Students creating digital video in the primary classroom : student autonomy, learning outcomes, and professional learning communities

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ABSTRACT

This research is a part of a national project to identify effective sustainable and embedded use of ICTs leading to improved educational outcomes. The project identified six schools and conducted a qualitative case study analysis out of which eleven successful strategies were reported. One of these strategies was observed at a primary school and demonstrated highly effective and sustained use of digital video production by students leading to changes in pedagogy and teacher's roles, heightened learner autonomy as well as improved educational outcomes including increased reflection and metacognition. In addition, the teachers reported increased confidence in assessment and reporting as well communication with parents. A final implication of the research suggests that the use of video production also helps to sustain a professional learning community approach within the school.

INTRODUCTION

This paper is drawn from a national project conducted by researchers in the Centre for Educational Multimedia (CEMM) at Monash University. A government department commissioned the project and its objective was to showcase effective, sustainable and embedded use of ICT across various curriculum areas to engage students with learning for improved educational outcomes. This study utilized a case study design with six participant schools each from a different state in Australia. The participant groups included principals, teachers, parents and children from each site and data was collected using individual and focus group interviews, documentation, and still and video-based photography. From these six sites, eleven effective, sustained and embedded strategies were identified. One of those strategies was the use of student-created digital video as a pedagogical approach to achieving a variety of educational objectives. This emergent theme was then analysed according to the literature and the findings presented in this paper.

Student-created digital video is not a new idea but it is taking a remarkably long time to be integrated into the classroom as a common tool in student learning across the curriculum. This is surprising since the research literature from the 1990's relating to analogue video production strongly indicated positive educational outcomes from engaging students in video production (for example: Forman, 1999; Tyner, 1994). With the rise of digital video with its associated benefits (speed of replay, lossless editing, titling and effects, re-usability, ease of local and global sharing) it could be assumed that student video production would have become more common across the curriculum. The authors do not suggest that teachers are not asking their students to create videos for learning purposes, but that in our observations, and based on this national project, the frequency of student-created digital video is not congruent with the assumed benefits. Similarly, the research literature is surprisingly limited, which is an observation supported by Hofer and Owings-Swan (2005) as well as Schuck and Kearney (2004) who have conducted the most extensive research in this area in Australia to date. In addition, the research literature is especially sparse in early childhood and primary schooling contexts, with most of those papers focusing on anecdotal or discipline specific cases (for example: McGlinn Manfra & Hammond, 2008; Ross, 2003; Swain, Sharpe, & Dawson, 2003; Swan, Hofer, & Levstik, 2007).

One possible reason for the apparent slow uptake may be the high costs historically associated with accessing a class set of digital cameras, sufficient digital storage space, and computers powerful enough for post-production. A second reason for the slow integration of student-created digital video may be the need for teacher training. However, these barriers to classroom integration are being eroded. The technology is becoming cheaper, more powerful, and easier to use. In many cases students have video recorders in their phones and other portable devices. It is therefore timely that this study revisits the pedagogical and learning affordances offered by engaging students in digital video production.

Student digital video production

Student-created digital video, or student digital video production, refers to the process by which students, either singularly or collaboratively, engage in the activities surrounding the recording of digital video. Such activities might include directing the camera, storyboarding, scripting, rehearsing, prop manufacture, researching, performing, editing and other post-production. Student-created digital video does not necessarily require video recording, since stop-animation or claymation use a series of static images to make up a video presentation. Furthermore, students creating video may not even see a digital video camera, instead they could be using digital "still" cameras which can record video or one of the many rapidly developing mobile technologies with digital video recording capability such as mobile phones or wireless cameras which stream their feed to a computer. Handheld portability is not even a requirement since some productions, as was found in this case study, only require a limited stationary angle. For this purpose a webcamera,

or an integrated computer such as a laptop with camera or an iMac could serve very well, especially since there is no need to transfer the video to the computer.

Schuck and Kearney (2004) proposed that there are three purposes, which they refer to as Modes, for student-generated digital video:

- Mode 1: digital video used as a communication tool to facilitate students' communication of a message, idea or information.
- Mode 2: digital video used as an observation and analysis tool to enhance students' observation and analysis of performance or phenomena
- Mode 3: digital video used as a reflection tool to support students' reflection on their own learning.

