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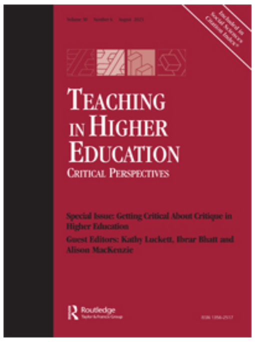

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Interactive oral assessment: co-existence of formative and summative purposes

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ABSTRACT

Assessments are crucial for preparing students for work and life, but pose academic challenges between evaluation and learning. This creates tension between formative and summative assessments with overlapping purposes. This article examines the use of Interactive Oral Assessments (IOAs) in authentic, industry-aligned scenarios, showing how they support co-existence of summative and formative functions through a constructivist lens. Survey data from 290 students across 25 subjects in a three-year project at an Australian institution show high levels of student engagement resulting from IOAs. Preparation for summative IOAs boosted students' confidence and work-readiness while providing insights into their learning processes, reflecting the presence of three Ps: Plan, Prepare, and Perform. Through constructivist principles typical of formative assessments, IOAs enabled personalized feedback and extended learning, meaning that IOAs offer an evidence-based approach to bridging the gap between formative and summative assessments, preparing students for professional life while enhancing employability and improving institutional retention.

评估在帮助学生为未来的工作与生活做好准备方面至关重要，但在学习与评价之间也带来了学术上的挑战。这种挑战主要体现在形成性评估与总结性评估之间目的重叠所产生的张力之中。本文探讨了互动式口头评估（Interactive Oral Assessments, IOAs）在贴近真实行业场景中的应用，并展示其如何通过建构主义视角促进形成性与总结性功能的共存。
在澳大利亚某高等教育机构为期三年的研究项目中，涵盖25门课程的290名学生的调查结果显示，IOA极大地提升了学生的学习投入度。学生在准备总结性IOA的过程中，不仅增强了自信与职场适应能力，也更加深入地理解了自身的学习过程，体现出"计划—准备—表现"（Plan, Prepare, Perform）三个阶段的特征。

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借助形成性评估中典型的建构主义原则，IOA不仅提供了个性化反馈，还促进了深度学习。因此，IOA为弥合形成性与总结性评估之间的鸿沟提供了一条循证路径，不仅有效提升了学生的职业能力与就业力，也有助于改善高校的学生留存率。

Introduction

An ongoing problem for educators in light of constructivist learning principles (Biggs and Tang 2022) is finding valid mechanisms to evaluate students' knowledge in a way that facilitates lifelong learning or promotes deep learning (Lynam and Cachia 2018). Through the lens of implementing an Interactive Oral Assessment (IOA), this paper argues that while IOA is mostly used as a summative assessment, it can also exhibit features more aligned with formative assessments, assisting educators and students in achieving other teaching and learning goals – e.g. implementing 'an early intervention for struggling students' (Hazen 2020). Moreover, it is discussed here that the IOA's approach to assessment accords well with effective assessment considerations in higher education, such as sustainability (Boud and Soler 2016), authenticity (Villarroel et al. 2020), life-long learning (Lynam and Cachia 2018), and inclusion (Nieminen 2022).

Formative and summative assessments

Assessments are vital to student learning and are seen to be key factors in preparing students for work and life rather than just being tools for measuring learning (Boud 2023). Despite this, assessment remains a challenging area in higher education.

Conventionally, assessments have been differentiated as formative or summative according to the purpose, focus, and types of learning achieved (Schellekens et al. 2021). The traditional summative assessment purpose is mostly to evaluate student learning against learning outcomes at the end of a study unit, leading them to be criticized for merely measuring propositional knowledge within the bounds of educator expectations, instead of providing an opportunity for students to demonstrate what they can do after learning (Nieminen and Lahdenperä 2021; Taras et al. 2023).

In contrast, the formative assessment purpose (either informal/unplanned or formal/planned and may be graded – Asamoah, Shahrill, and Abdul Latif 2022) is to share ongoing feedback with students to improve their education experience (Black and Wiliam 2009; Woitt et al. 2023), and to increase their capacity to self-evaluate their learning – to frame and inform future learning (Lynam and Cachia 2018).

The focus of most formative assessments is on what occurs during a student's learning journey, whereas the focus of most summative assessments is on what occurs at the end. Due to the greater opportunity to exchange timely feedback during teaching periods, student learning via formative assessments appears to be deeper than the rather surface learning achieved via most summative assessments (Lynam and Cachia 2018). However, summative assessments still play a key role in motivating students to work toward achieving learning outcomes (Fischer et al. 2024).

