

STUDENT USE OF DEMONSTRATION VIDEOS AS LEARNING TOOLS IN FULLY ONLINE ARTS EDUCATION

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Abstract

The impact of e-learning on higher education has been significant, with the numbers of students studying in this mode continuing to be sizeable, and the effect upon evolving pedagogies being substantial. Arts education is one domain that has traditionally taken place in a face to face mode, but this paper explores the application of e-learning to this domain, with particular emphasis on the ways in which videos (video learning tools) can be used to engage students and diminish distance. Part of an ongoing three year research project, using a multiple method approach and inductive data analysis, this paper reports on the ways in which participants use videos in their learning. Data suggest that participants engage with videos in different ways, applying the learning to practical contexts, and, whilst viewing videos making connections to a variety of learning and content issues. The most significant finding from this analysis is the way in which some respondents made very complex uses of materials, such as reflecting on the conceptual underpinning of a video whilst simultaneously making links to other information, concepts or knowledge included in the unit, and subsequently applying the video material in practical contexts such as schools.

Introduction

E-learning continues to have a significant impact on learning and teaching in higher education institutions across the world. This paper is part of a three year ongoing research project into e-learning in tertiary Arts education, exploring the application of e-learning to a pre-service teacher unit in music and visual arts education in one Australian university. Published findings from previous stages of this project have focussed on the experiences of pre-service teachers in e-learning, including: the use of different types of videos (Baker, 2011a); factors contributing to student success in the Arts in e-learning (Baker, 2011b); the application of a student engagement framework to e-learning in Arts education (Baker & Pittaway, 2012); and, the significance attributed to interaction by students learning in this mode (Baker, 2012). Demonstration videos are produced to assist online students in understanding key concepts, skills and understandings, and are accessible within the Learning Management System (LMS). With respect to student use of videos in e-learning published findings highlighted the complex relationships between the use of videos by students in an active and participatory way, their application in the construction of deep understandings, and the connections between videos and the professional context. This paper builds significantly upon these earlier findings, building a deeper understanding of the ways demonstration videos are used by students and the value attributed to these videos.

The research project, grounded in the constructivist ontology (Blaikie, 1993; Sarantakos, 2005) uses a multiple method approach to data collection (Denzin & Lincoln, 1994; Patton, 1990) through surveys and interviews, to better understand the phenomenon of e-learning in Arts education. This paper draws upon quantitative and qualitative survey data from the second stage of this project that have been analysed through inductive category construction assisted by matrix construction (Hatch, 2002; Miles & Huberman, 1984; Sarantakos, 2005). The survey data analysed in this paper were collected from pre-service teachers (n=71) in 2011 regarding their

use of demonstration videos (showing the teacher and previous students working with music and the visual arts) provided in the LMS and the ways in which they used these.

Data confirm the value placed by students on active engagement with videos (Baker, 2011a), by using them in non-passive ways such as singing along with them, or making art along with them. Of some note is the increase in the number of students using videos in an active way between 2010 32% (n=17) and 2011 47.6% (n=30), indicating that within the pedagogical construct of the unit students continue to see this as a valuable way of engaging with course materials. Of significance was the practical application of the learning embedded in these videos by students with 74% (n=46) of respondents applying video learning to a practical context such as a classroom or with their family members, a very valuable outcome for education students. And finally of similar interest and significance were responses regarding student 'thinking' during their use of these videos, with 41% of respondents (n=23) stating that when using videos they thought about links to the classroom, or about other learning such as readings or Power Points (46%, n=26). This again is a positive outcome for education students who need to apply their learning to professional contexts, and to make connections between theory and practice.

Videos such as these are one way in which the gap between the tertiary classroom and the online learner may be bridged, effectively bringing online learners into the classroom and asking them to learn by 'doing'. Using in-house demonstration videos featuring the current teachers in the unit seems to also impact upon their online social presence and to have an impact on student perceptions of this relationship. Further investigation of ways to link videos to their practical application may have very significant and positive outcome for pre-service teachers, and this should provide a focus for future unit development and for the future direction of this research project.

