

# Using Digital Video Assignments as a Tool for Active Learning

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*Abstract: Recent advances in computing, digital video cameras, and video editing software have shattered the “video mystique” and turned digital video into a routine teaching tool on a par with PowerPoint. However, widespread adoption of digital video in the classroom is yet to be seen, with the lack of pedagogical approaches as one of the major reasons. Active learning, an instructional strategy characterized by a high degree of student involvement in the learning process and active engagement with the material, provides a useful approach for integrating digital video in college courses. This study evaluates the use of student-produced digital video as an active learning tool, and suggests pedagogical approaches for integrating digital video assignments in the college classroom.*

Keywords: Active Learning, Digital Video, Classroom Assignments

## Introduction

**R**ECENT ADVANCES IN computing, digital video cameras, and video editing software have shattered the “video mystique” and turned digital video into a routine teaching tool on a par with *PowerPoint*. However, widespread adoption of digital video in the classroom is yet to be seen, with the lack of pedagogical approaches as one of the major reasons. Active learning, an instructional strategy characterized by a high degree of student involvement in the learning process and active engagement with the material, can provide a useful venue for integrating digital video in college courses. This study evaluates an example of the use of student-produced digital video as an active learning tool, and suggests pedagogical approaches for integrating digital video assignments in the college classroom. The organization of the present paper is as follows: the author (a) provides an overview of digital video as an application of the active learning approach, (b) delineates contextual factors, specific procedures and results of a digital video assignment, and (c) suggests several recommendations for integrating digital video assignments in a college setting.

## Background

A public forum held on the campus of a medium-size university in the American Midwest provided an opportunity to connect teaching and learning goals with a real-life event. The conference brought together local media professionals, community opinion leaders, and college educators, and included a number of sessions focused on the role of media in contemporary society. The forum was videotaped and evaluated by university students enrolled in the upper-level communication course, *Social Implications*

*of an Information Society*. The course explores how current information and communication technologies influence the way we live, work, communicate, and learn.

## Digital Video and Active Learning

Digital video has become a subject for scholarly investigation as an active learning approach to teaching relatively recently. In the context of this study, digital video is understood as the application of information and communication technology that enables capturing, editing, storing, displaying, and distributing video images in a digital format. Although student production of digital video has found its place in the middle and high school curriculum and comprehensive instructional models have been developed (Burden & Kuechel, 2004; Ivers & Barron, 2006; Theodosakis, 2001), there are few studies that offer documented empirical evidence of the effective application of student-authored digital video in college teaching (Constantinou & Papadouris, 2004; Hayes & Petrie, 2006; McKinney, Beck, & Heyl, 2001; Potter, 2006). Even more so, only little attention has been paid to the pedagogical implications of student-produced digital video in classroom interactions at the college level (e.g., Fiorentino, 2004; Gubacs, 2004; Yerrick, Ross, & Molebash, 2005).

Kearney and Schuck (2003, 2004) have extensively studied the pedagogical benefits of the use of student-generated digital video in secondary school. Their research examines various sources of data including semi-structured classroom observations, open-ended teacher questionnaires, focus group interviews, and student-produced artifacts. They point out that providing authentic learning experiences and engaging students were among the top reasons the



teachers started using student-generated video as a learning tool. In addition, working with digital video provides students with real-world activity and allows them to practice skills that would be useful in their future lives. Among the many reasons for integrating digital video, the researchers name developing conceptual understanding of the material and creating opportunities for collaborative learning (Schuck & Kearney, 2005). The authors conclude that the role digital technology can play in enhancing classroom pedagogy has not received adequate scholarly attention.

Fee and Fee (2003) argue that digital video holds untapped pedagogical potential, and is well suited for designing various college classroom exercises to actively engage students. They emphasize that from a constructivist viewpoint, video can be used not only as a source of information that is passively absorbed, but also as a starting point for active learning that stimulates intellectual inquiry and problem solving. Similarly, Ludewig (2001) examined college students' use of digital video for a foreign language course. The assignment was to script, videotape, and edit a five-minute video about cultural differences using Apple's *iMovie* digital editing software. Ludewig outlines a number of "side effects" that hindered student involvement with the project and makes several recommendations on how to avoid these. It is apparent from the analysis that technical problems can impede learning outcomes; students can also focus on the "fun" part of the assignment such as video editing, rather than improving their language skills. Nevertheless, Ludewig believes that such a model can be advantageously applied to teaching and learning in other disciplines.

