Alex Chilvers, UNIVERSITY OF SYDNEY, alex.chilvers@sydney.edu.au
Jeremy Rose, UNIVERSITY OF SYDNEY, jeremy.rose@sydney.edu.au
Jennifer Rowley, UNIVERSITY OF SYDNEY, jennifer.rowley@sydney.edu.au
Michelle J. Eady, UNIVERSITY OF WOLLONGONG, meady@uow.edu.au

Technological Advances that Shape Practice Towards Better Teaching and Learning Experiences in the Study of Music

ABSTRACT

Arts and humanities educators have been urged in recent years to remain attentive to the political, economic, and ideological forces shaping their institutions, their work, and their students' expectations. The arts landscape continues to face challenges such as global pandemics, online learning, and changing student populations. In continuing to be mindful and engage with teaching and learning as a collective, we must persevere and share both our successes and challenges in the arts and humanities teaching and learning space. At Sydney Conservatorium of Music (SCM), at the University of Sydney, Australia, we have a workforce of expert musicians who mentor tertiary music students within a variety of disciplines including music composition, performance, musicology, etc. In their roles as practice-focused educators, these musicians have significant experience of teaching and learning, yet many have had no opportunities to engage in formal training as higher music educators. In order to provide formal training as an essential component of an academic's growth and development, institutions have established short-term postgraduate programs, such as the Graduate Certificate in Educational Studies (Higher Education). We present two examples of how this formal training has led to significant innovations within our faculty's teaching practice. The importance of encouraging arts practitioners to engage in this training has established a framework of excellence in our tertiary music institution and challenges music educators to refocus on the significance of teaching and learning in music degrees globally.

KEYWORDS

music higher education, music business skills, aural skills, artificial intelligence, diversity in music education

INTRODUCTION

In their 2016 special section on the scholarship of teaching and learning (SoTL) in the arts and humanities, Bloch-Schulman, Conkling, Linkon, Manarin, and Perkins called for a transformative approach to teaching and learning in higher education. They argued that SoTL should transcend methodological debates and engage critically with the political, economic, and ideological forces that shape education. As John Seely Brown and Paul Duguid (1996) argue, conversation is central to how understanding circulates within learning communities; in this sense, dialogue can create the conditions for innovation. Nearly a decade later, Bloch-Schulman et al.'s plea for a more inclusive,

politically engaged SoTL remains a vital conversation in the arts and humanities (Felten and Geertsema 2023; Miller-Young, Yeo, and Manarin 2018; Vander Kloet et al. 2017).

In the context of music education, music educators have embraced this call by using SoTL as a proactive tool to enhance teaching and learning practices. We specifically highlight how the work of Bloch-Schulman et al. (2016) has influenced music educators at the Sydney Conservatorium of Music (SCM) at the University of Sydney, Australia. Through two case studies, we demonstrate how technology and innovative teaching methods have shaped practice towards better teaching and learning experiences within the study of music. We hope our examples will contribute to the broader efforts within the music community in order to enhance student learning experiences and further support excellence in teaching and learning within higher education.

CONTEXT

Tertiary music schools, such as SCM, can and should embrace SoTL in impactful ways, particularly through the professional development of academic staff, including intentional research and reflection on teaching practices. The Graduate Certificate in Educational Studies (Higher Education), also known as the grad cert, is a two-semester program administered within the University of Sydney's School of Education and Social Work. The school primarily designed it to introduce university teachers to current principles, practices, debates, and research in higher education (Liu 2018). Encouraging a culture that values questioning and exploring teaching methods helps the university embed SoTL into the fabric of the institution, and this includes celebrating successes and learning from challenges in teaching and learning.

The grad cert units of study are offered in conjunction with the university's DVC education portfolio team of expert SoTL leaders, who also lead all university academics through other programs such as the suite of advanced higher education fellowships, a program that demonstrates a commitment to professionalism and provides recognition of practice, impact, and leadership in teaching and learning.

