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**A FORMATIVE EXPERIMENT INVESTIGATING THE USE OF
REFLECTIVE VIDEO JOURNALS TO INCREASE HIGH SCHOOL
STUDENTS' METACOGNITION**

---

by
Brian Jeffrey Dixon

A dissertation submitted to the faculty of
San Diego State University and the University of San Diego
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

Dissertation Committee:

Douglas Fisher, San Diego State University
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March 2009

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Brian Jeffrey Dixon

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DEDICATION

To my darling life partner, Julie, I dedicate this work. Thank you for the many sacrifices you made to help make this dream a reality. I love you. And to my dad, the first Dr. D., whose consistent example and gentle humility continually inspires me to press on towards the mark. Thank you.

Hope begins in the dark, the stubborn hope that if you just show up and try to do the right thing, the dawn will come. You wait and watch and work: you don't give up.

Anne Lamott

ABSTRACT OF THE DISSERTATION

**A Formative Experiment Investigating the Use of Reflective Video
Journals to Increase High School Students' Metacognition**

by

Brian Jeffrey Dixon

Doctor in Educational Technology

San Diego State University and University of San Diego, 2009

This study sought to determine the factors that enhance the effectiveness of reflective video journals to increase the metacognition of adolescent students. To achieve this pedagogical goal, this study followed the six-phase methodology of a formative experiment. Twelve high school students participated in a six-session after-school reflective video journaling program. Diverse data collection methods were used to determine the factors in the educational environment that enhance or inhibit students' metacognition, how the intervention and its implementation were necessarily modified to more effectively achieve the pedagogical goal, the potential impact of feedback and peer response, and any unanticipated positive or negative effects the intervention produced. The research revealed several factors that enhance students' metacognition including highly structure prompts, privacy during production, and a focus on content over production value. Factors detracting from the pedagogical goal include student autonomy, the voluntary nature of this study, and prompts not tied to a content area. Recommendations for classroom practice as well as suggestions for further research are reported.

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CHAPTER 1

INTRODUCTION

When young children encounter a difficult learning task, noted Vygotsky (1978), they often speak to themselves aloud. These self-talk monologues help children reflect on their own behavior and plan alternative actions. Though these audible monologues gradually become silent as children grow older, they continue nonetheless. This process of reflection on learning, particularly when facing challenges, is known as metacognition. Researchers following Vygotsky have found ample evidence to suggest that these internal processes improve students' engagement, learning, and academic performance (Brown, 1987; Moses & Baird, 1999; Paris & Winograd, 1990). Classroom teachers have long used paper-based reflective journals to encourage students to engage in this process of reflecting on their learning. Though this strategy has benefited students' metacognition, unclear expectations and overuse of paper-based journals have detracted from their effectiveness (Anderson, 1993; Dymont & O'Connell, 2003; Phipps, 2005; Schell, 1998). Innovative teachers seeking to improve student reflection need to find a new strategy.

The rapid pace of technological advancement affords opportunities not thought possible just a few decades ago. Instant communication through email, collaborative document creation through wikis, and worldwide publishing with one click of a button are just a few examples. Though many of these technologies hold great promise for education, classroom teachers have struggled to find practical applications to improve student learning (Hew & Brush, 2007).

One such example is YouTube.com. This website is the third most visited website online and is a favorite of adolescent students (Alexa, 2008). YouTube is the world's most popular video sharing site and is arguably the largest video library ever assembled. What makes YouTube a powerful tool for learning is the many ways site visitors can interact with the video content. Social software features such as custom playlists and subscriptions, text comments, annotations, and video responses help the once passive video content to become an opportunity for active engagement. Despite the possibilities for learning, the average

classroom teacher shuns YouTube for classroom practice. The music videos, movie clips, and humorous home videos that have helped make the site a popular destination for students with too much time on their hands spells trouble for many teachers. In fact, a large number of school technology departments have blocked access to the website altogether (Carvin, 2007).

As a classroom teacher a few years ago, my students introduced me to YouTube. During the lunch period, a group of my high school students burst into the classroom excited about a new humorous video they had seen online. The video was quite funny, but what struck me was the number of times it had been viewed; almost two millions times. Later that day I explored the site for myself. Though the humorous video clips were hard to miss, I began to discover the characteristics of an authentic online community. Engaged users. Active content producers. Commenting and feedback. It wasn't until I clicked on the "People and Blogs" section that I realized just how powerfully engaged this community was.

One of the first "people and blogs" videos I watched was of a girl, perhaps 16 or 17 years old, explaining how she had been dealing with anorexia. She broke down in tears midway through her deeply personal story. Most surprising of all was that she had posted this video for public viewing. Near the end of the video, she thanked all of her "subscribers" for their encouragement and support. "What exactly was going on?" I wondered. There, beneath the video frame was a series of text comments posted by other members of the site. They were surprisingly authentic. "Thanks for sharing your story with us!" one read. "God bless you" stated another. "We're there for you, girl!" read a third. How could such an honest, supportive community exist on a site so well known for stolen video clips from popular television shows? I was intrigued.

The next day, I shared my experience with my multimedia technology students. "It's called a vlog," one student explained. "You know, like a blog with video." When I asked how many of my students had ever created a "vlog", almost half raised their hand. "Why?" I asked. At first, silence, then a student volunteered, "Sometimes its nice to get something off your chest." "Aren't you concerned about negative comments?" I asked. "Those people are just haters," another student explained. "You can always delete their comments." And with that, I began to use video blogs in my regular classroom practice.

Zones of proximal development is the difference between what a student can do on their own and what they can accomplish with teacher assistance (Vygotsky, 1978). The term

pedagogy, defined as the art or science of being a teacher, comes from the Ancient Greek παιδαγωγέω (paidagōgeō; from παῖς (child) and ἄγω (lead) and literally means “to lead the child.” When it came to video blogging, my students were the ones leading me, through my own new “zone of proximal development.”

This gap in technological proficiency between teachers and students is becoming a growing theme in the literature and may explain the slow adoption of innovative technologies into the classroom (Hew & Brush, 2007). While classroom teachers mainly use the Internet to find information (Wallace, 2004), students go online to create community (Bargh & McKenna, 2004).

