

Capturing Learning through Student-generated Digital Video

ABSTRACT

Digital video is an exciting emerging technology that can be used in schools to support, extend, or change pedagogy and curriculum outcomes. In particular, student-generated digital video has potential to enhance or change pedagogy. In this paper, we review relevant literature in this area and outline results from a recently completed research project that investigated the use of student-generated digital video projects across the K-12 curriculum in five Australian schools. Findings indicate a range of learning outcomes and pedagogical approaches. While most of our findings agree with the literature, there was less evidence of conceptual understanding of curriculum topics in our study, and a greater emphasis on audience as a key factor.

INTRODUCTION

The recent convergence of video and computer technologies presents new opportunities and challenges in education. Digital video cameras and easy-to-use digital editing software have become readily available. These developments have moved video production out of the hands of professionals and into the public domain. A consequence of this move has been the introduction of digital video tasks into schools, to enhance learning. In particular, *student-generated* digital video projects (referred to subsequently as 'DV tasks' or 'DV projects') are now being used in many classrooms to support, extend, or change pedagogy and curriculum outcomes. In this paper we discuss a study in which we sought to gain an understanding of the way that teachers and students interact and learn in classrooms in which practice using student-generated digital video occurs. The paper gives an overview of recent literature and presents some of the findings from our study.

Background literature

Research studies on learning through digital video

The use of student-generated DV in schools is increasingly becoming an area of interest to researchers of ICT in education. Issues surrounding learning and teaching with DV projects are beginning to be explored as the technology becomes commonplace.

Two recent studies investigating the use of DV tasks in schools were initiated by the British Educational Communications and Technology Agency (BECTA). In the first study (Reid, Burn, & Parker, 2002), the researchers focused on film-making and related language in fifty UK schools. They found that student engagement, self expression and creativity were enhanced in these cases, and an understanding of the 'language of the moving image' was vital to successful film-making. The second study (Burden & Kuechel, 2004) examined the use of 'digital video assets' in fifty UK schools. Students downloaded 'video assets' and were able to author them and use them to illustrate concepts in their curriculum studies. Students did not

generate their own video clips but were able to modify and edit other clips to achieve their purpose. Findings from this study indicated a link to improved conceptual understanding, higher order thinking and critical discrimination skills. Shewbridge and Berge (2004) discussed benefits such as media literacy, active learning, experiential learning, play and motivation, and emphasised the need for teachers to harness students' natural interest in DV work to create imaginative learning opportunities for students. Further claims of enhanced learning through DV projects include enhanced motivation, higher order thinking skills, development of group work and other social skills, media and visual literacy skills, self-expression and creativity, critical and reflective thinking and self esteem benefits (BECTA, 2003; Theodosakis, 2001; Yildiz, 2003).

There is a developing body of mostly descriptive literature focusing on uses of DV tasks in specific curriculum areas including history (e.g. Coleman, Neuhauser & Zwaag, 2004; Levin, 2003; Swain, Sharpe & Dawson, 2003), science (Ross, Yerrick & Molebash, 2003), language (Ludewig, 2001) and media studies (Crean, 2001). Goldman (2004) describes the use of students' video ethnographies to share personal perspectives. She found that at-risk adolescents demonstrated engagement and motivation in projects involving such use. Reid et al. (2000) saw a need for teachers to develop an understanding of how to assess DV work, particularly creative aspects. Barrett (2005) has also advocated the use of 'digital stories' to enhance reflective aspects of electronic portfolios.



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Modes of use of student-generated digital video projects

The literature describes three main modes in which students used digital video as a tool in their projects. DV is most often discussed as a communication tool to facilitate students' communication of messages, ideas, information and emotions. It is also discussed as an observation and analysis tool, where the main purpose is to enhance students' observation and analysis of performance or phenomena, particularly in science, dance and physical education contexts. This mode includes the use of 'video-based laboratories' (Rubin, Bresnahan & Ducas, 1996) and students' use of new video annotation tools (Cherry, Fournier & Stevens, 2003). Finally, DV has been used as a metacognition tool to support students' reflection on their own learning.

THE STUDY

Outline of methodology

A qualitative research paradigm was used in this interpretive study (Erickson 1986; Lincoln & Guba, 1985) to investigate practices in five case study schools. Data on teachers' and students' practices were collected and analysed from a socio-cultural perspective, in which the interactions of the group, their past experiences and beliefs, and the impact of being researched, are all seen as part of the research data. The following research questions served as a framework for the interpretation of the data discussed in this paper:

- 1) What types of learning outcomes are possible from student-generated digital video projects across the curriculum? What learning outcomes do teachers target? What are students' perceptions of their learning?