Candidates undertaking the grad cert are encouraged to develop scholarly, research-led approaches to teaching while engaging in activities and tasks aimed at cultivating critical reflection about higher education. To qualify for the award, candidates must complete four units of study (24 credit points), including those that explore engagement with students; these units cultivate a culture of inquiry, student-centred approaches to teaching, and curriculum development, including the optimal use of technology. The grad cert might include workshops, seminars, and conferences focused on the latest research in pedagogy and instructional techniques.

All SCM teaching staff are given a reduction in their workload to complete the grad cert over a one or two-year period. The university's leadership considers this investment in our future educational leaders to be vital for the growth and development of educational excellence. Graduates of the grad cert contribute to the high quality of education students receive at SCM, which ranks highest on student experience metrics across all University of Sydney schools and faculties.

The university designed the grad cert program to advance the teaching careers of academics. A range of initiatives, with one being the creation of opportunities to collaborate and share best practices with colleagues, contributed to the success of the program. Another is to foster a community of practice for teaching and learning that encompasses a formal peer review of teaching and funded research projects that encourage the sharing of scholarly teaching practice. Adopting student-centred teaching methods, such as differentiated instruction, active learning, and personalised feedback, and

involving students in the learning process, the grad cert fosters a focus on creating a collaborative environment that is particularly suited to tertiary music studies.

The Graduate Certificate of Educational Studies (Higher Education) is a postgraduate qualification, which prepares emerging SoTL leaders for dynamic roles in education at the University of Sydney that demand a commitment to evolving pedagogical practices. These recently created education-focused leadership roles foster engaging, student-centred learning environments by incorporating new approaches, technologies, and methodologies to meet the diverse needs of learners. In developing academics' understanding of scholarly, research-driven teaching methods and designing research activities to foster critical reflection on higher education, the university prepares the academics to be involved with SoTL to enhance student learning and engagement.

To further enrich student learning, the grad cert program encourages participants to research the effective use of technologies and how to integrate them thoughtfully, as is detailed in our two case studies in this paper. Drawing on the perspectives of two students in the grad cert program, we describe how they engaged in a research project about effective teaching strategies specific to SoTL and why they were encouraged to consider practical applications from within their discipline of music. This involved reflecting on their own teaching methods, experimenting with new approaches, and evaluating the impact on student learning and engagement. As Rowley and Bennett (2019) assert when summarising academics emerging as leaders within the discipline of music, "Much of this journey of 'becoming' is experienced through authentic leadership opportunities, embedded into curriculum and assessment and challenging individuals to navigate the various challenges and affordances of beginning a career in the creative and performing arts, including as a teacher of music. Leadership development, teacher persona and musician identities, therefore, are complex ideas that may be understood through students' practice and through an emerging understanding of sociocognitive theories" (13).

Positionality statement

Two of this study's authors are graduates of the grad cert program. Alex is a lecturer in aural skills at SCM and completed the program in their first year of full-time employment at the university. Despite having taught at universities on a casual basis for many years while completing a PhD in music composition, the grad cert was their first education-focused qualification. Jeremy is a lecturer in music industry at SCM and completed the grad cert prior to commencing their full-time role at the university. Like Alex, he had been teaching for several years without formal pedagogical training while also obtaining a PhD in music composition. Jennifer and Michelle are senior academics who have long advocated for greater university-level engagement with SoTL and have acted as mentors to their co-authors.

THE PRESENT STUDY

To demonstrate how participation in the grad cert has led our staff to identify problems within their teaching practices and subsequently design and implement solutions to these problems, we present two recent case studies from disparate units within SCM. Participants in the grad cert are required to develop an integrated eLearning environment for a unit they are involved in teaching. Following the ADDIE method (Shibley, Amaral, Shank, and Shibley 2011), they iteratively work through the stages of analysing, designing, developing, implementing, and evaluating an educational technology-centred solution to a problem they have identified in their teaching practice. Over the course of a semester, discussions focus on how technological, pedagogical, and content knowledge, or TPACK (Benson and Ward 2013) levels can be integrated within different teaching contexts, as well

as how technological intervention might contribute to the six types of learning activities identified by Laurillard (2012): acquisition, inquiry, practice, production, discussion, and collaboration.

