Research in Post-Compulsory Education
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/rpce20

The use of video to enable deep learning
Barbara Mitra a, Jenny Lewin-Jones a, Heather Barrett b & Stella Williamson a
a Institute of Humanities and Creative Arts, University of Worcester, Worcester, UK
b Institute of Science and the Environment, University of Worcester, Worcester, UK
Available online: 13 Dec 2010

To cite this article: Barbara Mitra, Jenny Lewin-Jones, Heather Barrett & Stella Williamson (2010): The use of video to enable deep learning, Research in Post-Compulsory Education, 15:4, 405-414
To link to this article: http://dx.doi.org/10.1080/13596748.2010.526802

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: http://www.tandfonline.com/page/terms-and-conditions

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae, and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand, or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.
The use of video to enable deep learning

Barbara Mitra*a*, Jenny Lewin-Jonesa, Heather Barrettb and Stella Williamsona

aInstitute of Humanities and Creative Arts, University of Worcester, Worcester, UK; bInstitute of Science and the Environment, University of Worcester, Worcester, UK

(Received 16 March 2010; final version received 14 July 2010)

Videos (including commercial films, films made for teaching and films on public websites) are being used in higher education in many different subject areas. With the arrival of websites such as YouTube, students can access material of varying quality and content on numerous topics. The purpose of this research has been to investigate student perceptions of the use of video in lectures and seminars in order to assess whether video can enhance student learning and encourage critical engagement with topics. Based on feedback from 134 questionnaires and 20 semi-structured interviews, we highlight some key issues in using video in teaching and learning. Overall, it will be suggested that video can provide useful material for students to engage with, but it needs to be used as part of an overall blended learning approach.

Keywords: video; blended learning; higher education; student perceptions; YouTube

Introduction

Whilst we may think of video as relatively recent in the field of learning and teaching, Shephard (2003, 295) noted that ‘video has been used in different ways for many years to support student learning in all branches of education.’ However, the introduction of websites such as YouTube, Google video and TeacherTube has led to much greater and easier access to a wealth of video material, most of which is freely available to students and lecturers. There are also numerous videos that have been specifically made for educational purposes, many by academics themselves, and indeed our research interest in this topic stems from our own production of video material. Similarly we have found that many of our academic colleagues have also made use of the vast resources available through commercial DVDs and the internet. We use the term video here as an umbrella term to include all media with moving pictures and sound.

There are few examples of the evaluated use of video in learning and teaching in higher education, as Shephard (2003) has pointed out. The research that does exist in this area has often focused on lecturers’ experiences and views of using video and the practical details of how to use such technology in higher education (see Cook-Sather 2003; Lee and Sharma 2008). However, we seek to establish and highlight student viewpoints in order to gain fresh insight into the use and experience of video in teaching and learning in higher education. Our research aims to investigate how students

*Corresponding author. Email: b.mitra@worc.ac.uk
experience video being used in their courses by their lecturers, how they use video themselves, and how this might impact on their learning.

Sceptics of the use of video in education might argue that the use of video material is leading to a decline in intellectual rigour through oversimplification and an emphasis on entertainment and passivity. Conversely, through our research we aim to show that video can be a very valuable educational tool (see also Bashman and Treadwell 1995), and that when used appropriately video can actively engage students and lead to deep learning as part of an overall blended learning approach.

Literature review
In the early days of using audiovisual resources in education, Dale (1969, 140) noted that ‘Properly prepared audiovisual materials can help us teach our subject matter with increasing effectiveness at all levels.’ When used in a focused manner, video clips can bring themes to life and stimulate student interest in topics (O’Hagan 2001). It is generally agreed that one key use of video is to present new information to students in a way that enables them to engage actively with the subject. Whether students find video material themselves or are directed to it, they may use video to orientate new material and gain background information.

As well as encouraging active learning, video has also been seen as promoting deeper learning. This could partly be due to the visual images in video. It has been shown that, for example, memory of pictures is much better than memory of verbal names of those pictures (Bashman and Treadwell 1995). When used critically, video makes use of both audio and visual processing, leading to more engagement with the content than when only one sensory system is used.

