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Linking mobile phone technology to student learning, engagement and assessment

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Introduction

1. **Teaching:** coordination and teaching into: one Arts education unit in the Bachelor of Education (B. Ed), the focus of this research; and, one Arts education unit in the secondary Master of Teaching (M. Teach).
2. **Research:** Scholarship of Teaching & Learning (SoTL); Technology Enhanced Learning & Teaching (TELT); Music & Visual Arts Education at all educational levels; and youth Arts participation & wellbeing.
3. **AAC:** I am CI of a research project with Music (Anne-Marie Forbes), Education (myself and Mary Ann Hunter) and Social Sciences (Kim McLeod) funded by the Australia-ASEAN Council. Working with the Tasmanian Youth Orchestra and the Singapore National Youth Orchestra, 'Best practice in youth orchestra leadership', explores high performance, wellbeing, and female leadership in both organisations and the cultural factors influencing these.



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Background

1. **Project Title:** Constructive alignment, Technology Enhanced Learning and Teaching (TELT), and the Australian Curriculum in an Initial Teacher Education (ITE) Arts Education unit.
2. **Data:** For this presentation were collected in 2017.
3. **Participants:** Were enrolled in the 1st year, B. Ed unit 'Arts Education: Music & Visual Arts'. Students studying early childhood or primary teaching, and those studying to be classroom teaching assistants.
4. **This presentation:** Is an analysis of survey data following substantial changes made prior to the 2017 iteration.



Research Questions

This research project investigates the impact of:

1. The constructive alignment of assessment task and learning activity design and intended learning outcomes on student learning and experience in an Arts education unit in ITE.
2. The impact of TELT principles (including embedded rich media and the application of appropriate technologies) on student learning and experience in an Arts education unit in ITE.
3. The impact of the alignment of content and assessment with the Australian Curriculum or the Early Years Learning Framework on student learning and experience in an Arts education unit in ITE.



Imperatives for change

Student feedback, peer review, literature and personal reflection (Brookfield, 2017) suggested that:

1. **Tutorials:** Not explicitly linked to assessments (one essay and one lesson plan), as suggested in this 2016 formal student feedback: 'Better integration between what we learn in class, to what we are required to do for the assessment tasks'.
2. **Engagement:** Practical tute learning was not explicitly linked to the practical nature of teaching, nor to curriculum.
3. **Assessments:** Were both written and addressed different learning outcomes; thus, they did not allow for genuine student improvement over time through formative feedback.



Changed content and pedagogy

Previous Iterations	2017 Iteration
<p>Structure</p> <ul style="list-style-type: none">‘Weekly’ structure around weekly topics.	<p>Structure</p> <ul style="list-style-type: none">Modularised structure linked directly to curriculum and assessment: Three music/visual arts modules framed around Sustainability, Aboriginal and Torres Strait Histories and Cultures (ATSI), and Literacy (Australian Curriculum).
<p>Assessment</p> <ul style="list-style-type: none">Two written assessment tasks.	<p>Assessment</p> <ul style="list-style-type: none">Four interconnected assessment tasks: Written (professional and curriculum based reflection), linked with practical making (evidence of making as photos and videos). The more Intended Learning Activities (ILAs) completed the higher the criterion grade e.g. evidence of 1 x music ILA and 1 x visual ILA = Pass; evidence of 4 music ILAs and 4 visual ILAs = High Distinction.Three assessments build on each other, enabling formative feedback and individual improvement over time. Evidence required of completion of making activities via assessment (Biggs & Tang, 2007).Final assessment is an Arts education teaching episode, a ‘performance of understanding’ (Perkins, 1993, p. 5).
<p>Technology</p> <ul style="list-style-type: none">Some non-dialogic, asynchronous technology used - instructional/demonstration videos to support online learners (Baker, 2012a, 2012b; 2013).	<p>Technology</p> <ul style="list-style-type: none">Technology Enhanced Learning & Teaching (TELT). ALL students used the same mobile phone technology regardless of mode of enrolment (photos and videos).

