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“Be the Signal”: Learning Popular Music Production Skills and Practice

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Abstract:

Popular music production pedagogy has for decades educated students in the foundational skills of music production: music programming, critical listening, sound engineering, song writing and musicality. Yet the agency of professional practitioners illuminates that music producers also utilise tacit skills in communication and psychology to garnish musical works that target aesthetic intentions. These soft skills take time to develop in young people and so pedagogy in this field must target this at the beginning of a student’s higher education journey. Pedagogy in this field is complex and previous research efforts have highlighted the usefulness of integrated formal and practice-led collaborative educational approaches. This study develops this discourse further by investigating the utility of a pedagogical video resource used in a flipped educational framework. The subsequent case study of the course Music Production Practices (MPP) 1 found that students valued this approach and highlighted video length, accessibility, and the educator’s embodiment of practitioner traits as integral to their learning more holistic approaches to popular music production.

Keywords: Popular music production pedagogy, flipped learning, on demand learning.

Introduction

This research seeks to unpack the utility of popular music production pedagogy that integrates instructional video resources, formal instruction, and practice-based collaborative learning. The study investigates this within a foundational (first year) course in popular music production (PMP) that for the purpose of this article is called Music Production Practices (MPP). MPP aspires to educate students regarding the acquisition of PMP 'skills' whilst also exemplifying PMP 'practice'. This is intended to bridge student autonomous engagement to 'doing' music production in an authentic setting whilst acquiring foundational knowledge in the many ways to work with music and sound.

Popular music education often employs practice-based learning activities that align with the needs of graduates in the music industry (Anthony 2023). These needs include the acquisition of technical skills like music programming, sound engineering and critical listening, as well as a students' development of practitioner traits such as communication, decision making and social skills. Aligned with a flipped learning model (O'Flaherty and Philips 2015), the delivery of MPP coursework incorporates contemporary ways of learning through recognition of the various environments where music is made. The flipped model provides multi-modal presentations of music production technique offering students the opportunity to engage with the practice of PMP within many different settings. It provides a 'best of both worlds' approach to learning, where 'skills' and 'practice' are exemplified by the educator 'being the signal' before students re-apply them in practical and collaborative learning environments. This research sought to unpack the delivery process, and to gather the viewpoint of students regarding the effectiveness of the flipped model as a learning strategy for music production skills and practice.

Rationale

Education frameworks in the fundamental applications of digital audio workstation (DAW) operation and sound engineering techniques often include formal instruction and educator-led (master/apprentice) models (Anthony 2019). In these scenarios students are encouraged to collaborate and work together to mirror professional practice in a supported learning environment (Anthony 2019; Christensen 2017). While this approach to delivery has a great deal to offer, the potential for important skills and techniques to become lost in translation still exists. During face-to-face classes, educators are constrained within time and space to cohesively deliver a range of fundamental skills and techniques to the cohort. Supporting popular music production (PMP) pedagogy with video resources via a flipped learning model has the potential to deliver a rigorous learning experience for students. This could enhance the flexibility of learning resources while maintaining support for diverse student learning needs through emphasized face- to-face engagement. The flipped model provides multi-modal presentations of music production technique offering students the opportunity to engage with the practice of PMP within many different settings. This study investigates this within a foundational (first year) course in PMP, which for the purpose of this article is called Music Production Practices (MPP). MPP aspires to educate students regarding the acquisition of PMP 'skills' whilst also exemplifying PMP 'practice'.

The demonstration of skills and practice through instructional video content could have additional relevance to those involved in music production. Outside of formal education environments, educational video resources supporting practitioners engaging in music production are widespread (Pensado 2013). These instructional videos can support learning, but it has been suggested they often target a broader audience, limiting their relevance to higher education coursework (Lee et al. 2018). By producing video resources that are specific to the requirements of the cohort, a higher education (HE) institution offers students "active, contextual learning experiences" (Voss 2022: 24). In addition to the provision of more autonomy for when students choose to learn, flexible learning behaviours have been identified as highly useful in music production (Slater 2016). This is because often the learning needs of musicians working with technology are largely self- directed or informal (Slater 2016). Incorporating flexible learning through a flipped learning model could be an effective strategy for engaging students to learn these fundamental skills. Incorporation of this delivery approach has the added benefit of freeing up class time to focus on the application of these skills within simulated professional practice learning activities. Ideally, a flipped learning approach expects students to come to their class engagements after completing structured pre-lesson resources, such as videos or worksheets. These resources should provide conceptual knowledge and set up the next sequence of learning, that is, for students to apply these tasks practically and collaboratively (O'Flaherty and Philips 2015). This model has been applied within MPP to explore whether the generation of video resources that demonstrate practical activities is an effective pedagogical strategy for PMP. Students who observe these practical activities are thereby initiating the learning process before coming on to campus.

Video resources provide valuable opportunities where students can view various skill applications, but also observe a professional practitioner exemplifying the necessary soft skills required in PMP (Weston 2020). The video resources used in MPP sought to capture the workflows of both the DAW and recording studio spaces. This was done to replicate a modern concept of PMP that includes both electronic and acoustic music types. Key to this narrative was student conceptualisation of signal flow and studio connectivity, suggesting that students should 'be the signal'. 'Being the signal' is an objective practice that the MPP educators demonstrate themselves by which they operate digital and physical spaces to produce music. This was presented through the tone of these videos, as such techniques were exemplified, but the videos equally demonstrated the cultural norms and socio-musical realities that are central to PMP skillsets. The social interactions between all the people involved in making music are imperative elements that should be developed early on in a student's development as a professional practitioner (Anthony 2019; 2023). These provide glimpses into a *real-world* context (Anthony 2023), so students could watch, learn, and employ similar approaches in their collaborative classes and autonomous music making sessions.

