departments such as Accounting, Finance, Management, International Business, Business Information Systems, Marketing and Economics. In the business school, teachers are encouraged to review their course content, assessments, and learning outcomes regularly to maintain the currency and quality of their courses. The business school uses the constructive alignment approach when designing new

courses and reviewing existing ones. Constructive alignment in course design means that teaching and learning activities and assessment tasks explicitly connect with course learning outcomes (Biggs, 1996). The business school also has a quality assurance process called Course Change Requests (CCRs) for reviewing and approving any changes to course assessments and learning outcomes. The faculty teaching and learning team reviews any proposed change to a course.

In 2020, the University proposed moving towards authentic assessment. As part of this initiative, several protocols were introduced to teachers. Starting in 2021, teachers were to design assessments according to the vision of authentic assessment and move away from summative exams as the default; exams would be by exception only. Where exams were required, they were to be designed as authentic as possible, calling for the same knowledge, competencies, skills, and attitudes students would need to apply in similar situations in their workplaces or professional lives. As the Teaching and Learning Manager in the business school, the author's involvement in the authentic assessment design process included working with the teaching and learning team to offer workshops on the topic, providing individual and group staff consultations, and reviewing the redesigned assessments before submitting them to the relevant board of studies for approval. While the business school has a long history of advocating authentic assessment, with the new initiative, there was an opportunity further to enhance assessment practices in programmes and individual courses. This initiative is still ongoing, but the following sections discuss the school's current approach to authentic assessment, including the elements that comprise authentic assessments. This approach can also be used for the same purpose in programmes in other disciplines.

4. Critical Elements Of Authentic Assessment

The following are identified as critical elements (Figure 1) that must be considered when designing authentic assessments. These critical elements are based on good assessment design principles identified through the author's many years of professional experience and the relevant literature.

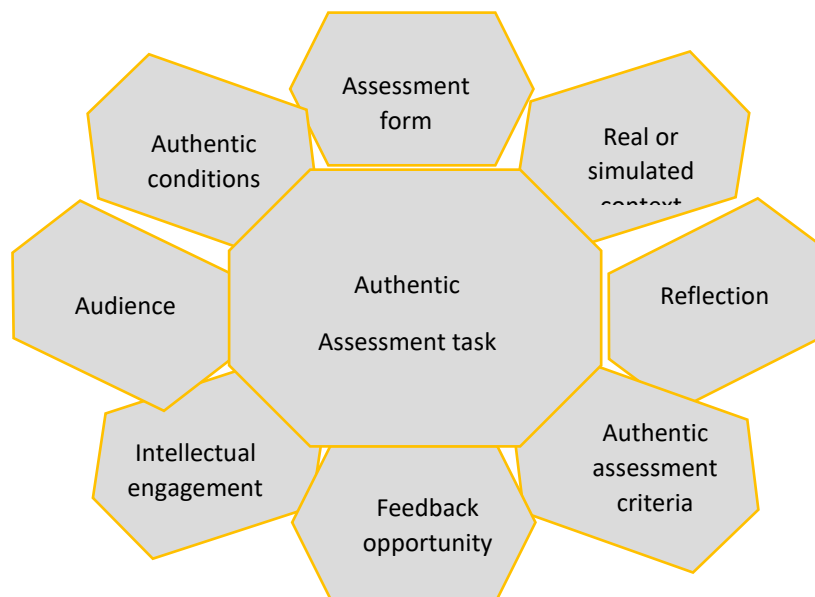


Figure 1 Critical elements of authentic assessment

These critical elements are described below.

- *Authentic assessment task*: An authentic task is at the centre of authentic assessment. It is similar to a task in the real world and requires students to demonstrate mastery of the skills, knowledge and attributes they would need in a real-world situation or workplace. The task must be challenging and involve problem-solving, analysis and synthesis, where students may not have a clear-cut answer to the issue or task.