Overall, the role digital technology can play in enhancing classroom pedagogy has not received adequate scholarly attention, and needs further scrutiny.

## The Study

This case study employed a qualitative, exploratory approach to address the following research questions: How can a digital video production and editing assignment be successfully integrated in the teaching and learning process in a college classroom? Additionally, can such an assignment positively affect student learning motivation and engagement?

Before describing the specifics of the study, the context of teaching and learning should be outlined, including such important factors as course content, learning goals, student composition, the teacher, as well as steps involved in the creation of a digital video assignment.

## Instructional Context

*Course content.* As indicated by instructional technology experts and educational specialists (Morrison, Ross, & Kemp, 2004), planning a technology-based assignment should begin with the examination of course content and the ways technology can enhance teaching and learning. *Social Implications of an Information Society* is an upper-level course offered for communication majors and conducted in a seminar style. This course is based on the examination of theories of the information society (e.g., Webster, 2002) and different perspectives on information as a distinctive feature of contemporary society. The course examines the history and practice of the information society and considers various issues associated with new ways of creating, storing, manipulating, and disseminating information.

*Student learning goals.* The digital video project was designed to help students connect their real-life experiences to the classroom. The project was built around a local media event sponsored by the university. This two-day conference consisted of several panels featuring well-known media professionals from the area. Focusing on varying aspects of local media, the sessions were conducted in a town hall meeting style where the public could ask questions and participate in dialog with the panelists. The discussion revolved around the roles of media in society, crisis communication, media ownership, media and identity, and the state of the region's media.

*Student composition.* It is generally acknowledged that the student level of comfort with technology is exhibiting a growing trend (McHale, 2005; Prensky, 2005/2006). In order to assess student familiarity with digital video in this course, an informal survey was conducted at the beginning of the semester. The survey asked about the students' previous experiences with video and was administered through an online course management system. In year one, the majority of students in the class were juniors and seniors majoring in communication. None of the students had any prior exposure to video production; several were familiar with operating a digital still camera. In year two, all but one student were communication majors; two students had some video production experience in their high school years.

*The teacher.* The teacher provides the building blocks of knowledge, while learning is compared to a wall built of these blocks (Moon, 2004). Adopting digital video technology in the classroom is not an intricate task and does not require any special type of personality; it only involves careful planning, preparation, and attention to detail (see, for example, Goodman, & McGrath, 2003). Many teachers are familiar with video cameras but may not feel comfortable with digital video editing. To assist with the use of instructional technology, most institutions of higher learning

have professional staff and technical support personnel. Furthermore, many college-based centers for teaching and learning offer training workshops for instructors interested in incorporating technology in their classrooms. However, as McKeachie cautions, it is always important “to balance your own enthusiasm with the realities of your campus infrastructure” (2002, p. 212).

### Active Learning Strategy

The first step in successfully implementing an active learning strategy is to examine the learning goals, either for an entire course or specific assignment. As with any other course assignment, it is essential to determine what exactly the teacher wants the students to learn.

*Identifying specific learning goals.* In the context of this study, the two learning goals for the video assignment were (a) to develop and practice a range of information-possessing and critical thinking skills: recording a live event with a digital camcorder, previewing and selecting the material, evaluating and verifying information, and (b) to produce a video report highlighting a particular aspect of the event. As far as technical skills were concerned, students had to operate a camcorder, digitize the footage, select and arrange video and audio information, and produce a short video segment for distribution over the web. The assignment was designed so that the students would practice communication, as well as organizational skills necessary for the successful implementation of a group project.

*Assigning a group project.* The next important step is to identify the zones of proximal development and assign demanding tasks (Vygotsky, 1997). The purpose of dividing the class into groups is not only to allow for the sharing of responsibilities based on students’ skills and abilities (Davis, 1993), but also to meet the students’ individual learning styles (Grasha & Yangarber-Kicks, 2000). Group projects may require independent work and team collaboration at the same time (Bain, 2004).