In their case study analysis of five schools, Schuck and Kearney (2004) noted that although Mode 3 is potentially the most powerful in terms of learning outcomes it was the least represented. Nevertheless, in their case study analysis of five schools they reported a number of valuable learning outcomes from student-generated video production:

- Movie making skill development and related language development: Storyboarding, film techniques, editing, publishing etc. and use of associated jargon
- Literacy skills: Including media, visual cultural and critical literacies
- Communication and presentation skills: Oral, written, reading, listening, visual. Acting skills. Interviewing skills
- Organisational and teamwork skills: Organizing and planning skills; managing, leadership, negotiation and social skills
- Higher-order thinking skills: Problem-solving, reasoning, planning, analysing, creating and questioning skills.
- Metacognitive skills: Becoming aware of how one learns; reflects on own learning.
- Affective skills: Enhancement of self-esteem; risk-taking; value of subject, appreciation of films; care of equipment, responsibility. (Schuck & Kearney, 2004, p. 82)

Schuck and Kearney (2004) also note that students did demonstrate learning of concepts specific to the curriculum but that it was relatively low compared with the other learning outcomes.

Reid, Burn and Parker (2002) conducted a large scale study of 50 schools in the United Kingdom and found that digital video production supported a range of learning styles including kinaesthetic, spatial, musical and verbal. They also reported increased development of skills such as problem solving, negotiation, reasoning and risk-taking. However, they also warned that "the integration of DV technologies into subject teaching does not automatically improve the quality of work or standards of attainment; high quality teaching remains the key factor in raising achievement" (Reid, et al., 2002, p. 3). The pivotal role of the teacher in facilitating effective learning outcomes is also advocated by Schuck and Kearney (2006)

and Hofer and Owings-Swan (2005).

Although the research literature is not prolific, especially in the early childhood and primary contexts, there is sufficient evidence to suggest that engaging students in the production of digital video can support teachers' educational objectives. Further discussion of the literature will be included when considering the implications of the collected data.

RESEARCH DESIGN

The larger project, from which this paper is drawn, adopted a case study methodology and collected qualitative data from six schools across Australia which had been reported as exemplars in the use of innovative learning technologies. The principals were invited to showcase their school by participation in the research project. It was explained that the project would, through observations, interviews and discussions explore the ways that computers, the Internet and other technologies had been harnessed to support learning and teaching in the school. At prearranged times researchers visited each school over a three day period and conducted interviews with the principal, teachers, students, and parents; as well as conducting classroom observations and perusing policy documents, teaching materials and student work samples. Video and audio recordings of teachers were also collected to help construct a series of web-based multimedia case studies called "digistories". The purpose of the digistories was to provide other practitioners and researchers a rich thick description of the strategies employed as well as an in-depth analysis of those strategies.

For a detailed discussion of the project methodology including school selection, data collection and coding scheme see Holkner, et al. (2008) and for a critical discussion of the concept of exemplar schools see Auld, et al. (2008). The remainder of this paper will focus on the single school which reported student-created digital video production as an effective pedagogical strategy.

The School

Saint Pius X is a co-educational single campus Catholic Education primary school (P-6). It is located in what is described by the Principal as one of the poorer suburbs in Melbourne with 64% of the students' families being on welfare support. In addition, the school caters for a high proportion of students (approximately 50%) who are described as having English as a second language.

The school utilizes a wide range of hardware and software including both Macintosh and Windows platforms (see Figure 1). Each classroom has a small number of networked computers of varying ages and has access to printing facilities, digital cameras (still and video), DVD players and projectors. The school as a whole boasts a wide range of uses of the technology including student audio and video productions in addition to slideshows, desktop publishing, spreadsheet and graphing, emailing, as well as use of internet based learning activities such

ACT to improve ICT use for learning

Figure 1. Years 2-3 composite classroom with Macintosh and Windows computers in centre of classroom.

as those provided by the Learning Federation. The school also heavily uses individualized intranet pages (MyClasses virtual learning environment) created by teachers for student work as well as networked folders allowing students and teachers to work from any location in the school.

Data collection and analysis

Data was collected according to the following schedule:

Phase 1 - Individual interview of the school principal.