Tools that allow students to create and maintain community online are called “social software.” Familiar examples of social software technology include wikis, where users can modify website content from any Internet connected computer; blogs, where anyone can instantly publish and comment on others’ musings; and social networking sites (such as Myspace and Facebook) where users can create their own personal profile, connect with their friends, and share ideas, photos, and videos in real-time (Johnson, 2005).

Though YouTube was originally designed to quickly deliver video over the Internet, many social software tools have been incorporated into the site. Social software tools allow users to interact, share, and meet other users (Wikipedia, 2008). These tools, including commenting, rating, messaging, subscribing, and responding have helped to create an online community that goes far deeper than just watching and sharing humorous videos (Meckiffe & Murray, 2006).

An example of this online community participation on YouTube is a video posted by Boh3m3, a popular “video blogger.” A video blog, sometimes shortened to vlog, is a blog (or web journal) that comprises video (Wikipedia, 2008). Boh3m3’s video simply asked the question, “Why do you tube?” The video received an overwhelming response. Before it was archived, the video had been viewed 927,938 times, received 7,237 text comments, and 393 video responses. An informal analysis of these video responses was conducted by the Digital Ethnography project at Kansas State University (Wesch, 2007). Surprisingly, they found that 61% of YouTube video creators said they use YouTube to “connect with others or to be social” and 33% said they create video blogs to “express their opinions.”

Many questions surrounding vlogs in educational settings need to be explored. How might a vlog be utilized to encourage reflection among high school students? What factors will encourage metacognition? What role does audience and community interaction have on students' participation? Ellis (1999) explains that the use of new educational strategies must be made explicit to learners to fully develop their metacognitive awareness. The more students know about effective learning strategies, Ormond (2002) added, the greater their metacognitive awareness and classroom achievement is likely to be. What is lacking in the research field on students' reflection is an exploration of the effect of video blogging on students' metacognition. This study seeks to discover the factors that encourage metacognition among adolescent students through the creation of reflective video journals. This study is the latest in a growing field of exploratory studies evaluating the hidden educational value of students' online activities (e.g., Hinduja & Patchin, 2008; Shieh & Cheng, 2007; Trier, 2007).

CHAPTER 2

REVIEW OF THE LITERATURE

To help establish a framework from which to investigate the intervention of reflective video journaling, this review of the literature examines both the theoretical roots and classroom practice of metacognition. First, the roots of metacognitive theory are examined. Kolb's learning cycle is presented as well as the three most prominent metacognitive frameworks in the literature. Next, this review notes the various methods of measuring students' metacognition including teacher ratings, student interviews, and self-report inventories. Guidelines for classroom practice are outlined, and two maps for reflective journaling are examined. Drawbacks to traditional paper-based journaling are noted and a case is made for technology-enabled journals. This review concludes that based on the lack of research studies, reflective video journaling needs to be examined as a tool to increase students' metacognition.

Metacognition refers to one's ability to be aware of and to have control over the cognitive processes engaged in learning (Brown, 1987; Flavell, 1987; Sternberg, 1998). Simply, metacognition is "knowing about knowing" and involves two major components: knowledge about cognition (i.e., knowledge about self, task, and strategies) and regulation of cognition (i.e., planning, monitoring, and evaluating the learning process) (Schraw & Dennison, 1994; Schraw & Moshman, 1995). Reflective thinking is the process that serves as the link between these two components of metacognition.

John Dewey (1933) is credited with introducing reflective thinking to the field of education. In his 1933 book, *How We Think*, he explained that the function of reflective thought is to take a situation in which there is experienced obscurity, doubt, and conflict, and transfer the situation into one that is clear, coherent, settled and harmonious. The importance of reflection has long since been stressed by a variety of educational theorists including Vygotsky, Knowles, Kolb, and Schön. With research studies from many divergent fields, a variety of interchangeable terms exist in the literature. These terms include reflective thinking, reflection, self-reflection, metacognitive reflection, and critical reflection (Ertmer &

Newby, 1996; Grimmer, 1988; Moon, 1999; Rodgers, 2002). Reflection is the natural process of contemplation of present or past behavior that facilitates the development of future action by enhancing decision-making power and autonomy (Schön, 1983). Reflective thinking is a key part of metacognition.

KOLB'S LEARNING CYCLE

Reflection is as an essential activity for making meaning and creating new perspectives about the learning experience (Boud, Keogh, & Walker, 1985; Kolb, 1984; Lewis & Williams, 1994). An often cited, if not oversimplified, model of the learning process is Kolb's (1984) learning cycle (see Figure 1). Reflective observation is addressed as a process of what learners add to their concrete experience by reflecting on the experience in order to create generalizations. These abstract conceptualizations then lead to active experimentation. Experiencing the results of the experimentation continues the learning cycle. Proponents of Kolb's model note that students must reflect on an experience in order to learn from it. Reflection is an essential component of metacognition, affecting change in the learner and promoting self-regulated learning (Boud, Keogh, & Walker, 1985; Brown, 1987; Flavell, 1987; Moon, 1999; Zimmerman, 2002).

Figure 1. Kolb's learning cycle.

Reflective practice is a process in which the practitioner is intensely engaged with his or her work and is involved in continual self-evaluation (Korthagen, 2001; Showers & Joyce, 1996). Though reflective practice has its roots in professional fields such as nursing, law, and the teaching profession, in recent years, reflective activities have been applied to the classroom (Silvers, 2001). Teachers have taken advantage of reflection to help students consider their learning outcomes. The process of reflection helps students become metacognitively aware of their cognitive process and better able to monitor, analyze, and evaluate their learning processes and performance (e.g., Ertmer & Newby, 1996).

DOMAIN GENERAL METACOGNITION

There is considerable debate between researchers about the nature of metacognition as it relates to cognitive monitoring skill (Schraw, 1997). One view is that accurate monitoring is a direct function of domain-specific knowledge. Many studies exist, for example, on children's metacognitive knowledge about specific subjects, such as reading and mathematics (Camahalan, 2006; Cornoldi, 1997; Garrett et. al, 2006; Maitland, 2000). Growth in domain-specific metacognition, some researchers contend, is of little impact on one's performance in an unrelated domain (Morris, 1990). A second view is that of domain-general or domain-independent metacognitive processes. This position states that metacognitive skills are not embedded within a specific domain, but that they can transfer across knowledge domains (Garner, 1988; Pintrich & DeGroot, 1990). The literature seems to allow for both views, with domain-specific metacognition focusing on discrete context-based skills and domain-independent metacognition influencing more broadly applicable processes such as problem solving and study strategies.

