

**Digital multi media portfolios (D-MAP) in music learning.
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Abstract

The perceived ephemeral nature of music making processes and products are all too often considered less rigorous and accountable when it comes to research and assessment. This paper draws on a large ARC Discovery research project that sought to; identify the qualities of artistic knowing across arts disciplines, identify gaps in the present approaches to the assessment and evaluation of arts learning and teaching and discover ways that digital technologies might be used to improve the scope, depth, relevance and frequency of feedback in arts assessment. Through a series of multiple -arts case studies, digital portfolio systems were developed and observed as part of a system of storage and management of artistic artefacts and processes for assessment. The research outcomes suggest that using digital tools does enable a more rigorous and accountable or 'better' means of assessment of music learning but that there are a series of issues which arise from this process which need to be examined in further detail. Whilst the research's primary aim was to develop protocols to address these issues this paper identifies these issues as areas where questions need to be asked that synthesise context, users and systems into an effective integrated feedback process for managing both assessment and research assets in a rigorous and accountable way.

Introduction

Digital media and information systems present the opportunity to capture, store and manage multiple forms of evidence (visual/aural/kinaesthetic) about artistic product and processes that are compatible with the more personal, qualitative meanings with which artistic practice is concerned. This suggests new possibilities for better assessment of learning that combines evidence of learning in these modes, with existing textual and numerical measures. Whilst work has and is being done to create systems for managing evidence digitally in assessment portfolios, the focus of this work tends to be driven by software, hardware and economic/technical interests rather than by those of the stakeholders in the assessment system. ¹ To provide better (rather than just more)

¹ David Niguidula 's IBM supported project demonstrated the power of this approach. Allen, D. (1998). Assessing Student Learning: From Grading to Understanding. New York, Teachers College Press.

evaluation of learning, research is needed to develop a conceptual framework for assessment that is inclusive of quantitative and qualitative methods as well as the options for record, recall, reflection and feedback on learning between teachers and learners facilitated by new information and communication technologies and systems (NICTS.).

‘E-portfolios’ that provide digital means of capture, storage and reviewing of assessment data are being trailed in many locations throughout the world (see for example the eportfolio consortium:

<http://eportconsortium.org/DesktopDefault.aspx>). Whilst the interest in the use of this technology for assessment is growing in proportion to the availability and enthusiasm of the users there is an urgent need to examine the implications at a theoretical level alongside technical and practical use. In Arts education because of the ephemeral nature of arts products and the perceived subjectivity of arts assessment there is a further need to examine the potential of these technologies for ‘better arts assessment’ whilst being mindful of what is lost when we digitise artistic products and demonstrations of artistic knowing which constitute assessment and feedback in the arts. The D-MAP project team proposed that if the problems of capturing and organising artistic knowing are able to be done more rigorously and accountably then there will be significant implications for transfer to other areas of knowledge.

(Dillon , Nalder 2002)

This paper examines the use of Digital Media Assessment Portfolios across the arts disciplines as well as specifically highlighting the experience of classroom music making in a tertiary context and focuses upon whether digital portfolios facilitate ‘better’ assessment in music learning and what is problematic about the process. The issues presented here have arisen from a series of participant observation case studies which focused upon music Arts making and Digital Media Portfolio (D-MAP) systems. The study draws from data derived from a one-year large ARC discovery grant entitled: ‘*Constructing a new conceptual framework for using digital technologies in achieving better arts assessment.*’ undertaken in 2002/3.

The ARC project research proposed to:

- 1) Identify the qualities of artistic knowing across five art forms (Drama, Dance, Visual Arts, Media and Music).
- (2) Identify the gaps in assessment of these qualities in current approaches to arts assessment
- (3) Conceptualize ways in which digital technologies can be used in arts assessment to overcome inadequacies in current approaches.
- (4) Develop and trial a conceptual framework for better arts assessment and evaluation and fundamental knowledge that takes optimum advantage of the capacities of NICTS to facilitate learning.

I will begin by outlining the methodology and then examine the preliminary findings framed by the propositions outlined above.