Phase 2 - Focus-group discussions with two pairs of teachers. The first with two teachers of year 5-6 composite classes. The second discussion was with two teachers of years 2-3 and 3-4 composite classes. Based on these discussions, three of the teachers who reported innovative or effective use of ICTs were invited to take part in Phase 5 of the project.

Phase 3 - A focus-group discussion with parents of the school was scheduled but no one turned up. Instead, the researcher conducted two phone interviews.

Phase 4 - Focus-group discussions with two groups of students (8 students in total).

Phase 5 - Individual, semi-structured interview with the 3 identified teachers at Phase 2.

Phase 6 - Document analysis, involving policy documents, teaching materials and student work samples.

As each data subset was collated it was coded, using Nvivo (for a detailed discussion of the coding as well as sample coding from two sites see the full report: Holkner, et al., 2008). The coding of the various subsets of data was then synthesised into "digistories" which became the primary mechanism for reporting the results of the project. Table 1 summarises the eleven digistories derived from the six schools. While the focus of this paper is on Digistory 1, the data from St Pius X was also a significant contributor to Digistories 2 and 10. The digistories can be accessed at: http://cemm.educ.monash.edu.au/exemplar.
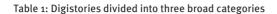
RESULTS AND DISCUSSION

At St Pius X the use of student-generated digital video was very much in evidence in years 2 through to 6 with the majority of innovation occurring in years 2 to 4. In these years video production was used to support learning across a variety of learning areas including literacy, scientific inquiry and numeracy. Students used video to produce poetry recitals, television advertisements, animation sequences including claymation, plays, narratives, scientific and factual reports, and other presentations commonly found across the curriculum. In addition, students used video recordings to observe, measure and analyse phenomena around them for studies in mathematics, science and social studies. Finally, and most powerfully, the students used the video to significantly improve the quality of their work through a cyclical process of performance and reflection:

Table 1: Digistories divided into three broad categories

	Category: Technology and Learning
1	**Student-generated video -** The creation of video is embedded in the curriculum as a standard tool in communicating and analysing but also as a tool to facilitate reflection. Student videos are also used to improve assessment and reporting.
2	**Virtual Learning Environments -** Intranet/extranet learning environments (eg. myclass) scaffold students' access of the web, access to tasks and supports, communication and other learning activities.
3	**Interactive White Boards -** Teachers have been able to use interactive white boards (eg. SMART boards) to increase student motivation and learning outcomes by enabling collaborative workspaces and engaging students in working with real texts
4	**Digital Resources -** Students are provided with a CD resource containing an entire term's work. The lesson notes are supported through embedded movies, audio and podcasts. The variety of multimedia resources provided students with greater differentiation.
5	**Locally constructed WebQuests -** This digistory explores some of the outcomes of using WebQuests including the changes to teacher roles and student engagement through connectedness to strong images of their own social futures.
	Category: Curriculum, Community and Authentic Contexts
6	**The digital school newsletter -** Digital texts produced by the students and distributed to parents, teachers and peers. This provides an authentic audience for the texts produced by the students as well as a space to celebrate exemplar work across remote contexts.
7	**Local and Global -** ICT integration was supported through exemplary school and community engagement practices that address particular community needs and engage students in rich, topical and socially responsible projects.
8	**Future Perspectives -** The school has adopted a futures perspective in which staff are encouraged to reflect on what the world will be like for students in the future and what learning and skills will be available for them.
9	**Community Engagement -** Technology is used to improve relationships across the wider school community while at the same time providing authentic contexts for student learning.
	Category: Teachers, Leaders and School Organisation
10	**Professional learning -** Professional learning communities have been shown to sustain ICT integration and curriculum change. Key elements are regular meetings, an emphasis on research and reflection, a focus on learning outcomes, relevant training, funding and positive leadership.
11	**Leadership and School organisation -** The role of leadership is highlighted as an important issue in engendering a productive learning environment. This digistory describes how a leadership team approached school organization, technology, teacher collaboration, student learning and community engagement.