However, researchers have emphasised that there is more to video than purely being shown a series of visual images. Video can be used to reinforce learning by enabling students to relate images from video material to other situations. For example, Cherrett et al. (2009) developed an interactive video for undergraduate civil engineering students studying health and safety on construction sites. Students had to engage individually with the learning content, identifying various hazards and offering ways to minimise the impact. Cherrett et al. (2009) concluded that when students are encouraged to engage directly with problems and have to apply, and use, their learning then this facilitates deep learning. It is argued that video adds contextual and emotional information which enables such links to be made. These types of connections may also facilitate deeper learning in a way that is sometimes otherwise difficult to achieve in the lecture theatre or seminar room (Craik and Lockhart 1972). White, Easton and Anderson (2000, 174) in their study of distance learners of Spanish also highlighted ‘the rich contextual background provided by video’, which adds to an enhanced and rich learning environment. In this way, video may enable deeper learning outside the teaching space.

The importance of taking a blended approach has been emphasised, with video being used alongside other teaching resources. Indeed, it was suggested by Sherwood et al. (1987) that new information is likely to be perceived as significant by learners when presented on video in combination with text. Some of their experiments with segments of popular films highlighted this ‘synergistic relationship between video and text’ (Sherwood et al. 1987, 103). They suggested that the use of video and text together can facilitate greater comprehension. Similarly, Beard, Wilson and McCarter’s (2007, 10) survey of postgraduate students studying hospitality, leisure
and tourism indicated that ‘the integration of video and text did have a positive effect on learning’. They suggested that their use of video and supporting text, provided on CD-Rom, created a ‘more holistic approach to the learning process’ (Beard, Wilson, and McCarter 2007, 12). The different needs of the learners have also been highlighted. Hussein (2005, 18) stated that as learners learn in different ways ‘good learning materials should deliver the learning in a variety of ways to suit a range of learning styles.’ Coffield et al. (2004, 3) referred to teachers developing a type of ‘pedagogic sheep dip’ in order to be inclusive of different learning styles. With this in mind, we suggest that there needs to be synergy between video and other material for it to be effective.

As well as considering why video can be an effective tool, there has also been discussion about how it should be used. This is part of a wider debate about the use of technology in education. Nichols (2003, 4) has pointed out that ‘poor implementation of technology must reflect poorly implemented pedagogy, or an over-estimation in technology’s potential (or a blend of the two’). Similarly, ineffective use of video can result from a lack of consideration about its application in the teaching setting. O’Hagan (2001) suggested that video should be used in short segments to maximise learner concentration, as this is more effective than playing programmes in their entirety. Hussein’s (2005) guide to tutors designing their own e-learning materials emphasized that lecturers have to establish why and how the materials are being used, so that they clearly explain the purpose of the video material. We seek to explore whether we as lecturers could make further adjustments to the ways in which we use video, and how we can encourage students to use video effectively.

In this research we are adhering to constructivist approaches (see Vygotsky 1978; Bruner 1990; Tobin 1993) where learning is understood to be collaborative and interactive. Slevin (2008, 119) noted that learners are encouraged as well to be ‘responsible, autonomous and critical, and go beyond any information that they are given.’ Hence, we seek to investigate whether students experience video being used in an interactive way in lectures and seminars, and if they are being encouraged to use video material independently.

Method
The research was a year-long funded project, through the Herefordshire and Worcestershire Lifelong Learning Network. The funding enabled us to employ a researcher who distributed questionnaires and conducted semi-structured interviews with students. There were 134 respondents to the questionnaire from the following subject areas: English Language and Modern Foreign Languages (21%), Geography/Archaeology (36%) and Media and Cultural Studies/Film Studies (43%). Whilst one might expect video to be used in subjects such as Film Studies, we felt it was important to investigate the use of video across departments and subject areas to see if video was being used in these areas. We also wanted to investigate how video was being used, to what purpose and the effect, if any, on students’ learning. The respondents were also fairly evenly divided in terms of their year of study, with 35% being first year, 34% being second year and 31% being third year undergraduates.

The questionnaire itself was administered by the researcher during lectures and seminar sessions. The researcher introduced the questionnaire and collected them in herself. The researcher did not teach on any of these modules and was herself a recent graduate. Our opinion was that the students would respond better to someone who was
not connected with the academic staff on these courses. The students were assured that all information would remain confidential and anonymous and that the researcher would compile the information from the questionnaires. This further dissociated the lecturers from the questionnaire in order for students to be comfortable about what they were writing on the questionnaires.