In this video assignment, students were positioned to work collectively on their projects in small groups (i.e., groups of two or three). They were asked to videotape the event with a mini-DV camcorder, preview and log the footage, write a script, and edit the stories using *iMovie* editing software and *QuickTime Pro* multimedia authoring package. *iMovie* is Apple’s software program with nonlinear video editing capabilities. QuickTime is the most widely used format for streaming video, sound, animation, graphics, and music over the Internet. Despite its low cost, *QuickTime Pro* has all the features that students need to create, compress, save, and distribute web videos. The final output of the group

project was a two-minute video segment edited on G4 Macintosh computers with built-in FireWire support, and compressed as a QuickTime movie (frame size 320 x 240 pixels) for later distribution as a video podcast.

*Implementation.* After the learning goals are identified and a group project assigned, implementation and review are the next steps. Several key issues involved in implementing this student-generated video assignment need to be addressed. In the initial phase of the project, a detailed shooting schedule was developed with each group of students responsible for recording a particular conference session. The recording occurred on a Friday evening, and Saturday morning and afternoon; it took additional effort to coordinate a three-camera setup at the site of the event. The lab phase was built around editing. In addition to operating a digital camcorder, the students practiced a range of skills including transferring footage to a computer, nonlinear editing, adding titles and transitions, creating video effects, compressing video and audio, and uploading and downloading files. Project presentations and a follow-up class discussion focused on group strategies for approaching the assignment, principles of selecting the material, editing challenges, and communicating ideas using video tools.

*Evaluating learning outcomes.* Evaluating student learning outcomes is one of the most critical parts of any assignment. What kind of learning took place? What could be done better to facilitate higher-order thinking? Assessment of an active learning assignment needs to be properly aligned with the desired goals. In this study, the students taking the course successfully produced video reports of the event and, while doing so, practiced a range of information technology related skills. While producing their reports, students detached themselves from the technical details and challenges, and became active producers and reporters involved in interpreting the interaction between the panelists and the audience. Additionally, the instructor observed an increase of motivation in the students during the various stages of the project, from recording to producing the final report.

### Methods of Data Collection and Analysis

The data for the case study were gathered during two consecutive years, with the first year serving as a pilot study. An analysis of teaching evaluations (first year) and student reflection essays (second year) was complemented with instructor’s unstructured classroom observations and reviews of student-produced videos. In two years, a total of 26 students participated in the study, with 16 females and 10 males.

### Pilot Study

A summative assessment conducted at the end of the first year of integrating digital video projects showed that 90.9% of students were satisfied with the learning experiences provided by the course. Overall teaching evaluations were higher than average for the instructor. Perhaps, most gratifying was the fact that the active learning component had a positive effect on students. The following questions about the instructor received the highest scores: “Effectively used technology” (45.5% Strongly Agree and 54.5% Agree) and “Encouraged connection to real-world situations” (54.5% and 45.5% respectively). Several students specifically mentioned hands-on activities among the aspects of the course that promoted their learning.

Yet, it appeared that not every student perceived the objectives of the digital video assignment as integral to the course goals. The results of the student evaluations showed that although the majority of the class believed that the assignments were linked to the overall course goals (36.4% Strongly Agree and 45.5% Agree), 9.1% of the students disagreed and 9.1% did not express an opinion. Among other aspects of the course receiving criticism were the overall organization, selection of the readings, and the required workload. The pilot study provided a general understanding of the research question and indicated that additional data-gathering techniques were necessary to evaluate the overall impact of the assignment on student learning.