They do what we call: rehearse, record, review and then reflect. They will record themselves when they are going to do a presentation and they then talk about how they need to improve their performance. They go away and practice it with a partner and then come back and record it again. A lot of their oral presentations are all recorded and they reflect upon them. Every presentation they do to the class is recorded as well, so that they can look at them and talk about what they've done. (Focus group interview, class teachers)

This process not only improved their communication skills but also was reported to increase student's understanding of concepts as well as generally improve the quality and depth of student work.

The nature of teaching and learning

The teachers at St Pius X clearly believed that embedding student-generated digital video in the day to day classroom environment necessarily meant a shift in their role and pedagogy. In a focus group discussion two teachers agreed: "they're talking and they're working together and it's a… total change" (Focus group

interview). An example was provided by the Year 2/3 teacher who explained that his classes are now heavily influenced by a student-centred enquiry learning approach:

I'll look around at some stage, and there'll be students leaning in front of a computer [video] recording away, and I won't know exactly what they're doing, but they'll be able to tell me 'oh I'm just doing this.' It's just natural for them. It's not like it's a novelty. It's just every day. It's just how things are.

This shift in the teacher's role also observed by Schuck and Kearney (2004): "The autonomous style of learning supported by these open-ended tasks required a significant degree of flexibility from the teacher as students created their own learning pathways at their own pace" (p. 83). They concluded that the role of the teacher in digital video projects needs to be researched more extensively.

Through analysis of the teachers and students' interviews five general implications for teaching became apparent. Moreover, the five implications were felt to be in alignment with social

Creating digital video in the primary classroom

Table 2: Implications for the teachers' role and pedagogy

	Implications for the teachers' role and pedagogy	Possible alignment with a social constructivist approach
1	they (the teachers) relinquished a certain amount of control over student activity and that after an initial period of technical support most of their work took on a facilitators role helping students engage with the problem. This was also reported to help greater differentiation for individual learners.	the role of the more capable other (Zone of Proximal Development) in scaffolding student learning
2	students demonstrated increasing autonomy	student independence and ownership of their own learning
3	there was increased collaborative activity with students working in pairs or in groups to help each other achieve their learning goals	collaborative activity
4	there was a greater use of enquiry learning strategies	Learner as active participant in own learning; problem based learning
5	there was a greater sense of authenticity of the learning activity due to the 'real-life' contexts and audience, which had implications for motivation and excitement in the classroom	authentic or situated contexts

constructivist values. Table 2 summarises the five implications.

Similar implications were also observed by Schuck and Kearney (2004) and to some extent reflects the individual findings of much of the literature (for example see: Hofer & Owings-Swan, 2005; Kearney & Schuck, 2004; Reid, et al., 2002; Swan, et al., 2007).

The changes to the teacher's role and to their pedagogy were referred to frequently in the teacher interviews and were felt by the authors as significant. However, further research needs to be conducted to gather comparative empirical evidence of pedagogical approaches used before and during student digital video production. This is felt by the authors to be important because several researchers have intimated that the teachers may not have changed their pedagogical beliefs but rather that the digital video projects afforded a more successful and rewarding implementation of those pedagogical beliefs (Hofer & Owings-Swan, 2008; McGlinn Manfra & Hammond, 2008; Zhao, Pugh, Sheldon, & Byers, 2002).

Authenticity, autonomy and motivation

The use of student-generated video as a learning activity was found to encourage a sense of authenticity as well as student autonomy and motivation.

One teacher provided an example where he encouraged his students to interview classmates to find out about their knowledge of a topic and what more they would like to know. Coupled with the cyclical process of rehearsal, record, and review:

It made the whole process for them just real and alive, that they were presenting something in an interesting manner that had been rehearsed and the other students wanted to hear it. It wasn't something irrelevant to everyone's lives, it was something that they were all keen to

hear about. (Teacher interview)

The teachers and students at St Pius X felt that when students were able to co-create with, and present for, other students it made the activities more valued. This sense of authenticity reported by students and teachers is similar to the findings of Kearney & Schuck's (2006) study in which they reasoned that the awareness of peers as the target audience was motivating for students and enhanced the authentic nature of their learning experiences.