Intended Learning Activities (ILAs)

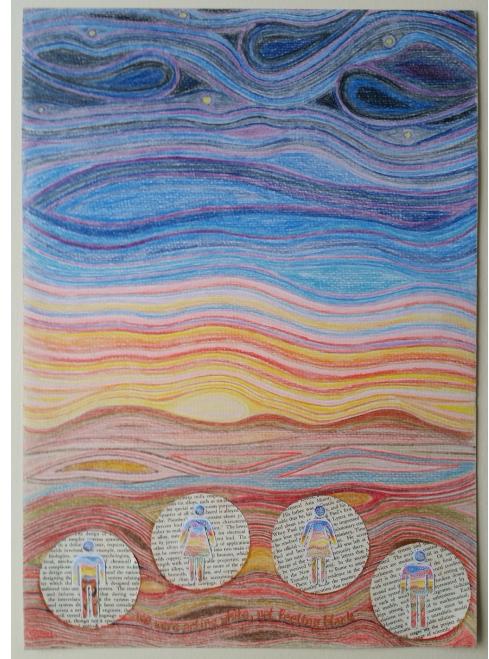
1. Device recorded ILAs are the core of the approach.
2. Students use their mobile technology to record their completion of core learning activities.
3. They then use the LMS and other technology (ECHO360) to upload these for assessment.
4. Key to the assessment process is also student reflection on and application of learning.



Teacher instructional video.



Using a mobile device recording of a song for assessment (used with permission).



Mobile device photo of completed artwork for assessment (Moore & Baker, 2019, p. 93).

Changed 'boutique' Schedule

Week	Module	Activities	Assessment
1	Introductory Week	Lecture (1 hour)	Quiz (1%)
2	Module 1: Music & Visual Arts and Sustainability	Music tute (2 hours) x 3 weeks Visual Arts tute (2 hours) x 3 weeks	Quiz (1%)
3	Module 1: Music & Visual Arts and Sustainability	Music tute (2 hours) Visual Arts tute (2 hours)	Quiz (1%)
4	Module 1: Music & Visual Arts and Sustainability	Music tute (2 hours) Visual Arts tute (2 hours)	Quiz (1%) Module 1 (25%)
5	Non-teaching week		
6	Module 2: Music & Visual Arts and Aboriginal and Torres Strait Islander Histories and Cultures	Music tute (2 hours) x 3 weeks Visual Arts tute (2 hours) x 3 weeks	Quiz (1%)
7	Module 2: Music & Visual Arts and Aboriginal and Torres Strait Islander Histories and Cultures	Music tute (2 hours) Visual Arts tute (2 hours)	Quiz (1%)
	Mid Semester Break		
8	Module 2: Music & Visual Arts and Aboriginal and Torres Strait Islander Histories and Cultures	Music tute (2 hours) Visual Arts tute (2 hours)	Quiz (1%) Module 2 (30%)
9	Non-teaching week		
10	Module 3: Music & Visual Arts and Literacy	Music tute (2 hours) x 3 weeks Visual Arts tute (2 hours) x 3 weeks	Quiz (1%)
11	Module 3: Music & Visual Arts and Literacy	Music tute (2 hours) Visual Arts tute (2 hours)	Quiz (1%)
12	Module 3: Music & Visual Arts and Literacy	Music tute (2 hours) Visual Arts tute (2 hours)	Quiz (1%)
13	Non-teaching week		Module 3 (35%)

Literature

1. **Socially Constructive, Active Learning:** Learning in the unit had always been framed by a “social constructivist” pedagogy (Bates, 2015, p. 54). To understand the Arts in education, students need to ‘make’ Arts themselves. Thus, the unit required an approach that’s sometimes referred to as ‘active learning’ (Bonwell & Eison, 1991) in which “students must do more than just listen” (p.3) and must engage in higher order thinking. This was not new to the unit in 2017, however, the relationship between making and assessment (regardless of mode of enrolment), and enabled by technology, was!
2. **Student Agency:** “Student direction” in learning, also commonly referred to as ‘agency’ or ‘choice’, empowers exercise “control” in their engagement and learning (Gore, Ladwig, Elsworth, & Ellis, 2009, p. 42). Allowing students to select the number of activities they would provide evidence of completion of was the first explicit application of student direction in this unit. Likewise, the choice students could make in the final micro-teaching assessment – to use either music or visual arts – was new.
3. **“Constructive Alignment” (Biggs & Tang, 2007, p. 3):** This approach seeks to maximise student learning by aligning learning activities, assessment and learning outcomes (Biggs & Tang, 2007, p. 7). Essentially stated as: Assessment drives student behaviour (Bearman, Dawson Boud, Hall, Bennett, Molloy & Joughin, 2014; Garrison, Anderson & Archer, 2000; Gore, Ladwig, Elsworth, & Ellis, 2009). This is the overriding feature of the revised iteration of this unit, informing all pedagogic design decisions.
4. **“Sustainable assessment” (Boud & Soler, 2016, p. 400):** The focus on student choice and empowerment in assessment, along with three explicitly less text-heavy assessments empowers both students and staff.