Literature

E-learning has had a significant and far reaching impact on many aspects of higher education (Boettcher & Conrad, 2010; Borup, West & Graham, 2012; Cleveland-Innes & Garrison, 2010; Commonwealth of Australia, 2002; Drummond, 2008; Epstein, 2006; Guri-Rosenblit, 2005; Jones & O'Shea, 2004; Kerr, Rynearson, & Kerr, 2006; Nagel & Kotze, 2010; Paechter & Maier, 2010; Riddiford, 2009; Rovai, 2004; Sherbon & Kish, 2005; Song, Singleton, Hill, & Koh, 2004; Young & Norgard, 2006). This impact is perhaps most noticeable in the number of students now able to access higher education in this way, with the Organisation for Economic Co-operation and Development (OECD) stating that "it has been estimated that there will be between 30 and 80 million online students in the world by 2025" (Commonwealth of Australia, 2002, p. 3). In Australia, Riddiford (2009) reported that the "analyst IBIS World expects online education to be the fastest growing industry in Australia this financial year" (p. 7), again highlighting the shift in access to higher education via this mode of learning.

A significant distinguishing feature of e-learning is the asynchronous nature of that learning, and the challenges that this poses for academics in the construction of effective pedagogies and methodologies to ensure that student learning in this mode is equitable with other modes of delivery. Asynchronous learning, learning and teaching that occurs at different times, is a significant barrier to learning in practical subjects such as the Arts. In the Arts and education, where engagement with artistic creation and its practical application is of central importance to student learning, the asynchronous nature of e-learning poses significant challenges. Videos have therefore been used in this unit to seek to overcome the transactional distance that can exist in online learning environments. Whilst there is no extant research on the application of e-learning videos to Arts education, there is some research into the use videos in similar ways in other domains.

Vonderwell (2003) comments on the nature of asynchronous learning, and its impact, stating that “asynchronous communications may have limitations that may minimize the richness of communication and impede student learning. The absence of low level of social cues and emotions such as body language may influence student learning and interaction” (p. 79). Mullins-Dove (2006) similarly refers to ‘human contact’, stating that “One of the most common complaints about distance education from students is the lack of human contact between students and instructors. One method of incorporating the human element into a distance education course is through the use of streaming video” (p. 63).

Hampton (2002) provides some explanation of what is significant about the use of videos that is of importance to e-learning, highlighting its “multisensory” nature. Hampton (2002) writes that “Video is a successful medium because it links the audio and the visual together to provide a multisensory experience for the learner. The benefits of video are the ability for the learner to play, replay, pause and rewind to specific sections of the tape. Because practice and rehearsal is so important in developing competency, video is particularly well placed” (p. 85). This reference to visual and audio cues and to the interactivity of video playback is an area that was highlighted by many participants in Baker (2011a) and continues to be evident in those data referred to in this paper.

Borup, West and Graham (2012) maintain that “the flexible and reflective nature of asynchronous communication could be accomplished via video that is high in fidelity, thus combining the human touch aspects of face-to-face communication with the flexibility of online environments” (p.195). They also suggest that video may provide a “human/technology balance by manipulating the communications medium to involve more video that could provide visual and audio cues not expressed in text” (p.195).

Donkor (2010, 2011) applied the use of video to a practical learning area, that of construction skills in the vocational sector, and found that video materials were considered “pedagogically superior to the print-based instructional materials as users of the former exhibited superior skills acquisition and craftsmanship” (Donkor, 2010, p. 107). In a 2011 study Donkor found that “the results of this study showed high acceptance and satisfaction of the distance learners with the use of the video-based instructional materials to teach them practical skills” (p. 89). The nature of the area investigated by Donkor suggests that there is a value to students in the provision of video learning tools encouraging the development of practical skills. Also of importance in this study is the comparison between print-based media and video-based media, and the strong satisfaction expressed by participants in the latter.

Zhang, Zhou, Briggs and Nunamaker (2006) studied the use of “interactive” video and its effect upon student learning, with “interactive” video enabling easy manipulation by users, such as the ability to easily find specific information via detailed tagging of the video content. They write that “the value of video for learning effectiveness was contingent upon the provision of interactivity. Students in the e-learning environment that provided interactive video achieved significantly better learning performance and a higher level of learner satisfaction than those in other settings” (p. 15). Of specific relevance to this paper, Zhang et al. (2006) refer to the repetition of viewing as a means of increasing student support, suggesting that video may actually provide “better support” for students than face to face learning environments. Zhang et al. (2006) write that video “allows online learners to watch in-class activities and listen to instructors repeatedly as needed, while, in a traditional classroom, students may not be able to ask instructors to repeat what they do not understand. Therefore, interactive video may provide better support to learners for understanding the learning material and enhances self-paced learning” (p. 19).