Given these definitions, the contrasting and sometimes contradictory purposes of formative and summative assessments have been widely captured through literature as creating tensions for educators/students. Indeed, for many, the formative/summative dichotomy is argued to be divisive (Alexander, Owen, and Thames 2020) and an unhelpful categorization (Boud and Soler 2016; Chong and McArthur 2021). This tension has led to much debate about the relative merits of formative/summative assessments (Boud and Soler 2016; Schellekens et al. 2021), arguing that the dominance of summative assessments can hinder the role of formative learning experiences (Houston and Thompson 2017). Under these conditions, students will naturally focus on the targets embedded in summative evaluations, and this mostly interferes with the attainment of learning outcomes. Conversely, the balance of opinion is that these two assessment purposes can overlap and create a connected teaching/learning environment (Alexander, Owen, and Thames 2020; Schellekens et al. 2021).

In effect, the studies on practical assessment designs that link summative and formative assessments in constructive ways are scant (Houston and Thompson 2017). The formative potential of summative assessment can mostly be developed well when it is based on constructivist learning principles, where educational practices aim ‘to supply conditions that make for the cultivation and the training of mind’ (Dewey 1910). In this regard, there are varied definitions of constructivism, with some key principles of constructivist learning theory, highly influential in teaching/learning (Amineh and Davatgari Asl 2015). The ‘constructive alignment’ concept (Biggs and Tang 2022) represents the integration of constructivist learning theory and instructional design literature to elicit performances from students that represent a suitably high cognitive level. Ideally, if educators can ensure that the learning materials guide students toward achieving the learning outcomes that are embedded in the assessment design, then teaching/learning activities are aligned (Biggs and Tang 2022). Accordingly, learners construct new understandings of their previous knowledge through the provision of experiences in an engaging (non-passive), learner-centric environment. Learners then negotiate their understanding in response to what they experience in a new learning situation, through processes that are embedded in a social context (Amineh and Davatgari Asl 2015; Jensen, Bearman, and Boud 2023).

Hence, to contribute to the discussion about the challenges and tensions of assessment design, the enhancement of learning processes alignment with well-constructed learning outcomes, and the achievement of deep learning through summative assessment, this study explores and demonstrates the potential of interactive oral assessments, using data collected from student surveys, as elaborated further below.

Evolution of oral assessments over years

Oral assessments were the sole assessment mode in Cambridge and Oxford in medieval times, which were conducted in public and Latin (Stray 2001). Through the nineteenth century, the use of oral assessments declined. The earliest reference to written examinations is found in 1702 in Cambridge (Ball 1899, as cited in Stray 2001, 35). The shift from oral to written examination appears to have been influenced by the focus of assessment on content, ‘cognitive assessment of individuals’, and the rise in student numbers throughout the nineteenth century (Stray 2001). Despite a strong shift, oral assessments were still retained in certain disciplines, as well as for PhD defenses.

In more recent decades, there has been a gradual resurgence of interest in oral assessments across various educational contexts, like higher education and professional programs (Cole 2023). This renewed focus is often tied to efforts to promote deeper learning, develop transferable skills, and enhance academic integrity (Joughin 1998; Ward et al. 2023). For instance, oral assessments are increasingly used in clinical education, law, and architecture/engineering, where assessing practical application, ethical reasoning, and real-time problem-solving is essential. Moreover, technological advancements – such as video conferencing platforms – have enabled more scalable and flexible oral assessments, especially in distance/online education.

One of the notable cases of relying on oral assessments is in Germany's education system. The key role of an oral examination is perhaps most pronounced in their Diplom programs, generally seen in natural sciences and engineering education (Kehm 2001). The argument in favor of oral assessments has been the flexibility it offers students to showcase their strengths and for assessors to assess the depth of students' knowledge, their communication, reflexive, and critical thinking skills (Kehm 2001). However, large student cohorts and additional workloads are cited as some challenges resisting conducting oral assessments (Cole 2023; Kehm 2001).

Interactive oral assessment

An Interactive Oral Assessment (IOA) is a genuine, free-flowing, and unscripted conversation between an assessor and a student (or a group of students/assessors) around an authentic workplace-aligned scenario (Sotiriadou et al. 2020; Ward et al. 2023), to more comprehensively evaluate each student's understanding. With this definition, IOA appears to be a relatively recent learner-centered approach compared to the other oral assessment types. IOA also does not fall neatly into an oral examination typology such as presentations, applications, and interrogations (Akimov and Malin 2020), with its unique feature being the dialogic process students and assessors engage in during assessment (presenting a deeper understanding of related concepts instead of regurgitating a series of words – Theobold (2021)), and the use of scenarios around which synchronous interactions are framed (Akimov and Malin 2020; Demouy et al. 2011; Eardley et al. 2011; Karltun and Karltun 2014). These features offer so much potential in assessing learners' knowledge (mostly communal and embodied knowledge – Nieminen and Lahdenperä 2021) and learning outcomes that may not be effectively assessed otherwise, including enhanced student engagement, improved academic integrity (Hazen 2020; Theobold 2021; Ward et al. 2023), and development of employability skills (Akimov and Malin 2020; Krautloher 2021; Krautloher et al. 2021; Samuelson, Crawford, and Krautloher 2022; Shaeri, Logan, and Krautloher 2021; Tan et al. 2021; Theobold 2021; Tuononen et al. 2023).