METACOGNITIVE FRAMEWORKS

Several interrelated metacognitive frameworks are prevalent in the literature. Much of the work began over thirty years ago with Stanford University's John Flavell (1976) who first coined the term "metacognition." His research was closely followed by Ann Brown (1978) who furthered developed the metacognitive framework. More recently, Moses and Baird (1999) posed their own framework to help educators apply metacognitive theory to classroom practice.

The first framework, initiated by Flavell (Flavell, 1979; Flavell, Miller, & Miller, 1993), presents metacognition as including metacognitive knowledge, which emphasizes the variables of person, task and strategy, and metacognitive experiences. In later writings, Flavell and colleagues referred to these components as metacognitive monitoring and self-regulation (1993). This framework suggests that a good learner is one who has ample metacognitive knowledge about the self as a learner, about the nature of the cognitive task at hand, and about appropriate strategies for achieving academic goals.

Flavell's work was closely followed and expounded upon by Brown (1978) who placed more emphasis on the learner's executive control of cognition, including the regulatory activities of planning, monitoring, testing, revising, and evaluating. Her framework suggests two components: knowledge of cognition and regulation of cognition. Reflective thinking is the process that serves as the link between the two components of metacognition. Brown's framework is the most dominant in the literature (Baker & Brown, 1984; Cross & Paris, 1988; Jacobs & Paris, 1987; Paris, Cross, & Lipson, 1984; Pireira-Laird & Deane, 1987). This framework has since been modified by Paris and Winograd (1990) who defined knowledge of cognition as "self-appraisal" and regulation of cognition as "self-management" (see also Jacob & Paris, 1987). Schraw (2001) further clarified Brown's original knowledge and regulation components by explaining knowledge of cognition as declarative, procedural, and conditional knowledge, and focusing regulation of cognition as the planning, monitoring, and evaluating that help learners control their cognition (see Figure 2).

Figure 2. Brown's metacognitive framework.

A third framework, which may help practitioners further understand metacognitive theory was reported by Moses and Baird (1999). Their model consists of three components, that is, metacognitive knowledge, metacognitive awareness and metacognitive control.

Metacognitive knowledge describes the nature of learning, the effective learning techniques and personal learning characteristics. Metacognitive awareness, the second component of their framework, relates to the task and progress. The third component, metacognitive control, describes the making of productive decisions about approach, progress and outcomes.

BENEFITS OF METACOGNITION

Increased metacognition is a valuable pedagogical goal that benefits students in several ways. Watkins and Marsick (1993) note that students learn more effectively through a process of questioning, reflection, and feedback from others, leading to deeper understanding. Developing metacognition increases students' self-regulatory abilities, notes Sperling, Howard, and Murphy (2002). Self-regulated learners are constantly analyzing their experience, puzzling over its significance, searching for explanations, and speculating about relations between that experience and what they already know (King, 1995). This evaluative process leads to deeper understanding through monitoring and articulation of effective cognitive process skills (Schraw, 1998; Walters, Seidel, & Gardner, 1994). Other benefits of increased metacognition include transforming negative experiences into positive learning opportunities through reflection (Boud, Keogh, & Walker, 1985; Boyd & Fales, 1983; Moon, 1999) and deeper teacher understanding of student learning processes through reflective journaling. (Dunlap, 2002; Ertmer & Newby, 1996; Walters, Seidel, & Gardner, 1994).

MEASURING METACOGNITION

Various methods have been used to measure students' metacognition. These methods include teacher ratings, student interviews, and self-report inventories. Researchers recommend that a variety of measures be used when assessing students' metacognition (Çetinkaya & Erkin, 2002).

Teacher ratings have been employed to measure students' metacognitive and self-regulatory processes (Desoete, 2008). This method involves the classroom teacher evaluating the observed metacognition of her students. Although Sperling et al. (2002) note that it is difficult to capture metacognitive processing via direct observation, Zimmerman and Martinez-Pons (1988) found teacher ratings of self-regulation to be slightly correlated with

student ratings of their own self-regulation and moderately related with achievement measures.

Student interviews are a second method researchers have used to evaluate students' metacognition. This method allows researchers to question students' awareness of their own reflection and metacognition. Swanson (1990), for example, used an interview technique with learners in the intermediate grades to assess metacognition. Zimmerman and Martinez-Pons (1988) have also effectively used this technique.

A third method of measuring students' metacognition is a self-report inventory. These checklists, where students review target learning activities during and after a task, provide a systematic means to authentically assess their levels of metacognition (Manning, 1984, 1991; Reid & Harris, 1993). Self-report inventories are easily administered and scored, making them useful for large-scale assessment tools (Sperling et al., 2002). Several researchers have found this method to be effective (Jacobs & Paris, 1987; Pereira-Laird & Deane, 1997; Schmitt, 1990).

One example of a self-report inventory is the General Monitoring Strategies Checklist (GMSC), which measures accuracy of confidence judgments (see Appendix A). Using the GMSCS, Schraw (1997) found that students with more metacognitive knowledge tended to be more accurate in their confidence judgments, while those with less metacognitive knowledge tended to be less confident in their self judgments, often underestimating their abilities.

Another example of a self-report inventory is the Junior Metacognitive Awareness Inventory (Jr. MAI), developed by Sperling et al. (2002) (see Appendix A). This inventory utilizes Brown's (1978) metacognitive framework and is based on Schraw and Dennison's 1994 MAI, but is specifically tailored to adolescent students. The Jr. MAI includes 18 items and was designed to be a short, easily administrable instrument to determine the effectiveness of ongoing interventions.

