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# Vertical Integration through Blended Learning: a whole-of-program case study.

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## Abstract

*The systematic segregation of students into class and year level groupings does not naturally support collaboration and project-based learning. At the same time, the Internet has enabled global social networking which has proven to be a source of engagement and an effective enabler of revised professional practices and artistic collaborations. From 2004 - 2008 a research project developed and interrogated a pedagogically embedded online whole-of-program community designed to reflect the sorts of knowledge sharing structures occurring in professional workplaces through the vertical integration of knowledge, skills awareness and professional attributes in students. Vertical integration in the context of Music Technology curricula is herein defined as the coordinated, purposeful and planned system of sharing teaching and learning roles, linkages and activities in the delivery of education and training across all learner stages.*

*The focus of this paper is on some of the outcomes of the five-year study rather than the processes in development. It is shown that a whole-of-program discussion board, when blended in a face-to-face curriculum, can greatly assist the vertical integration of students in the program, fostering engagement in intellectual and practical pursuits that may be unfamiliar to them, but which they are likely to encounter in their professional careers.*

## Keywords

Blended learning, vertical integration, discussion board, professional competencies.

## Background

This paper focuses on one program cohort (Music Technology) within an element (The Queensland Conservatorium) of Griffith University in Brisbane, Australia. The structure of the program is one typical to Universities, in that program delivery comprises a suite of modularised courses (in our case spanning three years) with a single academic to many students. These circumstances are the same for all courses whether lecture or practical. This has been the situation since the inclusion of music technology at the Conservatorium in the 1970's.

I came to the Conservatorium in 2001 after a long history as a professional practitioner, and over several years as an academic became aware of how unprepared many graduates were for life as a creative professional.

This was despite the music technology department housing a forward thinking and experienced faculty and an exemplary learning environment. When I started at the Conservatorium I entered an environment where there already existed an emphasis on problem based learning (Sweller, 1988; Hmelo-Silver et al., 2007), scaffolding (Brown et al., 1989; Rogof et al., 1996), and collaboration and mentoring from industry aware and capable staff. Since the mid-late 1990's the area had self-developed extensive online and electronic resources and used many web-based mechanisms for delivery to students. This was not an environment in crisis, however there still existed a considerable gap between graduates and the demands of higher-end professional practice. The gaps however were not generally in the "know-what" or "know-how", but more in relation to "being" someone, where "mastering a field of knowledge involves not only "learning about" the subject matter but also "learning to be" a full participant in the field" (Brown & Adler, 2008, p. 4). In this context, learning to "be" is about knowing how to learn, negotiate and appropriate the "ways" of different professions (Wenger et al., 2002).

My early research and observations indicated common traits in the student cohorts as:

1. students remained separated into small cliques within year groupings;
2. networking was viewed as unimportant, in other words learning was perceived by students as being about what each individual was able to achieve;
3. learning transfer was poor across classes / year levels;
4. some students retained resilient 'high-school' perspectives;
5. there was little cross-year communication or interaction.

Additionally, student and staff conversations were mostly held in isolation from the rest of the cohort, resulting in valuable insights being lost to other students and indeed different contexts for the same students. This was especially noticeable when discussions were covering areas that should have crossed course boundaries, and importantly, year level boundaries. Broad and inclusive discussion around learning and professional cultures did not seem to be occurring with depth or consistency. Discussions were predominantly being limited, segmented and compartmentalised by the artificial boundaries of tertiary education structures.

With this as a provocation there was a need for the replication, more than a simulation, of a professionally oriented community within the music technology area in an effort to integrate professional traits into all aspects of the learning landscape. Accordingly, the need was to

create a *vertically integrated* whole-of-program community that more aptly reflected the sorts of transformative knowledge sharing structures occurring in professional workplaces. *Vertical integration* in the context of Music Technology curricula is herein defined as the coordinated, purposeful and planned system of sharing teaching and learning roles, linkages and activities in the delivery of education and training across all learner stages.