The principle method employed in the study was Participant Observation **Methodology** Case Study (Lincoln and Guba 1985; Jorgensen 1989). Each arts discipline case study forms part of a Multiple Perception Analysis method (Ecker and T. Baker 1984) that involves five parallel participant observation case studies undertaken across arts disciplines within a tertiary arts setting, using digital video/audio recording with laptops to record and manage Digital Media Portfolios (D-MAP). Each Arts discipline case employed a unique approach to the case as required by the specific nature of the discipline. For the purpose of this paper I will outline the music case in more detail to display the context and process of data gathering and analysis employed whilst drawing more broadly from the multiple cases in the final stages of the discussion.

The music case study consisted of a tertiary advanced music curriculum unit with 35 students. There were three assessment items:

- A resource making and conducting task,
- A construction of a complete senior syllabus music unit (Final two years of Secondary School)
- A philosophy of music education task.

These assessment tasks are linked to the unit objectives and took place within a 3 hour class, once a week over a twelve week period in semester 1 2002. The teaching and assessment approach sought to simulate 'Arts propel' style domain projects and portfolios and to utilise peer, self and teacher assessment (Blythe, Allen et al. 1999), individual and group work with a strong emphasis upon reflective dialogues between students and students and teacher. Harvard Project Zero Arts propel (<http://www.pz.harvard.edu/>) examines production, perception and reflection processes within long termed domain projects and utilising portfolios and a suite of self, peer and teacher assessment activities to create a dialogue about artistic knowledge with students and within the learning community as well as. This project has utilised Arts propel assessment strategies and further incorporated digital processes in the following ways:

- Digital videotaping of all performances and presentations
- Required students to submit text and notated assessments in a universal digitised form i.e. RTF or PDF, for word-processed documents. MIDI files & html music files such as Scorch (Sibelius), .WAV and AIFF files for music.

By collating these files in this way, students were able to share useful resources at the end of the unit helpful for their first year of teaching music.

From these files I constructed four sample web pages (See figure 1 example).

The screenshot displays a digital multimedia assessment portfolio for Nicholas Rhodes. The page is titled 'creative industries' and 'KMP431 Music Curriculum Studies 2 Semester 1 2002'. It shows the student's name, final grade (5/7), and a section for reports with student and teacher comments. Below this, there are three assessment items: 'Resource making and teaching' (5/7, 35%), 'Unit of work' (5/7, 35%), and 'Issues in Music education' (6/7, 30%). Each item includes a small thumbnail image.

Figure 1 Digital Multi media Assessment Portfolio sample web page. (See <http://www.dmap.ci.qut.edu.au> for examples)

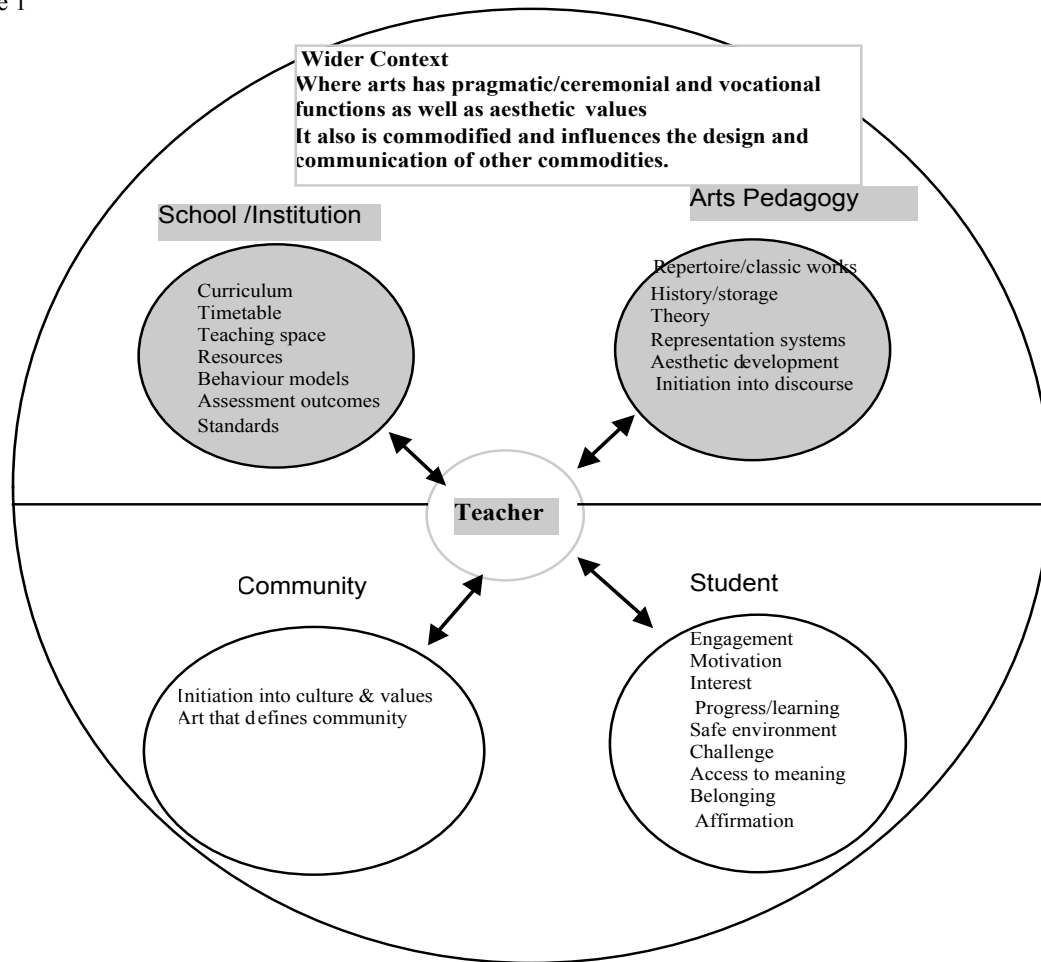
Responsive Software Development.

