

## “Get Smarter” Music: Making knowledge from know-how

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### Abstract

*This paper provides an account of a range of activities included in the Bachelor of Popular Music (BPM) program that are intended to enhance the creative skills of popular musicians. These processes are largely a reflection of learning practices that are normal in the practice of popular music in the broader community where self-assessment, peer feedback and self-directed study are common. Popular musicians are thought to acquire their abilities to make music through immersion in popular music culture, a learning by osmosis process that results in high levels of implicit know-how and the ability to actually make popular music rather than the production of high levels of knowledge that can be spoken or written about. Within the major study Popular Music Production, students reflect in writing on their creative processes; this brings their knowing of popular music out of the domain of implicit know-how into conscious awareness, as speakable knowledge. It is this engagement with both know-how and knowledge and the relationships between them that is the focus of this paper.*

### Introduction

The Griffith University slogan, "Get Smarter", infers that university study should produce graduates who not only have better skills and more knowledge, but also are better learners, and this assumes that learning ability is not a static characteristic of a person, but something that can be developed. The Bachelor of Popular Music (BPM) teaching philosophy is based on a belief that our teaching should develop the tacit know-how of students, producing knowledge and enhancing skills.

The BPM program was introduced in Semester 1, 1999, and operates from a purpose-built recording studio facility on Griffith University's Gold Coast campus. Students are selected through an interview and audition process that seeks to identify applicants with potential in a range of activities connected with popular music including composition, performance, and relevant academic and technical skills. The program aims to develop students' musical and creative potential and strives to accommodate the learning practices commonly found in popular music.

Semester	Major Study	Audio Courses	Literature Courses	Supporting Studies
1	Popular Music Production 1	Introduction to Studio Sound	Theory and Analysis of Popular Music	Creative Music Technologies 1
				Information Technology for Musicians 1
2	Popular Music Production 2	Live Sound Reinforcement	Popular Music 1	Creative Music Technologies 2
				Information Technology for Musicians 2
3	Popular Music Production 3	Audio Engineering 1	Popular Music 2	Rhythm Studies 1
4	Popular Music Production 4	Audio Engineering 2	Popular Music 3	Rhythm Studies 2
5	Popular Music Production 5	Audio Production 1	Contemporary Popular Music Styles	Composing, Songwriting and Arranging
6	Popular Music Production 6	Audio Production 2	Popular Classical Music	Music Industry Studies

**Figure 1: BPM Program Structure**

Popular Music Production is a practical popular music-making course taken by all students that concentrates on developing creative and performance skills. It provides an opportunity for the expression of learning in a creative context, where creative practice and output are informed by other courses included in the program. In the tradition of popular music performance practice, the development of practical skills and compositional outcomes is largely self-directed. Students are assessed through the submission of a portfolio of recorded work (60%) and a reflective journal (30%) detailing the intentions, processes and outcomes of the activities connected with the recorded portfolio. They are also assessed on their performance as members of one of a number of peer panels that are responsible for the assessment of a selection of their peers' recorded submissions (10%).

A discussion of the ways in which music is learned and assessed, ways of knowing and learning and the role of reflection leads to a description of how these aspects of learning are approached in the BPM program.

## **The literature**

### *The study of music*

The idea of the modern conservatorium has spread since the late 18th century and has become a firmly established model for the teaching of music. Both the performance and academic study of music are accommodated in a structure that reflects a largely formalistic and positivist approach (Schippers, 2003). Typically, much of the transmission of performance skill in this setting happens in a one-to-one lesson, where the teacher takes responsibility for designing a developmental program and is the dominant source of feedback. The teaching of classroom music has been studied in some depth (Hamann, Baker, McAllister, & Bauer, 2000) but there is little hard evidence of the effectiveness of one-to-one tuition other than the widely held view of both teachers and students that this is central to the music performance educational process (Gaunt, 2004). Much of this kind of teaching is concerned with the largely verbal transmission of the teacher's knowledge to the student and separating the learning task into component parts for development before progressing to the performance of the integrated task (Ward, 2004). However, giving too much information to students can impede the learning by osmosis process and induce an analytic self-consciousness which hinders fluent performance (Claxton, 2000). Mastering the basics and component parts before progressing to a fully fledged performance can divert attention from the whole task onto discrete packages of abilities that remain attached to the individual parts (Claxton, 2002; Langer, 1997).