In case study one, we explore a pilot program integrating generative AI into the Music Business Skills unit with the aim to develop students' critical thinking. In completing a self-directed assessment that allows the use of ChatGPT (OpenAI 2023) to provide feedback, seek alternatives, and answer questions, our students gained competencies in the use of emerging technologies, leveraging their pre-existing familiarity with generative AI and streamlining their learning process by integrating it into their academic tasks. Case study two outlines how, to combat low motivation hindering engagement with homework tasks in a core aural skills unit, the instructor invited students to interrogate concepts by sharing written analyses of self-selected repertoire on online discussion boards. These autonomous inquiry-based activities increased perceived relevance and peer-to-peer accountability, while contributing to greater curriculum diversity. These practical examples provide a foundation on which to build connections between music education and technology to the subsequent teaching and learning benefits of music educators, their students, and the wider arts community.

CASE STUDY ONE

Introduction

Music Business Skills (MBS) is a one semester unit of study (six credit points) at SCM with around 80 undergraduate students, comprising composers for screen, film, and games, contemporary music students, and jazz and classical performers. The unit equips students with skills to navigate the complex music industry, incorporating practical tasks, theory, real-world case studies, and guest speakers. The learning outcomes require students to develop adaptable skills relevant to their diverse career paths. This unit of study may be their only exposure to essential entrepreneurial skills and industry insight needed for a career in music, which, as Bartleet, Bennett, Bridgstock, Draper, Harrison, and Huib (2012) affirms, often involves multiple income sources. As generative AI technologies like ChatGPT become increasingly common, their integration into the music industry reshapes how projects are developed and managed, influencing not only the creative processes but also the skills required for graduates to successfully thrive in a shifting industry landscape.

Problem

Challenges in MBS include the complex subject matter and diverse learning needs. The curriculum covers a lot of ground in a relatively short time, and neighbouring institutions typically cover the subject matter over two to four semesters. The range of learning preferences can be attributed to a diversified intake from traditional classical music courses to contemporary music and composition for creative industries, leading to an increasingly diverse cohort of students with distinct educational needs and academic abilities.

Another challenge is fostering critical and analytical thinking, an increasingly important graduate skill in higher education (Liu, Mao, Frankel, and Xu 2016). Critical thinking, as described in the Delphi Report (Facione 1990), involves a set of essential skills that include interpretation, analysis, evaluation, inference, explanation, and self-regulation. These skills allow individuals to process information thoughtfully and rationally, drawing reasoned conclusions based on a detailed assessment of evidence and arguments, and continually evaluating and refining their own thought processes.

In higher education, the emphasis is not on rote memorization but on fostering independent thought; this enables students to critically engage with information in an era of increased knowledge accessibility. While there is no universal definition of critical thinking, a systematic review by Puig,

Anaya, Bargiela, and Crujeiras (2019) highlights that it remains a fundamental goal in higher education. Scholars generally agree that shifting instructional approaches from teaching what to think to how to think requires a reconsideration of traditional pedagogical frameworks. Despite course changes that enhance critical thinking, such as integrating educational technology tools, this area requires further improvement.

Previously, the major assessment in MBS involved creating a tour plan and budget for a hypothetical band, geared towards performers entering the music industry. However, given the growing student diversity, this assessment task may no longer be the most relevant. Integrating generative AI, specifically large language models (LLMs) capable of generating novel text, into higher education offers both significant benefits and notable challenges. Such tools can assist with personalised learning experience through tailoring education content to individual student needs, enhance efficiency by automating routine tasks such as the creation and customisation of content, and improve access to information, allowing students to quickly obtain information and receive explanation on a wide array of topics, supporting self-directed learning (Dempere, Modugu, Hesham, and Ramasamy 2023). On the other hand, the potential challenges include academic integrity concerns through the ease of generating human-like text, raising issues related to plagiarism and the authenticity of student work. Students may also develop a growing dependence on technology through over-reliance on LLMs, hindering their thinking and problem-solving skills (Coldwell 2024; Duenas and Ruiz 2024).