**Table 1**

Key Issues	Student Reflections	Instructor Observations
<i>Student-Technology Interaction</i>		
Difficulties and challenges	x	x
Differences in learning styles		x
User-friendly environment	x	x
Increased self-awareness	x	x
Increased comfort with technology	x	x
Sense of control	x	x
<i>Student-Student Interaction</i>		
Value of team collaboration	x	
Peer teaching	x	x
Exchange of ideas	x	x
Cooperation between teams		x
Increased self-esteem	x	x
Sense of ownership	x	x

### Coding

During the second year of the study, students were asked to reflect on their digital video production experience in a 3 to 4 page essay. Student reflection essays were analyzed in two steps: open coding and axial coding—using *Atlas.ti*, a computer-assisted qualitative data analysis software package. The coding procedure involved associating code words with selections of data, elaboration and refinement of initial categories, and, finally, establishing coherent groups, or families of codes, and reviewing the relationships among them. This procedure was based on the application of a grounded theory approach (Glaser & Strauss, 1967).

### Findings and Discussion

The present study aimed to determine whether a digital video production assignment could be successfully integrated in the learning process and whether such an assignment could positively affect student learning motivation and engagement. Results of the study indicate that developing an active learning, technology-based assignment involves a number of interrelated aspects that must be taken into consideration. Table 1 summarizes the emerged themes across three major categories, or key issues, that evolved from the data: student-technology interaction, student-student interaction, and student-material interaction.

<i>Student-Material Interaction</i>		
Making connections between course readings		x
Critically reflecting on ideas/concepts		x
Identifying relationships between concepts		x
Making connections with the environment	x	x

*Student-technology interaction.* Bell and Kahrhoff (2006) emphasize that choosing the appropriate instructional strategy is critical for ensuring successful learning. As one of the tools among the “active learning continuum” (Bonwell & Sutherland, 1996), digital video presents instructors with additional ways to engage students with different learning styles, and creates a user-friendly learning environment for everyone. Some students participating in the study shared:

- “Trial and error was my philosophy and I think it helped me tremendously. To do something hands on, for me, is the best way of learning.”
- “Technology intimidates me, yet when I start using it, the intimidation goes away.”
- “Our favorite tool in the program was definitely “edit, undo.” I was thankful for this.”

Additionally, by collaborating with group members students were given the opportunity to tackle problems that they may not be able to solve individually:

“This project at first seemed very overwhelming because it was new information. However, as the time went on and we learned more about editing, the project started to become enjoyable. Another main aspect that helped in constructing the video was a collective group effort and knowledge foundation that we shared.”

The experience of this course confirmed Bain’s (2004) notion that a challenging group assignment should create a learning environment that is both encouraging and supportive. In the video project discussed above, students with various levels of experience and comfort with technology worked together. Planning the steps and seeing the assignment through, as well as practicing specific computer skills, facilitated students’ overall comfort with communication technologies:

- “I never knew how many steps were involved when being a producer of information. It was amazing to see what all the steps when producing the final product. Yet, as a group we realized that is not as easy as it looks on television to produce a story.”
- “While working with QuickTime we had some time to experiment with other functions to try to make the video that much better. I was impressed

with all the different effects one can make to a movie and it sort of answered some questions I had about television and movies. This was probably the most educational portion of the project because our group had the opportunity to see how this type of media works.”

Furthermore, the students used the project as an opportunity to critically evaluate their own skills—an ability that is vital for college graduates entering the job market:

- “There is more out there than using Microsoft Word and a disposable camera. Writing a paper is important too... In today’s world a person needs to be literate in many different things.”
- “People need to be able to use software and new technologies to be considered literate in today’s world.”
- “Personally I understand the importance of technology in today’s world, but I think this class has taught that I am no where near the literacy that I need to be for successful communication to my audience.”

During the past two decades, scholarly interest in active learning pedagogy has been steadily increasing. In the constructivist view, knowledge is regarded as a flexible network of ideas, feelings, and understanding is built in relation to specific learning experiences (Moon, 2004). The constructivist standpoint considers learning as a two-way process allowing students to perform both as consumers of information and producers of knowledge. This was especially apparent in student reflections on the digital video assignment, which empowered them to become active producers of content, and let them feel in control of the flow of information:

- “Usually, I’m not used to being the producer of information but rather the receiver so it was different being on the other end for once. I was able to be the creator and producer of this particular information rather than being at the mercy of the hands of someone else producing the information.”
- “No one should take a back seat to only being a receiver of information but rather become a distributor as well.”