Mode/Main Purpose	Examples	Main Film Subjects	Sample Reference
Communication Tool To empower learners to express and communicate ideas, feelings and information.	News reports, documentary, press conference, cartoon, satire, talk show, music clip, advertisement, game show, drama, investigative report, instructional item, biography.	Self, peers, inanimate objects (e.g. puppets, claymation figures).	Levin (2003)
Observation and Analysis Tool To enhance learners' observations, measurement & analysis.	Feedback on performance tasks such as public speaking, drama productions, psychomotor skills etc. Observation and measurement of natural phenomena, such as analysis of motion.	Self, peers, inanimate objects, natural phenomena.	Cherry et al., (2003); Rubin et al., (1996)
Metacognition Tool To facilitate learners' thinking about their own learning	Video-based records of students' learning e.g. journals and learning logs (including online video blogs). Video –based documentaries of self, autobiography. Think aloud modelling. Inclusion of clips(s) in e-portfolio.	Self	Barrett (2005)

Table 1: Summary of Modes of Use of Student-Generated Digital Video in Literature

In summary, there is a growing body of literature which assisted us to understand the pedagogical implications of using student-generated digital video, but what was missing from this literature was specific reference to K-12 studies in Australia, and, more importantly, studies which considered the broader picture synthesising the role of teachers' beliefs and rationales, students' learning and engagement, and school contexts, in examining pedagogy with student-generated DV. The study described in this paper set out to gain a deeper insight into these areas.

- 2) What pedagogical approaches are used to support students' learning?

The schools were selected across K-12 (ages 5 to 17) so that there were both primary and secondary schools and a range of curriculum areas and pedagogical contexts for the use of the technology. The schools were all well known for implementing innovative approaches using student-generated digital video: four schools were located in New South Wales and one in Victoria. They comprised two state primary schools (District PS and Southern PS) and three secondary schools (Princes HS, Park HS and Pathways HS). One of the secondary schools was a state school and the other two were both Catholic systemic schools. Pseudonyms are used in this paper to protect individual and school identities.

Data were collected via open-ended questionnaires, observation of lessons, student artefacts, school documentation and interviews with teachers, administrators and selected students in focus groups. The story of each case school was constructed and developed from the multiple sources of data on that case. After all case studies were complete, the final stage was to collaboratively consider the five cases and look for common trends, discrete differences and influences that might have caused these differences. A more detailed description of the methodology is presented in Schuck and Kearney (2004).

Background on DV uses in study

Over sixty different student-generated digital video projects were part of the data in the study (see Schuck & Kearney, 2004 for full details). The majority of projects (65% of cases) involved students' use of DV as a communication tool: students built their videos to basically 'tell a story' or relay messages, ideas or information. These projects often involved students acting in roles in a variety of film genres such as news items, interviews, advertisements, and music clips. Far fewer cases in the study involved using DV to facilitate students' observation and analysis of performances and phenomena (23% of cases) or to enhance students' metacognitive skills (12% of cases). Two schools were using student-created DV clips as a metacognition tool in conjunction with digital portfolios while another school planned to use student clips as a basis for a video-based learning log.

Findings

Findings indicated that well-designed, student-generated digital video projects encourage student engagement and autonomous learner roles, plus a wide range of other valuable learning outcomes including traditional and new literacy skills. The projects shared characteristics of being student-centred and context-rich and encouraged active group participation. DV tasks were seen to provide students with flexibility and choice, usually creating a strong sense of ownership, self-regulation and self-esteem benefits and personal interest in topics. Students projected their personalities in unique, creative ways, particularly when they were aware of their peers as the target audience for their productions.

Insights into student learning

In this section, we outline student, teacher and researcher insights into a variety of learning outcomes that emerged from the case study classes. A range of potential learning outcomes were targeted by teachers, including development of movie-making skills, media literacy skills, communication and presentation skills and some affective outcomes such as self-esteem development. As well, a few projects aimed to develop conceptual understanding of a topic from a key learning area. Most students in this study enjoyed enhanced motivation outcomes, inspired by unique opportunities to 'find a voice' and creatively project their personalities to their peers through their DV tasks.