In recent decades, the dominant form of assessment in higher education has been teacher-driven assessments implemented through written responses, such as essays or reports (Akimov and Malin 2020) and written examinations (Rawlusyk 2018), which are widely criticized as being an advocate for memorization rather than the application of knowledge (Nieminen and Lahdenperä 2021). They are limited in assessing students' higher-order thinking skills (Carless 2015), are not learner-centered (To 2021), and do not support assessment *for* learning (Rawlusyk 2018). Through written assessments, students can never find out their 'prolonged misconceptions' (Theobold 2021). There are also issues and preferences with students studying in a non-native language. For example, Ramjan et al. (2024) reported that international students in Australia struggled with written assessments but preferred face-to-face interactions.

Oral examinations have traditionally been popular in health-related disciplines or doctoral defenses as a final hurdle. Considering the growing challenges associated with academic integrity and enhanced artificial intelligence-assisted, publicly available tools, oral assessments offer a sound alternative to evaluate student learning. However, oral examinations have not been fully free from controversies due to the stresses associated with them for students (Cole 2023; Theobold 2021), the perceived increased workload for academics, and bias risk (Akimov and Malin 2020) – although it is also believed that the stress induces students to prepare better for the oral assessment (Theobold 2021).

In contrast, the back-and-forth (i.e. interactive), synchronous discussion during an IOA allows assessors to provide formative feedback to students by asking clarifying questions or expressing opinions on students' responses (Tan et al. 2021; Theobold 2021), which in turn helps students develop discipline-specific communication and critical thinking skills that are key graduate attributes (Akimov and Malin 2020). This is complemented by providing detailed summative feedback against each performance criterion in the marking rubric, including overall comments, and identifying areas for improvement (Tan et al. 2021).

The design of IOAs in this research project was informed by the model developed by Sotiriadou et al. (2020), which required purposefully embedding some key characteristics; i.e. scaffolding, scenario-based, aligned to the program learning outcomes, accessible and equitable, and professionally focused. According to Sotiriadou et al. (2020) and Ward et al. (2023), such carefully designed IOAs result in an enhancement in student engagement, employability/transversal skills, and academic integrity.

IOA, as defined in this study, offers a different purpose and uses a distinct pedagogical approach – enhanced by effective scaffolding and constructive alignment (Tan et al. 2021) – compared with other forms of oral assessment, such as viva voce and presentations (Ward et al. 2023). The industry-aligned assessment 'scenarios' are developed by teaching academics, given the subjects that students are enrolled in, their future professions and norms of their real world of work, students' levels of study, and their knowledge and skills required to be evidenced through the completion of the assessment (i.e. consideration of constructive alignment). For example, some of the scenarios used included a mock job interview, job handover, annual employee review, client or consultant meeting, and biblical translation committee meeting. More examples of IOA scenarios are shown in Table 1.

The discussion in the IOA evolves organically, rather than in a scripted question-and-answer format (which is typical in many other oral assessment types). That is, the subsequent questions (or prompts/nudges) are based on the students' earlier responses, helping the assessor to clarify any ambiguity or help the conversation be redirected if lost (Hazen 2020). This also makes the assessment unique to each student (Newell 2023), as the flow of each scenario is informed by student-specific responses, providing them with a better sense of belonging, self-confidence, and motivation. Such uniqueness also assures the achievement of a lower risk of academic integrity breaches (Ellis et al.

Table 1. Sample IOA Scenarios in different disciplines.

Discipline	Scenario	Description
Languages	Translation committee	A Biblical Hebrew expert orally quizzes translators on interpreting texts, grammar nuances, and textual traditions
Business and management	Pitching a business plan to an investor	An entrepreneur presents a business plan to an investor, explaining key elements and responding to questions or concerns
	Informal team orientation meeting	Team members introduce themselves, sharing roles and goals, while a facilitator ensures clarity on team dynamics
	Meeting with a new client	A marketer meets a client to explore goals, audience, and strategy, discussing challenges and solutions. The assessor may play either role
Engineering	Job interview	In a mock job interview, candidates discuss qualifications, technical and transferable engineering skills, past projects, and how they would tackle relevant challenges
	Performance review	In a performance review, an engineer discusses achievements, KPIs, challenges, and areas for improvement with their manager
Health	Case handover notes	Healthcare staff hand over patient cases during shift changes, summarizing key details, treatments, and concerns
	Consultation with a dietitian	In a consultation, a client discusses health and diet habits with a dietitian, who asks questions, advises, and provides nutrition education
Criminal justice	Job handover	In a criminal justice handover, a case is orally presented with key evidence, witnesses, and ongoing strategies for the next team/shift

2019; Harper et al. 2019; Hazen 2020; Theobold 2021; Ward et al. 2023), making this assessment method academically rigorous.