- *Intellectual engagement:* Authentic assessment engages students intellectually and assesses higher-order skills and complex thinking. Authentic tasks assessing higher-order thinking force students to think and produce knowledge, not merely recall information.
- *Real or simulated context:* On the one hand, the context is realistic when the task comes from a real-world environment or is based on a real-world issue. On the other hand, professional contexts are different from university learning environments, so the environment where students perform the assessment task should be as close as possible to a real-world context. This may include a social setting in which the task requires collaboration.
- *Assessment form:* In current workplaces, we engage with multiple audiences using various forms and media daily. Similarly, the outcome of an authentic assessment may take the form of a performance or product. Students may use multiple written, oral, and digital formats to fulfil the task. Students should be given opportunities to use multiple means and media to demonstrate their skills and knowledge.
- *Authentic conditions:* Recalling and writing down memorised information within a restricted period does not represent the real-world tasks graduates may encounter in their professional lives. Consequently, assessment tasks should be administered under authentic conditions, such as non-controlled, collaborative, and open book, to enhance the authenticity of the task.
- *Audience:* The audience that receives the performance or the product (outcome) of the authentic assessment task should go beyond the teacher. For example, the task may be to analyse a case study based on a real company and make recommendations to the company's senior executive team (SET). In a simulated context, students will present the case and recommendations to a senior executive team (SET) made up of students. The SET team will ask questions and provide feedback on the recommendations.
- *Feedback and opportunity to practice:* Assessment tasks should reflect what takes place and what is evaluated in workplace situations. Collaborating with peers and receiving and providing feedback on workplace tasks is common. Therefore, it is vital to include feedback opportunities (peer and teacher feedback), second chances, and opportunities to practise, where students learn about the quality of output (i.e., product or performance), judging quality and seeking, receiving and providing feedback.
- *Reflection:* Reflection is a key component of authentic assessment. Students reflect on what they have learnt in the assessment task (i.e., their performance, product or process) and how they would do better next time, applying what they learned in workplace situations. Reflection and self-evaluation promote deeper learning and enable students to see the bigger picture – how they would use what they learn in the classroom in future workplaces.
- *Assessment criteria:* It is essential to align an authentic task and its assessment. Authentic assessment criteria help teachers measure the extent to which students have developed skills and knowledge. In addition, the assessment criteria can help students evaluate their efforts by comparing them with the standards set. Assessment criteria should be shared with students in advance so that they know what the standards and expectations are.

The critical elements discussed above are paramount to the successful implementation of authentic assessments in educational settings. Authentic assessment tasks, conditions, and criteria ensure that students are prepared for their future careers and what is expected of them in the workplace. Having an intended audience helps students experience various key stakeholders they would be interacting with and the skills they need to be able to communicate effectively. Elements such as feedback opportunities and reflection allow students to understand their strengths and weaknesses, fostering continuous improvement and life-long learning. Considering these critical elements when planning authentic assessments enriches student learning experiences and better prepares them for the challenges they may

face in their professional and personal lives.

5. A Holistic Approach To Planning Authentic Assessment In Business Education

The five-step approach below outlines the process that was used in the business school for planning authentic assessments. Steps 1 to 4 are to be carried out in the form of a workshop or an interactive staff forum. When designing authentic assessments, it is best to bring teachers in the same programme together so everyone involved has a holistic overview of the programme. This approach is holistic because authentic assessments are planned at the programme level, and this process is paired with the critical elements of authentic assessment discussed in the previous section.

a. Step 1: Starting with the graduate profile and workplace tasks

When designing authentic assessments, a good starting point is to look at the graduate profile of a programme. Teachers should consider the knowledge, skills and attributes graduates will have once they complete the qualification. Based on the graduates' potential professions, teachers should then identify what students will be doing in the workplace and list typical tasks, common issues and opportunities they will deal with in their professional lives.

b. Step 2: Aligning assessments with course learning outcomes

The next step is identifying specific skills and knowledge students need to develop in each course. Using a matrix of all the skills and knowledge graduates need, and the learning outcomes of each course can help complete this exercise. Table 1 below shows an example of a skills matrix document from the business school's Master of Business Administration (MBA) programme. This step helps identify any skills gaps in the programme.

Table 1 Skills matrix example

SKILLS	COURSE 1	COURSE 2	COURSE 3	COURSE 4	COURSE 5	COURSE 6	COURSE 7	COURSE 8
Critical thinking								
Analytical skills								
Problem-solving								
Written Communication								
Oral Communication								
Creative thinking								
Leadership and Social influence								
Collaboration								
Innovation								
Technical skills								
Negotiation								
Strategy and Decision-making								
Resilience								
Other								

c. Step 3: Designing authentic assessment

Teachers make pedagogical decisions about the assessment tasks and the process for this step. Teachers must consider several aspects, and the following questions can help with that task:

- Does the assessment task have real-world relevance (similar to typical tasks, common issues

- and opportunities the students encounter in the workplace)?
- Who will they complete the task with (individual/group)?
- Who do they complete this task for (i.e., an external client)?
- Is there an opportunity for seeking, receiving, and providing feedback? Is there an opportunity to assess the quality of a performance or output?
- Does the task allow students to demonstrate higher-order cognitive skills? Is the task challenging enough to engage them intellectually?
- Does the task provide an opportunity for students to reflect on their performance or outcome?
- Is the task completed under authentic conditions (i.e., controlled vs. non-controlled, closed-book vs. open-book, individual vs. collaborative)?