This is the way many students expect to learn music. Not all students are ready to take control of their own learning, some preferring to abdicate this responsibility to their teachers, and these attitudes are sometimes embedded at an institutional level (Jorgensen, 2000). A survey of music students at James Cook University reports that, when asked about their learning experiences prior to coming to university, 94% of students took individual lessons and 74% relied on feedback from their teachers either somewhat frequently or very frequently (Daniel, 2001).

It is thought that popular musicians learn in non-traditional ways, mainly through solitary exploration of recorded material accompanied by self-directed activities aimed at acquiring the skills necessary to replicate what they have heard. Some peer learning is also common, where knowledge acquired alone is shared, but the traditional master/apprentice and formal tuition models found in the study of classical and jazz music are relatively uncommon. Feedback comes from self-assessment and from peers, rather than from a teacher. Learners assess themselves relative to their past performances and expectations, and through comparison with both their peers and the performances of the artists who inspire them. They also assess and seek assessment from their peers. Although popular music has been embraced as a content area within

the formal education system, the associated informal learning practices are rarely adopted (Green, 2001).

Advances in recording technology have enhanced the learning potential of musicians. By the 1950s, tape recorders were available to musicians in recording studios so they could benefit from instant playback and decide if a performance was satisfactory for release (Martin, 1979). Apart from listening to inspirational performances on demand and to particularly interesting passages repeatedly, vinyl records were used in technologically enhanced ways as learning aids. Musicians would play 45 revolutions per minute (rpm) records at 33 rpm to hear fast passages more easily, and play 33 rpm records at 45 rpm to hear bass parts more clearly (Sting, 2004). The development of the compact cassette recorder in the 1960s enabled musicians to record their experimentations and hear them with reasonable fidelity. Musicians could now access the instant feedback of the tape recording process virtually anywhere and at any time (Bailey, 1992; Hoffman, 1983). With the advent of computer-based recording technologies and highly portable hardware recording devices, musicians are able to make recordings of their work easily and inexpensively, bringing the benefits of feedback from the recording process within the reach of most practitioners of music (Schippers, 2003).

### *Assessment*

It is well known that assessment has a major influence on the nature of student learning. Learning tasks that are likely to encourage deep learning are tasks that students have an interest in, that are coherent in their own experience, and that will encourage students to integrate disparate knowledge into a cohesive whole. The learning is likely to be more thorough if learning tasks relate well to prior successful learning experiences (Prosser & Trigwell, 1999). Assessment needs to be both holistic and well aligned with the educational goals of the course (Biggs, 1999). It needs to be based not only on criteria, but also on standards that clearly define levels of achievement. Standards based on tacit knowledge are common; people often know good work when they experience it, even if they are not able to express this in words. These tacit standards can be communicated from person to person through joint participation in evaluative activity. Learning environments should be designed so that students develop this kind of evaluative expertise for themselves so they can monitor and evaluate the quality of their own work while it is in progress (Sadler, 2005). Assessment should leave students better equipped to engage in their own self-assessments which is an important goal of lifelong learning (Boud, 1999). There are benefits in students being involved in assessment and they will learn from assessing themselves and from assessing their peers (Biggs, 1999; Daniel, 2001).

The development of both the inclination and ability to self-assess is important so that students can monitor progress, identify strengths and weaknesses, recognise good work and develop professional judgement (Claxton, 1999). Students should develop the habit of being their own first marker, comparing work they have produced with their goals, and identifying for themselves what could be improved. Doing this as part of a group encourages the development of confidence in students that they are able to do this. This strengthens the students' powers of reflection and independence, as well as enhancing their learning of the subject matter (Claxton, 2002). While there may be some concerns among students about peer assessment when they are first exposed to the idea, some research indicates high levels of student satisfaction and reliability with this kind of assessment (Gatfield, 1999; Liu, Lin, & Yuan, 2002), and in the case of popular musicians, it is actually a formalisation of the kinds of processes that are used informally (Green, 2001; Hunter, 1999; Jaffurs, 2004).

