It takes a village but what makes the village? Bourdieuan analysis of cross-disciplinary assessment co-design and collaboration.

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ABSTRACT

CONTEXT

Oral assessment is a versatile assessment format which, to date, has not been widely implemented in Australasian engineering degree programs due to systemic challenges in validity, reliability, integrity, and sustainable integration into existing assessment practice. A cross-disciplinary team of academics and education developers from different faculties was established within a university-wide program to draw upon the expertise of team members experienced in oral assessment practices from different disciplines.

PURPOSE OR GOAL

The aim of this present work is to explicate the factors that enable or inhibit the success of the cross-disciplinary team tasked with oral assessment co-design.

METHODOLOGY

The team's reflection on their incremental transformations, their individual and collective contributions towards institutional change, and the challenges they faced were examined through the lens of Bourdieu's Theory of Practice which incorporates three concepts – field, habitus and capital (Bourdieu, 1977).

OUTCOMES

Analysis of the reflections through a Bourdieuan lens highlights the importance of bridging habitus and pooling capital on the success of a cross-disciplinary project team tasked with oral assessment redesign, allowing the project team to be agile and accelerate assessment reform through innovation.

CONCLUSIONS/RECOMMENDATIONS/SUMMARY

Harnessing the talent, perspectives and influence of both academic and professional staff from across faculties in a collaborative project can result in successful outcomes and drive institution-wide change.

KEYWORDS

Co-design, Collaboration, Cross-disciplinary, Bourdieu Theory of Practice, Oral Assessment.

REFERENCE

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Introduction

Cross-disciplinary collaboration is a much-promised but rarely realised aspect of higher education innovation projects. The possibility to harness the diverse and eminent capacity across a university is compelling, especially for complex challenges. However, in reality, the benefits are difficult to achieve. One such complex challenge is implementing oral assessment in engineering degree programs. Oral assessments other than presentations are not widely implemented in most Australasian engineering degree programs because most engineering academics are not familiar with different types of oral assessments (Bearman et al., 2017) and due to systemic challenges in validity, reliability, integrity, and sustainable integration into existing assessment practice. In response to these challenges, a cross disciplinary project team for oral assessment re-design was established under a university-wide education innovation program called the Nexus program., This work examines how that team operates and identifies relevant factors that other cross-disciplinary collaborations might find useful to consider when tackling complex institution-wide educational challenges (UNSW, 2024).

Oral assessment is a method for evaluating student learning that is conducted verbally. Oral assessment can be purely in a verbal form or combined with other modes of communication (e.g. visual aids, written artefacts). They can stand alone or can supplement other assessment formats. Examples of oral assessment formats that can be used in engineering education include, but are not limited to, presentations, pitches, interviews, simulation/role-play, and debates.

The integration of oral assessment into an engineering curriculum has many benefits. As found in other disciplines (Taylor et al., 2018), oral assessment is an effective tool for evaluating the student's conditional knowledge, that is, knowing when to apply their knowledge to a specific scenario and knowing the reasons behind its application. As such, it is a measure of learning which can be used in addition to text-based examinations which primarily measure declarative and procedural knowledge (Connor, 2023; Qi et al., 2022). Research supports the effectiveness of oral assessments in enhancing student engagement, motivation and performance, providing a more authentic evaluation of students' understanding and skills, as well as promoting academic integrity (Baghdadchi et al., 2022; Delson et al., 2022; Kim et al., 2022; Logan & Sotiriadou, 2020; Lubarda et al., 2021; Ward et al., 2023). In addition, advances in technology allow for students to be effectively assessed by experts online (Liu, Lim, McCabe, Taylor, & Calvo, 2016) and without negatively impacting on student assessment outcomes (Felthun, Taylor, Shulruf, & Allen, 2021).

Despite these benefits, the implementation of oral assessment tasks in engineering degree programs is challenging. One reason for this is the lack of experience and training of these academics in designing such assessments, apart from presentations, as mentioned above. Added to this is the fact that many engineering courses typically include large numbers of students. This means that assessments must be scalable and require support such as quality assurance mechanisms, extra staff for marking and training of this staff, to ensure validity, reliability and equity for all students. Cross-faculty collaboration with professionals in the Nexus program was a strategy to tackle these challenges in this project.

