ABSTRACT

STUDYING THE PROCESS AND IMPACT OF SITE-PRODUCED PEER-TO-PEER VIDEO TUTORIALS: A CASE STUDY APPROACH

By

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Rapidly advancing technology offers educators new tools to help increase student achievement. Through one such technology—digital video authoring—students can readily create video tutorials for use by their peers.

This study reports on attempts by students to produce peer-to-peer video tutorials on an urban campus. It explored student and teacher attitudes towards the practical aspects of production and collaboration, and the potential to impact student achievement and engagement.

The study found that digital authoring is a technically feasible and effective way of engaging students in the core curriculum. Even with students in leadership roles, teacher-student collaboration can succeed, and both teachers and students displayed keen insights into why and how such video tutorials can be utilized.

It is recommended that teachers not fear video technology or technically savvy students. Schools and administrators should understand that professional development in project-based learning might help unlock the potential of this powerful tool.

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INTRODUCTION

Background

Rapidly advancing technology offers schools and teachers new tools that can be used to communicate with students, or for students to participate in peer-to-peer communications. To highlight how technology has advanced, in 1990—the year today's high school seniors were born—the November issue of *MacWorld Magazine* featured a cover story about "Huge Hard Disks" in which they proudly tested 56 drives over 160 megabytes (Poole, 1990). According to the article, a desktop hard drive holding one gigabyte would cost $3,999.00. Today, a hard drive four times that size (and small enough to carry on a lanyard) is available for less than $12.00. Such advancements mean that within the lifetime of today's high school seniors there have been dramatic advances in information technology devices including computers, Internet servers, cellular telephones and video game consoles. For example, reflecting this rapid advancement in technology, amateur video production in particular has gone from costly and clumsy to inexpensive, widely available, and easy enough to use that even students can achieve near-professional results. Teachers, however, often resist the integration of new technologies, including the use of video production, due to busy schedules, time commitments, workloads that are already overburdened, and fears of not being able to understand new media tools and software (Chen, 2008). Common

sense dictates that the faster technology progresses, the more educators who are resistant will miss the potential this technology holds to help students.

Background of the Study

Vespa High School (a pseudonym), an economically disadvantaged, urban school just south of a large urban city in the western United States, suffers from many of the classic woes facing challenged urban schools, including overcrowding (a student population of 4,800 on a campus originally built for 800), an older infrastructure (the school was constructed in 1938) and a large immigrant and bilingual population (the students are 98.5% Hispanic). Vespa High is a Program Improvement 5 school, meaning it has missed achieving its AYP (Adequate Yearly Progress) for more than 5 years. As a result, Vespa High receives considerable funds through a variety of programs and grants designed to improve struggling schools and close the achievement gap. In 2004, a portion of funds the school received under a High Priority School Grant and an Immediate Intervention Underperforming Schools Program went to the purchase of new cameras and other ancillary equipment to support an ongoing Video Production class.

Some current literature (Bloomfield, 1999; Gunter & Kenny, 2004; Hofer & Owings-Swan, 2005; Kearney & Schuck, 2004; Lonsdale, 2007; Strassman & O'Connell, 2007) indicates that video technology, because of its potential for engaging students on a peer-to-peer basis, holds particular promise as schools—particularly urban schools—struggle to meet standards, raise test scores and close the achievement gap. In 2005, Vespa High film students helped produce a video entitled *Passing the CAHSEE* with the goal of increasing the pass rate for 10th graders taking the California High

School Exit Exam (CAHSEE). The video was largely written and the production overseen by school faculty, but featured only students on-screen. A wide variety of students (over 18 appeared in the video) were used, reflecting a cross-section of the school's population: athletes, skateboarders, scholars, etcetera. The content of the video included test taking strategies and an emotional message about the importance of graduation.