The assessment data from these participants have been organised, searched and theorised utilising a process of responsive software development, where I have evolved a static html software model of a D-MAP interface as an analytical tool and as a response to stakeholder’s needs. The software has been useful in making abstract concepts more concrete and visible to stakeholders and the responses to it have generated theoretical notions and potential protocols. Its development has created a confrontation with technology and the human technology relationship. Hence, the software stands as a useful display of reduced data and provides examples of response to assessment management in digital form. This method is similar to (Allen 1998) who used ‘tuning protocols’ for assessment in a study that trailed digital portfolios in several school contexts in the USA. I compared the framework for analysis for the present research with the data gathered by Niguidula (in (Allen 1998: 183-198). Furthermore it also highlights the usefulness of DMAP as a research tool and as a means of organising and managing artistic assets in a readily accessible and retrievable manner.

Data analysis and perspective

I adopted ‘the teacher’s perspective’ as a primary focus for the research as I felt it was important to gather information about how I as a teacher respond to institutional, pedagogical, student and community need in the way that I structure the assessment and also how I perceive the data as a researcher viewing the whole system that includes self as teacher. I have utilised a suite of cross checking procedures to counteract my deep insider perspective (Edwards 1999) and three analytical ‘tools’ See figure 1 example), which require me to examine data from perspectives other than those that emerge as grounded theory alone (Strauss 1990).

Figure 1



The following data was collected:

- Interviews and stimulated recall with digital portfolios
- Video, audiotape of presentations
- Document analysis from the institution/ university and student work.
- 35 sets of work samples from individual students, peer and self-assessment sheets,
- Marks and data base materials,
- Unit evaluation statistics and comments.

These measures constitute a means of keeping my data collection and analysis honest and trustworthy (Lincoln and Guba 1985) whilst the multi media nature of the data provides a means of crystallizing or triangulating data (Denzin and Lincoln 2000) and allows for a readily auditable process. I cross checked my data reconstructions and tested my responses by using three analytical tools to examine the data (Dillon, Nalder, Brown, 2002). I exposed the data to these tools and generated summaries for each, which provided multiple lenses on the phenomena. These procedures were summarised and

linked to four example-student -software web pages which were developed alongside the issue discussion as ‘responsive software development’, which works as a kind of action research (Schon 1984) where the software becomes the interactive context which students and teacher enact cycles of change.

The outcomes of this case were compared with those of the other arts disciplines and data relating directly to the research questions was extracted, analysed and compared drawing audio visual examples from across discipline which best illustrated the issues that arose. These data was then presented to a group of educational peers at a critical review colloquium in which the data was examined and compared with the participants own contexts. The following discussion examines the music perspective and then compares seeks to draw ideas that have more transferable implications across disciplines. The research questions are used as a means of focusing these ideas.