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Methodology & Methods

1. **Methodology:** Framed through a SoTL (Boyer, 1990) lens, this qualitative, ethnographic research explored the perceptions of a group of pre-service teachers (PSTs) about their learning in one Arts education unit.
2. **Sample:** Participants were selected using “purposive sampling” (Denscombe, 2007, p. 17). Data were collected using three surveys in SurveyMonkey (one for each module), and by individual, semi-structured interviews. This webinar presents the analysis of survey data only.
3. **Recruitment & Responses:** Prospective participants were recruited via email sent to all enrolled students. There were 170 students enrolled in the unit at commencement, resulting in the following survey response rates: Survey 1: 14% (n=24) /170; Survey 2: 22% (n=37); Survey 3: 13% (n=22). Total respondents n=83.
4. **Surveys:** There were 31 survey questions in total. These related to: pre-module and post-module perceptions of skills in relation to the curriculum areas, and to the learning space, learning activities, assessment and communication. Most question response formats were Likert scale in nature, some were merely ‘Yes’ or ‘No’, and some provided the option for further descriptive information to be provided in an open-ended format. Interviews were conducted with 6 subjects. These data are not included in this presentation.
5. **Analysis:** It is not possible to report on all 31 survey questions; this presentation features analysis of data that specifically address the three research questions in depth. Responses to Likert scale questions were entered into spreadsheets and analysed according to response types, this resulted in what is sometimes referred to as descriptive statistics. Open-ended qualitative responses were not particularly numerous (29 total) these are analysed thematically, according to the latent and semantic meanings therein.



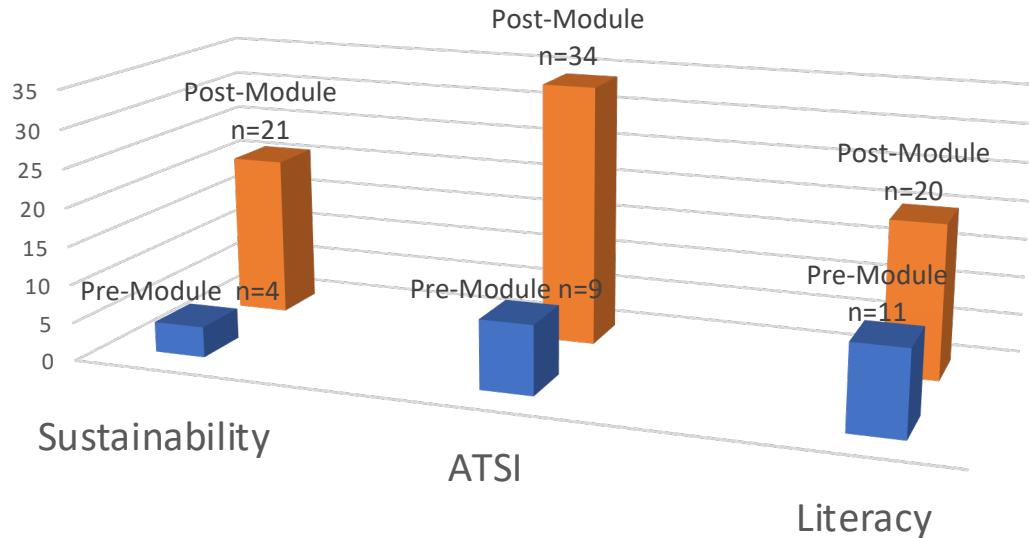
Six Data Themes

Improved student learning and experience in six main areas:

1. Improvement in core curriculum understanding (improvement ratio of 3.62). RQ3.
2. ILAs important to development of Arts skills and understanding (72% agreement). RQ2.
3. Instructional videos marginally less important to development of Arts skills and understanding (69% agreement). RQ2.
4. Over 90% of participants viewed the form of assessment (evidence of ILAs + Teaching Session + written reflections) as appropriate. RQ1.
5. Ways that the Arts can help teach these curriculum areas was clear (95% agreement). RQ2.
6. 95% of 'overall experience' in the unit was 'Outstanding, Very Good, Good'. RQ2.



1. Improvement in Core Curriculum Understanding*



"I rate my understanding of Sustainability/ATSI/Literacy before/after starting this unit as Good/ Very Good/ Excellent..."