CAHSEE pass rates increased notably after the video was exhibited to 10th graders prior to taking the test. Although it was impossible to directly correlate the increase in the pass rate to the use of the video, Vespa High faculty and teachers were intrigued. Anecdotal evidence such as comments made by students after the screenings and after the CAHSEE test seemed to indicate that the video had been engaging and had made an impact. School faculty wondered if similar tutorials could increase engagement and achievement in academic classes. The exploration of the potential of site-produced, peer-to-peer video tutorials, overseen by faculty and teachers but featuring students as the on-screen talent, became a focus of the school's video production program. The video production program continued to receive funding for equipment purchases, and, in the last year, the school also provided a full computer lab of Apple Macintosh computers for digital video editing.

As noted above, video production at a high school level has rapidly progressed from a difficult, expensive, clumsy and largely impractical exercise to one requiring little more skill than is used in word processing. But the specific problems of utilizing this technology for education purposes go beyond the technical or practical aspects of production.

Problem Statement

Schools such as Vespa High face the problem of needing to use every technological edge at their disposal in the battle to raise test scores and close the achievement gap, but where is the blueprint for doing so? Schools wishing to use digital video communication tools to enable peer-to-peer video tutoring on their site confront the very basic problem of facing the unknown. The technology has been changing (and continues to progress) at such a rapid rate, and the level and style of teacher/student collaboration in such a project is so distinctive (with leadership and expertise roles sometimes in reverse of the usual hierarchy), that it makes evaluating the necessary resources and expected results very difficult. However, the opportunity costs of ignoring such powerful new methods of personalized instruction and cultural bridge building are too great to risk.

Purpose of the Study

This qualitative research examines the attempts of student filmmakers to produce peer-to-peer video tutorials at Vespa High School. The process (including the practical logistics and technical aspects of production), issues surrounding collaboration, and the potential for student engagement and academic success are studied and reflected upon by both students and teachers, revealing the pitfalls and benefits of attempting to put the potential of this technology into practice. The ultimate effectiveness of these tutorials in the classroom on grades and test scores must be the subject of separate study.

Guiding Questions

The following overarching questions will guide this research:

1. How do students and teachers regard the practical and technical aspects of the video production process before the process begins, during the process and at its completion?

2. What are the student-teacher attitudes towards collaboration in a setting in which the student may take a leadership role?

3. What are perceived academic benefits of the process and the potential of the finished product?

4. What are the perceptions of teachers and students regarding the level of student engagement with the curriculum throughout the process, and the potential for increased student engagement through the use of the finished product?

Definitions

For the purposes of this study, *digital video technology* will be a broad based term covering digital video cameras (in this case, consumer level Canon mini-DV cameras), common accessories (microphones, batteries, etc.) and computer-based non-linear digital editing programs (in this case, Apple iMovie on an Apple iMac). The term *digital image manipulation* will mean organizing and altering both video and still images using the above-mentioned video editing software as well as Apple iPhoto and Adobe Photoshop. The term *digital video authoring* refers to using digital video technology to allow students to create their own videos. The terms *student engagement* or *potential student engagement*, while common and widely understood, will, in this

study, refer to the level of engagement the students have with the video-making process and their engagement with the curriculum they choose to teach through video. In addition, the same terms will be used in discussions of the potential for engagement on the part of the potential audience for the completed video.

Significance of the Study

New, untested, education techniques, especially those involving deep use of technology, should be approached with caution by teachers, administrators, schools and districts because of their potential to waste time, money and other resources. This study hopes to dispel the fears, and/or illuminate the dangers, of potential pitfalls, complications, problems and other barriers to success that may trouble the use of video technology as an effective on-site peer-tutoring tool.