Identifying the qualities of artistic knowing

Identifying the qualities of artistic knowing is fundamental to the construction of appropriate and rigorous assessment. Musical knowledge exists within a complex and dynamic interaction between the maker, the audience and the culture in which the practices are embedded. The way individuals within that specific context express themselves and organise sound is interdependent and is as much structured by context as it influences the context, it both expresses to and for the context and either responds ‘syncretically’ (Vella 2000) to changes in the context or is a repository for ‘traditional’ cultural knowledge. Harwood suggests that music is engendered:

- 1) according to expectations of performers and audience;
 - 2) according to standards of judgement proper to the culture;
 - 3) in terms of context proper to particular performance;
 - 4) in terms of analogies with the listener’s way of perceiving the world in general.
- (Nattiez 1990:66)

What is clear from this viewpoint is that isolation of music and musical knowledge as an object or artefact outside of its context transforms it into something else. Dewey also builds upon this notion of artistic culturally embedded systems describing art as intrinsic experience, which is infinitely social (Dewey 1989:6). The act of making and reflecting upon arts are mutually interdependent and continuous and this relationship communicates meaning in a concrete or experiential way (Schusterman 1992). It is significant that both the making process and the product are capable of communicating meaning. We learn through the relationship we have with the transformation of raw aesthetic materials (ideas) into a product and also we can have a relationship through the appreciation of an art object which holds or shares some kind of cultural or aesthetic meaning independent of the making process and maker. Hence the action and the resulting product both have a life of their own within the experience. The word 'aesthetic' refers to the experience as appreciating, perceiving and enjoying and denotes the viewpoint of the consumer rather than the producer (Dewey 1989: 47). The qualities of musical knowledge then can best be understood in a system where music is made, transmitted and received and which takes

into consideration the four aspects of context described above. Assessment of this knowledge should also consider these parameters so that the identification of what musical knowledge is within a specific context acts as feedback to the maker about the quality, effect and expressiveness of their musical production. This is important for institutions to consider in the development of assessment policy and digital portfolios should reflect, support and enable the institutions vision for the discipline and for assessment (Allen 1998). Within western European constructions of art, musical knowledge hinges pedagogically around the activities of creative making and presenting, analysis and reflection on the expressive qualities of sound, an understanding of the relationship between sound and society or context-time and place and the skills techniques and processes required to make and understand expressive music. Curricular articulate these primary pedagogical foci with differing emphasis in different contexts but primarily assessment of music is about evaluating the quality of what children 'know and can do' with regard to making and responding to music(1988; 1988; Abbs 1990; 1991; 1991; 1994; 1994; Vella 2000). I refer to these constructs or activities in the music case study in music making and teaching. It included assessment items that involved research about music and context, analysis of style, composition and performance (Refer <http://dmap.ci.qut.edu.au>). The case study sought to simulate classroom music making and provide a micro teaching experience for the student teachers. The education perspective added a further layer of complexity to the folio by including two reflective/philosophical tasks and a text-based lesson-planning task. These assessment items represent both musical and tertiary education tasks and as such provide the opportunity to examine music and tertiary teacher education assessment.

The two primary means of assessing music making and thinking are *testing* which relates to analytical tasks which can have a numericised outcome and *norm ranking* criterion which are used to judge the more intuitive aspects of creative and performance work (Swanwick 1994; Dillon 2002). It is these aspects, which we have identified as being problematic for music teachers because they have to make decisions about a performance in real time, or they have to judge a creative work presented in a representation system other than the aural (i.e. compositions presented in Common Practice Notation). Furthermore the understanding of progress in music is often obscured by the differences in the tasks i.e. some are textual, some presentational, some creative and these works may

Identify the gaps in assessment of these qualities in current approaches to arts assessment.