There is strength in collaborative learning approaches, especially when students engage with practices that focus on music creation (Christensen 2017). A further benefit of a collaborative learning framework such as this is the development of a student's soft skills like communication and decision making (Weston 2020). Soft skills take time to develop so they can be targeted passively in collaborative classes as soon as students arrive at university. MPP converges a diverse cohort, which enables a broad scope of collaborative learning possibilities to be leveraged (Anthony 2023). Students who arrive at HE with skills as engineers learn about

musicianship, song writing and performance whilst working with artists. Students who are primarily performers learn about sound engineering and mixing through working with technology focused students. Collaborative learning environments allow students to employ their soft skills and identify the areas that require improvement so they can further develop these over time (Anthony 2019; 2023). This research will investigate the effectiveness of the MPP delivery of 2020, with focus placed on the role of the flipped learning video resources. Data collected will be used to consider adaptations to this pedagogical approach that is designed to target the acquisition of PMP-skills and the exemplification of PMP practice.

Literature Review

Central to delivering popular music education is the incorporation of PMP into the curriculum (Anthony 2015; Lebler 2008). PMP is the process of recording, producing, and mixing popular music, engaging students with the vocational aspects of producing music, while encouraging reflective practice (Anthony 2015). PMP education is also increasingly presented with the challenge of keeping up with industry developments (Lebler and Weston 2015). Therefore, developing an understanding of how students inherently engage with learning these production skills outside of formal education environments, has the potential to inform and enhance pedagogical practice (Voss 2016). Access to a wide range of "user generated content" through online sharing communities of practice has a continuing influence on music learning and teaching possibilities (Waldron 2013: 257). Harnessing these trends can increase the relevance of delivery methods to the student cohort, who often engage with music production outside of their education activities (Anthony 2023).

The learning approach of popular musicians also suggests that flipped learning video resources could align with their needs (Voss 2022). There has been a significant amount of work identifying the tendency of musicians to engage with informal learning as a part of their innate desire to develop their core skills (Folkstead 2006; Green 2001; Jaffurs 2004). Green (2001) first proposed the idea over twenty years ago, before subsequent research highlighted how this could impact pedagogical design for music programs (Green 2006; 2007). Lebler (2007; 2008) discussed the incorporation of this as a key pedagogical approach, where the recording studio, peer interaction and reflection became the core to facilitating learning within a program teaching popular music. Providing video resources delivers flexible and self-directed learning opportunities, aligning pedagogy with contemporary practice.

Online Learning for PMP

Online learning opportunities have also been broadly identified as having the potential to impact pedagogical design around music (Cayari 2011; Waldron 2013; 2016). The availability of resources to support learning of PMP equipment and techniques is widespread outside of formal education, further influencing contemporary learning approaches. Online web pages like Pro-Tools-Expert (2022) provide equipment reviews, training and other learning opportunities designed to upskill users of music technology. Music technology software and hardware developers also proactively support skill development of musicians developing and maintaining their skills. Avid (2022) offer extensive resources with a view to

supporting their users and their skill development, while Universal Audio (2022) offer a similar range of opportunities.

This increased access to online instructional video content has changed the learning approach of contemporary musicians, who now have the ability to learn on-demand, picking up skills and knowledge as they are required (Slater 2016). Outside of formal education environments, the learning processes employed by musicians working in "the project studio" could be of particular significance to developing pedagogical strategies (Slater 2016: 9). Increasingly, musicians find themselves in the role of musician/audio engineer as a necessary working methodology. This is because of the widespread availability of music technology tools and the improved sonic quality of DAW software (Bell 2014). The advent of instructional video content and DAW software has liberated musicians, whose learning is no longer confined by geography and the availability of music technology hardware (Waltzer 2020). The result of these developments is that the method of learning and working in the project studio environment has evolved. Slater (2016: 12) proposed that the adoption of informal learning in the project studio has meant that often these musicians "discover what skills and knowledge they need as they go along". Slater (2016) further comments that this is due to the nature and working methods of musicians working in the project studio environment.

Developing pedagogy for practice-based studio subjects can be informed by the tendency for musicians to engage with learning that is self-directed, self-paced and aligned with an informal approach. Voss (2016; 2022) noted that designing learning experiences for teaching music technology in higher education should engage with presenting information utilising formats where students can engage with topics on-demand. In synergy with this, research conducted by King (2009) discusses how to provide a supported environment, where learning can occur during project work through providing technological supporting resources. These pedagogical ideas promote student engagement with learning, utilising a model that incorporates similar approaches to the multi-media rich environments available through the Internet. The incorporation of these approaches through a flipped learning model has the potential to enhance and support the PMP curriculum. King (2016: 62) also proposed a framework for the development of recording studio pedagogy that considers "knowledge, skills, and a human perspective". Within this, elements including decision-making and artistic touches converge with expertise, studio tools and workflow towards the development of a comprehensive framework for recording studio pedagogy. Development of a flipped learning model for recording studio pedagogy needs to demonstrate that these key skills and practices are considered.

Flipped Learning

One way of incorporating a media-based approach to PMP practice-based pedagogy is the incorporation of a flipped model into coursework. Given the ubiquitous nature of the project studio, flipped models of learning have been utilised as a way to stage student engagement in preparation for a more concentrated tutorship (Ma 2021). A typical flipped model seeks to scaffold learning across the different learning environments to which students have access, such as their own home, and deliver support and content through different media, such as video-based learning resources, and platforms (O'Flaherty and Philips 2015).

Awidi and Paynter (2019) provided a flipped model of learning biology that leveraged online videos and quizzes alongside a shorter lecture series and collaborative group tasks. Student perspectives emphasized that the changes were positive to their overall learning as they provided a way for students to navigate their own learning experience. Students did however present some concern regarding the desire for more support and the motivation to engage fully with the flipped materials provided to them. Another challenge presented was in the pacing of the in-class activities as they connected with flipped resources. In their conclusion the authors reinforce the idea that flipped models should be iterative, requiring feedback and adjustments as different student cohorts engage with content. Particular to music pedagogy, Ma (2021) found that students expressed a positive view of flipped learning. In this case, students appreciated the convenience of having materials available online that could be utilised as a tangible prompt when collaborating in peer-led face to face environments. What is encouraging is the ways in which flipped models require students to enact and develop broader skillsets and sharpen their ability in self-directedness and collaboration through online models (O'Flaherty and Philips 2015). As much as positive perspectives of flipped learning experiences have been recorded, there is unfortunately little available research, that we are aware of, that focuses on popular music production pedagogy.