John Seely-Brown, in discussing this transformation from student to someone who has insight into being a practitioner, proposes that:

*We need to find ways that our students can learn more about learning-to-be much earlier in their education. Today's students want to create and learn at the same time. They want to pull content into use immediately. They want it situated and actionable—all aspects of learning-to-be, which is also an identity-forming activity. This path bridges the gap between knowledge and knowing. (Brown, 2006, p. 11)*

The first step then was to establish a learning community with the ability to open the membership base up to as many people as possible. The intention was to include students, academics, alumni and industry professionals. In light of prior experience with creating online communities, the most viable immediate solution not requiring complete upheaval of the tertiary education environment was to create an online whole-of-program community by pedagogically embedding a web-based discussion board that was not tied to any University-based learning management systems, structure or courses. Significantly herein, the tensions between the concept of 'replication' and the action being 'virtual' were acknowledged, but not allowed to deter the action. The ensuing environment is therefore one that is situated as a blended learning (Bersin, 2004) environment.

### Defining blended learning

The term 'blended learning' has many interpretations. Oliver and Trigwell note the subsequent difficulties for researchers arising from this variance and ensuing lack of clarity:

*The term 'blended learning' is ill-defined and inconsistently used. Whilst its popularity is increasing, its clarity is not. Under any current definition, it is either incoherent or redundant as a concept. Building a tradition of research around the term becomes an impossible project, since without a common conception of its meaning, there can be no coherent way of synthesising the findings of studies, let alone developing a consistent theoretical framework with which to interpret data. (Oliver & Trigwell, 2003, p. 24)*

Across the literature, 'blended learning' is a term that can refer to combining or mixing:

- online and face-to-face forms of learning;
- different web-based technologies in an e-learning context;

- pedagogical approaches (e.g. constructivism, behaviorism, and cognitivism);
- different foci for learning, or intended learning (Valiathan, 2002)<sup>1</sup>;
- any form of instructional technology (online or not) with any form of face-to-face learning.

The most pertinent definitions in this context relate to the blending of online and face-to-face contexts for learning and learning experiences. This is not to diminish the importance of blending of pedagogical approaches, nor Valiathan's different foci for learning. There is however recognition that: both occur naturally in the Music technology context as a by-product of the pedagogy; and neither forms the primary focus of this research.

Subsequently, the following definition is used to create a common understanding of the term blended learning in this context. Blended Learning herein is when there is integration of "online with traditional face-to-face class activities in a planned, pedagogically valuable manner; and where a portion (institutionally defined) of face-to-face time is replaced by online activity." (Picciano, 2006, p. 3)

### Method

A range of methods was used for the data gathering consisting of 3 longitudinal perspectives and three vertical snapshots. Four forms of data gathering evidence across the program (n=60) were then employed:

1. Discussion board interactions,
2. Interviews (n=8) - purposive sampling (Berg, 2004),
3. Surveys (2006 n=21, 2007 n=35) - purposive sampling,
4. Participant observations (continual / longitudinal).

The longitudinal perspectives come from the participant observations and discussion board interactions, as well as a three-year span between the phase 2 interviews and phase 3-4 surveys. The vertical snapshots come from the interviews and two phases of surveys. Recruitment was voluntary and included low to high achievers, students with various post counts from lowest to highest for the year, and included graduates as well as local, interstate and international students in an age range as diverse as was available to me (17 – 28). The interviews were undertaken after yearly assessments had concluded.

A multi-method approach using only qualitative methodologies has been used to reduce any methodological artefacts and ensure that variances in validation reflected variances in traits rather than method (Bouchard, 1976).