There are a number of established peer and self-assessment processes in use in the study of music in higher education. The Department of Music at The University of Ulster has been involved with the investigation, development and dissemination of peer learning and peer assessment processes since 1991 (Hunter, 1999). James Cook University has

employed a self-assessment process in The University of Kingston in 1992 for music composition and later for music (Searby & Ewers, 1997).

### *Ways of knowing and learning*

Education is fundamentally what societies provide to prepare people to make the most of the future world they will find themselves in; it makes no sense to prepare people for a world that no longer exists (Claxton, 2002). The certainty once embodied in our cultures is reducing. Unquestioned religion, permanent truth in science, trustworthy politics, the benevolent employer offering a job for life and stable family relationships all offered a security that has now been replaced by increased opportunity and obligation to make decisions on our beliefs, our behaviour and our reactions to the changes which surround us. We need to be able to adapt to the inevitable changes that confront us; we need to learn for all our lives. To focus education entirely on either our current needs or our perceptions of what the future holds makes little sense when the future is so unpredictable. This does not mean that the traditional concept of curriculum should be abandoned, but it does mean that there now needs to be an equal focus on preparing students for the unknown, making them better learners so they can adapt to the future no matter what it holds (Claxton, 1999).

The nature of intelligence has been debated at least since the time of Plato (who thought it was a fixed characteristic endowed in differing amounts) and Aristotle (who thought everyone had similar potential and that differences were due to people's experiences) (Richardson, 1999). A belief in fixed intelligence means that one can learn new things but one's underlying ability cannot change. In contrast, a belief in a developable intelligence means that one can not only learn new things, but also one's abilities to learn can grow (Levy & Dweck, 1998). Putting aside the vexed question of the precise nature of intelligence, it seems likely that whatever it is, it can be developed and is not a fixed characteristic of a person and that our potential to increase our learning power rests in part on our belief that we can change this ability in ourselves (Claxton, 1999; 2000; 2002; Langer, 1997; Levy & Dweck, 1998; Richardson, 1999).

### *Knowledge and know-how*

Music needs to be performed from a basis of intuitive know-how and then evaluated and refined using reason and the logical application of knowledge (Atkinson & Claxton, 2000; Claxton, 2000). The relationship between know-how (intuitive ability to actually do something) and knowledge (learning that can be verbalised) is an important consideration for the practice of music. There is a widespread view among musicians that music can be effectively performed without conscious awareness of the techniques that have been employed. Igor Stravinsky stated in his Harvard lectures that music performance had no place for subjective thinking; it only had to be played. This practical view is shared by many other musicians who refuse to discuss their skills or craft, sometimes for fear that to describe their work in words might degrade their abilities (Tarasti, 2002). Any reflection would be non-verbal and based on how the music feels. Only when the performance produces something unexpected would verbal reflection in action be triggered (Schon, 1983).

Learning by osmosis functions effectively where the goal is to achieve practical mastery rather than to pursue explanation. It results in packets of know-how linked to specific experiences and, as these experiences accumulate over time, relationships form between these discrete packets, providing a basis for fluid performance of complex tasks. All of this happens without us being consciously aware of these processes, in what Claxton (2000) calls the undermind. He argues that most of our useful understanding is this kind of implicit know-how, not explicit knowledge. This way of knowing is necessary for complex and creative activities, and functions best when we are relaxed. Anxiety or too much active, hard thinking will reduce the ability to access the undermind database of skills and know-how.

Knowledge can become know-how through practice and repetition. Neurons in the brain learn through long term potentiation, recognising an incoming signal from neurons they have reacted to previously and reacting to this familiar signal more readily and strongly than they would to signals from other neurons (Claxton, 2000). Experience develops paths between nerve cells along which stimulation can easily flow, and these synaptic facilitations can bind groups of nerve cells together so they will respond to incoming stimulation collectively. This is the mechanism by which learning by osmosis works, and also explains how we become better at something through practising it, converting our learned knowledge to intuitive know-how (Claxton, 1999).

Know-how can become knowledge through reflection. Know-how remains closely attached to the situations in which it was developed, but is relatively inflexible when new contexts are encountered. Through playing around with our packets of know-how and exercising our skills, we can extract a stock of concepts and skills that can be used outside of the context in which they were developed, creating knowledge (Claxton, 1999).