Traditional and new literacy skills

Numerous teachers targeted student development of writing and speaking skills as part of their lesson outcomes. For

example, a major outcome of Carole's lesson (teacher at Princes HS) with her Year 7 students was to practise oral and written English. The students practised their oral skills through interacting with peers and adopting roles in the video that required their understanding of language that differed from their own everyday speech. In their interviews, some of these students mentioned the confidence they developed in public speaking through their DV projects. Kirsty (Park HS teacher) stressed the importance of language development as a prime reason for her students to engage in DV projects. She believed there was great value for children with poor language skills to immerse themselves in these projects where they needed to express themselves well to complete the project.

Students perceived the development of their movie-making skills as a high-priority learning outcome from their projects. When asked in their interviews about their learning, students often emphasised their movie-making skill development. Movie-making skills were also featured as a major learning outcome in teachers' lesson plans. Subsequently, they often made a point of discussing film techniques during and after students' presentations.

Many lessons aimed to develop students' ability to make sense of the video medium and to critically analyse different film genres from the world around them. For example, Michelle (Year 5/6 teacher at Southern PS) had identified links between English syllabus outcomes and media literacy outcomes and married these learning outcomes as an integral part of her English program. Similarly, at Park HS there was a focus on developing students' media literacy through the use of DV Projects as a mandatory part of the English syllabus. Indeed, Jayne (K teacher at District PS) thought the use of student-generated digital video in her Kindergarten class had helped her children to develop a focus, and become more analytical of films and advertisements.

Conceptual understanding

Contrary to reports from the literature, relatively low levels of rigorous conceptual development relating to curriculum areas were noted in this study. For example, students' presentations of their final product often showed little evidence of any meaningful understanding of targeted concepts as they read from notes and avoided using their own words to explain concepts. Assessment criteria often did not focus on what students had learned about the curriculum topic but instead highlighted either the product quality or the quality of the class presentation. Indeed, sometimes the technology seemed to be impeding conceptual understanding outcomes. One example of this occurred in a mathematics class where students were filming the motion of a model car down a slope to graph its motion. Students were highly engaged and paid much attention to the filming techniques and associated aspects, but less attention was paid to the development of related maths concepts.

Some exceptions were analysed closely and there seem to be two common but important factors. Firstly, teachers in these cases emphasised the final 'celebration' stage where students would present their films to an audience. They mediated in-depth class discussions and probed underlying concepts and ideas. Secondly, these teachers encouraged students to

articulate their learning both during the process of building their films (e.g. via a learning journal) and after completing their final product. For example, a task which promoted considerable development of students' understanding was observed in the Year 3 class at Southern PS. An important part of their learning process was the final stage in which the students presented their work to other classes in the school to further discuss and illustrate their chosen concepts (in this case, 'virtues') and to encourage others to demonstrate their understanding. The role of the teacher in scaffolding this discussion and asking probing questions was significant.

Other insights

Students' final products provided ample evidence of a high degree of creativity in filming techniques, script writing and general editing. For example, the Year 5 and 6 group at District PS used imaginative film techniques that approached a professional 'news production' standard whilst the scripting and acting from the Year 10 groups at Park HS were innovative. Affective outcomes were also evident. Many teachers were impressed with the children's heightened confidence levels, noting that their DV projects helped develop their self-esteem and leadership skills. Many students in the study were genuinely motivated by aspects of their DV projects and a number of factors seemed to contribute to this enhanced interest. Firstly, there was a strong perception that DV projects were a 'change' from more traditional class tasks. Secondly, there seemed to be high levels of ownership and opportunities to project students' personalities. Thirdly, students were acutely aware of the intended audience and seemed to be most motivated by their peers as the target audience. Indeed, students became more critical of their films in projects that specifically targeted their peers as audience (Kearney & Schuck, 2004).

Pedagogical approaches

We examined different aspects of pedagogical approaches by considering the roles of teachers and students in lessons, the ways in which collaborative learning occurred, the ways in which approaches encouraged independent learning and the types of assessment tasks. An autonomous style of learning was supported by the open-ended task designs and required a significant degree of flexibility from the teachers. Innovative ways of assessing work were observed, both in terms of self and peer assessment of students and also observation strategies employed by teachers.

Teacher facilitatory roles and student autonomy

In most of the observed lessons, once the students knew how to use the camcorder and how to edit their footage, teachers adopted a facilitatory role. For example, Ray (Park HS teacher) believed his main teacher role was as an advisor about best filming and the rest was done by his students. Indeed, during his Year 10 RE lessons, ideas came mainly from the students as they wrote their own scripts, filmed and edited their clips with minimal intervention. Nancy (District PS teacher) thought of herself as a sounding board for stories and ideas, helping her Year 5/6 students to link ideas and form stories. She explained her role further:

To ensure that students have great opportunities to use these things, support them in developing their skills, to encourage them to continually assess and enhance what they are doing, to hear what they really want to do and figure out what they can do to make this happen.