To this end the range of qualitative methodologies

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<sup>1</sup> Valiathan (2002) describes blends in terms of the focus for learning, or 'intended' learning. Skill-driven learning combines self-paced learning with instructor or facilitator support to develop specific knowledge and skills; attitude-driven learning mixes various events and delivery media to develop specific behaviours; and competency-driven learning blends performance support tools with knowledge management resources and mentoring to develop workplace competencies.

utilised were:

1. *Action research* - Since 2002 all students have been surveyed each semester with a focus on course and program experience. Since 2004, academics also share their observational data at regular intervals. Action research in the area includes; work-integrated learning pathways on campus and in the field (Draper & Hitchcock, 2006; Hitchcock, 2007); perspectives on curriculum in changing contexts (Burt et al., 2007); and program-wide blended learning strategies (Hitchcock & Draper, 2008; Hitchcock, 2008).
2. *Participant observation* - a completely natural outcome of the circumstances and environment. Given that I was both immersed in the group and a key participant within the setting, the immediately observable details (such as online interactions) and the more hidden details (such as the changes in relational dynamics between students over time) were more easily observed and understandable. Subsequently, a richness of initial data was suggestive of directions and emergent themes for deeper investigation via interview and survey.
3. *Grounded Theory* - an extension of both action research and participant observation where the data generates theory rather than the other way round. The aim was to discover the theory implicit in the data (Dick, 2005). Herein, some theories have been developed inductively from a corpus of knowledge acquired by myself as both a participant and an observer.
4. *Case study* - I have taken a case-oriented perspective where suspicion exists of simple additive models. As is common with perspectives influenced by grounded theory, I take the view that I am theorising about the world as the respondents see it rather than how the world could ostensibly *be* (Strauss & Corbin, 1990), understanding that there is no one single reality, and that there can be more than one set of basic beliefs, or 'paradigms' about what constitutes reality and counts as knowledge (Hanson, 1958; Myers, 2000).

The discussion board is a further form of data with currently over 30,000 posts. Methodological triangulation has occurred in two forms. The first form of triangulation used is the 'between methods' approach and takes the form of participant observation, interview/survey, and discussion board posts. The second form of triangulation is reflected in the 'multiple comparison groups' and comes as a result of the longitudinal nature of the study.

Responses in all surveys/interviews were analysed with themes arising from the student responses. Emergent themes were categorised, sorted and meta-tagged, and then further streamlined and sorted due to thematic overlaps. The stages included data-collection, note-taking, coding, sorting, meta-tagging, categorizing, comparing/merging and then write-up.

Finally, the themes, data summary and subsequent interpretations of the data were circulated back to students as a member check or respondent validation (Creswell, 1998), using the principle of face validity (Anastasi, 1954) to review and clarify the content if necessary, and to establish greater trustworthiness in the research process. This strategy was used to establish trustworthiness by giving authority to the participants' perspectives therefore managing the threat of bias (Padgett, 1998).

## Findings:

### Online is different

There is an unfortunate and over-simplistic self-evidence to the statement "online is different". The importance to the statement, however, is really to be found in the underlying resonance and meaning that students were reflecting on when making this claim. For many students it was a realisation that online personas are not only different, but that a depth of understanding of their peers was made possible in ways not otherwise achievable. Therefore, while the concept may seem self-evident, this in no way detracts from the value or indeed outcomes that students attributed to the concept of "online is different".

This finding contradicts research commonly depicting online social networks and knowledge communities as simple extensions of student lives offline (O'Reilly & Newton, 2002; Picciano, 2006; Driscoll, 2003; Allen et al., 2007). Contrary to previous research however, this study: occurred at a program rather than course level; invited a more extensive membership base than usual; and remained active for a considerably longer period of time than the typical course-based boundaries allow.

In music technology, students across year-levels and across time consistently reflected on their new-found awareness of how peers displayed different and sometimes quite contrary personas between the online and face-to-face, with this growing awareness contributing to a deeper understanding of their peers. Students reported that they got to know their peers more "fully" or more "completely" via the online space, some even going so far as to say that they "*only really got to know some of the students because of the discussion board*". This resulted in the development of relationships and networks that may have otherwise not occurred, certainly contributing to a feeling of greater depth and diversity, therefore quality, amongst the cohort.