### *Reflection*

Good learners need to be strategic, aware of their strengths and weaknesses, able to assess their own learning and to plan and manage it effectively. "They need, in a word, to have the disposition, and the ability, to be reflective" (Claxton, 1999, p. 180). Reflection enables you to see through assumptions, enriching mindful self-awareness, but students need to be made aware of what the objectives are and be trained in how to do it. Mindfulness requires us to look beyond our automatic perceptions for alternative constructions. Mindfulness leads us to create options rather than make a choice as to the best solution (Langer, 1997).

It is important in the performance of music that this reflection occur at times other than when the performance is in progress, to avoid interfering with the intuitive performance flow. The problem with consciously thinking about the performance while performing is that deliberative thinking limits our cognitive engagement with the performance to those aspects that can be deliberately thought about, and does not allow access to the complex nonverbal intuitive know-how necessary for fluent musical performance. Experimental work conducted by Jonathan Schooler and others has demonstrated this phenomenon (Claxton, 2000). There is a danger that musicians might think too much and too hard while actually needing access to their know-how to perform, so it is important to separate the performance and reflection as much as possible.

This work provides a structure for understanding the learning processes that students bring to the BPM program and the ways in which students' learning might be developed through engagement with the activities included in the BPM processes.

## **The BPM process**

### *Recording*

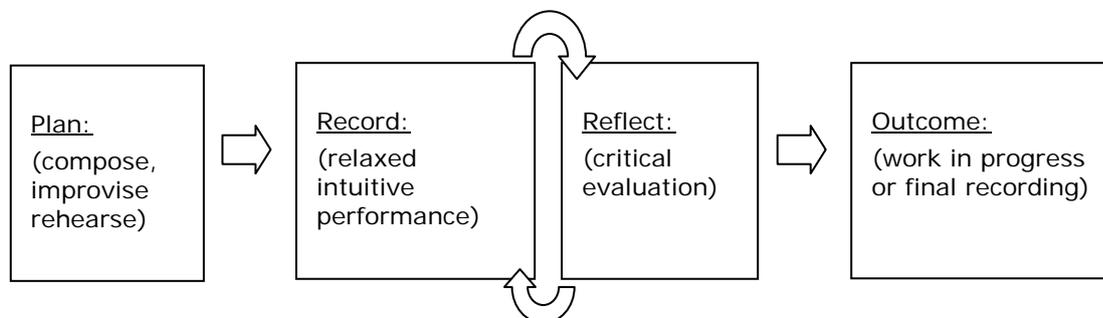
The BPM program provides an unusual higher education music context in which traditional one-to-one tuition has been replaced by knowledge production through the provision of recording technology and training in its use. Popular Music Production students submit a CD containing recorded performances for assessment at the end of each semester. They may submit work they have composed, performed, programmed, engineered or produced. Many students submit work in which their involvement might be in more than one of these aspects, and some students submit work that they have completed alone. Collaborations both within the student community and with artists external to the program are common.

Csikszentmihalyi (1991) describes "flow" as a state that involves a good match between ability and challenge such that the learner becomes fully immersed in the activity. Flow

occurs when we confront tasks that we have a chance of completing and when we are able to concentrate on what we are doing because the task undertaken has clear goals and provides immediate feedback. Goals need not necessarily be conscious, and may emerge by trial and error, but they are explicit even though often remaining below the participants' level of awareness. The self-directed and creative nature of the recording activities undertaken by BPM students ensures a good match between ability and challenge, and the recording process provides the immediate feedback that is required for flow to occur.

Recording enables students to rely on intuition during the performance, performing in a relaxed and non-intellectual way, and then switch to deliberative thinking when listening to the recording, critically evaluating it. The development of music (through a cycle of performance, critique, modification and implementation) is enhanced by the recording process. Small imperfections that might not be noticed during the performance will be evident when listening to a playback. Both the performances and the songs themselves can be developed in subsequent takes through the avoidance of past errors and the development of aspects of previous takes that were perceived to be strengths. Recording enables musicians to listen to their work without the distraction of performing it, allowing the performer to focus on the outcome rather than the process, thereby enhancing the objectivity of the self-assessment process.