REFLECTIVE JOURNALS

Reflective journals have been used as a tool to facilitate students' metacognition and have been shown to enhance critical thinking skills, encourage observational skills, and develop creative skills (Anderson, 1993; Dymont & O'Connell, 2003). Journal writing refers

to written material that is based on reflection on one's learning (Moon, 1999). The reflective journal provides a vehicle for students' inner dialogue, allowing a means for students to define, question, and interact with classroom concepts and engage in applying learned content to new contexts (Hubbs & Brand, 2005). Journal entries allow the instructor to view, through the student's words, the quality of comprehension and mastery of the material, as well as affective responses to the content.

Reflective journals help:

1. to capture and record learning progress and experience,
2. to enable learners to understand their own learning process,
3. to increase active involvement in learning and the ownership of learning,
4. to enhance the ability to reflect and improve the quality of learning, and
5. to enhance thinking skills and improve learning performance

(adapted from: Cole, 1997; Dunlap, 2002; Moon, 1999).

Instructors from a wide range of disciplines have used journal writing in various contexts. They have been used in a number of subjects, including psychology (Hettich, 1976; Connor-Greene, 2000; Cantrell, Fusaro, & Dougherty., 2000), medicine (Khan & Gee, 1999), language (Carroll, 1994), and geology (Stanescio, 1991). Learning journals have been used with students of all ages and many types—including schoolchildren (Cantrell et al., 2000; Yinger, 1985), undergraduates (Connor-Greene, 2000), graduate students (Morrison, 1996), preservice teachers (Dart et al., 1998; Strausbaugh, 1995), classroom teachers (Voss, 1988), and adult learners (Carroll, 1994).

This study seeks to improve the metacognition of adolescent students by situating the journaling activity outside of the formal classroom and using an unconventional tool for journaling (reflective video journals). In this way, the reflective video journal will serve as a summary project, a way for students to process and reflect on their entire learning experience increasing their domain independent metacognition.

GUIDELINES FOR CLASSROOM IMPLEMENTATION

The literature is rich with examples and guidelines for the effective classroom implementation of reflective journals. Two prevalent themes are the importance of a supportive classroom environment and the active involvement of teachers in the reflective

process. Students may have more positive experiences with journal writing when educators model effective journal writing and help establish a trusting relationship with their students to facilitate reflective activities (Dyment & O'Connell, 2003). Trust is a critical factor that influences student perceptions of journal writing. Initially, many students experience hindered levels of reflection, knowing that others will read their entries (Elbow & Clarke, 1987; Kerka, 2003). The fact that an instructor will read the journal may inhibit some learners from writing what is on their minds or from engaging in meaningful writing, reflecting, and learning (English, 2001). Students may be reluctant to deal with sensitive issues in their reflective journals until a relationship of trust has been built between them and the teacher" (Orem, 2001). Despite these fears, peer feedback can positively impact peer communication and students' metacognition (Moon, 1999; Parkyn, 1999).

Two "maps" for reflective journals have been presented by Moon (1999) and Mitchell and Coltrinari (2001). Moon's reflective journal map provides an outline for students to follow (see table 1). Mitchell and Coltrinari (2001) suggest a basic structure for reflective journals that seems especially appropriate for students (see table 2).

Table 1. Moon's (1999) Reflective Journaling Map

Component	Description
a purpose for journal writing	guides selection of topics
description of events or issues	observations; comments on personal behavior, feelings, and context
linkage to related material	further observations, relevant knowledge or experience, suggestions from others, theory, new information
reflective thinking	relating, experimenting, exploring, reinterpreting from other points of view, theorizing
other processes	testing new ideas, representing material in other forms such as through graphics or dialogue
product	statement of something that has been learned or solved, identification of new issue or question
further reflection	leading to resolution or looping back to an earlier step

Table 2. Mitchell and Coltrinari's (2001) Reflective Journaling Map

Component	Description
description	What happened?
metacognition	What were your thoughts, feelings, assumptions, beliefs, values, attitudes?
analysis	What were the reasoning and thinking behind actions and practices?
evaluation	What was good or bad? What are the Recommendations?
reconstruction	What changes might be made? What are plans for future actions?

ASSESSMENT AND FEEDBACK OF JOURNALS

Many researchers offer suggestions for effectively evaluating students' reflective journals. A common recommendation focuses on assessing for the reflection exhibited in the journal entries and not solely on the completion of the assignment. Moon (1999) suggests reframing assessment not as "evaluation" but as a "review." Educators should explore multiple ways of evaluating journal writing, including self-evaluation, peer evaluation, and coevaluation (i.e., student and teacher) as alternative methods (Chandler, 1997; Moutoux, 2002). Just as students are expected to devote time, effort, and thought to writing journal reflections, instructors should use both written and verbal feedback to demonstrate that students' efforts are monitored and valued (Hubbs & Brand, 2005).

Three evaluative frameworks are suggested in the literature as a means of assessing the reflective levels of students' entries. These include Hatton and Smith's (1995) framework, which distinguishes several levels of reflective writing; Moon's (1999) contribution, which suggests criteria based on her map of reflective writing; and Hubbs and Brand's (2005) matrix for collaborative review of reflective journals.

Hatton and Smith (1995) provide a framework that distinguishes several levels of reflective writing (see table 3). These levels include descriptive writing, which is merely a listing of the events that occurred without any explanation; descriptive reflection, which provides some explanation and considers alternative courses of action; dialogic reflection, in which students step back from an event to consider differing courses of action; and critical reflection, in which events are described within the larger, societal context.

Table 3. Hatton and Smith's (1995) Reflective Writing Framework

Level of reflection		Criteria
Lower level of reflection 	Level 1 (Descriptive Writing)	-Not reflective -Description of events or actions that occurred in learning -No attempt to provide reasons/justification for events or actions that a student experienced in learning of reflection
	Level 2 (Descriptive Reflection)	-Reflective, not only a description of events but some attempt to provide reason/justification for events or actions in a reportive or descriptive way -Recognition of alternative viewpoints in discussion -Reflection is based on one perspective/factor as rationale or based on the recognition of multiple factors and perspectives
	Level 3 (Dialogic Reflection)	-Demonstrates a "stepping back" from the events/actions leading to a different level of mulling about discourse with self and exploring the experience, events, and actions -Uses qualities of judgments and possible alternatives for explaining and hypothesizing - The reflection is analytical or integrative, linking factors and perspectives
Higher level of reflection	Level 4 (Critical Reflection)	-Demonstrates an awareness that actions and events are not only located within and explicable by multiple perspectives , but are located in and influenced by multiple historical and socio-political contexts

Moon (1999) suggests criteria based on her map of reflective writing:

1. Journaling demonstrates awareness and understanding of the purpose of the journal; uses it to guide selection and description of events/ issues.
2. The description provides adequate focus for further reflection and includes additional ideas
3. Reflective thinking is evident- ability to work with unstructured material, theory-practice. link, different points of view of event, metacognition, application of theory; alternative interpretations, testing of new ideas
4. There is a statement of something that has been learned or solved, a sense of moving on.