There is also a newfound general recognition amongst students that diversity is as equally pertinent to their future directions as it is to their backgrounds. The recognition of this brought with it a perception of value in community involvement. The importance of the online space was therefore in affording a deeper understanding of the entire cohort beyond the quickly formed, small and resilient niche groups that were the typical formations found within the program.

This is not to suggest that the discussion board was a stand-alone solution to creating learning networks, however it was certainly the online exposure of cohort depth that provoked face-to-face interactions. Apparently therefore, the whole-of-program discussion board provides dimensions of depth and breadth for students that are not being achieved through the face-to-face community. Students not only perceive and use the online space differently to their offline lives, but establish deeper and more extensive learning and social networks via the online interactions.

### Parity of esteem

The second emergent theme is that of parity of esteem. In this paper, 'parity of esteem' is used in two ways. The



first is in relation to a sense of equality between members where the concept of ‘parity of esteem’ presumes that there should exist an awareness of others on which to establish the foundations of esteem (Richardson & CCAE, 1979). Secondly, the need for a parity of esteem can exist where there are perceived inequalities around benchmarks/standards between groups (Banks, 1998). This inequality is apparent where assumptions are made about benchmarks that trivialise or depreciate a particular group while favouring another, for example where students are separated by year level. One example of this can be seen in blanket statements such as “second year students are more advanced than first year students”. Equally as misguided is the ensuing assumption that first year students therefore have little to offer to later year students.

Within many of the online interactions we see these assumptions being overturned, with later year students becoming increasingly comfortable with the tenets of parity and first year students feeling empowered by later year students’ willingness to interact as equals rather than as superiors. Through the normal everyday online interactions then, students come to “*understand the MT community’s hunger for knowledge and generosity in spreading their wisdoms.*”

This outcome is a vital contribution to their developing understanding of networks with respect to both value and formation. Students are often able to make more deeply informed decisions in relation to their networks, reporting that the discussion board has broken many barriers for them.

The second aspect in relation to parity of esteem pertains to benchmarking. Many students brought this forward as a realisation with reference to how they saw themselves within the community. In this light, parity of esteem can be understood as arising from the capacity to benchmark themselves using standards from across the program rather than limiting themselves to the best in their particular year level.

This is not to suggest that the act of benchmarking created parity of esteem, more that positive outcomes from the process of benchmarking led to greater opportunities for parity of esteem to develop than would otherwise have happened. Certainly, this was seen as the case for most students across time and across year levels. This supports literature that suggests parity can significantly enhance the intellectual quality of the learning environment (Swan & Shea, 2005; Picciano, 2006; Garrison et al., 2001).

### Social ownership and critical mass

One important aspect in the pedagogical use of the discussion board was to not limit students’ social online engagement in any way. The underlying intent was that students should feel ownership and responsibility for the space, and as such would have the freedoms to use the discussion board as they saw fit. Throughout the interviews and surveys, students consistently commented on the personal freedoms associated with the discussion board, stating that the social design and use of the discussion board held a strongly positive significance for

them. What can also be seen in the student responses is a sense of connectedness between students and program, nourished through a sense of personalisation and ownership of the space and their contributions.

This connectedness was subsequently perceived by students as arising from the blending of the personal and the academic, where the two came to be recognised as important in *combination* rather than separation, or where the “*inside-of-class and outside-of-class*” were blended.

It can also be said that the members were taking responsibility for these interactions *because* of the social aspect, rather than leaving it up to their teachers. Consequently, the volume of activity generated by the students resulted in a critical mass which produced a rich diversity of consistently forthcoming new content. Again, according to the students, this came as a result of the discussion boards not being academically driven to the *exclusion* of the social.