Response

Recognising these challenges, the Music Business Skills unit took proactive steps to address the issues identified above. In 2022 the instructors had not clearly communicated the unit's policy towards the use of AI with students. The university's policy towards academic integrity classified the unacknowledged use of AI-generated content as plagiarism. Students informally reported using AI outside of the unit, and instances of AI-related plagiarism emerged. This highlighted the need to update the curriculum and assessments to both mitigate misuse and guide students in using AI as a collaborative tool.

Whilst punitive measures to curb plagiarism are still necessary, a proactive educational approach that cultivates a culture of honesty and integrity is essential as AI becomes more prevalent in higher education (Miles, Campbell, and Graeme 2022). Building literary skills through experiential learning and institutional policies are just part of a comprehensive strategy to address the immediate issues. Fyfe (2022) outlines how the adoption of ChatGPT leads to "new modes of creativity, critical reasoning, rhetoric, assemblage, and expression that computational assistance helps us identify" (1403). Just as evidence suggests the use of gaming applications can enhance problem-solving and critical thinking skills (Budhai and Skipwith 2021), ChatGPT can deepen students' understanding, reinforce concepts, and present a fun way to increase engagement, motivation, and critical thinking.

Implementation

Table 1 presents a schedule for the final five weeks of MBS in semester two, 2023, illustrating how the instructor scaffolded the final assessment and how SoTL literature encountered throughout the grad cert informed the activities within the restructured task.

Table 1. Modified assessment in music business skills

Week	Activity	Educational framework/theory
9–10	Non-marked compulsory presentation of draft grant application	Scaffolded learning (Wood et al. 1976)
10	Lecture on using ChatGPT with step-by-step case study and exemplar drafts	Authentic learning theory (Herrington and Oliver 2000)
12–13	drafts using a Google Doc template	Active learning (Michael 2006); Transformative learning theory (Mezirow 1997)
12	Group discussion on the effectiveness of ChatGPT and class discussion for critical analysis	Conversational framework (Laurillard 2012)
14	Modification of assessment to include elective use of ChatGPT and demonstration of critical thinking	Model for assessment provided by engineering course using ChatGPT (Nikolic et al. 2023)
14	Addition of self-reflection task to the assessment	Reflective learning (Moon 2004)

The unit coordinator modified the assessment to reflect real-world scenarios, such as a student-led grant application for arts from the funding body Creative Australia, based on authentic learning theory (Herrington et al. 2000) and experiential learning (Kolb 2014), a proactive learning approach that incorporates professional insight to provide students with real-world context and understanding of content (Kolb 2014; Moon 2004; Wilson and Bear 2013). Students wrote an application, collected quotes and drafted a support letter. The instructor scaffolded the assessment with a work-in-progress two-minute presentation in weeks nine and ten, an approach informed by Wood, Bruner, and Ross (1976), who suggest that successive levels of temporary support help students achieve higher levels of skill acquisition. Students took notes on their peers' presentations on a class discussion board created on Canvas (Instructure 2023). Following that, the instructor offered constructive advice to students in order to guide the next stage of their project. This created an engaged classroom, with students as active participants in both receiving and providing feedback to their peers.

The students used ChatGPT in a tutorial activity whereby students worked in groups on their project using a Google Doc whilst utilising ChatGPT to provide feedback and answer questions. Firstly, the educator demonstrated how to use the platform for this assignment on the class projector. Nikolic et al. (2023), who provide a range of models for how ChatGPT was incorporated into an engineering degree, informed this approach. Classroom discussion followed, guided by a conversational framework (Laurillard 2012), with students reflecting on the experience and sharing their opinions on the use of AI in their work.

The instructor provided lecture content and resources on the ethics and prompt engineering skills required to effectively use ChatGPT to enhance a project idea, including a step-by-step demonstration using an exemplar. The instructor also provided feedback to the students following their summative assessment submission with recommendations on how to develop their project for future real-world use. In an additional section in the assessment, students declared whether they had used ChatGPT, in which case they were required to include a link to the conversation history and to write a self-reflection on the experience—facilitating a process of reflective learning (Moon 2004).

The results of the implementation were mixed with both positive and negative student feedback. Several students described the tasks as highly engaging and valuable, with one noting that the project allowed them to lay the groundwork for a future initiative they were passionate about.