The aim is to design authentic assessment tasks that are relevant and challenging and help students acquire the skills and knowledge they need in the workplace. Moving to authentic assessment does not mean that all exams should be removed from a programme. A more logical and pedagogically sound approach will include a combination of exams and other types of assessment where necessary. Exams can be incorporated in lower course levels (i.e., one or two courses in the first-year degree programme). The rationale is that first-year students need a measure of fundamental technical knowledge to perform specific tasks in the following years of their degree. For instance, in a numerical-based first-year undergraduate course (i.e., Accounting or Finance), the assessment plan might include a) an exam to assess their technical skills, b) a case study analysis where students prepare a report including a set of recommendations to an issue identified in the case study and c) a presentation (live or video) based on the report. In this example, with multiple types of assessment, the students have an opportunity to demonstrate not only their technical skills but also complex thinking, problem-solving, presentation and communication skills. As students move to higher-level courses, having more industry-relevant authentic projects as assessments is ideal.

d. Step 4: Developing assessment criteria

This step outlines the way teachers assess the successful completion of authentic tasks using rubrics. Generally, rubrics combine assessment criteria with the required standards by which the task should be performed. In authentic assessment, it is important to align the appropriate assessment criteria with the nature of the task. Rubrics are a great way to assess students' skills and collaborative processes (Pang et al., 2022). Although students are not expected to perform these tasks to the same standards as professionals in the field, teachers can still measure student learning in relevant ways. With this in mind, teachers must identify the performance or product criteria and the required standards. It is important to share the assessment criteria with students in advance so that they know the standards and what is expected of them. Also, actively engaging students in the rubric development process can significantly improve students' performance in the assessment task.

e. Step 5: Closing the loop

In any educational process, it is important to gather feedback from key stakeholders and make necessary changes occasionally. We live in a rapidly changing world where expectations and demands often change. To close the loop in the process of implementing authentic assessment in a programme and as part of the programme review process, it is recommended to seek feedback from key stakeholders, including the industry, students, teachers and alums. For instance, the business and industry can give us feedback on what types of graduates they need and the required skills and knowledge. Graduate destination surveys to receive feedback from alums can include questions about authentic assessment and its impact on workplace readiness and performance. Graduates can give us feedback on how their learning in the programme has helped them apply relevant knowledge and skills in real work situations.

6. Examples of Authentic Assessment from The Business School

Assessment programmes in the business school consist of industry-based projects, simulations, case

studies from the real world, collaborative projects and similar tasks. Notable examples of authentic assessment at the business school discussed in this article include assessments based on real business problems or opportunities presented to the students by business and industry partners. For example, in the Business Professional Masters programmes, industry partners share potential issues and opportunities in the industry with students. Students then analyse the issue, apply relevant concepts, theories, and frameworks, prepare a client report with recommendations, and present them to the industry partners. The following are further authentic assessment examples drawn from the business school:

- Prepare a marketing pitch (pre-recorded or present in class) to be proposed to an investor.
- Organise a marketing campaign for a new product.
- Develop and present a project proposal for a new initiative, product or process for the senior executive team.
- Case analysis (based on a real case) and presentation prepared for board members.
- Organise a fundraising event to deal with a social issue in the area.
- Write a policy brief on the economic and social impacts of a pandemic.
- Create a podcast (in the form of a panel discussion) to discuss a contemporary issue in an industry and make recommendations to address the issue.
- Build a collaborative website for a community to be used for a sustainability initiative.
- Create a collaborative report on ethical issues in a business or industry and offer recommendations for resolving these issues.
- Produce a media release in response to a policy change resulting from an international pandemic.

7. Challenges and Considerations in Implementing Authentic Assessment

Drawing on examples from a business school at a New Zealand university, specifically, the article discussed the critical elements that need to be considered when planning authentic assessments. The article also outlined the steps of the holistic approach employed to plan authentic assessment in the context of this study. The next section discusses issues institutions may face in designing and implementing authentic assessment in higher education and offers recommendations for overcoming some of these challenges. In some disciplines, task authenticity may depend on the type of knowledge required at a particular level. For example, as discussed earlier, first-year students in numerical-based fields may take some form of an exam or test as part of the assessment plan. This ensures that students have the fundamental mathematical knowledge and ability to apply specific formulas and the like. In such cases, we need a holistic approach to planning assessments within a programme rather than looking at the assessment plan at the course level. In addition, ensure that exams and tests in lower course levels do not merely ask for the correct answers but require students to apply numbers and formulas and provide justifications or interpretations.