The questionnaire itself consisted of a mixture of open and closed questions. Closed questions were used to find out how many students had experienced video being used in seminars and in lectures. Demographic information was sought such as students’ age and gender. The open-ended questions asked for information about how video had been used in lectures and seminars, and sought their opinions about this in relation to their learning. For example, one question asked students to give details of watching video clips in their seminars: ‘Have you watched videos in preparation for a seminar?’ and ‘Have you watched video clip(s) during a seminar?’ Students were also asked how they might like to see video being used in their courses. At the end of the questionnaire there was a detachable sheet for students to fill in their contact details if they wished to participate in the semi-structured interviews.

In order to gain more in-depth insight, the researcher was also tasked with conducting semi-structured interviews. This approach was seen as preferable to that of structured interviews or surveys as it allowed for flexibility in coverage, enabling participants to identify the important issues in relation to the topic area. Twenty students volunteered to take part in the interviews and all were selected. Since the interview process took place towards the end of the academic year, the participants were mostly first and second years due to the assessment pressures on third years. The timing of this study meant that it was difficult to compare the experience of students in different year groups. Seven students were from Media and Cultural Studies/Film Studies, five were from Geography, and eight were from a range of subjects including Psychology, English and Business Management. The researcher was flexible in terms of when and where these interviews took place, but most occurred on campus at the convenience of the student. In order to find out as much as possible, a mix of questions was used with ‘cued invitations’ (Hershkowitz 2001), such as ‘tell me about…’. The semi-structured nature of the interviews meant that questions were not always asked in sequential order. The researcher had a series of questions to provoke discussion about the use of video and whether the students perceived it had any impact on their learning. These included student experiences of video being used in lectures, seminars and the virtual learning environment. Students were asked to give specific details about how video was used, for example, to introduce a topic or stimulate discussion in a lecture. They were also asked about their own independent use of video material. The interviews lasted from about 30 minutes to over an hour depending on the amount of time available to the student. The researcher then transcribed the interviews and all names were erased before any information was passed on to the research team. The process of data analysis then followed that of Braun and Clarke (2006) where interviews were recorded and then transcribed, during which notes of points in relation to our research questions were highlighted.

**Results**

Five main themes emerged from the majority of the responses to the questionnaires and the interviews. The first three themes relate to why video can be valuable as an educational tool. These themes are active learning, links with existing knowledge, and
video as part of an overall blended learning approach. The final two themes relate to
how video can be used in post compulsory education. This is divided into two parts –
how students would like video to be used, and learning points for lecturers.

**Active learning**

There were a variety of responses from students as to how video had helped with their
learning. Analysis of the questionnaires revealed that a significant majority of students
(89%) thought videos were useful. They liked the examples that they could see on video
and said that such material enabled better understanding and clarification of topics.
Students specifically referred to video as aiding their recall of various themes and defi-
nitions, as well as providing alternative viewpoints which challenged previously held
ideas. Hence, video can be used to stimulate students to challenge preconceptions.

Students have often had mixed experiences of video being used in their learning
during secondary school and this previous experience often colours their reaction to
and reception of video being used in higher education. Our research suggests that
some students have had very positive experience of educational videos being used
whilst others had very negative experiences of video being used. Students who had a
more positive memory of video being used in school felt that it had supported their
prior learning: ‘It’s something that’s helping me learn throughout my entire school
career – they have always used videos.’ Those who held a negative view had often
experienced video purely for entertainment rather than for educational purposes. For
example, one student noted ‘I remember a not too … committed English teacher read-
ing us half of Jane Eyre and then saying nuts to it, let’s watch the film … there’s a
general feeling at college that the use of video was a sort of treat.’

Equally, if video is used in a passive manner in higher education then this will also
influence student response to video material generally: ‘Students aren’t stupid … if
you’re just popping a video in just for the sake of it, they’re going to cotton on to that
very quickly.’ Equally, students noted that the relevance of video was often lost when
there was an inadequate introduction or a lack of activity associated with it. One
student commented:

> A few people mention like that they are not relevant but they probably are, but if they
are not explained … sometimes [it is] not obvious and we’ve just sort of watched a three
minute clip and we’ll sit there like, we don’t quite get what this was.

Thus the importance of highlighting the relevance of videos to students cannot be over-
emphasized. Our research suggested that students thought it useful to have questions
to address when watching the video: ‘it’s quite possible for students to switch off …
so maybe you could overcome that by putting certain questions up at the beginning
that students need to answer from watching a video or something.’ Students liked being
encouraged to discuss the content of the videos. Another student commented that they
‘watched videos on a specific city then discussed issues raised in the video.’ In another
subject area, extracts of *Gladiator* were watched in a seminar to begin discussion.