They appreciated how the sections of the task connected smoothly, making the process enjoyable and realistic. Another student mentioned that collaborating with ChatGPT enriched the diversity and quality of their ideas, providing critical insight into using AI for idea generation and refinement. Additionally, some students found it helpful to use ChatGPT for analysing their work against the provided rubrics, which improved the overall quality and comprehension of their submissions. The unit's end of semester survey also indicated a positive student reception. When students were asked whether MBS "provided me with knowledge that will be helpful for my career," 91% agreed (up from 74% in 2022). Asked whether they had received "good access to valuable learning resources," 92% agreed (up from just 50%). A range of factors, including a change in co-ordinator and an updated curriculum, could have influenced these trends, but they nonetheless indicate an overall improvement in student experience and unit relevance.

Some students expressed reservations about the integration of AI tools into their coursework. One student remarked on preferring traditional methods over technological solutions, indicating a scepticism towards computer-based learning. Another student found the AI tools potentially useful but somewhat daunting in their complexity. Students also raised concerns about the ethical implications of using AI, with a suggestion for a more morally sound approach to its application. Others doubted the effectiveness of AI in fostering genuine skill development, questioning its utility in educational settings. Another student proposed that, while AI could be beneficial for initial idea generation and structuring, the actual articulation of content should remain a personal task, ensuring authenticity and individual input.

Although no formal investigation has taken place, markers have identified several concerning trends in submissions including a general lack of quality across submissions, manifested particularly in the unedited lifting of content from LLM sources. Assignments also exhibit a homogeneity in sentence-to-sentence and paragraph-to-paragraph structures, suggesting a formulaic approach to writing. One tutor highlighted a significant concern regarding the uniformity of tone with lots of vague language, obscuring the actual delivery of the project and omitting any indication of the writer's personal investment or perspective. As a result, tutors referred three students to the Faculty's Education Integrity Coordinator and subsequently required them to complete an academic honesty training module.

These trends may reflect an overreliance on AI tools, where students prioritise completing tasks quickly over engaging deeply with the material. This highlights the importance of framing AI as a tool to support, rather than substitute, critical thinking and creativity in academic work. As such, rubrics and the AI literacy resources provided to students have been updated to improve clarity of expectations and rules regarding the use of AI. Students can hopefully now recognise what constitutes appropriate use of AI in the context of this unit, and how violations will negatively impact on their assessment grades. These issues collectively indicate a need for a continued reassessment of how students approach and complete assignments, calling for educational interventions that build a culture of learning that emphasises original thought, analytical skills, and academic integrity.

The introduction of ChatGPT into MBS aligns with the dynamic nature of the music industry and the evolving skills it demands from graduates. The initiative is not just about incorporating a technological tool, it aims to foster a learning environment that encourages critical thinking, innovative problem-solving, and active learning. By integrating ChatGPT, we aim to equip students

with the ability to critically engage with AI, develop their prompt engineering skills, and prepare them to articulate and defend their decision to use AI.

It is important to note that some students may have opted not to use the technology, and others might have already possessed a certain level of proficiency with ChatGPT, as indicated by their prior usage outside this course. The true value added in this course likely extends beyond mere exposure and may include an understanding of the ethical considerations and creative applications of the tool. Therefore, it is only reasonable to claim that the module capitalised on the student's pre-existing knowledge of generative AI technology and its effective incorporation into their academic activities. Whilst echoing calls to build smart campuses in which higher education consults with industry to create a supportive infrastructure for the use of generative AI, it is also important to take a structured and theoretical approach towards understanding student motivation in order to identify patterns of academic misconduct. The application of self-determination theory (SDT; Ryan and Deci 2017) provides a theoretical framework that incorporates autonomy, competence, and relatedness. Student intrinsic motivation can be enhanced by supporting these fundamental psychological needs. This enhancement is crucial in a course such as MBS where the diverse subject matter requires a high degree of engagement and personal investment. By realigning the course's delivery to meet these motivational needs, we hope to reduce instances of academic dishonesty.