Video Resources as Flipped Learning

Flipped learning does not preference a particular technology or platform but instead is a broader methodology to connect these together to form a structured learning sequence. However, it is important to explore video, particularly in this article as it was a significant resource in MPP course delivery. Video provides a number of benefits to students not just through the transmission of content but also in the affordances provided through the platform the video is hosted within. In a systematic review by Noetel et al. (2021), they found positive benefits to video in learning. This included the logical construction of content and how video can transmit authentic perspectives captured in settings that may be impractical within a typical classroom. In contrast, they found a flipped video resource is unlikely to be optimal when provided without educator support surrounding its interpretation; they also found that students prioritise when and how they engaged with video materials with their personal lives. Cooper et al. (2009) noted similarly that music education students' preference was to engage with these resources in their own time, bridging their learning between informal spaces and the classroom.

Video use in music education has been led culturally through online communities where amateurs to professionals have been documenting different practices and techniques (Lee et al. 2018). In an analysis by Lee and colleagues (2018), they found that although there was variable quality and accuracy in a few of the videos (teaching guitar technique) there was also an opportunity for educators to contribute to this immense body of content in terms of skillsets such as collaboration, professionalism, and support. Considering the use of video in instrumental music education, Anderson and Northcote (2018) conclude that there are many benefits to using video and these outweigh the burdening requirements of technical skill to produce video resources. Although there is quite a lot of research that supports the use of video resources for music education, there are limited resources targeting PMP skill acquisition and education in the socio-musical realities of PMP creative practice.

The Case Study: MPP (2020)

MPP is a first-year undergraduate course for a Bachelor of Music program. MPP is designed to provide students with foundational knowledge in modern music making, with emphasis on musical, technical and practical aspects. Working individually and as part of a team, students engage with diverse learning activities and develop their abilities through guided and self-directed projects. Over a twelve-week trimester, the indicative topics include MIDI, the DAW, sound recording, microphone theory, introduction to mixing, sequencing, critical listening, virtual instruments, Pro Tools software, musicality, session management and working with music in acoustic, electronic and hybrid environments.

One of the researchers is the convenor of this course and in 2018 a proposal was put to senior management that requested the institution integrate both Popular Music (Pop) and Creative Music Technology (CMT) majors into one course iteration. The integrated student cohort (of forty students) brought students with broad skill sets together to learn; engineers, performers, songwriters, and programmers worked and learned together.

Student Engagement

Students of MPP (2020) undertook four main engagement activities over a 12-week trimester:

1. Weekly pedagogical videos (flipped learning)
2. Weekly one-hour lecture (all students)
3. Weekly one-hour formative tutorial (all students)
4. Weekly one-hour practice-based tutorial (five iterations with eight students in each tutorial)

The video, lecture, and tutorial series for 2020 can be viewed at Appendix A.

Pedagogical Videos and Worksheets

MPP utilised a flipped classroom model where students watched weekly pedagogical videos and filled in an associated worksheet prior to the week's classroom activities. The videos were pre-recorded by staff members and students had unlimited access to these throughout the entirety of the trimester, and could watch them as many times as they liked and at times that suited them. In general, the weekly videos were also segmented so as to not be too long; each week students would have approximately four to six videos of around 7-10 minutes duration each that collectively addressed the learning activities for the week.

The videos enabled the educator to embody many socio-musical attributes that are indicative of music producers working in recording sessions whilst exemplifying and discussing technological and application-based learning targets. These included friendly discussions with musicians, communicative processes in between recording takes and purveying the necessary social attributes that nurtured the 'vibe' of the session at hand (Anthony 2019). Again, these are practice-based activities that go hand in hand with the act of *doing* music production.

Students could then develop their collaborative abilities in this area by working side-by-side with peers engaging with professional etiquette, collaborative empathy,

and the application of skills. After weekly face-to-face lecture and tutorial sessions the students could then go home and review the videos further. The strength of this model in studio-based courses is that students are supported in a variety of ways that align with both contemporary and formal learning styles.

One-hour Lecture (All Students)

The one-hour lecture provided the educator opportunity to cover weekly content in a rigorous fashion. Integral theoretical concepts (sample frequency and bit depth for example) were unpacked and were linked to practice-based applications and exemplars from the video resource. The lecture was designed to lay a strong foundation of theoretical underpinning to support student learning as they transitioned from video engagement to practical activity.

One-hour Formative Tutorial (All Students)

The formative tutorial was a more social learning environment where the educator encouraged student discussions on the weekly activities. Pedagogical engagements that utilise a social setting that is synonymous to popular music culture do much to promote student interaction (Anthony 2023). Areas of uncertainty from the weekly videos and lecture could be unpacked and discussed by the group to solidify group understandings. This happened whilst the weekly video worksheet answers were presented. A lot of music was played, critical listening was undertaken, and open forum discussion ensued so that students would interact and communicate with each other. Students would often also play their own music and obtain critique from their peers. This experience afforded all students the opportunity to give and receive feedback (another important soft skill) and helped them to learn how best to instinctively navigate these difficult communicative processes. Open forum discussions also provide students the opportunity to understand the musical opinions and preferences of others, to value these as relevant and this helps to broaden student perceptions of popular music production creative practice.

One-hour Practice-based Tutorial (Groups of Eight)

The final engagement for the week placed students in small groups in the recording studio or midi lab, where they would undertake student-led (educator facilitated) activities that were similar to that covered in the weekly videos. Learning becomes a tacit process whilst working in practice-based tutorials. This approach targets both individualised and collaborative learning approaches. Students utilised the knowledge they had acquired to put into action the applications targeted each week. They could articulate the 'be the signal' mantra in their studio connectivity exercises and embody the social attributes of music producers whilst working together. This final engagement culminated in students driving the learning experience by "doing" and learning music production creative practice applications whilst communicating with each other and the educator. Students could then take these experiences and apply them to even greater extent within their autonomous music making sessions.