**Links with existing knowledge**

Video can help students to link between new ideas and existing knowledge. One
student commented: ‘you can see it in real life and link it with what [you] already
know about something.’ Students also suggested that because their interest in topics had been stimulated by video material, this also led them to read about that particular topic. Enabling students to access video material encourages them to follow up themes and topics, which may then encourage deeper learning. The questionnaires also suggested that students like video to be used to highlight examples on specific topics. One student noted that video had been used ‘to show an example of something we’re learning about [to] gain an opinion to put in an assignment or for extra information.’ They felt that this helped their understanding and may actually benefit them in terms of doing better in their assignments.

Part of this deeper learning could also be facilitated by having video material available later for private study alongside the social interaction in the classroom. This could be through a virtual learning environment or through such sites as YouTube. This is highlighted by the comments of one student:

Our lecturer puts them [video] onto Blackboard [a VLE] and we can sort of dip in and out as and when we want to. I personally look at them at home so that I can familiarise myself with what’s coming up … or to reiterate what I have been learning the week before.

Being able to see videos in their own time on their own computers (e.g. through the VLE) means that students can control their interaction with the video, such as being able to repeat sections as required: ‘I could keep going over it and keep going back to it. I just like to be able to pause things, fast forward things and go back to things.’ Another student noted ‘when I watched it at home on my own later, I found out things that I missed out before.’ Thus video can be used to encourage students to take control over their learning and to foster deep learning about specific issues.

**Part of an overall blended learning approach**

We maintain that it is essential for video to be used as part of an overall blended learning approach. Students themselves perceived that different learning methods were useful:

I think they really help you understand where the lecturer is coming from … and it’s good to have visual aids because some people learn differently, in different ways and I personally feel I learn better with a combination of like writing and discussing as well as visuals aids and stuff like DVDs.

The synergy between text and video highlighted in research into video was referred to by the students in our study, even though they did not use the word ‘synergy’ themselves. For example, one student commented on a video they had watched on the topic of semiotics:

We were looking at semiotics … and I did run through that sort of two or three times to get more of an idea. Because semiotics isn’t really an easy thing to grasp. But I did find that useful because I could keep going over it and keep going back to it and then it helped me … when I was reading in books it sort of clicked with what it was saying. So I could relate it better from seeing that particular YouTube video.

Hence, the video and text together reinforced learning to facilitate understanding of a topic. So rather than video replacing written text, it offers an additional medium to be
used alongside text. Another example of this synergistic relationship is where one of the authors made a short video to explain a difficult topic. This was then used alongside written text in preparation for a seminar to focus discussion and gauge understanding. There was much positive feedback about the use of text and video material together.

Video can also offer access to experts in the field or to situations that are difficult to replicate in the classroom. As one student notes:

Sometimes the lecturer will show clips of particular theorists such as Bourdieu or someone like that and they’ll be talking about themselves and it is easy to relate to what they’re talking about if the person is actually saying it themselves.

Again, this is not to replace textbooks, but to add to the range of different sources about a topic. It is important however, that students need to view videos critically rather than seeing these as authoritative.

Yet there is a vast amount of material available on the internet and much is of varying quality and content. However, students do seem to engage with these sites regardless of whether lecturers are using them or not. One student commented ‘I suppose I look at things that end up not being very relevant. I could end up getting the wrong end of the stick.’ Students were, therefore, concerned about accessing appropriate resources and having the knowledge to identify which sources are valid.

There is still a debate to be had regarding the use of video material and assessment. Students are unsure how to make use of video material in assignments. One student commented ‘I’ve been sometimes afraid to use them because I don’t really know how to like quote from a video clip.’ Hence, students want clear guidelines as to whether they can use such material in assignments and, if so, how they should reference such material.

**How students would like video to be used**

Students also made suggestions about how they would like video to be used, from highlighting examples to having shorter clips shown more frequently. They also wanted video material to be used alongside other methods to reinforce learning. Hence, despite perceptions that students may see video as passive, students realise the potential that video has for enhancing their learning.