Some programmes, such as the Bachelor of Business in Accounting, Master of Professional Accounting, and some core subjects in Law, are accredited by relevant professional bodies, which often require mandatory exams in their disciplines. This requirement has created genuine constraints in designing authentic assessments. Any effort to implement authentic assessment in subject areas like accounting and Law must deal with the mandatory requirements imposed by these bodies. There is a general expectation that at least 50% of the assessments for subjects meeting the requirements of professional bodies in their competency areas should be verifiable and invigilated. During the lockdowns in 2020 and 2021, it was evident that face-to-face examinations were not the most pragmatic method to measure students' learning in most disciplines. Pre Covid, the required 50% invigilated assessment task was an exam conducted face-to-face on campus. When New Zealand universities moved to online teaching and learning mode due to Covid, professional bodies, such as Chartered Practising Accountants Australia (CPA), permitted universities to conduct non-invigilated alternative assessments in 2020 and 2021.

The business school's immediate response during Covid was to adopt alternative assessment practices to suit the online environment. Teachers replaced face-to-face exams with alternative non-

invigilated assessments, such as online exams or time-constrained assignments. The alternative assessments were designed in alignment with the course learning outcomes and approved by a sub-committee of the relevant Board of Studies.

In carrying out non-invigilated alternative assessments, teachers made the exam script available via the University Learning Management System (LMS). Students downloaded the file, completed the exam, and uploaded the file within the allocated timeframe. Although not required, a small number of teachers with smaller courses made an effort to invigilate online exams using Zoom or Teams. It should be noted that using these applications allowed teachers to watch the students on the screen, but they could not monitor students' work, as the teachers could not see the students' screens. Moreover, this approach was not practical for large courses. Notably, the latest CPA assessment requirements encourage institutions to include authentic assessments and mandate that at least 50 % of the assessment should be verifiable or invigilated. CPA requires institutions to 'ensure that academic integrity is maintained and to determine the most appropriate assessments for subjects and/or students. Invigilated assessment activities can include, but is not limited to, in-person or online examinations undertaken under the observation of a human or online invigilator. Activities such as in-person presentations, written in-class quizzes or question and answer sessions may also count toward this minimum 50% invigilated assessment requirement as long as the student is observed whilst completing the assessment activity' (CPA, 2023).

The description above clearly states that the assessments do not have to be limited to examinations. CPA encourages institutions to implement authentic invigilated assessments; however, it is evident that institutions are still bound by their own traditional ways of assessing students via exams. On the other hand, the New Zealand Council for Legal Education (NZCLE) clearly specifies the requirement to schedule a final examination in courses that are accredited. 'The final examination must count for at least 60% of the final grade, and internal assessment for no more than 40%' (New Zealand Council for Legal Education, 2020). This deeply embedded culture of a high proportion of exams in disciplines like Law has attenuated efforts toward authentic assessment. Policy-driven assessment practices in institutions can also create challenges in implementing authentic assessment. For example, restrictions on the percentage of group work assessment in courses can be a constraint when designing authentic, collaborative assessments. For instance, the business school has a group work assessment protocol specifying that group summative assessment tasks will normally carry a combined weighting of 25% of the overall course assessment. However, depending on the nature of the course, one might want to have a group assessment of more than 25%. Authentic, collaborative projects may require students to put in a significant number of hours and a great deal of effort, which may justify a higher weighting than 25%. In such cases, the business school requires teachers to provide a rationale for this decision and add a learning outcome to include collaborative skills. Teachers are then encouraged to assess both the output and the collaborative process of the assessment task.

Further difficulties can arise if there are no processes in place to evaluate how each individual has contributed to collaborative projects. Elements that contribute to the success of group assessment include activity logs, conflict resolution processes, role and responsibility sheets, and explicit rubrics that outline criteria for evaluating individual contribution, collaborative effort, and the quality of the product (outcome). Designing authentic assessment criteria is time-consuming and requires expertise. The business school provides teachers with relevant resources for assessment practices and opportunities to work with the teaching and learning team. The *audience* is an essential element of authentic assessment. It can be problematic, however, to persuade industry personnel to assess student work. Inducing industry representatives to contribute to assessment practices in institutions may require additional resources, time and effort. Furthermore, the timelines of real projects from business and industry rarely match course assessment timelines. Often business and industry projects have a larger scope and require a longer timeframe and time commitment. Thus, institutions can often involve industry in other ways. For example, the business school invites industry representatives as guest speakers to the classroom or asks them to provide actual case studies based on trends, opportunities, challenges and issues in their industry.