Established in 2023, the Nexus program brings together 48 Nexus Fellows (NF - one academic from each School (discipline) in the institution), and 23 Nexus Education Developers (NED - 4 to 6 per Faculty) to exchange expertise and collaborate on solutions to education challenges that are common across the institution, such as assessment re-design in the institution's Faculty of Engineering. The project team for oral assessment re-design itself consists of nine academics and three education developers from five different faculties (see Table 1). The goal of the project team is to develop a valid and reliable process for incorporating oral assessments into the Faculty of Engineering through a co-design approach with key stakeholders. This involves the design, development and implementation of oral assessments that are valid, reliable, secure, and feasible, and will include the creation of assessment assurance and quality control tools and processes such as assessment blueprint, rubrics, and assessor training.

Currently, there is little published research on how cross-disciplinary team members collaborate with each other to co-design solutions in response to the institution's needs under the auspice of a

university-wide program. The present work explores the factors that enable or inhibit the success of project team members in achieving their personal and the project team's goals through the methodological concepts of field, habitus, and capital from Bourdieu's Theory of Practice (Bourdieu, 1977). Here, *field* is assessment reform and innovation in Australasian universities. *Habitus* is the subjectively generated rules, values and dispositions held by members of a field. *Capital* refers to the various forms of resources that influence an individual's interactions and behaviours within their environment. These resources include (but are not limited to) monetary resources, knowledge, connections and networks, as well as symbolic recognition. The creation of tools and the evaluation of the outcome of the project is out of scope for this publication.

Table 1 Academics (NF) and education developers (NED) who are members of the cross-disciplinary project team tasked with supporting teaching staff (TS), as well as developing tools and resources for implementing oral assessments into engineering courses.

Role	Faculty	School / Unit	Role, Expertise, Prior Experience or Context
NF1	Engineering	Chemical Engineering	Senior Lecturer with 16 years teaching experience and 8 years of experience in inquiry, design and project-based learning.
NF2		Electrical Engineering	Senior Lecturer with over 15 years of teaching experience and 8 years of experience in inquiry, design and project-based learning, as well as assessor training.
NF3		Minerals and Energy Resources Engineering	Senior Lecturer with over 6 years of teaching experience and 6 years of experience in engineering course design.
NF4	Medicine and Health	Medicine	Associate Professor with 15 years in educational design, including developing innovative approaches to communication skills assessments in the medicine program.
NF5	Art, Design and Architecture	Languages	Lecturer with 20 years' experience teaching both ESL (English as a Second Language) and LOTE (Language Other Than English) teaching, including oral assessments aimed at checking language proficiency and communication skills in a broad range of contexts.
NF6	Law	Law	Senior Lecturer with 23 years' experience in designing, implementing and reviewing oral assessments in a legal education context, especially in the form of moots, viva voces and class participation.
NED1	Engineering	Dean's Unit	Education Developer with 10 years' experience in education technology and supporting academics.
NED2		Dean's Unit	Senior Educational Developer with 18 years' experience in Teaching English as a Second Language (TESOL) and prior experience supporting, delivering and conducting oral assessments as a language teacher overseas and in Australia.
NED3	Art, Design and Architecture	Dean's Unit	Education Developer with more than 20 years' experience teaching English and academic literacy skills to international students. Expertise in designing and delivering a range of oral assessments.
TS	Engineering	Photovoltaics and Renewable Energy Engineering	Senior Lecturer intending to improve oral assessment in a design-based learning course.

Methodology

Members of the project team on oral assessment redesign undertook autoethnographic reflection on the incremental transformations they have been part of, the potential for institutional wide change their team strived to achieve, as well as the challenges and hurdles they faced over a period of eight weeks. Here, 'auto' relates to a focus on personal experience; 'ethno' relates to the study of a culture (in this case, the discipline culture around assessment practice); and 'graphy', refers to a systematic process for describing and analysing both personal and cultural experience arising from the study (Ellis, Adams, & Bochner, 2011). The reflection process consisted of two

parts. In the first part, each project team member reflected on their respective experiences 6 months after project initiation; the reflections were guided by protocol from the University of Edinburgh's Reflection Toolkit (The University of Edinburgh, 2024). In the second part of the reflection, project team members (NF and NED) and a teaching staff (TS) peer reviewed and commented on each other's reflections. It was anticipated that the act of self-enquiry and peer-enquiry by authors who were also members of the project team would lead to a deeper and more nuanced understandings of each project team member's motivation, action, contributions and perceptions. A Bourdieuan analysis was then applied to the team members' reflexive narration. Consent was obtained from all team members and the data is available upon request from the corresponding author.

Discussion

The Role of Habitus in Cross-disciplinary Co-design and Collaboration

Pierre Bourdieu's Theory of Practice used the term 'habitus' to denote the set of deeply embedded habits, competencies, and predispositions that individuals amass over their lifetime, inclusive of their educational experiences. The elements of habitus are not merely superficial traits, but profound and enduring aspects of an individual's persona that significantly influence their interactions and engagements within their discipline and communities.