- “As producers we wanted to be fair and objective so we tried to get everyone’s view in. It definitely was an eye opener, and I will try not to take people’s productions for granted so much anymore.”

*Student-student interaction.* It has been acknowledged that social interactions among learners are critical for good teaching practices (Vygotsky, 1997). This course provided additional evidence of the many benefits of teamwork interactions. The instructor observed that team collaboration not only stimulated discussion and comparison, encouraged posing questions, but also provided a mechanism for peer-teaching as an alternative to the traditional lecture-discussion course format. For example, more experienced students helped other members during the project. The cooperation went beyond the assigned group as some students shared their expertise with other teams. All groups commented on the value of working together, as is illustrated in the following two passages:

- “Our team worked well together and that is essential when you are putting a news piece together. We all had our own individual thoughts and each team member listened to the other’s ideas when a particular spot was addressed for the segment. As an older than average student, I get concerned about working with younger students that may not have the maturity to focus and stick to an assignment. That was not a concern with my team members. Both ... and ... are very mature and do a great job of staying on task with all assignments.”
- “Overall, I really saw the importance of working in groups. It was nice to get someone else’s ideas of how the story should be done. Also by working in groups we were able to generate more ideas of how to produce this story and convey the information accurately. Also by having a group work on it each person can really bring in more information that can help with creating a story compared to one person. Also you could see what each person had a specialty when it came to the story making process which just enhanced the story.”

According to Harmin (1994), high self-esteem, an eagerness to learn, and an atmosphere of trust and respect bring out the best in both students and teachers and create a community of learners. An active learning classroom is not merely a student-centered classroom; it is a fully inspirational environment characterized with the qualities of dignity, energy, self-management, self-awareness, and community. It was clear in the video project examined in the current study that all groups put in a full effort.

On multiple occasions, the instructor observed how interactions among the students within a group increased student self-esteem and contributed to the development of a sense of ownership in the final product. The data reported support this observation:

- “We all were proud of our accomplishment. After we completed the final sound bite editing and viewed the entire project, we all vocalized how proud we were to have completed the project.”
- “I believe we all felt responsible for assuring the message was clear while the visual part of the piece was interesting and fun on the eyes of the viewer.”
- “Though I may never use this skill again, but I hope to someday have the opportunity to use it. I enjoyed working with a team to produce something that we were all happy with.”

*Student-material interaction.* According to a sociocultural approach to cognitive development (Vygotsky, 1997), learning occurs not in a vacuum but in the context of a particular culture. Social interactions among learners within that culture provide an avenue for the active exchange of ideas and building of knowledge. Placing student groups in a real-life context helped the students to make connections with the environment, see relationships, and reflect critically on ideas, actions, and issues.

A follow-up writing assignment in which students were asked to reflect on their experiences obtained throughout the digital video project assisted students in building connections not only with the course material but with the world they live in. The following excerpts from student essays illustrate that the students were able to make connections between course readings (including *The Deepening Divide* by Van Dijk, 2005 and ‘Connecting the Digital Dots’ by Jones-Kavalier & Flannigan, 2006) and the video production assignment. One student put it this way:

“There are many skills that are needed to produce a QuickTime clip. According to *Digital Divide* there are three main skills. They are operational, informational, and strategic skills. All of these skills were applied in this project. The project dealt with audiovisual media as well as computer media. In regards to audiovisual media I had to be able to search clips and select the most appropriate shot for the QuickTime. I had to be able to process what different candidates were saying. When it came to the computer media I had to learn by trial and error and ask for help on how to operate the computer programs. My skill level was low in regards to the computer media. I did not have much operational experience making a QuickTime or with the programs that are used to produce one. Strategic

skills were seen throughout the whole process and we had to search through data, select, integrate, and apply information from the hardware and the software. We had to find a goal and a purpose to our creation. All three skills are important and we definitely used all of them in producing this project.”