The Unit

The unit entitled 'Arts Education: Music and Visual Arts' is a core unit of a Bachelor of Education degree offered in the second semester of first year. The unit is offered in both face to face and fully online modes, and, in 2011, 475 students were enrolled, with 288 (60.6%) of these being enrolled as online learners. The unit, taught over a thirteen week period, allocates time equally to music education and visual arts on a weekly basis, and includes three assessment tasks that integrate learning in both areas. There were nine teaching staff in the unit, only two of whom were profile staff, with the remaining seven being teachers working in schools who were employed by the Faculty on sessional contracts.

The unit is one of only two compulsory Arts education units in the degree, and as such these two units represent the only engagement with Arts education by students in their degree. Central to the philosophy underpinning the unit is a constructivist orientation, encouraging students to create their own understandings of key concepts and skills through an active engagement with course materials. In this sense 'hands on' engagement with Arts making activities is an essential component of student learning. Materials have been specifically developed to encourage online learners to engage in this constructivist approach, including structured discussion boards and a series of specific, in-house demonstration videos.

Procedure

This research project is grounded in the constructivist ontology (Blaikie, 1993; Sarantakos, 2005) and uses a multiple method approach to data collection (Denzin & Lincoln, 1994; Patton, 1990). The use of more than one method of data collection is a multiple method approach, and Denzin and Lincoln (1994) refer to qualitative research as being inherently "multimethod" in focus (p. 2). Patton (1990) maintains that the use of multiple methods of data collection is to be regarded as a source of methodological strength within the qualitative paradigm (see also Sarantakos, 2005). Participants in this project participate in an online survey and may also elect to participate in a subsequent interview; the process reflecting the notion of "purposeful" sampling (Patton, 1990; Hatch, 2002).

The survey data explored in this paper were collected from pre-service teachers (n=71) in 2011, and is the second round of such data to be collected, the first round being collected from a different cohort in 2010. The analysis of these data has been undertaken using inductive category construction and matrices (Hatch, 2002; Miles & Huberman, 1984; Sarantakos, 2005), wherein data are entered into matrices, identified, coded, and searched in order to isolate and understand emergent themes, and the relationships between these themes.

In December 2011, following the release of grades, fully online students (n=288) were asked to complete a survey about their experiences in Arts education as online learners. 71 respondents (24.7%) completed the survey; however the number of respondents varied between questions with some respondents not completing all survey questions. This paper presents an analysis of data collected from this survey. Five participants have since elected to participate in the interview stage of data collection.

Data analysis and discussion

Data collected from respondents were analysed through 'inductive category construction' (Hatch, 2002; Miles & Huberman, 1984; Sarantakos, 2005, p. 306). Hatch (2002) writes that the inductive approach "proceeds from the specific to the general. Understandings are generated by starting with specific elements and finding connections among them" (p. 161). Hatch (2002) maintains that "inductive data analysis is a search for patterns of meaning in data so that general statements about phenomena under investigation can be made" (p. 161). Those data collected via

the survey were entered into extensive data maps, charts, or “matrices” (Miles & Huberman, 1984) that provided a framework for analysing themes and the relationships between them. The quantitative data collected with the survey were used to inform the analysis of qualitative responses and to provide a working hierarchy of value by the number of responses to theme areas according to the inductive analysis. The analysis of data revealed three principal themes in relation to the use of videos by students in the unit: the ways in which they engaged with them whilst viewing them, what they thought about whilst viewing them and how they applied the learning from them to other contexts.

Theme 1: Engagement with videos

As may be seen in Table 1, 29 (46.8%) of respondents used the videos constantly through the unit, and 19 (30.6%) of respondents used these every week, with 48 respondents (77.4%) therefore regularly using demonstration videos in the unit. This indicates an extremely high uptake of these learning tools by participants, suggesting that these students found them to be valuable in their learning.