not be in the one place so that the students overall progress cannot be determined easily. Swanwick suggests that the gaps in music assessment are apparent mostly in the intuitive and aesthetic outcomes, such as performance and composition (Swanwick 1994). The absence of a physical artwork after a performance does not allow revisiting of the data except through memory, nor does it allow the student or teacher to compare progress over time easily. The primary concern here is capture and storage of performance and creative work. Arts propel type physical portfolios often utilise video or audio tape or reference individual performance to a group performance or video/ audio recording. I have used these kinds of portfolios in the primary and secondary school classroom for a number of

years but I was interested in the idea of managing these items in a digital environment and examining ways these techniques might facilitate more rigorous and accountable assessment (Dillon 2002). Furthermore, student's musical experiences are often fragmented and disconnected as their learning takes place with several teachers in different locations and with different pedagogical focus. A student might learn an instrument from a studio teacher, study formal theory or musicianship through an examination system (ie Trinity College), learn composition and music history and context in the classroom, play in an ensemble at school or in the community and play informally with friends or community members. Whilst reflection on experience is essential in unifying musical knowing the sheer disconnectedness of these experiences both physical and socially presents a significant problem for a unified understanding. Assessment and pedagogical development in each of these areas takes on different forms

Conceptualize ways in which digital technologies can be used in arts assessment to overcome inadequacies in current approaches.

In our discussion of literature and method for this project we proposed:

‘The development of an integrative process that is inclusive of new information and communication technologies and systems (NICTS) and within that redefines the assessment of artistic knowledge and defines the way in which digital media is used in that process.’ (Dillon 2002)

and standards adding to the complexity of the music learning experience.

The music case study sought to construct Arts Propel like portfolios (Gardner 1992; Gitomer, Grosh et al. 1992; Seidel and Walters 1997; Seidel 2001; Seidel, Eppel et al. 2001) and address the abovementioned problems whilst including NICTS in a number of ways by using:

- 1) Digital videotape of performance to record presentations,
- 2) Reflective documents and peer and self-assessment documents were scanned and kept in digital form or recorded in emails/ word-processed. Peer, self and teacher assessment was used to provided an opportunity for students to practice aesthetic judgement of creative work and performance and moderated the use of criteria amongst all the participants making the process more democratic.
- 3) Students submitted all musical works in a digitised form so that they could be assessed aurally as well as visually. i.e. scorch files of notation, video of performance MIDI files of music. Furthermore, I constructed of portfolios to keep a record of the student's work and meta-cognitive reflections on their work and understanding.

Students' responding to stimulated recall interviews and reflections about their experiences with D-MAP made the following statements:

The process lent itself to accountability.
The focus was on understanding rather than outcome alone and upon proving understanding
There was a power shift to the student-
A democratisation of the assessment process.
It provided a demonstration of outcomes
Better teaching and better learners.

These statements represent the views of students who valued the feedback and describe access to meaningful learning that were gained through their D-MAP experiences. Alternatively, the university unit evaluation suggested an undue focus upon the video evidence. This suggests that the use of video was new to their experience and they perceived that video set up took away from class time. This reinforces the notion that evidence collection be integrated within curriculum rather than as an add-on process. In this research as with Niguidula (in (Allen 1998) Digital portfolios were run alongside existing text/number/ hard copy methods of assessment. Students may have perceived these processes as intrusive upon the 'normal' unit experiences. My own initial thought about the use of video were that it would be the focus of the portfolio data, but participants suggested that it was the multi media aspects that provided the feature rather than the focus upon video alone. After the experience, I found that it was how the video and other evidence linked that made the digital portfolio effective.

As a teacher /researcher, I felt that the combination of Arts Propel (Gardner 1992; Seidel and Walters 1997; Seidel 2001; Seidel, Eppel et al. 2001) techniques and digital storage using portfolios was successful, rigorous and beneficial to the stakeholders. Students, policy makers, teachers and community members alike gave very positive feedback about the process. These aspects were not unexpected as digitisation builds upon Arts propel's established assessment techniques and adds a process of storage, retrieval and asset management. What was unexpected was the relative ease (in my experience) of the digitisation process as part of regular teaching practice and learner behaviour. The benefits of DMAP experienced in this case were:

- The products and processes of musical knowledge were available in the one place for reflection and feedback. This helped unify the often disconnectedness of musical experiences.
- The DMAP process allows data trails so that work can be reviewed and therefore makes the assessment processes more rigorous and accountable.
- The process fostered a more constructive relationship with assessment practices that elevated the importance of feedback and reflection over marks and grades as an outcome.

- DMAP allowed student, teacher and community to measure and compare progress over time which created a satisfying experience of the learning process as a partnership.