CASE STUDY TWO

Introduction

Aural Perception (AP) is a core music skills component (12 credit points) of SCM undergraduate degrees in which we teach a diverse range of students—from classical performance, composition, musicology, and music education degrees—with broad musical interests. It can be a challenge to make these units of study interesting and engaging to all students and, while an important part of any musician's training, AP does not tend to inspire the same level of commitment from students as their principal study. Nonetheless, if students are to acquire and master the foundational aural skills necessary for many musical careers, they must consciously apply these skills outside the classroom (Karpinski 2000, 4). To that end, weekly homework has always been a part of the four-semester suite of units. Typically, a tutor sets a range of weekly listening tasks, such as melodic dictations and harmonic dictations. These tasks require students to convert assigned recordings into notation representing specific musical elements. In setting these tasks, tutors provide students with both the audio excerpts and the answers via the Canvas discussion board. Homework is autonomous in nature and, by receiving answers ahead of time, students are able to evaluate their work as part of the self-directed learning process (Wilcox 1996). Students can then come to their next class ready to ask questions about any specific difficulties.

Problem

Unfortunately, it has become evident through experience that many students do not follow this process. Two potential causes of low motivation have been identified. The first is a perceived lack of relevance in the homework tasks themselves. Research shows that relevance appraisals directly impact upon whether students deem a learning activity worthwhile (Albrecht and Karabenick 2019). Illustrating the relevance of an activity to a diverse cohort, such as that encountered in AP, is difficult, particularly when method books rely on somewhat generic piano-based examples designed to illustrate specific concepts or popular examples from the Western classical cannon. However,

research in higher education suggests that autonomous inquiry-based activities empower students to tailor learning experiences to their own contexts, reducing the burden on educators to accommodate each individual student (Hunter 2015; Jones 2009; Shoop 2005). Such activities, therefore, could be a potential remedy for low motivation.

The second cause of low motivation identified was a lack of accountability on the part of the students. The stakes, for many, are simply not high enough to warrant the effort. According to numerous studies, team-based learning and other collaborative activities increase accountability (Stein, Colyer, and Manning 2016; Jamal, Essawi, and Tilchin 2014). The recognition that one's work has an impact on others within the learning environment becomes an additional motivator for students. Therefore, an optimal response to this problem would include both autonomous inquiry and elements of collaboration.

Response

In semester two, 2023, the instructor modified the process for setting homework for students in second-year AP classes. Leaning into the collaborative potential of our existing Canvas discussion board, the goal was to create and monitor a forum for students to share aural analyses of self-selected musical excerpts. Canvas affords students the opportunity to embed multimedia content from elsewhere on the world wide web, which increases the accessibility of an autonomous inquiry-based learning activity. It also facilitates asynchronous interaction in an environment that is already familiar to students. These factors may enable a subtle transition away from the usual homework model towards an activity aligned with the abovementioned objectives.

This initiative was intentionally minimal in scope. Introducing an entirely novel technological tool, or significantly changing past homework processes, would potentially be disruptive for these students now in their fourth and final semester of the AP suite. New technologies can lead to higher levels of anxiety and insecurity for students (Farley and Burbules 2022). Inadequate preparation with a new tool may also have led to errors on the educator's part, potentially damaging the quality of the system itself or the content shared. Research shows that such issues are likely to reduce student engagement and satisfaction (Ling, Ying, Poh, and Yin 2023).

Implementation

The instructor implemented this initiative in week one of the semester. During the tutorial, students learned about harmonic modulation: the phenomenon whereby a piece of music changes key, causing a shift in tonal centre and/or the utilised pitch collection. The class discussed listening strategies and transcribed some examples of modulating melodies and chord progressions. Typically, this lesson would have been followed by a range of dictation-based homework tasks similar to those modelled in class. Excerpts for such tasks are taken from the dictation audio that accompanies the aural skills textbook Manual for Ear Training and Sight Singing (Karpinski 2017) and primarily consist of solo piano recordings illustrating the concepts under study. For example, stimuli for harmonic dictation exercises often feature four-part voice leading typical of a J.S. Bach chorale. Students receive instructions regarding this work via a Canvas discussion post and are free to complete the tasks in their own time with no further interaction. On this occasion, however, the instructor advised students at the end of class: "There will be an interactive component to this week's homework, so please be sure to check it well in advance of our next class."