Table 1 Use of Online Videos

Answer Options	Response %	Response #
I didn't use the videos	4.8	3
I used these only once or twice	3.2	2
I used these occasionally through the unit	16.1	10
I used these every week	30.6	19
I used these constantly throughout the unit	46.8	29
	<i>answered question</i>	63

Sixty respondents elected to provide a written response to this question, and these data have been analysed inductively using colour coded, intersecting matrices. Of some interest is the fact that in the previous round of data collection in the 2010 survey, 17 out of 54 respondents (32%) indicated that they had used the videos in an ‘active’ way, that is working along with the videos in some way. In this survey 30 out of 63 respondents (47.6%) indicated in their written responses that they had used videos in an active way. The overall analysis of qualitative data revealed comments across multiple questions that referred to the different ways in which students used videos, and therefore the total number of coded ‘uses’ exceeds the 63 responses reported for this question, in fact 83 references were made to the different ways in which students used videos.

The most common form of engagement with videos (35 responses) referred to by respondents was simply ‘watching and taking notes’. This was coded and understood as a fairly low level of engagement with the instructional material, because students were not engaging with the materials by actually ‘doing’ the activity demonstrated in the video. Thirty responses referred to doing more than just watching and taking notes, usually referred to as ‘working along’ with the content in some way. This is regarded as a more active engagement with videos, because respondents who ‘work along’ with the material, such as through clapping or singing with a video, or through making art, are actually engaged authentically in constructing their own meaning from the task, rather than simply observing the task.

Five respondents made reference to viewing the videos multiple times, another means of engagement, but not necessarily more active engagement, unless that re-watching included

physically working with the material. This theme was also present in the 2010 data (Baker, 2011a); although in this survey this theme was more prevalent. Two of these five responses referred to this active, multiple use of videos, with one respondent writing that they had engaged by *watching, taking notes, joining in, playing over and over to understand a concept*. This response is interesting because the respondent has indicated that their engagement was not only, watching and taking notes and working with the material, but using the video activity to actively engage in conceptual understanding of the material covered. This was coded and understood as a multi-layered, very high level of engagement with the material, because the respondent has engaged beyond the content with the conceptual understanding of the learning embedded therein.

Ten responses referred also to using the videos with family members and even one that refers to using *quite a few of the visual arts with my Guides unit*. This theme of applying video learning to a practical context is referred to in more depth in the section entitled 'Application of videos'. The application of video materials in another context such as this indicates a high level of engagement with the learning embedded in videos. One respondent indicates their own high level engagement, writing that their use included *watching, taking notes and working along with them while singing and clapping, trying some activities with xylophone with family, friends and other students*. This again was coded and understood as a multi-layered, very high level of engagement with the material.

Theme 2: Thinking with videos

Following on from previous data about the use of videos (Baker, 2011a) the 2011 survey was intended to gather deeper data regarding the ways in which students cognitively engaged with these learning tools. To this end one question asked 'When you watched these online videos what were some of the things you were thinking about?'. This question elicited some fascinating data regarding the thought processes behind student use of videos, including reflection on: required readings and Power Point presentations, the application of the demonstration material in classroom situations, and their own life experience such as when they themselves had been a school student. The coding and analysis of data elicited from this question was not as complex as that referred to in the previous section, with respondents tending to highlight only single areas of thought or reflection whilst watching or using videos. Out of the 56 responses to this question only ten referred to more than one area of thinking whilst watching videos and all of these referred to just two areas of thought or reflection. This is of itself interesting, indicating that the attention of respondents was clearly focussed in certain ways whilst watching videos. One such response was *with respect to the video on the different beats I linked it to learning from 30 years ago. The warm up activities have given me valuable tools to use in a classroom*, thus illustrating two areas of reflection, one upon previous experiences and the other upon the practical application to the classroom.

There were 26 references made to thinking about material included in Power Points, other required tasks or to the required readings. This is not necessarily a low level of engagement with the videos, because by linking these with other areas of learning students may by so doing strengthen their understanding of key concepts or understandings. One respondent referred to the ways in which they had made such links between learning materials, drawing attention to their particular need to 'see' what was required. The respondent writes that *it was great to be able to see what was being talked about in a Lecture or weekly task being applied therefore giving a great understanding of what was being talked about and what was being asked of us*. This reference to a 'visual' component of learning was also highlighted in Baker (2011a) in which several participants referred to themselves as 'visual learners'. This once again is an important comment, because in purely text based approaches to online learning, the needs of those who make sense of learning through ways other than text, such as kinaesthetically or visually, can be overlooked.