Accordingly, acknowledging the value of authentic, industry-aligned assessments, the importance of synchronous student interaction, and the merits of alignment between the assessment and the learning outcomes, this study explores the following research question: Can IOAs serve both formative and summative functions in assessment practices within higher education?

Materials and method

In late 2020, an institution-wide initiative was implemented to explore alternative assessment strategies at an Australian regional university. IOA was one such approach that gained popularity (affected by COVID-19 pandemic lockdowns, prior to the widespread availability of free GenAI tools). The first group of interested academics (i.e. four teaching staff from different faculties, two of whom are the authors of this article) formed a Community of Practice (Scheele et al. 2021) in early 2021 – led by an Educational Designer (i.e. the second author of this article) and an external mentor – to design and implement this assessment approach in their teaching subjects. Rubrics were carefully crafted to match the chosen scenarios and align with the anticipated flow of the conversation, ensuring the assessment of learning outcomes. Accordingly, pre- and post-moderation of IOAs was crucial to refine and speed up the marking. The use of moderation together with robust rubrics also considerably simplified the marking process for assessors (Theobold 2021) – as is sometimes called 'marking on the fly'.

Simultaneously, a mixed-method research project was designed to collect data and assess the effectiveness of IOAs over three years (i.e. 2021–2023). Accordingly, ethics approval was obtained (approval no. H21255) to gather information from students and staff. Over the three years, assessments in 25 subjects were redesigned to embed

Table 2. Extract from the survey instrument.

(A) Demographic
1. Age bracket
2. From a non-English speaking background
3. Aboriginal or Torres Strait Islander
4. Qualification
5. Mode of study
6. Semester of study
7. Faculty
8. Subject/Unit of study with IOA
(B) Likert-scale: Choose the right level as a result of the IOA participation.
1. Analytical skills enhancement
2. Problem-solving skills enhancement
3. Communication skills enhancement
4. Effect on confidence about facing similar scenarios in future workplace
5. Effect on confidence about defending judgment and decisions
6. Application of knowledge in various settings and real-life scenarios
7. Effect on helping prepare for future profession
8. Effect on engagement with the subject/unit relative to others
(C) Open-ended
1. Benefits experienced, if any, as a result of IOA

IOAs (involving more than 2000 students), while ensuring constructive alignment (within each subject and with other assessments in the subject), and scaffolding to and from IOAs (noting that the weight of the IOA assessment task was not more than 30% of the total subject marks in any of the subjects). This included assurance that other assessments in each subject were still valid and essential in measuring students' knowledge development levels against the subject learning outcomes. During the implementation and research phase, some of these subjects ran more than once, allowing for iterative feedback on the changes (i.e. assessment design, development of marking rubrics, and learning outcome mapping) and contribution to the enhancement of other subjects that implemented this assessment method. In the meantime, the Educational Designer also reviewed early IOAs and provided feedback to the academics to improve the conduct of their other IOAs.

Data description, sampling, and collection

This article focuses on the results achieved from student surveys that ran six times, covering data from seven teaching trimesters across 2021–2023. The survey questions (some of which are shown in Table 2) were initially considered to find evidence of quality implementation (rather than being designed based on some research questions in mind). The survey contained (A) eight demographic questions, (B) 24 questions, either Likert scale type or with yes/no responses, and (C) five open-ended questions. From one of the open-ended questions (i.e. question C1 in Table 2), the main argument in this article has been established, upon completion of a thematic analysis, accompanied by quantitative results from some questions in Sections A and B. The responses to other open-ended questions are not covered in this article.

Participation in the survey was voluntary, and it was circulated to around 2030 students only after their grades were released to ensure frank responses. Consequently,

Table 3. Percentage of responses based on Faculty and Subject ($n = 290$).

Faculty	Subjects	% of total responses
Arts and education	Biblical Hebrew 2 + 3	0.8 + 1.6
	New Testament Greek 1 & 2 + 3	0.4 + 0.4
Business, justice and behavioral studies	Biopsychology 1 + 2	0.8 + 0.4
	Engineering Challenge 2	4.7
	Engineering Portfolio – Advanced + Developing	2.4 + 1.9
	Gender and Crime	13.6
	Indigenous Communities and Policing	19.8
	Leading Self and Teams	12.8
	Managing and Leading Change	1.9
	Performance Planning and Review – Intermediate Engineering Cadets + Professional Engineering Cadets	1.9 + 0.8
Science and health	Applied VET Epidemiology	5.8
	Diagnosis and Critical Thinking in Veterinary Science	2.7
	Food and Health	7.4
	Food Intake Analysis and Meal Planning	2.4
	Menu Planning for the Community	1.9
	Nutrition for Health and Performance	15.4

290 responses with various degrees of completion are available from 22 of the mentioned 25 subjects that implemented IOAs. Although the survey covered more than one iteration for some subjects, or students in more than one of their subjects were surveyed, we did not try to link historical data or find links between various sectors of data. Hence, all the mentioned 290 responses were placed in the same analysis dataset.