Autonomous Engagement

As a part of MPP all students have twenty-four-hour access to the institution's

recording facilities. Students are encouraged to book the facilities with their peers and engage in recording/learning sessions whilst producing musical outputs. Inter-program collaboration (CMT/Pop) is encouraged and a prerequisite for the portfolio assessment item.

MPP Video Resource

The sequence of MPP videos targeted: weeks one to four (The DAW); weeks five to nine (traditional recording studio); weeks ten and eleven (mixing and mastering); and week twelve (multi-microphone setups). The video resources were produced and presented by different members of the teaching team; both presenters exhibited different presentation styles.

Methodology

This research employed a case study methodology (Yin 2003) that investigated the utility of the pedagogical approach of MPP (2020) and focussed on the students' perception of learning. It also utilised an interpretive research paradigm to frame the context of the research team's approach to delivering key findings and recommendations emerging from the case study research. Cohen et al. (2000: 22) suggest "the central endeavour in the context of the interpretive paradigm is to understand the subjective world of human experience". Music production engages the world in a value-laden manner (subjectively) and, therefore, its reality is observer-dependent and located within a particular perspective (Denzin and Lincoln 2005). Added to this, Bell (2019: 181) confirms "students learn producing [music] by doing it. They can mime past practices to forge future gold records but also engage in trial-and-error practices, which may lead them to happy accidents and new frontiers in production". With these words in mind, an interpretive research paradigm seems appropriate to accommodate both the making of music, and the making of mistakes whilst making music. The accumulation of these types of experiences (doing) affords the student an understanding of how learning may be occurring.

Participants and Data Collection.

The primary participants of the study included thirty-three first-year students (a mix of Pop and CMT) from a 2020 MPP cohort. One of the research team members was also a complete-participant observer (lead educator/convenor). This lead educator was part of the learning design team and provided most of the content within the course, alongside another educator. In the *participant-observation* (Yin 2003) role, the researcher is not merely a passive observer but instead may assume a variety of roles within the case study and participate in the events being studied. Similarly, the use of multiple participant groups provides unique perspectives that assist in capturing the detail of the study period sufficiently (Creswell 2005). Data collection from the student participants were via an anonymous online survey following their engagement with the twelve-week course. The survey included both open and closed questions, available in Appendix B. Field notes were also collected from the lead educator noting their interactions and perspectives on student engagement. Noting the limitations of objectivity within this approach (see Yin 2003), Bryman (2008 as cited in Anthony 2019: 74) suggests that "the researcher's immersion in a social setting better equips them to understand others' opinions, and this informs

analysis on a deeper level" compared to interviews or surveys alone. Therefore, as a participant observer of the case study, one researcher was immersed in a pedagogical/social setting, engaging in conversations, making observations, and then reporting on them later. But this reporting occurred after the other members of the research team undertook initial coding activities from survey data. The field notes were used to complete the data collection and solidify initial theme development. As such, this methodological design provided a way to reflect on the engagement experience of the participant-observer to critically assess the students' as well as the educator's perspectives. Ethical clearance for this research followed the protocol of the university and participants of the study were not disadvantaged because of their involvement. Students were invited to become participants of this research via email but were advised that this was not compulsory nor would it have any impact on their class participation. Extra steps were taken by the research team to exclude any field notes that contained any direct references to student conversations, names or student works to ensure that students were not identifiable or unfairly represented.

Data Presentations and Analysis

There were three researchers involved in this project and one of the researchers was the convenor of the course MPP who engaged in the participant observer role. At the end of the data collection period the survey results were collected via .csv file and imported into NVivo 12. This served as the primary data store for survey results as well as the collaborative platform for researchers to code and provide notes through. A thematic analysis was initially conducted by the non-participant researchers before confirming and collaborating with the rest of the research team. Each response at this point was reviewed and discussed between the research team to explore the similarities and conflicts between responses. These were then grouped into categories of responses that would best describe the component of the course that the response was referring to regardless of positive or negative experience. This analysis produced the following four primary categories of responses:

- Reflection on the video series.
- Video and engagement with practice.
- MPP and the flipped model.
- Engaging with the flipped model.

These categories were then reviewed in a second pass, now including the consideration of the lead educator's field notes, to contribute broader perspectives and observations to these student responses and findings. The following analysis describes these findings, which is then followed by key themes.

Reflection on the Video Series

Student responses indicated that the videos were a positive aspect of the learning experience. Particularly, these responses captured the relevance of the videos to learning, the productive quality of the videos and the appropriateness of the videos within the learning sequence.

The students felt both presenters did come across clearly and noted that their professional composition contributed towards positive engagement. When

approaching the DAW, students found the video approach meaningful enough to grasp new concepts. Respondents also noted the specific differences in approach within videos made by various educators. Student 15 notes "I found that both <Presenter 1> and <Presenter 2> have different outlooks on the 'right' way to do things. It was good that I got to see multiple ideas behind using Pro Tools and the studio". There was a mixed response revealing that some students preferred the detailed approach of more extensive videos, while most preferred shorter and more concise videos. Student 12 suggested that "the videos were very well put together and were mostly engaging. I got a little bored at times in the videos and felt like they could have been more concise. The content was presented quite thoughtfully, which I appreciated". These ideas were reiterated by other students, for example Student 7 who commented "I believe some of the videos were too long to be practical, it's a lot easier to take information from shorter videos."

These responses are reflective of a negative flow on effect from videos that may be too long. In some instances, initial videos that were too long negatively influenced the cohort because some students detached from the entire video series (even shorter videos) because they assumed all videos would be detailed and extensive. Students found it even more difficult to watch long videos once a significant study load commenced. Student 22 commented "I disengaged after the first few weeks, particularly when I was getting swamped with other assessment".