Hubbs and Brand (2005) suggest a 2x2 matrix for collaborative review of reflective journals (see figure 3). This matrix contains a content-process continuum and a superficial-complex continuum. A content statement focuses "outside" the student, whereas a process statement discloses the student's level of introspection. A student's superficial entry would

focus on content with no emotional value, but an entry that integrates personal and introspective insights would suggest movement toward understandings of greater complexity. Both students and instructors are encouraged to review reflective journal entries, plotting them on both continuums of the matrix. The goal, states Hubbs and Brand (2005), is for student writing to demonstrate progress toward reflective and inwardly focused entries.

	Content (focused outward)	Process (focused inward)
Superficial reflection ↑ ↓	A	B
Critical Reflection (depth)	C	D

Figure 3. Hubbs and Brand's reflective journal collaborative review matrix.

TECHNOLOGY ENABLED JOURNALING

Several researchers have noted drawbacks to paper-based reflective journals (Anderson, 1993; Dymont & O'Connell, 2003; Phipps, 2005; Schell, 1998). These issues include the overuse of journals, inconvenience of responding to entries, delayed feedback, difficulty sharing with more than one reader, and inadequate reflection simply to receive a passing grade.

Many of these challenges are overcome by online journals, commonly referred to as e-journals or blogs. Web-based journals enable dialogue without the need to be physically present and without limits of time. Reflections can be recorded at any time, day or night (Orem, 2001). E-journals encourage contact between students and faculty, promote active learning, and allow for prompt feedback (King & LaRocco, 2006). E-journaling has also been found to encourage dialogue on multiple levels- learner to learner, learner to instructor, group, and self; to break up traditional social hierarchies; and to improve reflection on readings and participation in discussions (Parkyn, 1999). Some learners even feel that e-journals provide a safer environment for self-expression than the classroom (Myers, 2001;

Parkyn, 1999). E-journaling provides an opportunity for learners to express opinions, ideas, and concerns about the course materials that might not be shared otherwise (Phipps, 2005).

REFLECTIVE VIDEO JOURNALS

One type of technology-enabled reflection journal that has not been explored in the literature is the reflective video journal. Commonly referred to a video blog or vlog, this new form of journaling holds many of the advantages of e-journaling with the added personalization and spontaneity of video. Both technology advances in video camera equipped laptop computers as well as the growing popularity of video sharing websites have led to a wide adoption of vlogging among Internet savvy adolescents (Gustafson, 2007). A site that has helped to enable the growth of vlogging is the video sharing website YouTube.com.

Though there are many other video sharing sites online, several features of YouTube make the site a great online environment for sharing reflective video journals. These include the simple video upload interface, the built-in social software tools, and the large user community.

Uploading videos to YouTube is very easy. Users can upload videos from their cell phone, record video directly from the Internet browser, and use the “share to YouTube” button located in many of the popular video editing programs available, such as iMovie.

The built in social software tools are another aspect of YouTube that make the site such powerful tool for reflective video journaling. These tools allow the classroom teacher, other students, and even the larger online community to comment and respond to video journal entries. Privacy settings enable users to restrict access to their videos to a pre-selected group of visitors, allowing interaction to occur in a closed environment.

A third aspect of YouTube that makes it particularly suited for reflective video journaling is the existing online community. Before creating their own videos, students can watch many example videos by a large number of active content creators. Several videos on YouTube teach viewers the necessary steps to posting videos on the site. By effectively adding text tags to videos they post online, students will increase the likelihood their videos will be watched by other YouTube users.

Despite all of the benefits of sharing reflective video journals on a site such as YouTube.com, there are several concerns about students' posting their reflective videos online. These concerns include negative comments, student privacy, and student safety. One concern is over negative commenting. Since YouTube is a public site with a large user based and a simple and free registration process, anyone can join the site. These users are able to post comments, including negative comments, without any consequences. Although there is a built in "flagging" system, where user abuse can be reported, users posting negative comments can always sign up for another account. A second concern for students posting videos on YouTube is their privacy. As video blogs often include students' uncensored reflections, comments about their teachers, school, friends, and family may be viewed by these stakeholders. An embarrassing comment about a friend, for example, could have unintended consequences. A third concern for students posting their reflective video journals on a public site such as YouTube is their safety. Though anecdotal evidence abounds, Internet predators and those intending to do harm to children is a stark reality in our Internet-connected world. Students often post personally identifying information such as their name, school name, interests, and location, unaware of the vast array of strangers who have access to that information.

These concerns are enough to lead this research study to focus in on the tool of reflective video journaling while avoiding the many ethical implications of asking adolescent students to risk potential exposure on a public website.

The research reviewed above served as a foundation from which to investigate reflective video journaling in this study. In particular, Kolb's learning cycle and the three evaluative frameworks suggested in the literature will be utilized to assess the reflective levels of students' video journals. These include Hatton and Smith's (1995) framework, which distinguishes several levels of reflective writing; Moon's (1999) contribution, which suggests criteria based on her map of reflective writing; and Hubbs and Brand's (2005) matrix for collaborative review of reflective journals.

This study sought to determine the factors contributing to student utilization of reflective video journaling as a tool to increase their metacognitive awareness. As discussed in the review of the literature, the six-phase methodology of a formative experiment (Reinking & Bradley, 2008) was followed. The research questions, further discussed in the

following chapter, focused on determining the factors contributing to the attainment of the pedagogical goal through a six-session after school reflective video journaling program. The next chapter presents this methodology in full detail.