*The social freedoms you allowed us on the discussion board were so important. It meant we got to relate to each other on real terms as complete human beings.*

Additionally, many attributed the achievement of a critical mass to the learning and discovery focus underpinning the social interactions. Across the interviews and the surveys it was apparent that students were increasingly becoming more comfortable with the idea that learning was an integral part of who they were becoming, not just something they ‘did’ when they were on campus.

This underlines the importance of aspects such as shared passion and interest outside of the core mission; transmission of personal views about these passions; and social commentary around the areas of interest. This also supports literature that suggests communities must be allowed some latitude to shake themselves free of received wisdom (Brown & Duguid, 1991) to foster a community where students are encouraged to view the social as inseparable from the intellectual development of the self and identity (Erikson, 1959; Sheehy, 1976; Chickering & Reisser, 1993).

### Enculturation

The theme of enculturation has two aspects. The first aspect of enculturation is the most tangible and is seen in the relationship between new community members and the pre-existing community. This is where new students learn the accepted norms, vocabulary and value emphases of the established community culture. Students commonly stated that the discussion board “*massively*” helped the speed and depth to which they were not only able see that a community existed, but to further understand the ways of the community toward assimilating its practices and values.

The second and subtler aspect is one of subconscious socialisation or appropriation, where appropriation is understood to mean the interpretative process of constructing knowledge from social practice (Rogoff, 1994). This is a slower and more amorphous process whereby cultural shifts within the community over time,

either via injection of new people or changes in thinking, filter throughout the community. One example can be seen in the shift in students' thinking about the realities of the commercial post-graduation world, and how their media-driven beliefs<sup>2</sup> could be rationalised by more experienced students and graduates.

In this aspect of enculturation, students are developing a shared collection of experiences, best practices and ways of solving problems in such a way as to create a common knowledge base on which they can draw. Participant roles and relationships are refashioned over time, so this more subtle aspect of enculturation then refers to the ease with which members can view and therefore better understand the changing relationship of the community and their place within it. This therefore suggests that engagement with ingrained cultural, social, linguistic and contextual nature of thought and action (Lave & Wenger, 1991) frames social learning through observing and modelling the behaviours, attitudes and emotional reactions of others (Bandura, 1977).

### Incongruity and multiple perspectives

Real world problems are often complex and 'messy' (Ackoff, 1974), with multiple sub-problems that demand a process of rationalising a series of smaller decisions leading toward a final solution for an overall 'situation'. One of the inherent difficulties for educators is simply in describing or depicting aspects of a situation or 'problem' that are realistically beyond a students' current comprehension, often contain many ambiguities, but are undoubtedly significant aspects to be critically considered toward a cogent solution. There are certainly associations between a students' tolerance for ambiguity and critical thinking (Furnham, 1995; DeRoma, et al., 2003; Johnson, et al., 1995), with the need therefore to embrace the teaching of ambiguity and incongruity toward the development of integrative independent thinking (Johnson et al., 1995) in the development of professional attributes.

It was common on the discussion board to see a single idea evoking a number of simultaneous but different ideas in others. These interactions were then characterised by three features: groups of students across years and across time were involved, multiple ideas branched out from single points of view, and earlier views were re-visited and reshaped as discussions unfolded.

Additionally, the 24/7 aspects of the discussion board allowed time to think and respond which in turn enabled incongruities to be played with in a manner that led to more sophisticated solutions. Importantly, this involved students across time and across years, with some conversations being continued for 12 to 18 months after they had been initiated.

Further, throughout this process, decisions that were generally agreed upon by the group came under further

scrutiny by others who were enquiring more deeply in an effort to understand intricacies. This process caused temporary disagreement, again leading to the generation of new explanations and a richer understanding of ambiguities within the problem and sub-problems.