Video and Engagement with Practice

A majority of students felt the video series was relevant to the DAW and studio practices content being taught within MPP. Additionally, students' responses suggested the videos were able to convey the specifics of DAW and studio practices while also embedding conceptual knowledge. One particular example of this discussed by Student 28 was in reference to conceptualising the monitoring level with which you should mix, and the presenter's 'trick' of using audible keyboard clicks as a reference level. "I found that the more conceptual stuff really got through to me over the videos" they commented.

As an educator/participant observer for MPP one of the researchers found this to become a common occurrence in the practice-based tutorials. Students would not only re-enact many of the video applications like the keyboard clicks as a reference level, but also, they started utilising some of the sayings from the videos. For example, when trying to negotiate some connectivity issues between the recording room and control room, students would remind each other: "come on guys let's 'be the signal'". They discussed equalisation and compression but utilised metaphors like "warmth" to describe desired tones and this resembled the lexicon on the video resource. It was something synonymous to popular music culture as opposed to a university learning context. Students were embedding practices demonstrated through the video resource in the lectures, tutorials, and their general interaction at HE.

Students' comments suggested it was useful that they could re-watch the videos at any time; it was important that demonstrations of practice required several reviews so techniques could be fully grasped before being actioned in autonomous work. A few student responses that particularly focused on the DAW seemed to take note of it being a largely new and complex technology to them. They appreciated the guidance that was presented within the DAW videos, noting that there was a lot to take in when learning this technology. A subset of these students mentioned their

own struggles with the specific DAW 'Pro-tools' noting their preference for a different DAW, presumably one they already use, and another noting the challenge of using Pro-tools in the studio context as having additional complexity when compared to on a personal computer.

The alignment between the videos, worksheets, lectures, and practice-based tutorials all appeared to be required of the sequence, although not necessarily undertaken in sequence. Students indicated how they felt they needed to prioritise the videos and practical components as most learning occurred by replicated video content in practice-based contexts. A number of responses again noted the sequence of the videos being appropriate in preparing for tutorials. This explicit connection between the videos and the environment within practice-based tutorials was important to students. Student 30 comments "Learning pro-tools, learning what buttons to press on the control panel to setup headphones… Those things I needed to do… because for the first few weeks when we learnt it, I couldn't follow along at home." Video, therefore, was a meaningful support alongside practice and recalling on practice. Student 15 responded "I was glad to be able to go back and look at certain concepts twice so I could work alongside the videos for my portfolio work".

MPP and the Flipped Model

In response to the MPP flipped model, students commented positively on the sequence of learning but specifically valued the practice-based tutorials and the relationship between educator and student. Some student responses highlighted that they felt the whole flipped model was very effective for their learning. Student 27 suggests that the process assisted with reinforcing their learning stating, "the whole approach with learning at home and in the studio felt like the information is reinforced further when it is repeated in person". Interestingly, some students suggested that the flipped model was overwhelming to them as they had not approached this type of pedagogical practice in previous education. Student 29 comments "I still feel overwhelmed as this is something I have never done before, and there is a lot of content, however working through the content at my own pace, and going to hands on tutorials has been very helpful." These mixed responses highlight the variety to which students approached the flipped model. Both responses however presented students' tendency to adjust their engagement as they transition through the teaching period.

Many students, to begin with, were not watching the videos before class. As an educator/participant observer for MPP, one of the researchers had numerous discussions with students to remind them to engage with the video resource. Students were confronted with empowering discussions regarding the utility of the videos. Some students suggested it was not made clear that they had to watch the videos, other students admitted to laziness and just wanted university education to be like school where teachers teach content. This cohort consisted of first-year students who were used to education at school and not experienced in taking control of their learning and being accountable for their improvement. This was a difficult scenario that required a large amount of energy on the part of the educator to aid the students' transition from school-based education to HE learning. Through continued discussions and encouragement from the educator, video engagement increased in the middle part of trimester.

The practice-based tutorials were the highlight of the flipped model with students indicating that they gave them the most support and clarity of the overall learning

experience. Student 6 summarises:

> The most useful part of MPP for me was the practice-based tutorial. I think that having the formative tutorial in the morning is not all that necessary and more time should be put into the practice-based ones due to the difficulty I personally had getting used to the studio.

Some of the key components of the practice-based tutorials included the importance of access to technologies, the practical support required to assist their learning, as well as some significance placed upon the ability to engage with learning within the studio environment. Student 1 suggests "the only thing I would have liked to do more of is to have more tutorial time in both the studio and in the labs with a teacher who can help with the use of Pro Tools and other software".

Within the student responses another significant component to the MPP flipped model was the role of the educators. Several responses indicated that the educators were seen as professional practitioners and a trusted source of information to connect the different pedagogical resources to physical practice. Students acknowledged the availability and attitudes of educators supported in making the environments and tasks more approachable through their contextual practices. Student 27 commented "it felt professional and casual, letting me feel more connected to them and made me want to engage with the learning even further". While Student 28 similarly agreed "All the teachers were super helpful and dedicated …. <Course Convenor>'s down to earth demeanour and teaching method really got through to me and this course has been an absolutely banger".

As an educator/participant observer for MPP, the course convenor had deep and meaningful discussions with students that centred on their journeys as musicians. This was done to break down the educator/student dynamic and to develop lasting relationships with students. Through a devoted mentorship, students were communicating with a very experienced professional, but also had access to someone aligned with their creative perspectives. By adjusting this dynamic the educator empowered students to consider their potentialities as future professionals: equals to the educator. This provided the educator a platform to discuss some difficult territories regarding the 'practice' of professionals with students that were exemplified in the videos. Engagement in the socio-musical aspects of PMP require producers to use their social skills and get to know people. By doing this with students, the educator was embodying the practice of a producer within the pedagogical practice. Student responses reflect this was empowering to their learning.

Engaging with the Flipped Model

Student responses that addressed why they deviated from the flipped model during the teaching period identified some important findings. The design of the resources within the learning management system allowed students to navigate the resources in ways which supported them. These codes are primarily oriented around student study load, student allocation of time and student motivation.