Habitus gives each project team member a feel for what is beneficial and what is detrimental. As such, habitus can both increase and impede the success of a cross-disciplinary oral assessment design team. A shared habitus within a team may increase success. Project team members with similar backgrounds and experiences may have a shared understanding of the project's goals and how to achieve them. This shared understanding can lead to a more efficient and effective collaboration … *but* it can also lead to groupthink (Turner & Pratkanis, 1998). On the other hand, if project team members come from different backgrounds and have different habitus, it may lead to misunderstandings and conflicts that impede collaboration … *but* it can also lead to a diversity of ideas and opinions, which has been shown to be beneficial for problem-solving and innovation (van der Voet & Steijn, 2021).

In this present work, the reflexive narrations showed that project team members hold different habitus about what oral assessment entails and its purpose. By collaborating with each other, they begin to recognise that oral assessments could occur in various formats and contexts, and that the underlying principles of valid and effective oral assessments are transferable across these contexts.

> *"I noticed that the language school emphasised different oral assessment formats such as interpersonal communication and a broader range of professional communication, while the medical faculty focused on patient interaction, clinical reasoning, and ethical decision-making. The legal faculty focused-on case analyses, rigorous debates and persuasive arguments. I also noted a disparity within the engineering faculty and that is, the predominant oral assessment format is oral presentations, overlooking alternative formats such as debates or role-play."* **[NF1]**

More interestingly, project team members also hold different habitus related to the approach used to redesign and implement oral assessments.

> *"Although we are all 'problem solvers', the analytical approach of my engineering colleagues seems fundamentally different from mine. Their focus revolves around 'implementation', i.e., how do I deliver this particular project in the available timeframe?' My legal approach centres on balancing judgement and principle, i.e., What is the right solution to the problem? Essentialising enormously, engineering quickly identifies a 'solution' then focuses on how to deliver it whereas law cogitates extensively over what the 'solution' should be and almost assumes implementation looks after itself."* **[NF6]**

Understanding and managing habitus within a cross-disciplinary project team is therefore crucial for the team's success. It is important to establish trust and create an inclusive environment where

all project team members feel valued and understood to mitigate the potential negative impacts of habitus and leverage its benefits. Clear and direct communication is crucial, facilitated by regular posting and meetings on a dedicated channel on Microsoft Teams (an enterprise communication and collaboration platform). Team members' perspectives on oral assessment grew through regular discussion with each other, leading to a more in-depth and nuanced understanding of the assessment approach. At the individual level, a deeper appreciation of other modalities and ways of implementing oral assessments, including the sustainable integration of oral assessment into different degree programs, was developed.

"It was interesting to hear some of the concerns of my colleagues, for example, that they were worried about disadvantaging international students, less confident in English. Having scaffolded and delivered oral assessments for years with such students with much success, this surprised me. These comments prompted me to consider these concerns carefully from the perspective of academics from different disciplines and to think of ways to respond in an informed and constructive way. This includes highlighting the importance of scaffolding, which has definitely been a key to the success of oral assessment in my context and designing a rubric which does not evaluate English but rather content and processes, and communication, when it is part of the CLOs." **[NED3]**

"I saw this most clearly in what felt like my 'critical friend' role in the group when asking questions about definitions, assumptions and 'but why?' at our project meetings. Unsurprisingly, I think the different approaches are complementary rather than contradictory. A focus on delivery means the project will actually be done in a reasonable time but the debates over the assumptions, solutions and impacts mean that, when we get to the end, the solution will (hopefully) be effective and sustainable." **[NF6]**

The Role of Capital in Cross-disciplinary Co-design and Collaboration

According to Pierre Bourdieu's Theory of Practice, a cross-disciplinary project team may hold four distinct forms of capital: Economic capital (monetary resources), cultural capital (knowledge, skills and other cultural assets), social capital (advantageous networks and connections), and symbolic capital (prestige or collective reputation of the team).

Several project team members discerned the opportunity to enhance their cultural and social capital through participation in the cross-disciplinary team. There is strong evidence from the reflexive narrative that this opportunity motivated them to join the project team, and they envisaged their engagement will benefit their own teaching practice, as well as their discipline.