Data analysis

Most students were in the 18–25 and 26–40 age brackets (about 40% and 31%, respectively), and around 11% had English as their second language. Around 80% of the respondents were completing a Bachelor's degree, followed by around 7% for each of the groups of Master's and double degree students. The rest of the students were completing other shorter courses. About 73% of the students were enrolled online, 18% on campus, and 9% in blended courses (which matches the typical distribution of students in the chosen institution). The list of teaching subjects and the percentage of responses are shown in Table 3, demonstrating the contribution of various disciplines (as well as teaching approaches and assessment weights) in the process of sense-making from the database.

Out of 290 total responses, there were 179 responses to question C1, which were thematically and independently analyzed by two of the authors. Accordingly, the common themes were actively sought during this process to ensure emerging outcomes would not be affected by the researchers' perceived expectations or any theoretical framework. The themes were then discussed with the third author before being finalized.

Findings

Students' responses provided a general sense of how they perceived IOA and highlighted key themes: Authentic Learning and Employability Skills, Learning as a Process, and Constructivist Learning, as described below.

Table 4. Theme 1: Authentic learning and employability skills.

Dimensions	Selected open-ended responses
Authentic learning	'it was realistic' 'an applicable skill set to real life situations' 'Interactive oral creates an environment that would be similar to real life situations' 'I was able to use what I learnt in a practical way instead of just banging out another essay' 'Being interviewed and using the industry terminology associated with the subject was highly beneficial in preparing for real-world situations'
Professional communication and problem-solving skills	*Interview Preparation:* 'How to hold an open-ended conversation' *Oral presentation and communication:* 'It really forced me to consider how to verbalize my learning as opposed to writing' 'I did get to improve my communication and presentation skill, which have been relatively weak for me' *Specific professional communication:* 'you have to use correct communication as well as effectively putting your point across in an academic manner' 'Gaining confidence to talk professionally with others, especially those with more experience or knowledge in the field' *'thinking on your feet':* 'As a student it was good to be put under immediate pressure' 'respond quickly' 'speeds up your thinking' 'on the spot problem solving' 'ability to think outside the square'

Theme 1: authentic learning and employability skills

The successful design of IOAs allows students to develop key employability skills, i.e. skills of discipline-specific communication, analysis, and synthesis, and problem-solving, aligned with Lenard and Pintarić (2018), Newell (2023), and Huxham, Campbell, and Westwood (2012), respectively. Data shows that students valued the real-life (authentic), industry-aligned scenarios simulated within IOAs (in line with the findings of Cole (2023)) and acknowledged their value in developing real-world, discipline-specific employability skillsets in effectively preparing them for the workplace (in which written assessments have rarely a place). Table 4 shows some representative comments from the open-ended data related to Theme 1.

Literature indicates many students share dissatisfaction about their higher education assessment regime as they see most of them as purely serving academic purposes rather than preparing them for their future professions (ACER 2011; CESE 2015). Most students do not develop key employability skills required by industry (Nair and Mertova 2009), while industry professionals look for job-ready graduates, yet are continually disappointed about students' lack of employability skills. Most importantly, although students do complete problem-solving tasks in other types of assessments (e.g. case studies, which are not free from issues regarding academic integrity), the ability of students to solve a problem on the spot, at the time of an IOA, was seen as crucial to enhancing their analytical and problem-solving skills.

Participating in an IOA, students' professional communication skills also developed beyond (asynchronous) written text when utilizing their analytical and problem-solving skills simultaneously, organizing their thoughts, and verbally responding promptly to problems (and nuances) presented by their assessor. Students' comments show that their communication skills improved from being able to verbalize their learning, presenting confidently, and being capable of holding a discipline-specific professional conversation with another professional (i.e. the academic assessor who is more experienced than them) to the extent that they 'can almost be viewed as "teaching" the material' back to the assessor (Hazen 2020).

Quantitative data analysis (questions B1–B7 in Table 2) reveals similar conclusions to those above. For example, respectively, about 40%, 34%, and 46% of respondents indicated that their analytical, problem-solving, and communication skills developed 'quite a lot' because of participating in IOA. Furthermore, around 30% of all respondents stated that all three skills were enhanced 'quite a lot' by the end of their IOA participation. Moreover, nearly 65% of students responded that participating in IOA significantly affected their confidence in a positive way in relation to similar scenarios to the one in their IOA. Likewise, nearly 70% agreed that their experience with IOA helped them prepare for their future profession. About 54% also stated that they could defend their decision/judgment more confidently ('quite a lot'), while approximately 47% of students chose that their confidence to defend their decisions in similar scenarios significantly improved at the end of their IOA. These align with Nieminen's (2022) argument that assessing such human-specific skills and attributes makes IOA an inclusive assessment.