One respondent highlights the way in which they had observed explicit scaffolding and sequencing in the videos and the way they had then linked these techniques to learning in other weeks, stating *I was thinking about how the leader was engaging the participants, how he was building on the learning, and linking it to the lecture of that week or to what was relevant from previous weeks*. Like those respondents who refer to links between video learning tools and other learning materials such as Power Points, this is a particularly high level of use of videos, because the respondent has made conceptual, pedagogical and understanding links through their use of the video. A particularly significant response was *I was thinking that it helped me understand more clearly what was being taught, like actually being in the lecture room itself*. This is important, because it suggests that this respondent had imagined their own presence in a face to face teaching situation, a huge cognitive leap to be made from a video, but one that highlights the potential value of videos for online students.

There were 23 responses that referred to thinking about a practical situation or context whilst viewing videos. These included straight forward responses about professional future applications such as *I was thinking about how music and visual arts could be integrated into the classroom teaching and learning environment* and *I was constantly thinking about my future students and their needs during watching the videos*. Some respondents, who were already working in a school context referred to the application of video material to a current classroom situation, such as this multi-layered response: *I would apply them to my own experiences working with children as well as with my own. I would also be watching what was on the video and thinking about texts that related to what was being shown*. This response highlights an advantage of videos, that they also enable direct reflection on a practical application, an important element of pre-service teacher education. A smaller number of respondents referred to their own school education. This was less common, but it does indicate that some respondents were linking video materials to their own life experience. One respondent wrote that *I was thinking about my own experience with music and arts at primary and high school*.

Theme 3: Application of videos

As may be seen in Table 2, an overwhelming number of respondents 46 out of 63 (74.2%), had applied the learning in videos to a practical context. This is a particularly interesting engagement with the materials, and indicates a sophisticated engagement with video learning tools. It suggests that, as was the case with the regular use of videos, referred to in Theme 1, students placed a value on the application of their learning to a practical context.

Table 2 Did you use any of the activities demonstrated in videos in a practical context?

Answer Options	Response %	Response #
Yes	74.2	46
No	27.4	17
Answered question		63

One respondent referred to applying one visual arts activity with year four students, and a musical activity with their family, stating that *I shared the Exquisite Corpse activity with a small group of year 4 students and also with my family. This enabled me to prepare well for the activity and understand the materials required and the skills necessary for the activity. I also shared the ostinato activity*. Another student indicated how they had applied their video learning in a school classroom situation, and by so-doing make a conceptual link to the work of both specialist and generalist class teachers, stating that they had *worked with music and class*

teachers to do soundscape and also papier mache project - gained more understanding of specialist or class teachers lessons and aims as a result of being more in tune with processes and thoughts behind lesson from listening to and watching course material. Another student commented on the application of video material to a school classroom situation, and the impact this application had on both the school students and their own thinking, stating, *I did use some of the ostinato activities with small groups of grade 1 and 2 children that I work with and also making a soundscape of city sounds with grade 1's. The students all enjoyed the activities, were engaged and actively participated. It showed me how it is possible to integrate music activities into the classroom and how effective they can be.* This type of conceptual leap may not have been possible without the video learning tools, and indeed this is the very type of leap that this unit is intended to facilitate in student thinking.

Conclusion

The nature of video as a multisensory, audio-visual learning tool offers one way by which transactional distance in e-learning may be addressed. The interactive nature of videos, enabling students to pause, and to move forward and backward may also provide a means of reducing the 'distance' of such learners. This is evident in this paper through the value placed upon these learning tools by participants, they valued these because they used and applied them regularly, and some students made very significant progress in their thinking by such engagement. Some of the issues with asynchronous learning, such as lack of online presence, may also be addressed through videos.

When viewed in their entirety this analysis of data produces a multi-layered and complex picture of the use of video learning tools by respondents. These multiple layers refer to the multiple ways of engaging with, thinking about and applying the learning embedded in videos and the value placed upon these multiple uses. By far the most significant finding from this analysis was the multiple ways in which some respondents had made very complex uses of materials, such as reflecting simultaneously on the conceptual underpinning of an activity, making links to other information, concepts or knowledge included in the unit and similarly applying the video material in multiple contexts such in schools, with family and friends. Whilst these different ways of interacting with videos were evident in these data, complex interactions were not always present. This suggests that future research should focus upon ways in which students can be encouraged to make complex, sophisticated uses of videos to support deep learning.

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