Students themselves suggested they preferred shorter clips rather than long ones. ‘If the video you want to show is rather long, then it is useful to make it accessible later and to show only a short clip in the lecture or seminar.’ In fact, students liked having a short section of a clip shown in the lecture or seminar so that they know which video material to watch later. Students noted that reliable, short and relevant clips added excitement and interest to the topic being studied. Showing a short clip from a longer video also guides students in what they should watch. Students are keen to get as much out of the time they have in seminars and lectures, so careful planning in how much of a video to show is essential. For example, a student commented that

…they can be 12 or 14 minutes, or even longer. Well out of an hour or a couple of hours lecture that’s quite a long time when you’ve got other videos as well. And if the relevant part is just taken out and shown to us in the lecture, if we want to take it further as students then that’s up to us.
Students also noted that by using video material it actually kept their attention more focused, by breaking up the lecture into shorter sessions. However, the overuse of video can have a negative influence on student learning and engagement with video content:

Maybe sometimes they’re overused. Like when they have a clip for every point they are trying to make when it wasn’t needed and sometimes, I mean, obviously clips reinforce the point don’t they – whereas not every point needs to be reinforced.

Students become frustrated if time is wasted trying to get videos to work: ‘Sometimes clips haven’t come up and they’ve wasted quite a lot of time trying to get it to work when it clearly isn’t going to.’ If a great deal of time is spent trying to get the video to work it actually becomes a barrier and a hindrance to learning. It may make students sceptical of video material rather than stimulating their interest in a topic.

**Learning points for lecturers**

It is essential that the purpose and relevance of the video be communicated with students. One cannot assume that students have made the connection between the video and its relevance. As Jeffries (2003) maintains, the learning technology needs to be properly integrated into a course for students to engage with it properly. Hence, the lecturer needs to guide students in order for them to become critical in watching video material and to approach it with a questioning mind.

Lecturers have to facilitate student response to video by enabling them to engage with content material in a critical manner, so that they are not seen as purely for entertainment, but for questioning, provoking discussion, reinforcing learning or challenging previously held conceptions. Otherwise students with prior negative experience of video use may be more passive in their response to video being used in lectures and seminars in higher education. It may also enable learning more if there is variety in how and when video material is used, rather than only beginning sessions with a video clip to stimulate discussion. Thus, it is essential for video to be used as part of an overall blended learning approach in order to achieve maximum benefit.

Video clips can be made available on virtual learning environments for students to watch in their own time. In fact, if appropriate, seminars can be based around the prior watching of specific videos with questions to provoke thinking and discussion about topics. This could also be used alongside written text to deepen student understanding of a topic. What is important though is that rather than simply putting links on to a virtual learning environment, students are introduced to the video – even if it is just a few seconds in a lecture or seminar setting – and are encouraged to watch it in a critical manner.

It is also important for lecturers to be familiar with the video material in order to highlight certain points or to set questions for discussion before showing the video. Lecturers must also ensure that they are familiar with the technology and if it does not work then they need to be prepared to move on rather than wasting time trying to get a video to work.

**Conclusion**

To conclude, our research suggests that video can be very useful for enhancing deep learning and for stimulating interest in topics. However, lecturers need to enable
students to engage critically with video through questioning and discussions about the video material. The relevance of the video being shown also needs to be highlighted to students, even if the relevance seems obvious to lecturers. Students need to be taught how to engage critically with video material and to question the content, especially where academics are talking about their subject area. Hence, the attitude of the lecturer to video material will largely determine the attitude of the student to that material. Where a lecturer clearly sets out the purpose of watching the video and uses it to provoke thought and or discussion, then it will be less likely that students remain passive. However, if a lecturer passively uses a video as a replacement for an entire lecture then it is likely that students will passively view the video, unless specific tasks are highlighted before the video is watched. How lecturers themselves use video will determine whether or not the video is an effective learning tool or simply a passive time filler for students. When used critically and as part of a blended learning approach, video can be an important element in Higher Education. Students are browsing the internet and sites such as YouTube in order to find video material on topics they are studying, and, as lecturers, we need to teach them how to engage critically in the reading of video material.

Notes on contributors
Barbara Mitra is a Senior Lecturer in Media and Cultural Studies at the University of Worcester. She has research interests in the use of technology in learning and teaching, as well as focusing on gender and the media.

Jenny Lewin-Jones is a Senior Lecturer in the Language Centre at the University of Worcester. Her research interests lie in the fields of new technology in language teaching, widening participation in language learning and English Language usage.

Heather Barrett is a Principal Lecturer in Geography, Archaeology and Heritage Studies at the University of Worcester. Her research interests lie in the areas of new technology, employability and Urban Geography.

Stella Williamson is currently working as a research assistant in Psychology and Counselling at Newman University College.

References