Theme 2: learning as a process

A new form of learning in preparation for IOA was evident through student feedback that showed the presence of the three Ps: Plan, Prepare, and Perform. Students, in their survey responses, frequently compared typical written assessments and IOA in a way that suggested the impact was deeper than a simple change of assessment method; but rather a fundamental shift in *what* is being learnt and evaluated. Therefore, it can be argued that what was learnt was not merely the subject content but, more importantly, learning took place through a *process*.

Through such a process, students demonstrated these three Ps to successfully participate in an IOA: (1) the planning stage involved students perusing the subject materials, making notes, and writing reflections, (2) the preparation stage involved practicing speaking, reviewing the key concepts and using the exemplars/sample IOA recordings, and (3) the performing stage involved actively engaging in a professional conversation with their assessor, exchanging feedback and consolidating the learnt concepts. Table 5 shows some representative comments related to Theme 2.

Moreover, students left comments in their surveys that were reflective of Bloom's taxonomy of learning (Bloom, Krathwohl, and Masia 1956). For example, many reported comments related to understanding and application, which are important base levels of attainment in any summative assessment. Furthermore, student comments show that IOA brought out the analytical dimension of learning more strongly, which helped them to synthesize and contextualize knowledge. This is demonstrative of an overall growth that is not evident through other types of summative assessment (Theobold 2021). Quantitative data analysis (question B6 in Table 2) reveals similar conclusions as well. For example, about 31% (34%) of students stated that their experience with IOA helped them significantly (moderately) apply their knowledge in various settings and real-life scenarios.

Table 5. Theme 2: learning as a process.

Dimensions	Selected open-ended responses
Practical	'Preparation for the oral encouraged me to stay engaged with the subject' 'Ability to prepare and present my understanding in a way that is organic and natural' 'It enhanced my interview preparation skills through the preparation process as I had to practice what to say for the interview'
Affective	'I found myself more relaxed going into this assessment type compared to other forms' 'I was initially nervous; however, I was surprised how much I knew and could remember' 'Improved confidence in my own knowledge and ability to convey it' 'I felt as though I could properly explain my knowledge'
Cognitive	*Remember & understand:* 'I reviewed everything we'd done for the written component of the assessment, in case I got asked about it' 'a great tool to ensure I really understood the content' *Apply:* 'The learning was layered from revision, and comprehension questions, to application in assessment, to conceptual understanding and commentary (along with diagnosis) in conversation with a peer' *Analyse:* 'I think the benefit of the oral was that it encouraged me to get the whole process in my head at the same time' 'I felt more confident in my ability to contextualize the subject content which I had learnt during the semester' 'Bringing together what I had learn theoretically and in my assignment into a conversation' *Evaluate & create:* 'Learning how to succinctly defend a viewpoint' 'beneficial for allowing back and forth discussion of development and therefore better justify experiences'

Additionally, students also frequently reported initial consternation and nervousness, followed by positive engagement, and finally, feelings of satisfaction, enjoyment, and confidence (which is similar to what Theobold (2021) also reported). IOA allowed some students to develop evaluative skills, appreciating the opportunity to defend a viewpoint and justify conclusions. This aligns well with the notion of 'psychological safety' (To 2021) through which an IOA session is designed to be a 'personal feedback space' resulting in an enhanced 'readiness to engage' (To 2021), prompting 'students to reflect on their assumptions about what constitutes quality work' (Jensen, Bearman, and Boud 2023).

Theme 3: constructivist learning

Table 6 shows some representative comments related to Theme 3. The findings reveal constructivist learning occurring throughout the IOA process, encompassing key elements of constructivist learning; that is, engaged rather than passive learning; learning as a social process embedded in a social context; and enabling students to construct their own knowledge (Amineh and Davatgari Asl 2015).

Comments from students reveal how they needed to negotiate their understanding in response to what they experienced in the new interactive learning situation. The expression 'think on own feet' was common among student respondents and indicated that listening to added information and incorporating this data into their previous understanding was crucial in the IOA. The comments also reveal a level of affective engagement that students experience with their learning in this environment. Students needed to self-regulate and learn the content more deeply to spontaneously apply their learning to the novel scenario within the assessment or the follow-up questions with twists and turns. Students' comments reflect that they engaged with the subject material at a deeper level in anticipation of the unknown that could be asked in their IOA, and in

Table 6. Theme 3: constructivist learning.