- **Sustainability** = improvement ratio of 5.25 (Beasy, Hunter, Hicks, Pullen, Brett, Thomas, Reaburn, Baker, Fan, Cruickshank, Stephenson & Hatisaru [manuscript submitted]).
- **ATSI** = Improvement ration of 3.78 (Moore & Baker, 2019, p. 93).
- **Literacy** = improvement ration of 1.82
- **Average** improvement ratio of 3.62

*No qualitative response option provided.



2. The Importance of ILAs*

- “How important would you say the weekly Learning Activities provided in MyLO (Learning Management System or LMS) were in improving your skills and understanding in Music/ Visual Arts Very/ Extremely Important...?”
- **Sustainability** n=33/49 (67%)
- **ATSI** n=54/74 (73%)
- **Literacy** n=33/44 (77%)

Note: ILAs importance in **Music** learning n=64/82 (78%); in **Visual Arts** learning n= 57/85 (67%). **Average Very/Extremely Important n=121/167 (72%).**

*No qualitative response option provided.



3. The Importance of Instructional Videos*

“How important would you say the instructional videos provided in MyLO were in improving your skills and understanding in Music/ Visual Arts Very/ Extremely Important...?”

- **Sustainability** n=36/49 (73%)
- **ATSI** n=50/74 (68%)
- **Literacy** n=29/44 (66%)

Note: ILAs importance in **Music** learning n=61/82 (74%); in **Visual Arts** learning n= 54/85 (64%). **Average Very/Extremely Important n=115/167 (69%)**. Congruent with earlier findings in Baker (2011) and Baker (2012b).

*No qualitative response option provided.



4. Assessment was Appropriate

“Do you think the assessment task (for the module) was a good way of assessing your learning...?”

- **Sustainability** n=22/23 (96%)
- **ATSI** n=34/37 (92%)
- **Literacy** n=19/22 (86%)

Average Agreement n=75/82 91%.

Qualitative Analysis.

16 substantive qualitative quotations. Eight related negatively to limitations in word count to complete the assessment task. Seven were overtly positive such as this ‘I really appreciated these assessments as they were directly related to our learning and what activities we will be doing in our classroom’.



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5. The Arts & Integrated Curriculum Outcomes*

“The ways in which Music and Visual Arts can help to teach about Sustainability/ ATSI/ Literacy were clear...?”

- **Sustainability** n=22/24 (92%)
- **ATSI** n=36/37 (97%)
- **Literacy** n=21/22 (95%)

Average Agreement n=79/83 (95%).

*No qualitative response option provided.



6. Overall Learning Experience

"I rate my overall experience in this module as Outstanding/ Very Good/ Good..."

- **Sustainability** n=23/23 (100%)
- **ATSI** n=32/36 (86%)
- **Literacy** n=19/22 (83%)

Average Agreement n=79/83 (95%).

Qualitative Analysis.

13 substantive qualitative quotations. Two related negatively to limitations in word count to complete the assessment task. Eight were overtly positive such as this 'It was very refreshing to have such a practical and engaging unit where we were able to go beyond sitting at tables and writing notes and actually participate in making and composing'.



Conclusions

Limitations of this research include:

1. Thematic analysis of interview data underway – will contribute to evolved conclusions.
2. Some ATSI survey and interview data published (Moore & Baker, 2019) as cited.
3. Some Sustainability survey data under review (manuscript submitted) as noted.

Improved student learning and experience occurred in six main areas:

1. Improvement in core curriculum understanding (improvement ratio of 3.62). RQ3 (Curriculum).
2. ILAs important to development of Arts skills and understanding (72% agreement). RQ2 (TELT).
3. Instructional videos marginally less important to development of Arts skills and understanding (69% agreement). RQ2 (TELT).
4. Over 90% of participants viewed the form of assessment (evidence of ILAs + Teaching Session + written reflections) as appropriate. RQ1 (Constructive alignment).
5. Ways that the Arts can help teach these curriculum areas was clear (95% agreement). RQ2 (TELT).
6. 95% of 'overall experience' in the unit was 'Outstanding, Very Good, Good'. RQ2 (TELT).



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Further Research

1. The positive relationship between student learning and active Arts making through completing, recording and reflecting on ILAs requires further exploration. Of particular interest is the relationship between making and reflecting on making and how this may contribute to improved Arts skills and understandings for students.
2. The positive outcomes in pre-post understandings of core curriculum suggests further exploration of the relationships between making, reflecting and curriculum.
3. The positive reporting about these forms of assessment, particularly the recording and reflection on a micro-teaching session, and the ways in which this is a performance of understanding and likewise professionally relevant would also be fruitful.



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