Administrators and school leaders should note that the creation of peer-to-peer video tutorials does not have to be an activity isolated to a video production classroom, any more than writing has to be the exclusive purview of the English classroom or artwork the production of solely the art classroom. Because of this, the impact of this technique could be a benefit, or a liability, school wide. With the pressure to improve test scores and graduation rates increasing, school leaders at all levels should be cognizant of the range of attitudes a development such as site-produced, peer-to-peer video tutorials elicits, as well as the thoughts and opinions of the stakeholders involved with such a process regarding its impact on student engagement and academic achievement.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

The literature review begins with an historical background tracing the relationship between education and the development of film/video technologies, followed by a discussion of the factors that now make the creation of video products by students (digital video authoring) practical and appealing. One particularly outstanding benefit—increased engagement—warrants its own section, which expands on the literature regarding effective uses of video authoring by a variety of populations across a number of curriculums. This is followed by an overview of the usefulness of video as a teaching tool in the core curriculums.

The other facet of this study—peer learning—is addressed next, both as a stand-alone concept, and in conjunction with technology. Since many articles on the use of video technology deal with its use in college level classes, a review of these findings is included. Published information on the reasons why a school chooses to utilize digital video technology or not are scarce, and this is noted in two short sections on factors impacting the decision to use digital video authoring and factors facilitating digital video production, specifically the various ways educators break down the complex task of getting students to create their own videos into discrete steps. A very brief section

deals with the need for media literacy, and the chapter concludes with a summary of the current state of research as it applies to today's technology.

All sections of this chapter deal with both how video has been used in education and the impact of this use. Both subjects merit discussion, but cannot be discussed separately without confusion because of the influence one has on the other. In addition, this study examines attitudes and perceptions regarding both how video can be used and its potential impact, making a literature review of both subjects valid and logical.

Background and History

From rickety 16mm projectors rattling in the back of classrooms, to the failure of broadcast television as an instructional tool, to the success of federally funded and corporate sponsored public television in teaching preschoolers, to the new vistas opening up with digital streaming on demand, the relationship between education and the film/television medium has been a rocky one (Thorpe, 2005). For example, on the downside, early uses of celluloid movies in classrooms could result in jammed projectors and melted film, and educators rarely found a practical way to use rigidly scheduled broadcast television in classrooms. Still, there were triumphs, such as the way Walter Cronkite's series *And You Are There* brought history to life, and the multigenerational success of *Sesame Street* with preschoolers.

A decade ago, as a precursor to the digital video revolution, computer-based multimedia presentations foreshadowed technology's potential for engagement (Kafai, Ching & Marshall, 1997). More recently, between 2004 and 2006, the number of schools using streaming video increased 15%, with 45% of schools using the technology in 2006 (Technology & Learning Editors, 2008). Demand exists for

engaging lessons on video. Donnelly (2007) reports that archived video of science lessons created as part of the Iron Science Teacher competition at the Exploratorium in San Francisco have been downloaded 450,000 times. He notes, "When teaching science to kids, a visual approach is good. Humor is also good. And blowing things up is really, really good" (p. 1). Teachers can also use video from sites such as YouTube and Google Video in instruction, even if those sites are blocked at their school site (Branzburg, 2007).

In fact, video file sharing sites such as YouTube are not immune to the appeal of academia. The popularity of lectures by college professors posted on YouTube and other video sharing sites (some geared specifically to education) is on the rise (Young, 2008). On the downside, the ubiquitous nature of video recording devices has even led to teachers appearing inadvertently and in an undesired fashion on such video sharing sites (Honawar, 2007). Thorpe (2005) states, "Substantial research confirms the value of video in helping learners develop deeper understanding, especially when it is combined with other modes of instruction such as text, lecture, and hands-on activities" (p. 28) and adds "Video seems to be *the* place to be these days with not only new online resources being created, but also new ways to incorporate these resources in the learning process" (p. 41).

Digital Video Authoring

A new wave of technology has now made video easier to use in the classroom than ever, and has made digital video authoring by teachers and students practical (Technology & Learning Editors, 2008). Digital technology not only allows easier classroom access to a wider selection of educational materials, but also allows students

to create their own projects (digital video authoring), combining still images, moving images found online, moving images captured by video cameras, music, narration, text, graphics and even animation (Technology & Learning Editors, 2008). Digital video authoring can be used as a tool for communication, observation and analysis and reflection (Kearney & Schuck, 2003).