In addition to a sense of authenticity, the teachers frequently referred to the way in which the use of digital video as a reflection tool meant that students began to take on greater autonomy in their own learning:

Once they had the opportunity to review and look at themselves doing the presentations [the technology] allowed... them to take control of their learning... they could actually monitor their improvement in their performance without me having to be with them at every single moment. (Teacher interview)

Both of the year 2/3 and 3/4 teachers felt that rich and collaborative process of digital video production and most importantly, the process of reflection, allowed students to find their own pathways in learning, while still engaging with the key curriculum goals. This is supported by Thanasoulas's (2000) research in learner autonomy wherein decreasing dependency on teachers, inspiring positive attitudes, and supporting reflective and metacognitive thinking is important. However, it should be pointed out that a decrease in dependency does not remove the critical need for teachers to scaffold, organise, and prompt (Thanasoulas, 2000).

The entire class would not be simultaneously recording and rehearsing. Consequently it also required the teacher to be organised and be prepared to manage several groups of students doing a variety of activities. In some cases students could be doing similar activity, such as creating

an advertisement, but they may be using different media such as print, video or audio. In other cases students would be working on completely different projects.

Although this is considerable more work for teachers who are unused to this flexibility it does have positive results especially in terms of student motivation and engagement:

> *Set the task, give them scaffolds and then let them run, because they'll know more than you in 10 minutes, and they get a buzz coming up and telling you 'look I've done this' and you just go 'oh well, how did you do that?' (Focus group interview, class teachers)*

In terms of the video projects the students were reported to be more on-task, motivated, and increasingly autonomous in their enquiry, rehearsal, and reflection.

Reflection and metacognition

Schuck and Kearney (2004) proposed that there were three modes or purposes of student-generated digital video: communication; observation and analysis; reflection. The data collected in this research could be similarly categorised. However, the teacher and student focus group interviews coupled with analysis of student videos revealed that the process of reflection was an embedded pedagogical practice represented in most video production activities. This is in contrast with Schuck and Kearney (2004) who found in their case study of 5 schools that the use of video production as a reflection tool was not as evident as the other two modes.

Embedding video into the curriculum allowed the teachers to engage students in a self-managed process of reflection which was felt to provide more individualised and meaningful feedback than if the teacher maintained the locus of control. One teacher stated: "I couldn't provide feedback for 23 students in a real manner that was meaningful to them" and by using video in a process of reflection (individual, peer and group) they were not dependent or waiting on the teacher but instead could "make their own judgments" (Teacher interview).

The teachers scaffolded students' reflection by using the Plus, Minus and Ideas (PMI) planning strategy. Students were encouraged to find issues which should be praised (Plus), issues which could be improved (Minus) and suggestions for how to improve:

> *You might just give them one hint. You know like 'what's happening with your eyes?' And they will just say 'look I'm looking at the paper the whole time' and they'll come up with their next goal which will be look at the audience. (Focus group interview, class teachers)*

Embedding the process of "rehearse, record, review and then rehearse again" (Teacher interview) led to observable improvement in student presentation skills but also in their understanding of the topic. It is important to point out that this process was cyclical and the students would record themselves several times and even record their own and peer reflections on the content and performance:

> *They would talk about the goals that they had for their presentation before doing it and then after it was finished they would look at their presentation and they would actually*

then video themselves about how they felt about it... you've got actual video evidence there of how they have improved, how they've reflected upon their work and the final presentations which are just so much more refined than what they were doing at the start of the year. (Teacher interview)

The teachers encouraged students to record their own reflections as well as conversations with other students:

> *It's not always just one student in front of the camera, it can be two or three and sometimes you actually capture a complex conversation where they're offering feedback to each other. (Teacher interview)*

This not only resulted in the students engaging in meta-cognitive skills but also provided the teachers with rich data in understanding the individual student's thinking, not to mention records for assessment. For instance one teacher noted:

> *They will verbalise what they're thinking, so you're getting to see... the process in their head... They're problem solving. They're doing their thinking and their process of getting where they are, reflecting on how they did it and then they implement the changes. (Focus group interview, class teachers)*

Learning outcomes

The principal and teachers at St Pius X felt that student-created digital video projects led to improved literacy, numeracy, and other learning objectives. One teacher commented with regard to communication skills:

> *I've got about 170 gigabytes of video that I've gathered this year, and you can see the improvement, and you know they've increased an entire level. You know that's a two year growth in one year. (Focus group interview, class teachers)*

The teachers at St Pius X stressed that it was important to see beyond the technology to focus on the learning. For them, the most important aspect of using technology was to give students an authentic context in which to develop understanding or skills, including cognitive skills.