CHAPTER 3

METHODOLOGY

This study sought to determine the factors that enhance the effectiveness of reflective video journals to increase the metacognition of adolescent students. Reflective journals have been used as a tool to facilitate students' metacognition and have been shown to enhance critical thinking skills, encourage observational skills, and develop creative skills (Anderson, 1993; Dymont & O'Connell, 2003). To achieve this pedagogical goal, this study followed the six-phase methodology of a formative experiment as posed by Reinking and Bradley (2008).

RESEARCH QUESTIONS

1. What factors in the educational environment enhance or inhibit students' metacognition?
2. How can the intervention (an after-school reflective video journal program) and its implementation be modified during the experiment to more effectively achieve the pedagogical goal (increased student metacognition)?
3. What impact does feedback and peer response have on students' reflective video journal creation?
4. What unanticipated positive or negative effects does the intervention produce?
5. What factors contribute to the long-term adoption (user persistence) of reflective video journals as a tool for metacognition?

DESIGN OF THE STUDY

The formative experiment methodology is an approach to research well suited to this study. This methodology developed as a response to the shortcomings of traditional research methods to satisfactorily address the complexities of implementing instructional innovations into the learning environment (Oakley, 2003). Formative experiments allow researchers to test, modify, and develop pedagogical theories through innovative instructional interventions aimed at achieving specific instructional goals and bringing about constructive change in classrooms (Moll & Diaz, 1987; Reinking & Bradley, 2004). The flexibility of the formative experiment methodology makes it especially useful for studying new technology innovations (Newman, Griffin, & Cole, 1989; Reinking & Pickle, 1993; Reinking & Watkins, 1996).

Formative experiments have been used to investigate a variety of classroom innovations including online book reviews (Reinking & Watkins, 2000) vocabulary instruction (Baumann, Ware, & Edwards, 2007), and literacy engagement (Ivey & Broadus, 2007). The characteristics of a formative experiment are consistent with the goals of this study, which are to develop workable and effective instructional activities (reflective video journals) aimed at furthering a critical instructional goal (students' metacognition).

FORMATIVE EXPERIMENT METHODOLOGY

In their 2008 book on conducting formative experiments, Reinking and Bradley outline the six phases of a formative experiment. Phase one is the preliminary phase during which the goals of the project are determined, plans for implementing the intervention are negotiated, and participants are recruited and selected. Phase two involves gathering demographic data using ethnographic methods to create a "thick description" of the school setting. During phase three, baseline data is gathered to establish where participants are in relation to the pedagogical goal prior to implementing the intervention. The heart of the investigation is phase four, which involves implementing the intervention, gathering data, and modifying the intervention to better reach the pedagogical goal. A post assessment is conducted during phase five to provide a point of comparison with the baseline data. Phase six involves consolidating findings and writing up the results. The following methodology section of this study outlines these phases in more detail.

PHASE ONE

Phase one is the preliminary phase during which the goals of the project are determined, plans for implementing the intervention are negotiated, and participants are recruited and selected.

Goals of the Project

Unlike other research methodologies that address research questions as specified in advance, formative experiments are driven by a pedagogical goal and what needs to be done to achieve it. As noted in the previous chapter, reflection is an essential stage in the learning process. Students with increased metacognition experience higher levels of understanding, engagement, and achievement (Orem, 2001). Though metacognition is a valuable

pedagogical goal, few studies exist on increasing the domain independent metacognition of adolescent students.

Reflective video journaling is an intervention worth exploring. Paper-based reflective journals have been used successfully in high school classrooms to increase students' metacognition, but contain several disadvantages (as noted in the review of literature). These disadvantages include student fatigue/ overuse of journals, barriers to honest reflection (assessment/ fear of audience), and logistical issues (grading, archiving, saving, portability, and access). With the growing ubiquitous nature of technology, classroom teachers have begun to use technology-based methods of reflective journaling. The most common form is e-journaling or blogging, which allows for instant access and feedback, easier sharing, and archiving. With the growing popularity of video sharing sites such as YouTube.com, laptops equipped with video cameras, and increased student interest in multimedia creation, an exploration of video-based journaling is necessary.

Planning and Negotiating the Intervention

Building upon a major gap in the research literature, this study originally sought to explore how students create and post reflective video journals on public video sharing sites such as YouTube.com. Exploring this complex problem is a multi-stage process. This dissertation serves as an introduction to the exploration of student's reflective video journal creation, particularly in the area of investigating how these reflective video journals might increase students' metacognitive practices. To fully explore reflective video journals as an intervention to increase the metacognition of adolescent students, an after-school video blogging program was conducted. This six-session program guided students through the process of creating reflective video journals and explored the factors that increase students' metacognition. Situating the journaling activity outside of the formal classroom served as a summary project, a way for students to process and reflect on their entire learning experience increasing their domain independent metacognition.

A major part of planning and negotiating this instructional intervention was working with the University's Institutional Review Board. Due to their concerns in studying adolescent students creating reflective video journals, the original plan for this study was

necessarily modified in several ways to attain approval from the Human Subjects Review committee.

The first concern of the Human Subjects committee was over students posting their reflective video journals on a publicly accessible website such as YouTube.com. In order to gain approval, the researcher ensured that all student videos would remain on the local computers and not stored anywhere the public might have access.

A second concern was over the impact of feedback on students' video journals. Due to the personal nature of reflective video journaling, the Human Subjects Committee was concerned that students might receive negative feedback from their peers. Despite being assured that students would receive adequate training before providing feedback, this aspect of the study was modified to gain approval. The negotiation process lasted six weeks and moved the start date of the study to the last four weeks of the school calendar year. Because of this limited time, the length of the study changed from six weekly sessions to six biweekly sessions. Since the study occurred during the last few weeks of the high school calendar, the original intended examination of user persistence, how much longer students create reflective video journals after the study's formal conclusion, was not able to be included in this study. Though the study was changed from its original direction, much can be learned from this study that can be built upon by future research in this booming field.