In addition, students working on business and industry projects on-site must be supervised and guided every step of the way. Also, an industry supervisor or liaison must look after the students and show them where to go and how to access the information required to complete a project. Consequently, managing projects in authentic settings requires additional resources from institutions and the industry

concerned. At the business school, additional resources, such as programme and project managers, have been designated to manage student projects and internships. Managing authentic projects that take place outside institutions can be another hurdle. In real community-based projects, students will need to go to real-world settings, which may put students and those they work with at risk. Students working with a vulnerable group of people in society, for example, the homeless, may not be able to record the evidence of their work due to ethical or privacy issues. In such cases, there should be clear guidelines and ethical protocols for students to follow.

CONCLUSIONS AND RECOMMENDATIONS

Given the challenges and considerations discussed in the previous section, the successful implementation of authentic assessment needs careful consideration and proper planning. It is recommended that authentic assessment in higher education should be planned at the programme level using a holistic approach. The key takeaway is that the five-step holistic approach discussed in the article should go hand in hand with the critical elements that must be incorporated into authentic assessments. Moving towards authentic assessment can be a gradual process, so the first step might be to increase the authenticity of the assessment by including authentic elements in the task. In order to see the bigger picture in a programme, a simple assessment map can be helpful. This assessment map may outline the details of assessment tasks (e.g., case study/written report to the executive committee, the weighting of the task, and whether the task is to be carried out by a group or the individual) in each course in the programme. The assessment map clarifies how many examinations are required, how many group assessment tasks are included, the types of assessment tasks students must complete, when the tasks are due, and so on.

Skills development is crucial in authentic assessment and is considered important for employability (Sokhanvar et al., 2021). Knowledge of a subject alone will not ensure that students obtain better employment. Accordingly, institutions and professional bodies should consider what is assessed, how students are assessed and various assessment strategies to suit the changing needs of students and employers (Ali et al., 2022; Kholidi et al., 2023). As such, an invigilated, skills-based, authentic assessment can be a more suitable approach to measuring student learning. As an example, students might work on an authentic case study within a set time frame and present the expected outcome to an audience in a simulated environment. Such authentic tasks can also minimise academic integrity issues, as students must demonstrate contextualised knowledge and higher-order thinking.

As institutions continue to improve assessment practices, students must clearly understand what processes and products (outcomes) are expected of them and how they are assessed. Accordingly, alignment between an authentic task and its assessment must be thought through carefully. Teachers often struggle to create appropriate performance criteria to assess authentic tasks. These may include collaboration, reflection, use of media, and various other skills, such as problem-solving, analysis, critical thinking, negotiation, oral and written communication, and the like. Creating authentic criteria to assess knowledge, skills, and attributes takes time, skill and an open mind (to move away from traditional marking criteria). Consequently, teachers in higher education need adequate training and support in implementing authentic assessments (Reeves, 2000). The development of marking criteria can also be a co-design activity with students to ensure that they understand how they are being assessed. Involving students in the development of marking criteria will help them develop evaluative judgement, enabling them to make decisions about the quality of work (Clarke et al., 2000).

Assessments can considerably impact teaching and learning, a phenomenon known as the 'backwash effect'. Suppose student learning is to be measured using authentic methods; students should be given opportunities to practise applying the same knowledge and skills to a range of situations before the assessment. In an authentic learning context, the learner becomes an active contributor, not a passive recipient of knowledge (e.g., students can be offered an interactive workshop instead of a lecture). Clearly, institutions must be mindful of the need to make changes to their teaching and learning practices when adopting authentic assessment. Implementing authentic assessment is an involved and collaborative process. Input from key stakeholders, including the industry, alums, current students, teachers, teaching and learning advisors and programme directors, is therefore essential. Research into students' authentic assessment experience and how such assessment has facilitated skills development

can provide valuable insights. Similarly, research involving the alumni, industry and workplace representatives will provide insight into the usefulness of authentic assessment and help determine the skills and knowledge required in the workplace.

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The authors declare no conflict of interest.

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