"I was motivated to join the program to work with a diverse team of highly engaged and skilled academic and professional colleagues, focused on solving 'sticky problems' in education at the institutional level. I have had multiple attempts at working on cross-disciplinary technology-enhanced educational developments in the institution but to date none were successful in gaining institutional grants and/or sufficient buy-in." **[NF4]**

"Though my experience with oral assessment has been primarily in language, I believe many of the best practice principles are transferable to other disciplines and am very keen to use my expertise at this university to support academics in implementing this mode. I joined this cross-faculty project so that I can both contribute to the discussion of designing and implementing oral assessment in Engineering and learn from the views and experience of the other stakeholders." **[NED3]**

At the time of writing, the project team had been collaborating for approximately four months. Bourdieuan analysis reveals how project team members quickly gained cultural capital related to the development or application of: (1) Good assessment design principles; (2) Quality control and assurance tool (e.g., rubrics, test result analysis); (3) Playbooks and assessor training modules to guide academics in designing and implementing oral assessment; and (4) Oral assessment resources for students. The project team's diversity in backgrounds and experiences contributed to better understanding of end-users' needs, broader range of ideas, more informed decision-

making, implementation of best practice, and rapid innovation and problem-solving. Moreover, the team's collective knowledge can be tapped into whenever necessary, akin to a "Just-in-Time" approach.

> *"As a subject matter expert, I was able to dissect the project description and assessment requirements to create a digital rubric for the course convenor of the phase 1 pilot. The similarity of the technical content of the project and the experience that I had with creating such projects with rubrics for my own design-based course previously allowed the team to proceed quickly with creating the assessable rubric."* **[NF2]**

> *"When I implemented the assessment in the first year, the only feedback I had for improving the quality and validity of the exam were a few anonymous comments from students … this feedback did not provide a reliable and measurable metric for assessing the quality of the exam itself. Working with an interdisciplinary team focused on ensuring the quality and validity of the oral exam came at the perfect time. Two essential measures were implemented with the expertise of NF1, NF2 and NED1: an online rubric that provided a more agile and reliable way to evaluate students, and a post-exam analysis that identified which questions were more effective at assessing students."* **[TS]**

Another form of cultural capital gained by project team members, particularly those from outside the Faculty of Engineering, was the insight that could be applied to support academics in their own faculties. They found that they could adapt teaching strategies and resources, including a variety of emerging technologies such as artificial intelligence, eliminating the need to "reinvent the wheel."

> *"Concerns and potential solutions about scaling, from NF1 and NF4, have also been discussed and will help me when supporting ADA academics in the future. I would say, although initially reluctant, I am more convinced now about the possibility of Gen AI to provide an opportunity for students to practice their communication skills."* **[NED3]**

> *"From the very start of the project, I recognised this striking similarity of contexts and attitudes between two seemingly very different faculties, Engineering and Arts, Design & Architecture (ADA). Discipline convenors within ADA are no less reluctant to adopting oral assessments, as perceived barriers to oral assessment implementation are the same: they question their validity, their sustainability and their adequacy for very similar reasons, i.e. the fear they will be more labour intensive than text-based assessments and they may put some specific groups of students at a disadvantage. And the solutions to their issues may indeed turn out to be very similar (i.e. scaffolding, communication skills and no assessment of language proficiency)."* **[NF5]**

The success of the project team is also enhanced by the team's inherent social capital. Each Nexus Fellow is also a member of their School (discipline) community, i.e., an 'insider'. Therefore, the project team is better equipped to navigate through the local culture of *every* school, and generally experience a higher level of credibility and trust when interacting with teaching staff at the school levels. Several members of the oral assessment project team also have a history of being involved in education innovation activities and professional networks (e.g., communities of practice, academies) prior to joining the program. These team members expand the team's social capital by bringing multiple points of contact and connections to the team. As a result, the team has quick and ready access to a variety of resources and subject matter experts relevant to oral assessment design, such as student academic skills development, artificial intelligence and virtual reality-based simulation technologies, as well as the universal design of learning and equitable assessment.

By being part of a strategic university-wide program, the project team members also gain symbolic capital. The team were invited regularly to present to their schools. The project team also provide monthly updates and quarterly reports to key stakeholders, including senior managements at school, faculty and central levels. This increases their exposure and reception of their work. The team were also supported to present their work in conferences, which increases the project team member's visibility, and recognition, and thereby their symbolic value to the institution.

Impact of Habitus and Capital on the Field of Assessment Innovation and Reform

In Pierre Bourdieu's Theory of Practice, a field is a space of social interaction, conflict, and competition within which individuals and groups vie for resources and status. In the context of this present work, i.e., oral assessment redesign, the field is assessment innovation and reform in Australasian universities, at the institutional level.