Overview of the Research Plan

This study sought to determine the factors effecting reflective video journals as a tool to increase the metacognition of adolescents. Reflective journals have been used as a tool to facilitate students' metacognition and have been shown to enhance critical thinking skills, encourage observational skills, and develop creative skills (Anderson, 1993; Dymont & O'Connell, 2003). To investigate this, a six session after school "video club" was established at a charter school representative of the greater metropolitan area. Following the formative experiment methodology, with a focus on an end pedagogical goal rather than isolating experimental variables, the study was regularly modified to meet the goal. Students were given laptops to create reflective video journals based on a researcher-created prompt. The responses were analyzed for content according to three documented reflective journaling frameworks. This qualitative data was complimented by two quantitative pieces, a

metacognitive awareness inventory and a technology attitudes survey. The constant comparative method was used to analyze these multiple sources during the conduction of this experiment (Bogdan & Biklen, 2006). As the study progressed, plans were modified and journal prompts were written to better accomplish the goal of increased student reflection. Themes emerged from Bauman et al.'s (1996) formative experiment four question framework.

Participant Selection

This study was conducted at Health Sciences High and Middle College (HSHMC), a new charter school in San Diego. This school was selected as it draws its students from all areas of metropolitan San Diego and is somewhat representative of the general student population. Purposeful sampling was used for the selection of participants in the study. Patton (1990) noted that purposeful sampling is based on the assumption that one should select a sample from which the most can be learned about a particular phenomenon. Twelve students were selected to participate in this study based on two criteria. First, selected students were willing to offer rich information about themselves as students and learners. Collaboration with classroom teachers and school administration was essential in selecting students who were vocal in class, somewhat uninhibited, and willing to speak their minds on camera. Maldonado, Mora, Garcia and Edipo (2001) noted that extroverts start with a higher level of participation than introverts in online activities, though introverts' participation is more constant over the long term. Though the researcher supported student efforts, this innovative intervention called for a certain degree of confidence in attempting new tasks and naturally lends itself to more uninhibited students. This selection criterion is consistent with purposeful sampling. Second, students with differing levels of technological ability, various socio-economic backgrounds, and academic abilities and aptitudes were selected. These selections were made in collaboration with classroom teachers and school administration. A representative sample of students is necessary to ensure generalizability to the larger population. The researcher met with each student recommended for participation, explained the purpose of the study, and invited him or her to participate. Selected participants and their parents completed consent forms before beginning the study.

A total of fifteen students attended at least one of the sessions. These students were Terrance, David, Chad, Annette, Johnny, Jordan, Sebastian, Tom, Sean, Anton, Katie, Kyle, Juliana, Amy, and James. Each of these are pseudonyms. Sebastian and Anton did not complete any reflective video journals. Tom and Katie only completed one reflective video journal. Due to their limited participation, these students were excluded from the results of this study. Their survey data has been erased and not included in the study. The remaining eleven students each completed at least three reflective video journals. Terrance, Chad, and Sean each created five reflective video journals. Jordan, Kyle, Juliana, Annette, and Amy each created four reflective video journals. The three remaining students, David, Johnny, and James each created three reflective video journals. All of the students completed the pre and post assessments except for Amy and James who missed the first session and only completed the post assessment. Though their reflective video journals are included in the report, for the sake of a pre/ post comparative analysis, their post-assessment is not included in the findings.

PHASE TWO

The second phase of this formative experiment involves gathering data using ethnographic methods to create a "thick description" of the school setting. The researcher collected ethnographic data to help guide efforts to fully integrate the intervention into the school culture (Reinking & Bradley, 2008). An understanding of students' technology proficiencies and experiences; teacher attitudes, aptitudes, and frequency of technology use in the classroom; and an understanding of the logistics students and teachers encounter on a daily basis was important for the sake of carrying out the intervention to accomplish the pedagogical goal and extend theoretical understandings applicable to actual classroom practice.

To create this "thick description" of the school setting, a teacher technology survey was administered before the study began (Appendix B). An email link to an online survey was sent to all twelve of the classroom teachers. The teacher technology survey helped to describe teachers' frequency of technology use, attitudes toward technology and basic descriptive factors. Eight teachers completed the survey, the results of which are reported in this section. The survey showed that teachers at HSHMC are generally welcome of the role of video in their classroom, cautiously embrace technology as an educational tool, and

exhibit a lower level of technological familiarity and proficiency than the students participating in this study.

Teachers at Health Sciences High and Middle College are generally welcoming of the role of video in their classroom. Though almost 80 percent of teachers rarely use video cameras or video editing (less than once a month), over 80 percent report watching online videos with their students on a weekly basis. For the most part, these teachers have a positive view of technology and its role in the classroom. Over 80 percent of teacher respondents believe that technology use in the classroom improves the performance level of students, believe that using technology in the classroom is an efficient teaching technique, and plan to increase their use of technology in their classrooms. These same teachers have all visited or contributed to video sharing sites such as YouTube.com and believe that technology does not interfere with the student/teacher relationship.

Although they generally embrace technology, teachers at this school did express some concerns. A major concern among these teachers regarding technology is that students confuse finding information about a topic on the Internet with understanding of that topic. A secondary concern is that students confuse the quality of the presentation with the quality of the content. Despite their confidence in using technology, there does exist a large gap between the way teachers and students use current technologies. Perhaps, as Princeton researcher Eszter Hargittai (2007) notes, the new digital divide may be generational. The gap in technology may no longer be between the “haves” and “have nots” but between the “can” and “can not.” Though teachers at this school site report high levels of technology use and have access to fairly new technology equipment, there does exist a gap in technology skills between teachers and students. This “second level digital divide” is evident in the differences between students and teachers contribution levels to several current technologies. Students participating in this study are much more frequent contributors to social networking sites such as Myspace, with twenty five percent of teachers contributing, but sixty seven percent of students frequently contributing to social networking sites. A similar gap existed between students and teachers in the area of file sharing with forty seven percent of teachers using file sharing, but sixty seven percent of student using or contributing frequently. Video sharing is, on the other hand, being embraced by a majority of both teachers and students, with fifty percent of teachers contributing and fifty percent of students frequently contributing. The

differences between teachers and students in the areas of social networking, file sharing, video hosting, and instant messaging are demonstrated by Figure 4.

Figure 4. Teachers and students technology contributions.