Another student stated:

“This makes me think about the reading assignment, *Connecting the Digital Dots* by Jones-Kavalier and Flannigan. Media literacy is using technologies of today in order to communicate faster, easier, and better. New tools and strategies along with greater knowledge of technology all add up to effective communication. Digital and visual literacies allow producers of a program to create, manipulate, design, and self-actualize the piece. This article made more sense to me once I actually produced a digital and visual assignment. The digital part of the assignment was our ability to read and interpret the event in order to produce and edit the data through digital manipulation. The visual part allowed us to give the sensory experience to our production. We worked on giving our piece a sense of design by using our imaginative ability to create, amend, and reproduce images in a mutable way.”

Finally, the analysis of student reflection essays demonstrates that the integration of a technology-enhanced learning assignment in a traditionally “dry” context stimulated student engagement with course material:

- “We were able to convey our thoughts and ideas into the message we desired by manipulating and editing footage into a segment that we wanted distributed on the Web. How much more do you need at your very fingertips? Someone like me who isn’t a video production expert and doesn’t work with this type of software on a day to day basis doesn’t need much more than the basics, but for someone who is an expert I can see where more advanced and complex tools would be desired to communicate certain thoughts and ideas. After someone has perfected the craft and art of one software tool, more and more are needed in order to achieve even higher production standards.”
- “I now have a first hand look at the potential that video production and editing has and what its capabilities are and this was only one of my first experiences. I can only imagine where these possibilities will end.”

Empowered and motivated by the use of digital video technology, the students were actively engaged in a number of different interactions that stimulated the discussion, exchange of ideas, critical thinking and reflection, making connections between course readings and the outside world, and, ultimately, enriched their comprehension of course material. These findings go in line with the results of prior research: many authors have indicated that students learn most effectively when they are actively engaged with the subject material (Adams & Hamm, 1994; Silberman, 1996; Hativah, 2000; Meyers & Jones, 1993).

## Conclusion

### *Lessons Learned*

What makes an active learning video project successful? First of all, digital video exercises should be linked to overall course goals and intended learning outcomes. Active learning should not be implemented for its own sake, but for its ability to engage students in the learning process (Bonwell & Sutherland, 1996). Secondly, the instructor should provide leadership and effective management in order to be able to capitalize on the availability of low cost and easy to use technology. The tentative insights and observations gathered in this study support the earlier notion of Kearney and Schuck (2003, 2004) that the accessibility of digital video technology makes student-produced video particularly suitable for classroom use. Thirdly, clear expectations and specific criteria for project evaluation should be developed. Finally, in addition to the hands-on component, it is necessary to connect practical application with conceptual development, i.e., aligning student technological and collaboration skills with cognitive skills. Formative and summative assessments along with peer assessment, surveys and group interviews, and evaluation of various types of student-generated data (for example, activity logs, observation journals), may provide additional data for the further examination of the issues addressed in this study.

### *Practical Implications*

Although digital video is no longer a novelty in college teaching, it has not received the attention it deserves. While the K-12 curriculum has been successfully integrating digital video tools in the classroom, higher education needs to catch up. Some students come to college with prior experience and a set of media skills developed in middle and high school; others may not have those skills but are eager to learn. Teachers at the college level should take advantage of the skills of the former and the motivations of the latter and utilize them for the benefit of the learning process.

It is important to ensure that students go beyond their existing skills and “stretch” their capacity by working on demanding problems that they are able to understand and manage. In accordance with the Vygotskian sociocultural view of learning, student experiences compose a prism through which they view the circumstances and events that shape their learning and affect their understanding. Students develop a better understanding of the material and are able to make generalizations if there is a link between the external environment and the way it is experienced. Based on the results of the present study, it can be argued that digital video exercises can be successfully used in conjunction with classroom discussion and other traditional instructional strategies and teaching tools. Thus, the role of the instructor is to create a learning context in which

the class could progress from specific video activities to reflective judgment and critical thinking while staying within the topical framework of the course.

### **Limitations and Future Research**

The scope of the present study is clearly limited, and the use of student-generated digital video as an active learning tool requires further examination. Future research should consider different learning situations, possible barriers to student learning, and other factors that may affect desired learning outcomes. However, accumulated classroom experiences and theoretical insights generated and shared by the higher education community encourage college teachers to implement digital video assignments designed to stimulate student engagement in the learning process.

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