Combined student study load was a significant factor impacting inconsistency within the flipped model. Responses indicated that competing assessments, differing or intensive delivery modes and their own prioritisation of flipped model components were common complications. Several responses indicated that because

the videos were 'available' they took less priority over other class work, which had to be enacted for other subjects. Having or making time for working within the flipped learning model seemed to be a recurring challenge, predominantly connected to the amount of video content within the series. Some students identified that the presentation styles of the instructors also impacted their engagement. Student 6 commented "The only thing I would say would be for presenter 1 to be a bit more engaging as I found the videos he made could sometimes go on for quite a long time and get very boring". This theme has been identified earlier and therefore attention should be paid to the length of videos and the presentation style of educators who develop the resources. Students also indicated that either being too busy, or a lack of effective time management skills was a common issue that they experienced. Student 14 commented "not enough time to fit them in due to the videos being quite lengthy". Student 22 also had a similar experience "I watched the videos prior to classes, however sometimes felt time pressured to fit them in, especially if they were long videos". Some student responses did comment on how the video worksheet that accompanied the videos did help in using their limited time appropriately.

Several student responses also suggested that one's overall motivation was a primary challenge to the flipped learning model. Although few of these responses went into specific detail as to the cause of low motivation, there was mention of unwillingness to go online to access materials, health directed Covid-19 lockdowns and just being a lower priority due to aspects of the flipped learning model not being assessed.

Key Findings

Video as a Supporting Resource for Flipped Learning

One of the key findings was that students had found the videos engaging within their studies, providing them with additional supplementary material to support their practice. This finding mirrors that of previous studies of both flipped learning and video resource outcomes on the student experience (see O'Flaherty and Philips 2015; Noetel et al. 2021; Voss 2022). The video resource was also found to be useful in facilitating popular music education to a diverse student cohort with contrasting previous knowledge in a short time frame. From the responses it was apparent that video resources need to be concise. Several students commented on length being an issue and prohibitive to engagement. Additionally, there were also students who felt engaged by more rigorous video content. A number of students however found the videos easy to de-prioritise as they were always available to them and often short on time to effectively engage outside of the classroom. Design of learning experiences needs to consider use cases for video content, while aligning with realistic time frames for student engagement. Students mentioned these preferences were tied to the approaches taken by the educators in the production of video resources. This diversity of student preference therefore should be an important consideration to content development.

In MPP, one educator produced more detailed instructional resources, placing added emphasis on the theoretical processes of PMP whilst exploring the creative use of technologies and theory. The second educator however produced intentionally succinct yet socially engaging content, these covered practical approaches but emphasized the role of individuals in the PMP process, capturing

both the environments and interactions required in production environments (Anthony 2019). In using video as part of a flipped learning model, consideration of the types of videos could aid student engagement. As with this case, the majority of students found that shorter video content was easier to consume and more engaging, but rigorous content was also appreciated. Similar research has suggested that diversity needed to be considered when developing video resources for supporting students learning popular music production (Voss 2022). We would like to suggest that developing content that addresses student engagement is paramount to flipped learning. As with this case, students responded better to video resources that were concise, engaging and delivered adequate detail for the individual topic. Importantly, however, students found video resources most useful to learning popular music practice when reproducing or embodying those practices within the physical environments the videos captured. Students' use of video resources enabled multi-modal learning opportunities, providing students the opportunity to make sense of what they were learning through different communicative methods (Kress and Selander 2012). The use of video resources alongside physical studio activities is valued by students as it enables frequent and on demand content when it is relevant to their learning needs (Voss 2022).

Educator Involvement

Another key finding, paramount to nurturing this experience and its design, was educator involvement. Several comments highlighted the role of the educators who brought together the videos, practices, and experiences meaningfully within the flipped model. In 'being the signal' the educator presence within the flipped model was in part 'being' a mentor as well as the educator. This provided students resources to both observe and experience the production workflow through the cultural and professional roles within it, as well as to develop their PMP skillsets. Students 'being the signal' is a path through which they flow through the popular music environment engaging with a number of inputs to the creative process and producing their unique outputs. For the educators themselves, 'being' enabled their involvement as the pedagogic support as well as their recollection of the learning experience. This involvement required the educator to continually interact and respond to students, providing details that can best inform future (re)design of PMP. The flipped model within MPP supported that process and students led themselves, focusing on what was meaningful for them in (re)designing their signal flow. Engaging with this process is hard for students and subsequently, takes time. It is important though that these exemplifications of practice are prolific (on the video, in the classroom) so that students can improve throughout the pedagogical and creative journey. As demonstrated by the lead educator, students learned about socio-musical applications, as well as how music producers can interact with others within the studio environment. This passive learning was then embodied by students in the practice-based tutorials further supported by the educators.

Resource Delivery Considerations

Apart from the findings aligned with resource creation and educator involvement, there are a range of other suggestions that can assist in embedding a flipped model across other PMP courses. One theme that evolved was the need to consider the student time investment required to complete the learning activities. Student suggestions reinforced that earlier in the semester it was easier to maintain the

objectives of the flipped learning activities, while later when conflicting priorities arose the set activities then became neglected due to lack of time to complete. This includes accounting for the amount of content being delivered, and realistic goals aligned with the intended learning outcomes of the course need to be set. Consideration should also be made about competing student priorities, particularly during heavy assessment periods and about what content is delivered when. An effective flipped model should align with other course commitments recognising a whole of program student experience. This suggests that resources should be created and structured in a way that encourages and promotes flexible learning, while existing within a framework that supports the practical studio-based activities. The resources created for this series were not particularly lengthy however, identifying additional ways of breaking up content delivery through encouraging or scheduling active engagement with music technology tools could improve engagement.

Depending on the level of the program that is being delivered, some scaffolding or supplementary information to support the video resource delivery could be relevant. Some students indicated that the inclusion of terminology could assist with developing their understanding of the topic. It is anticipated this could assist with interpreting the video content. This is to be expected because this course is aimed at a beginning undergraduate student level. Therefore, it could be beneficial for teaching staff to agree upon terminology to be used and introduced in the series. Students could then be specifically scaffolded in this terminology through additional video content, face-to-face interactions and/or text-based resources.