Dimensions	Selected open-ended responses
Engaged learning	'The IO provided an opportunity to show the level of engagement with the subject material' 'The process of preparing for the IO made me engage with the learning on a more detailed level which enhanced my learning' 'I hope there are IO's in future subjects. It made me more engaged with the subject matter' 'The nature of the IO means that students must be across the learning material and engage in the learning process, more so online students'
Learning as social process	'I found it helpful doing it as a conversation with the moderator rather than just talking to myself for the whole time' 'teachers help to encourage response' 'I enjoyed meeting and interacting with my fellow students and teacher' 'The more casual environment was beneficial for allowing back and forth discussion of development and therefore better justify experiences' 'I felt as though I could properly explain my knowledge'
Constructing knowledge	'Being able to hear exactly what the question was rather than trying to interpret what you think it is you're being asked' 'I found it beneficial to be able to deliver my work in the oral format, as I feel I could explain my work more comprehensively. The questions asked also allowed me to delve deeper into my works' 'It also provided me with a different means of assessing my own knowledge' 'It made me think about the information I was trying to present in quite a different way to writing an assignment'

order not to feel embarrassed for not knowing a particular aspect in the presence of their assessor – similar to the findings of Hazen (2020). It has been shown that when learners are self-regulated and internally motivated, they will set goals for themselves and put effort into attaining those goals (Asikainen et al. 2013). This also aligns with what Lynam and Cachia (2018) have cited as assessments with low levels of predictability result in deeper learning, which is linked to greater academic success.

Moreover, students valued the ability to have a conversation with the assessor – instead of solely one-way communication, which is typical of many other oral assessments. Within a simulated real-life context, IOA allows the conversation to evolve while participants can justify their points during conversation. The role-play format of IOA (Table 1) generally reduces the assessor/student power dynamics and allows them to fully immerse themselves into the professional conversation, rather than the thought of being 'assessed'. This is one of the major differences between IOA and other oral assessment methods, which also relates to the equity aspects of IOA in providing students with a more equitable space to share their thoughts (Krautloher 2024; Theobold 2021).

Furthermore, the ability to clarify the questions or ask for clarification allows students to respond more comprehensively. Some students usually struggle to understand what is being asked of them in many types of assessments, and they may not always interpret the questions correctly. However, the back-and-forth discussion during IOA allows them to seek clarification and delve deeper into their learning, thereby potentially resulting in better grades (Tai et al. 2023). The assessors' prompts also help students to contextualize their learning to real-life scenarios (Sotiriadou et al. 2020), offering them a formative learning experience and a chance to construct new knowledge beyond what was already learnt (Newell 2023) – indicative of formative learning.

Quantitative data analysis (question B8 in Table 2) reveals similar conclusions as well. For example, about 49% of students stated they were more engaged with their subjects, knowing that they were going to be assessed with an IOA. Around 30%, 30%, and 35% of students reported an enhanced engagement while also indicating that, respectively, their analytical, problem-solving, and communication skills had enhanced 'quite a lot'. This means at least one-third of the surveyed population achieved a significantly better outcome from their studies because of participating in IOA.

Discussion

This study aimed to investigate how an Interactive Oral Assessment (IOA) could support the co-existence of formative and summative domains of assessments. A survey was conducted across a broad range of teaching subjects to collect student feedback to find out about the success of the implementation of IOA and how the quality of assessment design and delivery could be improved.

Student responses, within the collected sample, were overwhelmingly positive, expressing appreciation for the assessment they experienced as being robust, authentic, and valuable for their professional development. The findings also validate what has been previously identified as strengths of IOA, which include enhanced student engagement and employability skills (Colvin and Gaffey 2023; Sotiriadou et al. 2020; Tan et al. 2021). Moreover, strong evidence is found that aligns with the findings of Tan et al. (2021), who state that IOAs reflect 'real-world expectations, promote deep learning, and offer a quality learning experience'.

Drawing links between the data and learning theories, the researchers discerned that IOAs have more subtle impacts on student learning than what has been previously identified in the literature. For example, a pattern emerged from the data in a series of words like plan/think, prepare/practice, and perform/conduct, which recurred in the student comments, highlighting a configuration of elements that indicate IOAs are something more than a novel way of evaluating learning of subject content. The 3-P pattern shows that there is a new kind of learning operating throughout the assessment cycle of preparation and completion of the IOA, where students can better demonstrate what they know and develop procedural knowledge (Biggs and Tang 2022; Taras et al. 2023).

Additionally, the findings show that IOAs can sustain a constructivist learning approach even when the primary purpose of the assessment is summative. In an IOA, learners cannot work from a prepared script, but they need to synchronously draw on their deeper understanding of the content to apply concepts in new ways as the conversation emerges during the assessment. This shows that learning does not occur passively but by actively constructing meaning (Amineh and Davatgari Asl 2015; Rawlusyk 2018). It is the two-way interaction within an authentic scenario that differentiates IOAs from other forms of assessment, including traditional oral assessment (Sotiriadou et al. 2020). Learners and assessors engage in conversation, which encourages social interaction and reduces unequal power dynamics. This comes with the fact that constructivist learning is learner-centric (Amineh and Davatgari Asl 2015).