Phase 1: Asynchronous homework task

The first phase of this activity involved an asynchronous inquiry-based homework task. That week's homework, which resembled the typical dictation-focused model, included the following instructions:

> In addition, I'd like you reply to this post with one example of a piece of music that modulates. Embed (or link to) a recording, identify the type of modulation, and specify the time at which you perceive the shift as occurring. Feel free to add as much analysis as you like! Also, feel free to comment on others' examples—you may hear things differently (we all have different ears). To get the ball rolling, see my example below.

By then posting their own contribution with an example that reflected their personal tastes, rather than the usual art genres studied in the classroom, the educator hoped to encourage students to act likewise. Research also suggests that an instructor's presence is crucial to maintaining student motivation in online educational contexts (Farley et al. 2022). Their awareness of the educator's presence in the discussion would hopefully increase students' motivation to participate.

Phase 2: Synchronous classroom discussion

Building on phase one, the instructor incorporated an additional activity into the week two in-class lesson plan. At the beginning of the class, the instructor opened Canvas on the classroom's display monitor and played through students' examples while inviting them individually to summarize what they had identified—thus leveraging the homework task as a student-led classroom activity (Lebler 2007).

Almost all students completed the phase one task, providing plenty of material for discussion. Many went well beyond the task of merely identifying a singular point of modulation, in some cases providing quite detailed analyses of full pieces. As one student, an openly avid Radiohead fan, commented in their post, "It was so hard for me to do something other than Radiohead [. . .] I was so invested, I did the whole song." Furthermore, the students presented an extremely diverse repertoire. The artists featured included Backstreet Boys, Ai Higuchi, Dexys Midnight Runners, King Gnu, Unprocessed, Kenshi Yonezu, Beyoncé, and Taylor Swift, as well as songs from animated film soundtracks and one from the video game Journey. Interestingly, not a single example from the classical cannon appeared in the discussion, suggesting a clear misalignment between typical illustrative examples and students' personal musical tastes.

This also equipped the instructor with an expanded repertoire of musical examples to reference as various types of modulation were examined in subsequent weeks. For instance, following an analysis of a modulation from a major key to its relative minor in a suite by J.S. Bach, the instructor could draw students' attention to a comparable instance in a song by Maroon 5. Such cross-referencing not only reinforced students' aural recognition of the modulatory effect but also underscored the structural and expressive affinities that can exist between ostensibly divergent musical idioms.

While only a small minority of students failed to complete phase one, classroom discussion also provided an opportunity to identify those students and invite them to catch up on the missed work (something that they all followed up on). The tone of these discussions remained informal and encouraging. The goal was to capitalise on the established benefits of informal learning as an extension of formal learning, granting students the opportunity to connect their educational program to the real world with freedom and self-driven curiosity (Lai and Smith 2018).

This phase also allowed for further reflection on the task's impact. Collegial interactions between students online (e.g., "this is so awesome and complex," "I love this song!") seemed to translate into stronger bonds within the classroom. This positive effect is unsurprising in light of research demonstrating that high levels of collegiality emerge when students interact in online learning communities (Andrew, Wallace, and Sambell 2021; Ivankova and Stick 2005). Throughout these interactions, students demonstrated the ability to share analytical insights in informal environments. This skill is crucial at a time in which tertiary-educated music degree graduates are less likely to find stable employment with a classical ensemble or institution and must be increasingly versatile in their careers as well as responsive to opportunities offered by the cultural mainstream (Miksza and Hime 2015).

DISCUSSION AND CONCLUSION

These two cases provide examples of how formal training in SoTL can have an immediate impact on teaching practice at the SCM. In both cases, the educators incorporated tailored technological innovations to solve challenges arising in their own distinct educational contexts. Crucially, they designed these innovations with a focus on each respective cohort of students. Furthermore, these cases demonstrate how SoTL can motivate higher educators to shape their practice in response to, and in direct engagement with, external political, economic, and ideological forces. Such examples are crucial in the broad context of music education, where a "discipline-demands-first" culture can "foster silos and protectionism" while failing to acknowledge external threats and opportunities (Cutler 2022, 11).