One teacher commented that teaching students how to do transitions in a movie is "not important." Instead it is more important to understand the students, understand what kind of thinking skills are involved in creating video productions, and guiding them in their enquiry or reflection. For instance, it is less important that a student created a television advertisement with lots of transitions and edits than the fact that "they're thinking about how to communicate with other people" and "sequencing a narrative" not to mention making judgments about the "content that you want " (Focus group interview, class teachers).

This seems in contrast with the observation of Schuck and Kearney (2004) who reported that in their study of five Australian schools the technology could often distract students from conceptual development of domain specific areas. On the other hand Hofer and Owings-Swan (2008)

acknowledge this risk but also argue that in their research in history classes, student digital video productions can support content specific learning.

In this research examples were provided where students were able to use digital video to observe, measure, and through replay facilitate their analysis in mathematics and science:

It's had a real benefit in other parts of the curriculum in that students will come to me and ask "can I record this?" It has been fantastic in Mathematics where the students can record their findings in regards to measurement or other activities where the actual writing of their findings would take longer than concluding the activity so for the students who are very challenged at completing their writing it is a perfect medium for them to present what they really know rather than what they can write. (Teacher interview)

It provides students with another way in which to convey what they know. The teachers felt that they could appraise student learning more effectively when students had multiple modes to demonstrate what they know. For instance when considering traditional literacies the Year 2/3 teacher pointed out that digital video affords greater freedom in expression: "It allows them to talk about what they can see in the imagery, what inferences they have gained from the text and to record it in a way for them that is easy." He provided another example of how the use of digital video, in this case stop animation, provided him with a learning opportunity which he could not easily achieve in any other way:

Some of the students couldn't sequence a narrative correctly. They would have events out of order, they would have characters come in and out at the wrong time. I needed to address that and I think the most appropriate way would be for them to animate their story. I've seen real improvement in students that had that difficulty and one student in particular I was overwhelmed with just how much they had improved and it also allowed them once they had the story in order they started including adjectives and adverbs into their story which was something that I hadn't even thought would be a goal for this year. The work that they completed I was really proud of and it came down to them using the technology to put their events in order and it was just the perfect form for them to understand how the story flowed. (Teacher interview)

Video production was reported to have had an observable impact on Literacy skills which was reflected in higher scores in student assessment.

Assessment and reporting

The video records of student productions, performance, analysis and reflection all contribute to the teachers' portfolio of evidence when trying to accurately assess a student's development. The teachers reported that they reviewed the video files when trying to write reports and found that they provide a much richer insight "than

having to go back through a pile of checklists where you have given them 1.75 or a 2" (Teacher interview). The video records were also valued as a useful formative assessment tool allowing teachers to compare progression over time and to shape individual learning paths.

In addition to formal reports, the video productions were used to celebrate student achievement within and between classes as well as with parents. The teachers explained that they would show parents the video after school or burn the videos on CD to be taken home with the students:

It's a wonderful resource in that the parents can see what their students are doing in the class... it wouldn't just be watching the clip and saying that's good, there would be a whole lot of discussion there because the students are really proud of what they're doing. (Teacher interview)

This communication with parents was seen as particularly important since the teachers and principal noted that it was difficult to engage some of the parents. However, the video records have also been found to be useful when parents have questioned the teachers' grading:

I gave someone a very low mark for speaking and listening and the parent wanted to dispute it. And so I just walked over and let them watch one of their performances, and I didn't say anything, and then we sat back down and she agreed. I didn't have to argue about it. She could see the physical evidence there that he was at that level. (Focus group interview, class teachers)

Pedagogy: a community effort

At St Pius X the use of student-created digital video evolved out of a collaborative professional learning community. The staff met fortnightly to share, reflect and learn about using technologies to address specific learning goals. This professional learning community was called the e-Learning team and arose from the e-Learning initiative of the Catholic Education office. It was through this process that one teacher was inspired to use video to improve his students' ability to express themselves:

In one of the e learning meetings we were talking about what we were doing in the classroom and I mentioned to Deborah that I was finding it difficult with the students to talk about what they were seeing in the images and Deborah just walked into my classroom and she looked at the posters that we had where the students had talked about or written about the feelings they gained from images and she just said why don't you get them to video and I sort of sat back and thought yeah... it was just a really nice thing to be able to get some feedback off someone else to talk about what you were doing and to offer another idea that you really love and you take it on board. (Teacher interview)

Another aspect of the professional learning community at St Pius X was that the teachers were encouraged to keep diaries and to even video record themselves while teaching and while reflecting. This powerful use of video was felt to improve their teaching skills as well as identify student needs and possible solutions. One teacher pointed out he would be using ICT in the classroom regardless of the e-Learning professional

learning community, however, he argues that he would not have been as focused in improving student outcomes.

While the professional learning community drove teacher enquiry into their own practices, it was frequently commented upon by all of the teachers that the successful embedding of student-generated video in daily classroom activity was enabled by the simplicity and reliability of the technology. At St Pius X the video was recorded in two ways: a digital camera which had a video option, and a computer (iMac) which had a video camera inbuilt. The software for video editing was part of the operating system (iMovie).

SUMMARY

At St Pius X student-generated digital video was embedded in the curriculum in years 2 through to 6 with the majority of innovation occurring in years 2 to 4. In these years video production was used to support learning across a variety of learning areas including literacy, scientific inquiry and numeracy. Students used video to produce poetry recitals, television advertisements, animation sequences including claymation, plays, narratives, scientific and factual reports, and other presentations commonly found across the curriculum. In addition, students used video recordings to observe, measure and analyse phenomena around them for studies in mathematics, science and social studies. Finally, and most powerfully, the students used the video to significantly improve the quality of their work through a cyclical process of performance and reflection.

After analysis of teacher and student interviews as well as documents and videos the authors noted that:

1. The teachers perceived a shift in their roles in the classroom along with a greater emphasis on student-centred enquiry based learning.
2. The nature of digital video production afforded a sense of authenticity to students who also demonstrated increased learner autonomy.
3. The use of digital video as a tool to aid reflection improved student learning outcomes and empowered them as learners.
4. Digital video provides students with another way to demonstrate what they know and can be especially useful for students with weak traditional literacy skills.
5. Student-generated digital video provides teachers with greater confidence in reporting over time as well as provides an opportunity to engage parents.
6. The embedding of student video production in the curriculum was supported through an active, research based, professional learning community combined with simple and reliable technology.

A final observation of the authors was the clear value digital video, but not necessarily student-created video, provided teachers as they engaged in their own professional reflective practices.

This research was exploratory. The theme of student-created digital video arose from the data which was then analysed in light of the literature. This approach provided the research project with the greatest opportunity to capture issues of interest. However, a weakness of this approach means that as the literature was reviewed and the data further analysed key questions became apparent which could not be pursued due to lack of data. The authors feel that this research has highlighted implications of interest but that further research needs to be conducted, especially in terms of the role of technology in enabling a shift in teacher self-perception and pedagogy. A further area of particular interest to the authors is the role of student-created and teacher-created video in supporting the work of professional learning communities.

BIOGRAPHY

The Centre for Educational Multimedia, Monash University

The Centre for Educational Multimedia is a group of interdisciplinary researchers in the faculty of education at Monash University. Recently CEMM completed the government funded Exemplar Schools project which sought to identify innovative use of learning technologies in schools. Dr MICHAEL HENDERSON *lectures in the field of ICTs in education and leads the Centre for Educational Multimedia. Prof* GEOFF ROMEO *is the Associate Dean for Learning and Teaching in the Faculty of Education at the Australian Catholic University. Dr* GLENN AULD *is a lecturer in language and literacy at Monash University. Dr* BERNARD HOLKNER *Dr Bernard Holkner is a research consultant and Adjunct Senior Lecturer at Monash University. Dr* GLENN RUSSELL *passed away earlier this year and will be sorely missed. Dr* WEE TIONG SEAH *lectures in mathematics education at Monash University. Dr* ANTHONY FERNANDO *is an educational consultant and recently completed his PhD at Monash.*

The Centre for Educational Multimedia:
http://cemm.educ.monash.edu.au

Creating digital video in the primary classroom

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