Certainly, the assessor aims to guide the student into demonstrating what they know rather than what they do not (Villarroel et al. 2020). While giving feedback following an assessment puts IOA in the formative category (Alexander, Owen, and Thames 2020; Taras 2008), Houston and Thompson (2017) argue that the feedback can be about more than the task at hand and can contribute to future learning. Woitt et al. (2023) also state that feedback is more like a 'dialogical process in which learners participate actively and autonomously', placing IOA as the one that provides 'learner-centered feedback'. Accordingly, our findings also show that students gain valuable insights from IOAs that can contribute to their future learning. This aligns well with the claim that *assessment for learning* supports the development of independent learners (Rawlusyk 2018).

Furthermore, the interactive nature of the IOA conversation does afford greater scope for students to get signals along the way as to how to improve their responses and stay on track. This aligns with Bols and Wicklow's (2013) and Hazen's (2020) findings that verbal feedback is superior to written one as it helps learners understand how to improve their performance. Reddy et al. (2020), Armengol-Asparó, Mercader, and Ion (2020), and Carless's (2019) studies take this further and suggest that written feedback must be accompanied by oral feedback to be effective and understood. Likewise, Schillings et al.'s (2020) study, regarding the exchange of peer feedback, concludes that 'face-to-face dialogue drives students to explain their written feedback more, helps them to deliver constructive and more positive feedback, and makes them feel responsible for taking the feedback process seriously'. The fact that during IOA, the assessor is able to synchronously observe the learner's possible change of emotions, does let the assessor be more in charge of the whole process (i.e. both the assessment and exchange of feedback) – within the boundaries of the assessment marking rubric and institutional policies. This marks another major difference between IOA and other oral assessment methods.

Our findings suggest that the interactive nature of IOAs contributed to student anxiety and stress levels that were not only manageable but also beneficial in preparing them for future professional challenges. Compared to traditional written or oral exams, students found the experience less stressful and more acceptable. On the other hand, teaching staff acknowledged that IOAs required more deliberate planning, scaffolding, and preparation than conventional assessments. However, these demands were balanced by increased satisfaction with the teaching and assessment process, enhanced academic integrity, and significant efficiencies in grading. Additionally, there was minimal evidence to suggest that students perceived any bias in the assessment process.

Limitations

It is noted by Biggs and Tang (2022) that constructive alignment must occur at three levels: curriculum, teaching methods, and assessment. The authors of this article acknowledge that they have not sufficiently controlled for or even considered the various curriculum designs and teaching methods of teaching subjects covered in this study. Furthermore, the analysis presented is based on a number of subjects and student responses from the same institution. There may also be some homogeneity in thinking as the academics were trained as part of a Community of Practice (Scheele et al. 2021). Further investigation with a larger dataset over a longer period and involving multiple institutions will help strengthen this study. Finally, although our extended experiences demonstrate that IOAs can also offer a valid and reliable method of assessing students in the face of GenAI tools, this study was conducted prior to the popularity of these tools.

Conclusion

The objective of this study was to investigate the responses from students engaging in an innovative assessment approach called Interactive Oral Assessment (IOA) and use them to improve the application of this assessment method across the institution. Data analysis reveals that in accordance with previous literature, IOAs are successful in increasing student engagement and employability skills through this form of robust, authentic, industry-aligned assessment. Furthermore, IOAs stimulate a dynamic learning process and environment, as students engage in a 3-P process of plan, prepare, and perform as part of their learning. This evidence of the development of procedural knowledge aligns with constructivist learning principles in summatively assessing students. However, our findings also show that IOAs align with many of the functions of formative assessments, even when they are implemented as summative assessments. Therefore, the authors conclude that an IOA supports the co-existence of formative and summative assessments and helps resolve the tension between them, resulting in the achievement of better outcomes for learners.

The authors anticipate that the findings from this study will be valued by a broad range of academics, students, and higher education institutions. For academics, IOAs offer an evidence-based approach to bridge the gap between formative and summative assessment by providing engaging, interactive learning experiences for students and promoting lifelong, industry-aligned learning throughout the whole assessment process. Similarly, students value this learning experience, as it prepares them effectively for their future professional life in a professionally set environment – rather than purely academic. For higher education institutions, our findings show that IOAs are a practical means of assessment that can enhance student-centered key performance indicators, encourage deep learning, thereby improving graduate employability indicators, and advancing student experience, engagement, and retention. This study also shows that implementing IOA supports the reduction of cases of academic misconduct through enhanced academic integrity, given the use of robust, authentic, student-specific, and interactive synchronous verbal assessment.

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