Congruent with these generally facilitative teacher roles were task designs that were deliberately left open-ended and required students to take responsibility for their own learning. With the exception of the K children who were provided with significant scaffolding, the DV tasks that we observed were student-driven and required a high degree of student initiative. Many students were given a broad directive and were required to choose the content of their film and on few occasions, the film genre and intended audience. They wrote their own scripts and storyboards and were creative with their filming. They were usually encouraged to adopt a 'risk-taking' approach to their movie-making skill development. For example, the Year 10 students at Park CHS chose the medium in which to present their RE and History assignments and then had full responsibility for producing the material for the videos. This meant they chose how to present the material, they wrote the scripts, they researched the topic and they came to their teacher when they needed to ask questions about the technology.

Assessment practices

Self and peer assessment were a strong part of the assessment practices and in some case schools, these procedures were integrated with e-portfolio assessment. Teacher observation and frequent feedback throughout the production process formed a key part of the teacher assessment practices.

Some teachers encouraged students to create video clips as a vehicle for self-assessment of their learning. For example, Michelle's Year 5/6 students (Southern PS) incorporated reflective video clips into their digital portfolios to allow them to clearly display a video-based record of their learning journey. In each clip, they would describe the details of their activity, what they did and how they would do it next time. She

explained that she aimed to develop the students' metacognitive skills in conjunction with portfolio assessment:

It [their video clips] goes into their digital learning portfolios. For the parents it is more than just the finished product. [Children will say] 'This is the process of learning that I went through and I am able to track and record it through the use of video'. It makes it a richer digital portfolio for the kids.

She wanted her children to be reflective in their learning and she believed that inclusion of these 'reflective clips' made for a more meaningful e-portfolio.

Group members were frequently observed giving each other formative peer feedback during the process of making their films. This peer feedback process contributed to students' heightened sense of awareness of their film's attributes and flaws. For example, a Year 7 French student (Pathways HS) was asked what he liked about DV work. He replied: "...it is the feedback: you can replay video easily and see what you've done and how you can improve it." Indeed, usually the students' best and most immediate feedback on their work was their viewing (either via the small camera screen or later, on the computer) of their own films and listening to the comments of peers.

Teachers often relied on their own observations for informal assessment of many learning outcomes, including development of movie-making skills, language and teamwork skills, conceptual understanding and affective outcomes. The emphasis here was on both the process and the final product. For example, Helga (Pathways HS teacher) observed her Year 7 French students during both the film-making process and post-project presentations. Indicators of LOTE-related learning outcomes for her were students articulating sentences with meaning both in their films and their project presentations. Teachers also placed emphasis on their observations of audience feedback during students' presentations. For example, Kate (Year 3 teacher at Southern PS) was interested in observing how well children from other grades understood the main messages in the films and she would listen to audience responses during feedback sessions.

Summary and conclusion

This paper has overviewed recent developments in the literature on student-developed digital video projects and outlined some findings from our study. A range of valuable learning outcomes is evident in the literature base and digital video is being used by students in three main ways in their projects: as a communication tool; as an observation and analysis tool and as a metacognition tool.

Our study provided an insight into the use of DV projects in K-12 Australian schools. Five case studies provided details of activities, approaches, roles and beliefs of students and teachers in a range of K-12 schools using digital video. A focus of the study was on the interactions between this new technology, pedagogy and the social context of each school (see Schuck & Kearney, 2004 for full report). The following learning outcomes were evident in most cases in our study:

development of movie-making skills and related language development, development of media literacy skills, communication and presentation skills, creativity, metacognitive and affective skills. A range of approaches was used by teachers to support these outcomes, including open-ended task designs, mainly facilitative teaching roles and innovative self, peer and teacher assessment practices.

The authors saw clear evidence of student-generated digital video projects strongly enhancing student motivation and autonomy. We noted the value of the audience in focusing student motivation and critical analysis skills, and also found that student voice and ownership were key factors in enhancing the learning process. Students particularly enjoyed using their projects as a unique opportunity to 'project their personalities' to a peer audience. A suggestion arising from the study is that more emphasis is given to the development of conceptual understanding underlying the curriculum content that is usually the subject of these projects. Crucial to this development is the teacher's role in eliciting, exploring and discussing underlying ideas and themes during the presentation stage of students' films.

BIOGRAPHY

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