While the incorporation of flexible learning resources enhances opportunities for learning popular music production the importance of engaging with and using the recording studio was highlighted in relation to the student experience. Opportunities to engage in working in the space with teaching staff and peers are particularly valued. Experiences should be designed within the flipped learning model to maximise the impact of these in-person experiences. Students particularly value being able to interact with the educator to provide feedback and advice should be embedded within the delivery of a flipped learning model.

Conclusion

As a result of the findings of this research, the course MPP has gone through a delivery adaptation for the 2022 iteration. Extensive and long video resources have been redeveloped to be more engaging and concise. Educators have been further encouraged to continue exemplifying the practice of professionals, to use lexicons associated with popular music and to embody the socio-musical nuances of professional practitioners whilst filming. The course framework has been adjusted to consist of a one-and-a-half-hour lecture and listening workshop, and the practice-based tutorial has been extended from one hour to one-and-a-half hours. This was the most significant of the changes that have been implemented because of this research and following nine weeks of delivery of the new model, we recommend this model to similar courses in HE.

References

Bibliography

Anderson, A., and Northcote, M. 2018. Australian Studies of Videoconference and Video-assisted Instrumental Music Teaching: What Have we Learned? *Australian Journal of Music Education* 52 (1): 3–18.

Anthony, B. 2015. Creative Conceptualisation: Nurturing Creative Practice Through the Popular Music Pedagogy of Live Recording Production. *Journal of the International Association for the Study of Popular Music* 5 (1): 139–156.

Anthony, B. 2019. *Perspectives on Learning Popular Music Production in Higher Education from "Both Sides of the Glass",* PhD., Griffith University, Queensland. https://research- repository.griffith.edu.au/handle/10072/394317 Accessed: 2 February 2022.

Anthony, B. 2023. *Music Production Cultures: Perspectives on Popular Music Pedagogy in Higher Education*. London: Focal Press.

Avid. 2022. *Avid*. http://www.avid.com/ Accessed: 02 February 2022.

Awidi, I. T., and Paynter, M. 2019. The Impact of a Flipped Classroom Approach on Student Learning Experience. *Computers & Education* 128: 269–283.

Bell, A. P. -

2014. Trial by Fire: A Case Study of the Musician-engineer Hybrid Role in the Home Studio. *Journal of Music, technology, and Education* 7 (3): 295–312.

2019. Of Trackers and Top-liners: Learning Producing and Producing Learning. In Z. Moir, B. Powell, and G. D. Smith Eds. *The Bloomsbury Handbook of Popular Music Education: Perspectives and Practices*. New York, NY: Bloomsbury: 171–185.

Bryman, A. 2008. *Social Research Methods*. Oxford, UK: Oxford University Press, 3rd Edition.

Carfoot, G., Millard, B., Bennett, S. J., and Allan, C. 2016. Parallel, Series and Integrated: Models of Tertiary Popular Music Education. In G. D. M. Smith, Z. Brennan, M. Rambarran, and P. Shara Kirkman Eds. *The Routledge Research Companion to Popular Music Education*. London: Taylor and Francis: 139–150.

Cayari, C. 2011. The YouTube Effect: How YouTube has Provided New Ways to Consume, Create, and Share Music. *International Journal of Education and the Arts* 12 (6): 1–28.

Christensen, T. N. 2017. Teaching Co-creation: Paradoxes in Rock and Pop Ensembles. In T. Chemi and L. Krogh Eds. *Co-creation in Higher Education: Students and Educators Preparing Creatively and Collaboratively to the Challenge of the Future*. Rotterdam, Netherlands: Sense: 205–223.

Cloonan, M., and Hulstedt, L. 2012. Taking Notes: Mapping and Teaching Popular Music in Higher Education. York, UK: The Higher Education Academy.

Cohen, L., Manion, L., and Morrison, K. 2000. *Research Methods in Education*.
New York, NY: Routledge, 5th Edition.

Cooper, S., Dale, C., and Spencer, S. 2009. A Tutor in Your Back Pocket: Reflections on the use of iPods and Podcasting in an Undergraduate Popular Music Programme. *British Journal of Music Education* 26 (1): 85–97.

Creswell, J. W. 2005. Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research. Upper Saddle River, NJ: Pearson Prentice Hall.

Denzin, N. K., and Lincoln, Y. S. 2005. *The Sage Handbook of Qualitative Research*. Thousand Oaks, CA: Sage Publications, 3rd Edition.

Folkstead, G. 2006. Formal and Informal Learning Situations or Practices vs Formal and Informal ways of Learning. *British Journal of Music Education* 23 (2): 135-145. Green, L. 2001. *How Popular Musicians Learn: A Way Ahead for Music Education*. London: Ashgate.

Green, L. -

2006. Popular Music Education in and for Itself, and for 'Other' Music: Current Research in the Classroom. *International Journal OF Music Education* 24 (2): 101–118.

2007. *Music, Informal Learning and the School: A New Classroom Pedagogy*. London: Ashgate.

Jaffurs, S. E. 2004. The Impact of Informal Music Learning Practices in the Classroom, or How I Learned How to Teach From a Garage Band. *International Journal OF Music Education* 22 (3): 189–200.

King, A. 2009. An Expert in Absentia: A Case Study for Using Technology to Support Recording Studio Practice. *Journal of Music, Technology & Education* 2 (2+3): 175–185.

Kress, G., and Selander, S. 2012. Multimodal Design, Learning and Cultures of Recognition. *The Internet and Higher Education* 15: 265–268.

Lebler, D. -

2007. Student-as-master? Reflections on a Learning Innovation in Popular Music Pedagogy. *International Journal OF Music Education* 25 (3): 205–221.

2008. Popular Music Pedagogy: Peer Learning in Practice. *Music Education Research* 10 (2): 193–213.

Lebler, D., and Weston, D. 2015. Staying in Sync: Keeping Popular Music Pedagogy Relevant to an Evolving Music Industry. *Journal of the International Association for the Study of Popular Music* 5 (1): 124–138.