What a neuron reacts to is conditioned by content, experience and expectation, and the activity of at least some neurons is conditioned by what other nearby neurons are doing or have recently done (Richardson, 1999). Therefore, recent deliberative thinking about the strengths and weaknesses of a performance will "prime" neurons, influencing subsequent intuitive performances. Our preconceptions and expectations interact with subconscious stimuli to create thought, action and reaction (Bornstein & Pittman, 1992; Bradshaw, 1974). The value of alternating between intuitive performance and deliberative reflection is made explicit to students in major study Masterclasses and in other classes within the program.



**Figure 2: The recording process**

### *Reflective practice*

There are a number of activities in the BPM process that are intended to encourage students to reflect on their work and bring their unconscious know-how to the surface through putting it into words. One of these activities is peer panel assessment. This process enables students to experience assessing in company, building confidence in their ability to make well-founded judgments. Students write about a paragraph of feedback on each track they assess in addition to marking it against criteria and standards (Sadler, 2005). They are required to identify strengths and weaknesses in the material they assess and to frame their feedback in language that will be non-confronting and positive. This involves being able to put abstract and holistic impressions of a musical performance into words. The individual assessment comments of the panel members are collated, marks are calculated, and this feedback is returned to the submitting student. Staff assess students on their performance as a panel member, and this activity accounts for 10% of the Popular Music Production mark.

The track-by-track report requires students to think deliberately about the work they have done largely on the basis of intuition, apply critical reflection and put into words what was previously in their unconscious. This report details the students' specific involvement with each track and includes a statement on their intentions, observations on the outcome, and includes self-assessed marking. These marks are not included in the calculation of the students' final mark but are intended as a concise representation of the students' perceptions of their work for the information of the peer panel. "Cultivating the ability to make honest and productive self-evaluations of both learning progress and process and to give and take constructive feedback without feeling personally wounded are important concerns" (Claxton, 1999, p. 342).

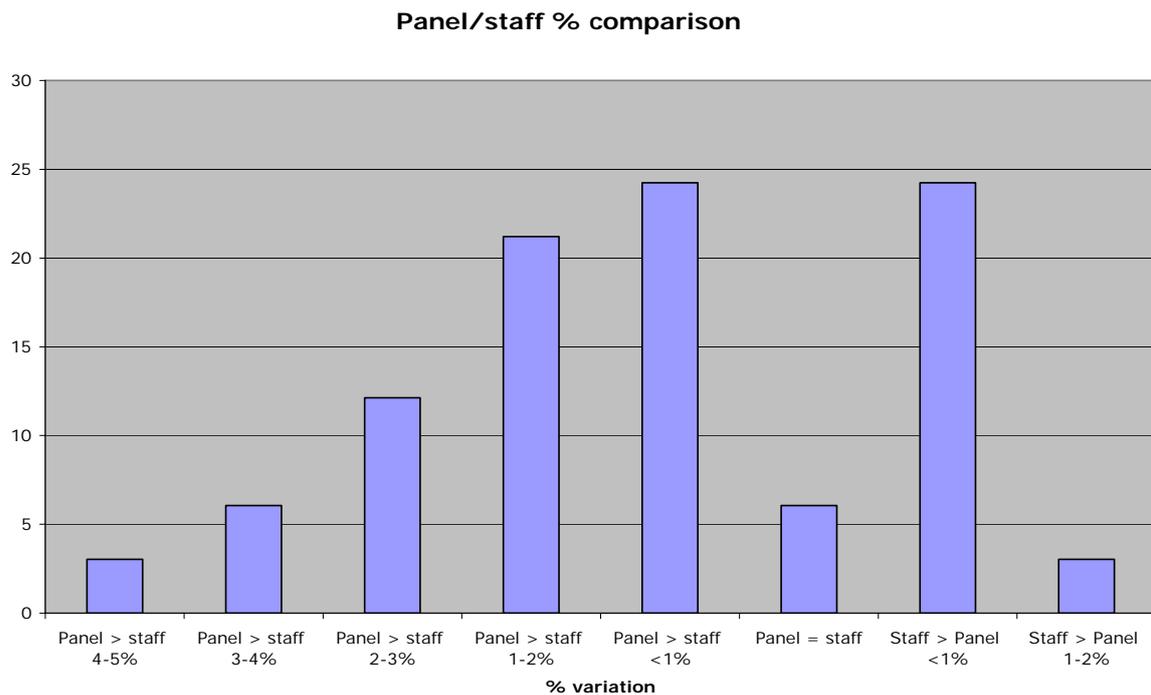
A reflective journal is the third way in which students are encouraged to unpack their learning process. Journal writing enables reflection and the creation of ideas and patterns of order out of the mainly random events of experience. The Popular Music Production reflective journal requires students to reflect on their learning throughout the semester, to not just detail their activities, but to unpack the learning they experienced in order to increase their awareness of how they learn. The journal includes a description of their recording projects for the semester, a rationale for what they have chosen to do, a work schedule, critical reflection on the outcome and more general reflection on the learning they have experienced during the semester. This process is supported by a semiotic method that is implicit in other areas of the program, providing a vocabulary for the description of sometimes intangible characteristics of their music.