Traditionally, different organisational units within Australasian universities would compete for resources (i.e., capital) to drive assessment reform. This competitive approach is not ideal for several reasons. First, it leads to fragmentation, with each group focusing on its own needs rather than holistic improvements that benefit the entire institution. Second, duplication occurs when competing groups replicate efforts, wasting resources on overlapping initiatives that may quickly become redundant. Third, resource allocation based on competition can perpetuate inequities in capital, often favouring groups that are larger or with better lobbying skills. Fourth, there are missed synergies and opportunities resulting from not being able to pool expertise, share best practices, and create innovative solutions that benefit everyone. Finally, many education innovations and reforms are not sustainable if the scale of implementation has not been considered. The design and implementation of oral assessments, specifically, and assessment reform through innovation in general, is by necessity, a collaborative process. Rarely does a single individual (e.g., a course convenor) possesses all the required discipline expertise, pedagogical knowledge, design skills, resources, and social capital needed to implement large, transformative change to their teaching practice. They may also face resistance from powerful actors or fail to gain the support they need to implement their redesign.

Therefore, whilst the team recognised the efficacy and efficiency of working together as a cross-disciplinary project team, and the subsequent benefits that accrue by doing so, what was consistently noted was that assessment innovation and reform as herein described requires the allocation of significant resources to ensure success. In their observation of the implementation process, the team noted a significant variation in the pace at which different aspects of the project progressed. Certain facets, such as the development of assessment resources, advanced rapidly, and this demonstrated the team's efficiency and capability in these areas. However, other aspects, specifically the rollout to courses and the collaboration with course convenors, progressed at a slower pace. This disparity in progress presents an intriguing challenge for the large-scale implementation of such educational initiatives. The slower pace in rolling out to courses and securing collaboration from course convenors underscores the difficulty of integrating new assessment methods into existing educational structures.

Importantly, such challenges highlight the need for effective communication, collaboration, and coordination among the various stakeholders to ensure the successful implementation of such initiatives. Thus, the deployment of oral assessments should be approached cautiously in scenarios where resources are limited, and a careful cost/benefit analysis should be conducted to ascertain the feasibility and practicality of implementation. This prudent stance is required when educational institutions face resource constraints and emphasises the need for strategic planning and decision-making. The potential in future to utilise AI-enhanced educational technology was noted as one potential approach to partially address human resource limitations while still providing assessment and feedback at scale.

"The pilot also revealed challenges, particularly concerning scalability. Oral assessments are resource-intensive, requiring significant time and effort from both assessors and students. Each assessment involves personalised, real-time interaction, making it difficult to administer to large cohorts. Additionally, the training of assessors to ensure consistent and fair evaluations across a larger number of students poses logistical challenges. The need for multiple assessors to handle large groups further complicates the process, increasing the demand for trained personnel and coordination." **[NED1]**

"There is also the sense of this project 'only going so far' from my perspective. At this stage, much attention has necessarily been on working on the creation of a valid and reliable oral

assessment in Engineering and it was important for all members of the team to develop an understanding of exactly what that would be. However, I have felt that this has not utilised my skillset as much as might have been to date, and so it was with some relief that NF1 explained the scalability issue in the process has yet to be fully embraced in this project. Consequently, I can now look forward to further work in order to exploit Artificial Intelligence approaches to virtual client bots for the mass teaching and assessment of Engineering specific communication skills." **[NF4]**

Conclusion

Bourdieu's Theory of Practice sheds light on the complexities of cross-disciplinary collaboration, as illustrated in the redesign of oral assessments in the Faculty of Engineering at UNSW. By bringing together team members from diverse disciplines and roles, the project was able to bridge differences in habitus and pool multiple forms of capital, including cultural, social, and symbolic. This collective expertise allowed the team to navigate gaps in knowledge, secure necessary resources, and avoid common pitfalls, ultimately driving meaningful change in assessment practices. The diversity of habitus among team members not only enriched their understanding of the educational challenges but also fostered innovation and deeper problem-solving through continuous interaction and discussion. Intentional efforts to nurture collaboration helped mitigate the potential for miscommunication or conflict arising from differing backgrounds, ensuring a more cohesive team dynamic.

The lack of economic capital, while a challenge, was addressed through strategic planning, resource allocation, and the active engagement of stakeholders, which proved critical in advancing the project's goals. Moving forward, the integration of scalable educational technologies, such as AI-powered tools for communication skills assessment, offers a promising avenue to enhance the efficiency and sustainability of such initiatives, making it possible to deliver high-quality assessments even in resource-constrained environments. This approach not only underscores the importance of cross-disciplinary teamwork in educational innovation but also highlights the potential for technology to further elevate and sustain these efforts in the future.

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