Despite the perceived benefits of D-MAP, the process also raised many issues that are in need of deeper analysis and need to be considered in implementation.

In a D-MAP process we need to:

- Allow time for recording of performance in timetable.
- Allow time outside of class to convert and store data. Note video rendering takes up to 4 times the length of performance to convert.
- Collect assessment in digital form (Allen 1998: 193) which suggest the need to give access to generic programs i.e. PDF maker, scorch file maker midi file maker. These formats need to be the required submission format for work.

In this case study, much of the data collected was concerned with issues of teaching, learning, assessment and time management. I noted that D-MAP worked as well as a database or marks extensions or evidence repository as it did when Arts propel 'democratic'/student inclusive assessment processes were used. This suggests that D-MAP needs to be flexible enough to allow these varied degrees of student, teacher and institutional power and access. The portfolios generated in this research were constructed by the teacher and then used in a dialogue with the students to construct meaning through the tasks and reflection on the tasks. Students then gave feedback on the process and the ability of the folio to represent their understanding and development. Arts propel (Gardner 1992; Seidel and Walters 1997; Seidel 2001; Seidel, Eppel et al. 2001) use of assessment procedures such as self and peer assessment, domain projects and the linking of process and product in portfolios were used throughout the unit but the folios were created and maintained by the teacher. This might replicate the role of a junior primary/elementary teacher. I found that if the work was collected in the correct format- meaning that it was specified in the assessment details in the unit outline as having to be provided in that format then storing and organising this data was relatively easy. Access to software and hardware that digitises musical and textual information needs to be included in the cost of a system. Fortunately, many of these are shareware products so the institution needs to make policy decisions to include these in their systems as standard. Some however are quite expensive programs i.e. Sibelius which was used to create the html music notation files in the portfolio examples.

The teacher also requires time to collect data and needs to work this into the curriculum. Teacher needs to allow time in class or at another time in the day to input data, manage folios and provide comment/feedback (Allen 1998: 193). Teachers need to organise students/ structure the class to record them selves and each other so that the teacher is not constantly behind the camera or scanning/converting student data to the required format. The teacher also needs technical skills in basic digital recording, music software use and file conversion i.e. midi, wav, aiff, pdf, rtf. The implications for training in multi media

data handling is imperative. Whilst the skills need not be of a professional standard, the skills of problem solving are essential in particular those of manipulating the chosen file format. Whilst in the music case study I have skills in music software I found I needed a tutorial in using iMovie so that I could edit Digital Video data. There are implications here for teacher training to include these skills for pre service and practicing music teachers.

Flexibility of access

Further analysis of case study data suggests a clear need for flexible levels of access, entry levels and control. On one end of the spectrum is the novice user (student or teacher) on the other the creative user. The question that arises from this is that we need easy to operate interfaces that allow clear storage, display and evaluation of data with security and at the other end creative control where the student might construct their own interface that best manages and displays their data. At the same time, there is a need for security of IP, ethical procedures and dependable backup. We could also ask about what happens when display of assessment/ exhibition might become an art in itself a kind of documentary of the assessment/learning process or alternatively, when the folio presents

a lower quality product than the original. The

Implications for better arts Assessment using eportfolios like DMAP

The implications of this case study for better arts assessment using NICTS are largely concerned with policy and access. The primary concern for the teacher relate to time and curriculum. The preliminary research findings suggest that evidence collection needs to be integrated within curriculum rather than as an add-on process. In this research as with Niguidula in (Allen 1998) portfolios were run alongside existing text/number/ hard copy methods of assessment. A process that utilises D-MAP alone would require a system which backs up data regularly and a system for assessment that includes generating digital products. There is an inherent need for support from both technical assistance and in policy making provided by the school particularly leadership, which was cited by Niguidula (Allen 1998: 195) as essential to ensure 'that the resources are available to maintain the technical support.'

We must also be conscious that technology can also conceal as well as reveal knowledge and those with control over technology are advantaged, whilst the complexity or style of interface and hardware may cause many concern and anxiety. Nevertheless, most assessment strategies have also caused students anxiety and concern in the past and we have developed systems to help students deal with them effectively.