All of these activities work to place the responsibility for learning with the student, who is self-monitoring and ultimately in charge of a development strategy. It could be argued that such a strategy encourages independent learning that is ongoing, meaningful and adaptable to new situations, and that these are valuable outcomes. Popular music is a genre that is changeable, reflecting the changing societies in which it exists. An educational program that is based on the study of popular music must therefore equip its students with the skills necessary to be cognisant of these changes and reflect them in their creative practice.

### **The research**

Evaluation of these processes has been conducted through informal consultation with students along with observations drawn from the written assessment items. Student input has been sought at all stages of the development process, and students have been regarded as partners rather than subjects throughout. Changes including clearer wording of the criteria, modification of the structure of some of the documentation and publication of a specific criteria/standards-related marking guide have been implemented to overcome shortcomings identified by this evaluation process. A more thorough evaluation is current as part of the author's Doctor of Education study. This research seeks to examine the learning practices of BPM students prior to coming to university, in order to provide a clearer picture of the ways in which the BPM processes might change the way students develop their music, and to examine the ways in which their knowing of music has been affected by the extraction of knowledge from know-how.

The assessment process that was replaced by the peer panel process was assessment by the course convenor alone rather than as a member of a panel. It is possible to compare the marks awarded by the course convenor with the marks awarded by the panels of which the convenor was a member, and for the most recent results (Semester 2, 2004, involving the submissions of 33 students), 54.55% of folio results were within 1%, 78.79% of results were within 2%, 90.91% of results were within 3%, and 96.97% of results were within 4%. This illustrates the close relationship between the marks students are awarded for their creative folio under the peer panel system compared with the marks they would have been awarded had the previous staff-alone marking been continued.



**Figure 3: Panel/staff marks comparison**

**Conclusion**

It is clear that education has to include a focus on learning to learn if it is going to prepare students for an increasingly uncertain future where whatever content is taught may be made redundant by new discoveries or circumstances. It is not enough to simply know more; people need to be able to learn better, in flexible ways that will enable them to respond to inevitable change. The characteristics of good learning ability described by Claxton (2002) are encouraged by the kinds of activities normally engaged in by popular musicians and are developed by the learning activities included in the BPM process. These characteristics include resilience, absorption, perseverance, resourcefulness, using a range of approaches, making links, imagining, reasoning, thinking rigorously, making good use of resources, planning, distilling, meta-learning, being able to learn alone and with others, interdependence, collaboration, empathy, and imitation.

The BPM process provides an established model for the incorporation within a structured higher education context of activities that enhance students' abilities to learn, including self- and peer-assessment, self-directed learning, reflective practice, and both independent and collaborative work that incorporates program-wide learning in integrated creative practice. Griffith University describes its graduates (in part) as people with expertise and ability to apply their multi-disciplinary knowledge and skills in innovative ways to novel problems, possessing high levels of skills in oral and written communication, problem solving, analysis and critical evaluation, and who are able to undertake independent life-long learning. Practices such as those described in this paper would seem to fit comfortably with these goals.

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