For many students, this new awareness and subsequent acceptance of incongruity led to a deeper investigation of how and why these differences existed and how they could be reconciled. Furthermore these discursive processes elicited problem-solving skills that were transferrable to multiple contexts - fundamentally a sophisticated process of synthesising in a world of complexity.

Not only can this process provide richness and depth not normally attributed to sole effort, but can also be seen as a challenge to students' individual assumptions and beliefs as they work to create new consensual 'truths' (Berger & Luchmann, 1966) thereby learning new frameworks from which to view their world.

### Conclusions

Through the display of unfolding online learning journeys, students can provide insights to their ways and means of learning, forming and presenting questions, investigating and researching. The discussion board is seen as a unique intellectual space within which to 'work' and 'play' at furthering transferrable skills in questioning and reasoning. These become patterns that all members can reflect on, follow and adapt to their individual learning styles (Smith et al., 2004). Additionally, small steps taken by many individuals coalesce into learning of consequence in the entire community (Vaughn & Garrison, 2005).

These models of peer-to-peer, academic-to-academic and peer-to-academic interactions are underpinned by parity of esteem. This creates a shared ability to shape a new social and community structure that more closely resembles the sorts of passion based and intrinsically motivated interactions found in professional communities (Brown, 2006).

Students have a growing sense of relevance and the ability to relate to others from across the program. Many students are observed to gain confidence in making networks outside their comfort zone as the program-wide discussion board exposes the fact that diversity is welcomed and valued across the program.

Unlike course-based discussion forums, engaging in a program-wide community makes it easier for newcomers and the more experienced alike to blend into and comprehend a broad and varied community and to participate in multi-various and complex practices where the complexity more closely represents professional creative work places. This living historical record of program activity further blends fluidly with the face-to-face community activities, contributing to enhance active participation in knowledge sharing, networking, movement between expert groups and professional socialisation. This may then afford students the ability to acquire both deep knowledge about a subject ("learning about") as well as the ability to participate in the practices of a profession

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<sup>2</sup> For example, some mistakenly believing that major record labels hire recording engineers and recording producers as 'staff' members and that the recording industry will supply jobs at the end of their degree.

through productive enquiry and peer-based learning (“learning to be”) (Brown, 2008).

### Developing professional competencies

Vertical integration via the discussion board has assisted in developing professional competencies in several ways. These include: concepts, theory, interpersonal relationships, social agility, active participation in knowledge sharing and mentoring, identity formation, managing incongruity and the development of professionally aware networks. There now exists in the program an extensive recorded history of community interactions provided by the discussion board, including interactions between current students, alumni, industry professionals and academics, past and present. The discussion board provides an entrée into their cultural norms, vocabulary, and form and function as a “community of learners” (Short & Burke, 1991) where learning is an integral part of practice (Wenger et al., 2002).

Through the use of a whole-of-program discussion board, students are exposed to an online environment where socio-cultural interactions between them influence, and are influenced by, the environment with which they are interacting. Students are intellectually engaged through cognitive apprenticeship, developing cognitive presence, deeper understanding, and engagement with meaningful learning. Even before they have met their peers face-to-face, participants have the opportunity to decipher existing community patterns and to experience a form of situated cognition (Lave & Wenger, 1991) where the focus of literacy is shifted from one of individual expression to community involvement (Jenkins, 2007).

### Limitations of the study

It is recognised and acknowledged that there are several limitations to this study and the underlying research methodologies. One limitation is that the conclusions drawn are limited to the data examined, and although the emergent data has potential relevance to a wider field, the context for the research lies within a single program, in a single discipline, in one university. This has resulted not only in a small sample size, but also a lack of generalisability assessments (Hammersley, 1992) that could have been constructed if the research project had been run across a number of organisations or contexts. This may then mean that findings can only be applied to the situation in which this research was undertaken. It should be noted however that this paper makes no effort to argue for the generalisability of the findings to other contexts. Rather, the results and conclusions are presented as the basis for further study that extends the methodology used here.

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