In both cases, the pressures associated with trying to attain multiple learning outcomes within a limited timeframe, all while catering to a heterogenous student group, were major factors motivating the authors to reassess their existing teaching methods. These pressures have become increasingly common in higher education since the late-twentieth century, as institutions have diversified their offerings to attract more students who, in turn, represent greater diversity in both their backgrounds and future career paths (Teichler 2002).

In case study one, the instructor redesigned a major assessment task that had previously modeled a single, albeit authentic, industry scenario to afford students the agency to design their own scenario. Recognizing that the open nature of this task would see students enter realms of expertise beyond what can be covered in a single semester, the coordinator embraced the potential of generative AI—a tool students had already engaged with independently—as a pedagogical aid.

In case study two, the instructor complemented the tendency to illustrate theoretical concepts and perceptual phenomena through a narrowly-defined repertoire—one which has traditionally dominated conservatory education in the West—with a task in which students explored the repertoire of their own choosing. Again, rather than attempting the impossible task of sourcing class materials that would cater to a cohort with immeasurably diverse musical interests, the educator in this case facilitated an online collaborative space for students to share the discoveries they made when asked to turn a critical ear on their existing playlists.

Each innovation was a direct response to the two educators' active and considered engagement with the principles of SoTL. The grad cert encourages educators at the University of Sydney to question existing teaching methods and to consider their practice in relation to wider societal issues. At the time of writing, the current and potential future impacts of generative AI are topics of great concern in higher education circles (Michel-Villarreal, Vilalta-Perdomo, Salinas-Navarro, Thierry-Aguilera, and Gerardou 2023). Similarly, many in music higher education have

increased their engagement with music outside the Western canon in response to recent critical discussion regarding the hegemony of Western music pedagogical practices (Chilvers and Liu 2024). With these two case studies, we have sought to demonstrate how such pressing external challenges may be confronted through educational innovations that are focused on students, grounded in research, and enhanced by thoughtful engagement with technology. While it is impossible to predict the challenges our sector will face in coming years, we anticipate a need for higher educators to continually adapt and innovate. As this study demonstrates, courses such as this grad cert arm academics with both the practical skills and the scholarly mindset required to confront these challenges proactively.

An undergraduate music degree can transcend methodological debates by incorporating a broader understanding of the political, economic, and ideological forces shaping higher education (Bloch-Shulman et al. 2016). By recognising that music education is not only an academic pursuit but also a social and cultural practice, we encourage students to critically engage with the larger context in which they work. For instance, music curricula can examine how funding policies, globalisation, and technological advancements influence the accessibility and delivery of music education. Additionally, music programs can explore the ways in which music intersects with issues like identity, power, and representation, empowering students to reflect on the ideological forces at play in their education. This approach encourages students to think beyond technical skills and fosters a deeper, more holistic understanding of music's role in society. By embedding these critical perspectives, an undergraduate music degree intersects with SoTL as it has the potential to prepare students to become not only skilled musicians but also thoughtful, socially engaged individuals.

AUTHOR BIOGRAPHIES

Alex Chilvers (Australia) is a lecturer in aural skills at the Sydney Conservatorium of Music, the University of Sydney. His research explores intercultural creativity, dialogue, and perception. A composer and bass guitarist, he is co-founder of the Bark Tin Band, an ensemble dedicated to intercultural new music.

Jeremy Rose (Australia), lecturer in music industry at the Sydney Conservatorium of Music. He researches creative and cultural processes through improvisation, experiential learning, and technology-enhanced pedagogy. He is also an award-winning saxophonist, composer, and director of the label Earshift Music.

Jennifer Rowley (Australia) is professor of higher education practice at Sydney Conservatorium of Music. Her research focuses on identity development for teachers and musicians as they transition from expert student to novice professional through the utilisation of authentic learning experiences.

Michelle J. Eady (Australia) is a professor in the School of Education at the University of Wollongong in New South Wales Australia. Her scholarship focuses on work-integrated learning, the scholarship of teaching and learning, and teacher education.

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