The use of NICTS for assessment raises a number of ethical and intellectual property issues:

- Use of photos/videos online
- Personal information
- Culturally sensitive material
- Gender sensitive material

- Appropriateness of audio vocal material i.e. lyrics in audio and text forms
- Appropriateness of dramatisations
- Discussion about other students and staff in writing or on video

The multiple case study report to the critical review colloquium further identified the following issues:

Access & control
Ethics & rights management- confidentiality, ip, copyright, etc.
Implementation - technical & policy constraints etc.
Representation & recognition of artistic learning

Each of these issues was examined by critical reviewers using a combination of dramatic philosophical scenarios that elicited the following statements around the theme headings:

Access and Control: The student must maintain control over creativity and expressivity

Students must maintain their creative integrity and input into the selection of the DMAP content within institutional protocols and the context of DMAP - in formative assessment

Implementation:

The onus is on the system-teachers to equip the students with skills and abilities that will enable them to produce a DMAP (of quality). With these developed skills it is understood that the students then have responsibility. (This will vary according to developmental stages).

The technological expertise appropriate to attaining suitable DMAP quality (standards implication) has implications for the assessment process.

The development of the expertise must be facilitated by the institution (system wide implication)

Ethics and rights:

This is an extremely legal issue (requiring legal advice).

Given that the intention of the university is to use the created artefacts for subsequent teaching and learning purposes. The portfolio contains a representation of the work, not the actual work.(implications: “permissions”; “informed consents”).

Recognition & Representation of Artistic Learning

All students should be aware of the limitations, functions and purpose of the DMAP process so that the assessment ‘tail’ doesn’t wage the artmaking ‘dog’.

All students are encouraged to respond to the unique challenges of representation for DMAP. When used for assessment purposes, students need to acknowledge where they have manipulated the work specifically for presentation on DMAP.(Nalder, Dillon, Brown, Smith (2003) DMAP Colloquium powerpoint presentation.

Does D-MAP facilitate 'better' assessment?

Student responses in the music case study suggest that they valued the quality of feedback more than the mark alone and

this made the system more accountable and transparent. This adds weight to the assertion made in Dillon and Nalder (2002) that D-MAP processes are able to provide better quality feedback and more rigorous and accountable systems for aesthetic assessment. The implications for inclusion of self and peer assessment within curriculum processes also builds on students experiences in making these kinds of judgements which are essential to reflecting on aesthetic production. This research suggests that the overall perception was that pedagogical development was enhanced by the structure of the curriculum around analysis/perception- production and reflection (Gardner 1992). This process was particularly apparent in the resource production assessment in the music case but also clearly part of the videos recordings of philosophy presentations and essays of the philosophy assignments. The D-MAP process captured and stored this data and made it available for reflective review. The connection of assessment to simulate 'real world' tasks was also pedagogically valid and clearly linked music making to how teachers create resources in a school context as well as apply reflective practice to their own teaching philosophy and practices. Pedagogical development was visible in this D-MAP example. However, as I have suggested, using traditional forms of assessment in digital portfolios might also provide 'sense making' devices, reflective opportunities and feedback. This suggests that D-MAP should constitute a suite of strategies for assessment rather than be part of any particular method of portfolio process such as Arts Propel. It does however need to be flexible enough for use by a variety of systems and users. As an experienced Arts Propel user, I found the D-MAP process encouraged assessment that was more rigorous and opportunities for reflection on my own understanding and judgements. These implications support (Allen 1998) suggestion that the digital portfolios need to reflect, support and enable the institutions vision for music and for assessment.

In this paper, I have suggested that there is evidence that a D-MAP system is able to provide 'better' music assessment because the process unifies music experiences, promotes reflective practice and makes the assessment practices more rigorous and accountable. However, this does not suggest that the process is a panacea for music assessment. Indeed as we have grown in our understanding of the issues which arise from formal examination and textual representation of understanding as a response to particular contexts, times, places and participants so too we must work through the issues that have clearly arisen from the D-MAP process in this research. We need to ask questions about : access and control, implementation, ethics and rights and the recognition of artistic learning and develop context, system and people specific policies that support and enable the stakeholders in the system to access better rather than more complex or simply more assessment. These ideas are primary to the development of an appropriate and effective process of using NICTS to manage artistic assets in an effective and meaningful way. Primary in this process is the quality of feedback that provides the means for us to become more expressive artists or researchers.

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