Digital video authoring (and the use of technology that makes it possible) bridges the gap between learning *from* technology (such as watching educational videos) to learning *with* technology, which is important since learning *with* technology promotes higher order learning skills, such as analysis and synthesis, over rote learning (Gunter & Kenny, 2004). This shift is momentous enough for Gunter and Kenny (2004) to proclaim that "Recent improvements in digital media, digital video in particular, have changed the entire learning landscape" (p. 216).

Digital video authoring (sometimes referred to as "digital storytelling") expands the potential of the medium by making it interactive (Marchionini, 2003). Digital storytelling is "an easily accessible technique that can be quickly learnt" (Lonsdale, 2007, p. 2). Schuck and Kearney (2006, 2008), in two separate papers, analyze data from the same study and note that new digital video technology allows an increase of the creative use of student-authored video projects.

Today, digital video editing tools on both Mac (iMovie) and PC (Window's Movie Maker) formats are widely available (Branzburg, 2007; Hofer & Owings-Swan, 2005). Digital video production is not cost-prohibitive (Marchionini, 2003). Crossing platforms (i.e., from Mac to PC), organizing clips and compressing video for use on-line and elsewhere has also been made easier due to new software tools constantly

competing in the marketplace (Martindale, 2002). Video footage is widely available, via camera, download or even cell phone, and transferring files, even wirelessly, is easy (Branzburg, 2007).

According to Baharav (2008) " . . . the process of learning and teaching can be immensely enhanced by technology that was previously unavailable" (p. 3). This broad statement emphasizes the importance of acknowledging the progress of technology in general. More specifically, Bell (2005) notes "Students who create digital video contribute positively to the learning community . . . " (p. 1). This statement recognizes that video is one of those technologies making a difference in learning communities. As Lonsdale (2007) sums it up, "Digital storytelling is seen as a tool that combines the use of technology in an environment that is fun, student-centred, with storytelling as a learning tool" (p. 3). In this summary, Lonsdale accurately cites some specific traits (fun, student-centered, effective because of the use of storytelling) that can make digital video effective.

Increased Engagement

As early as 1997, Kafai et al. related how the teamwork involved in creating multimedia applications led to increased learning in astronomy and programming in elementary students. This enhanced engagement via creation in a technology based medium presages the increased student engagement found in digital video authoring.

The use of student authored video projects can lead to increased engagement (Lonsdale, 2007; Strassman & O'Connell, 2007) and motivation (Hofer & Owings-Swan, 2005). Gunter and Kenny (2004) contend " . . . it would seem logical that using digital video cameras in the classroom would motivate students to engage in the writing

and reading process, which in turn could increase literacy" (p. 216). All of these claims point to a perceived link between the use of digital video authoring and the increased interest by students in the project or subject matter. Even partial student participation in creating video projects, such as Authoring With Video—in which students write captions to describe, explain and elucidate video clips—has been shown to be valuable in improving writing skills, organization and creativity, as well as increasing engagement and motivation (Strassman & O'Connell, 2007). Kerner (2008) points out, in a study of using video to increase language performance, that authentic materials relating to the lives of some individuals and entire populations can be difficult to obtain, or even non-existent. Student authored videos can fill the gap.

In two separate studies of the same case, Ranker (2008a) explored the step-by-step process of how urban students struggling with literacy skills can make meaning in unique ways across multiple medias, including books, internet, digital video and their own writing. In the case studied for both articles, two 12-year-old students were tracked as they used multiple literacies to create a video about the Dominican Republic. While Ranker (2008b) cautions that "Not all uses of digital technology necessarily bring something new to the literacy curriculum," (p. 420) he concludes that with the quality use of digital technology, each medium—books, Internet, digital video, student writing—benefits from the synergy, connecting the process of creating digital video with the acquisition of literacy skills such as basic reading and writing.

Digital video engages students in the science classroom beyond what is possible with traditional assignments or written work. For example, planning digital video projects helps English Language Learners in science classes. "Digital video invites