Lee, D., Baker, W., and Haywood, N. 2018. Instrumental Teacher Education and the Incoming Tide of Information Technology: A Contemporary Guitar Perspective. *Australian Journal of Teacher Education* 43 (5): 17–31.

Ma, R. 2021. Stimulating Students' Learning Motivation: A Case Study of Music Education and Pedagogy Course Based on Flipped Classroom. *Psychology and Education Journal 58* (2), 109–114.

Noetel, M., Griffith, S., Delaney, O., Sanders, T., and Parker, P. 2021. Video Improves Learning in Higher Education: A Systematic Review. *Review of Educational Research*, 91 (2): 204–236.

O'Flaherty, J., and Phillips, C. 2015. The Use of Flipped Classrooms in Higher Education: A Scoping Review. *The Internet and Higher Education* 25: 85–95.

Pro-Tools-Expert. (2022). *Production Expert*. http://www.pro-tools-expert.com/ Accessed: 02 February 2022.

Slater, M. 2016. Processes of Learning in the Project Studio. In E. Himonides & A. King Eds. *Music, Technology and Education*. London: Taylor and Francis: 9-26.

Universal Audio. (2022). *Universal Audio*. http://www.uaudio.com/ Accessed: 02 February 2022.

Voss, B. -

2016. Information on Demand in the Recording Studio: Building the Case for Teaching Music Technology with an Interactive Agenda. *Australian Journal of Music Education* 50 (2): 24–38.

2022. Design Principles for Music Technology Education Support: Just-in- Time

Learning in the Recording Studio Using Mobile Technologies. *Journal of Music, Technology and Education* 14 (1): 21–42.

Waldron, J. -
2013. User-generated Content, YouTube, and Participatory Culture on the Web: Music Learning and Teaching in Two Contrasting Online Communities. *Music Education Research* 15 (3): 257–274.
2016. An Alternative Model of Music Learning and 'Last Night's Fun: Participatory Music Making in/as Participatory Culture in Irish Traditional Music. *Action, Criticism, and Theory for Music Education* 15 (3): 86–112.

Waltzer, D. 2020. Blurred Lines: Practical and Theoretical Implications of a DAW-based Pedagogy. *Journal of Music, Technology & Education* 13 (1): 79–94.

Weston, D. -
2017. The Place of Practice in Tertiary Popular Music Studies: An Epistemology. *Journal of Popular Music Education* 1 (1): 101–116.
2020. The Value of 'Soft Skills' in Popular Music Education in Nurturing Musical Livelihoods. *Music Education Research* 22 (5): 527–540.

Yin, R. 2003. *Case Study Research: Design and Methods*. Thousand Oaks, CA: Sage: 3rd Edition.

Online video

YouTube: Pensado, D. 2013. Pensado's Place #80 – Mix engineer Chris Lord-Alge [Online video]. Available from http://www.youtube.com/watch?v=pqZHOrj1VjQ Accessed: 02 February 2022.

Appendix A: MPP Course content

Week	**Module**	**Weekly video**	**Lecture**	**Formative tutorial**	**Practice-based Tutorial**
1	Working with Midi and sound in the DAW	The DAW, Pro Tools, audio and MIDI	MIDI/sound Basics	MPP Info session, Critical listening	The DAW
2		Pro Tools Stage 2	Physics of sound. Psychoacoustics	Midi and Audio	Working with Midi and Audio 1
3		Working with virtual and physical audio in Pro Tools	Sample rate, bit depth, gain structuring, Phase. Mic/line/instrument level.	Assessment de-brief/discussions	Working with Midi and Audio 2
4		DAW Workflows	Microphone Theory	Collaboration discussions	DAW Workflows
5	Introduction to recording	Studio Induction	Equipment knowledge, equalization 1	Assessable quiz 1	Studio Connectivity 1
6		Basic recording applications	Equalization continued	Listening for sonics, and spatiality	Studio Connectivity 2

7	Recoding fundamentals	Single Mic project: Drums	Compression 101	Assessable quiz 2	Single Mic project: Drums
8		Recording bass and guitars	Effects: reverb, delay, distortion etc.	Diverse critical listening: musicality, performance, lyrical messaging	Recording bass and guitars
9		Recording vocals	Understanding recording options: Live vs Overdubbed	Student listening/feedback session (student works)	Recording vocals
10	Mixing and Finalization	Mixing basics	Mixing theory	Assessable quiz 3	Mixing application
11		Finalization	Meta data basics and finalization theory.	Portfolio assessment feedback.	Finalization application
12	Advanced recording	Multi-mic, multi-headphone recording	Plugins	Course roundup.	Multi-mic, multi-headphone recording

Appendix B: Student survey questions

1. Please rate the following statement

	Not engaging or useful in anyway	Somewhat engaging and useful	Useful and engaging in a moderate way	Very useful and engaging	Extremely useful and engaging
As part of my MPP course I found the video series					

2. Please provide any comments on how the videos may, or may not, have helped in your engagement with the DAW and studio environment and its practices.

3. Please rate the following statement.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
After watching the MPP video series I felt prepared to engage with DAW and studio environments in the tutorials					

4. Do you have any comments on the videos as a series? Please consider how engaging they were to watch. Is there any advice you would give to the presenters? Was the content presented in a logical and useful way?

5. The videos were supposed to be watched and worksheets filled out PRIOR to the week's classes (lectures tutorials etc.). Please outline any reasons you had for NOT watching the videos prior to the week's engagement.

6. Comment on your experience of the educational approach in MPP

	Participation hindered my ability to learn	Participation was not important to my learning	Participation had a moderate impact on my learning	Participation was important to my learning	Participation was very important to my learning
Watching online videos & answer video worksheet					
Attending lectures for more explicit content					
Discussion within the formative tutorial					
Applying what you learned in the practice- based tutorial					

7. Please explain how the whole MPP approach (video, lecture, formative tutorial, practice-based tutorial) may, or may not, have helped in developing your knowledge of foundational music recording & technological applications?

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