Perhaps the most major difference exists between teachers and students in the area of instant messaging. Research has shown that students value the informality and immediacy of tools such as Instant Messenger (IM) (Jeong, 2007). IM has been shown to build social bonds with peers, with adolescents reporting more than 50 or 100 addresses in their messenger list (Nardi, Whittaker, & Bradner, 2000; van den Eijnden et al., 2008). Instant messaging has become the most popular online communication function for students (Gross, 2004) and may be particularly beneficial for otherwise isolated teenagers (McKenna & Bargh, 1998). Though studies report that the most common topics in instant messaging were friends and gossip, teachers have begun to use this interface to allow students easy access to assistance (Gross, 2004; Jeong, 2007). Research such as this will help drive this formative experiment to examine a frequently used, yet under-studied tool, reflective video journaling.

PHASE THREE

During phase three, quantitative and qualitative data was gathered to provide a substantiated baseline description of students. This baseline was considered relative to the pedagogical goal and served as a reference point from which progress during the experiment could be gauged. Two measures were administered during the first session. These were the

Junior Metacognitive Assessment Inventory (see Appendix C) and a Technology Attitudes Survey (see Appendix B) to determine students' technology experience, attitudes toward reflective journaling, and proficiencies in creating digital videos. Results of these baseline measures are presented in the next chapter.

Student Participants

Students completed the Technology Attitudes Survey to provide an indication of their technology experiences and proficiencies. This survey utilized a 1 to 5 Likert scale, asking students about their use of specific technologies and ranking the frequency of their usage from 1 (never) to 5 (more than once a week). Students participating in this survey frequently use technology in their school. Their responses indicated that students use computers in general, word processing, Internet research, and online discussion boards at least once a week. Students also view DVDs, online videos, and use presentation software in class, though not as often. Technologies used less frequently include graphic and web design programs, video cameras, and digital photography, with a majority of students using these technologies less than monthly. A table including the raw scores of the Technology Attitudes Survey is included in the Appendix B.

As proficient as these students may be in technology, they generally report low use of metacognitive strategies. Particularly in the regulation of cognition domain, students infrequently utilize evaluative metacognitive strategies to reflect on their learning. For example, eight of the nine respondents disagreed with the statement, "When I am done with my schoolwork, I ask myself if I learned what I wanted to learn." This was echoed by sixty seven percent of students infrequently utilizing the strategy labeled, "I think about what I need to learn before I start working." Half of the participants reported low frequencies on the item, "I ask myself how well I am doing while I am learning something new." As the purpose of this study is to investigate students metacognition as impacted by the intervention of reflective video journaling, several of the items on the Junior Metacognitive Awareness Inventory, including evaluation, monitoring, and planning in the regulation of cognition domain should increase after participation in the study. The results of the post-experimental analysis are reported in Chapter Four of this dissertation.

PHASE FOUR

The heart of the investigation is phase four, which involved implementing the intervention, gathering data, and modifying the intervention to reach the pedagogical goal. A formative experiment requires on-going, continuous data collection aimed at determining what factors enhance or inhibit the intervention's success in accomplishing the pedagogical goal, what the unanticipated by-products of the intervention are, and the degree to which the intervention is being appropriated into the educational context (Reinking and Watkins, 1996).

Implementing the Intervention

To fully implement the intervention into the educational context, a six-session after-school video blogging program was conducted. The researcher, a state certified teacher with six years of classroom experience teaching multimedia technology to adolescent students, led this formative experiment. Students met with the researcher in one of their classrooms after school twice a week. Each participant had access to a laptop computer with video capture and editing software. They logged onto the study's website, read the journal prompt, and set out to create a reflective video journal. These videos were created in iMovie, with students speaking into the built-in video camera on their laptops. Once they had recorded their reflection, students watched the video, edited out unwanted sections, and re-recorded new information. Many students added titles and background music to enhance their reflective video journals. Once they were finished, the researcher assisted students in exporting their video to a portable hard drive for viewing and analysis. Sessions ran an average of an hour and a half after school, though many students completed their reflective video journals in less than an hour. The spacious environment of the school site during the after-school hours allowed participants a private, quiet environment in which to create their reflective video journals. Phipps (2005) noted that the role of researcher is to encourage, guide, and engage students. To that end, the initial sessions were highly structured, with the researcher providing less direction and taking a more supportive role as the program proceeded and student autonomy developed.

Prompts for Reflective Video Journals

During each of the six sessions, students were given a prompt on which to create a reflective video journal. These prompts consisted of a topics or series of questions meant to

encourage student reflection. Prompts were posted on a password protected wiki-based website. A wiki is a page or collection of Web pages designed to enable anyone who accesses it to contribute or modify content, using a simplified markup language (Wikipedia, 2008). This format allowed the researcher to quickly post updates to the prompts, links to student surveys, and other pertinent information students might need. As the study progressed, the prompts were modified and adjusted to encourage deeper student reflection.

The following section provides an overview of each of the six prompts. The prompts were highly structured at first with less structure as the study progressed and student autonomy developed.

PROMPT ONE

The first reflective video prompt served as an introduction to the study. Ten students completed this reflective video journal. The prompt asked:

1. What's your name? Other basic info?
2. What is your favorite aspect of using technology?
3. What activities are you most engaged in online?
4. What do you think about YouTube? Myspace? FaceBook?
5. How have you contributed to sites? Posted comments? Video responses?
6. What are your impressions of technology in your school?
7. If you could change one aspect of technology in school, what would it be?
8. What do you do when you go online?
9. What is a blog? Have you ever made a blog? What about a video blog?
10. Have you ever kept a learning journal for school? Describe.
11. What is your favorite technology project you've ever made? Why?
12. In this club, we'll be making reflective videos? What are you expecting?
13. Anything else you would like to add?

After viewing, transcribing, and analyzing these first reflective videos, the researcher updated the wiki site to focus students on reflecting about their educational experiences.

PROMPT TWO

The second prompt focused on student's thoughts about school. Ten students completed this reflective video journal. The prompt read, "Who are you? What bugs you

about school? What do you like most about school? If you were a teacher, what would you do differently?" An analysis of the responses to this prompt led the researcher to ask students to create a more personally reflective video during the next session.

PROMPT THREE

The third prompt focused on less structured student reflection. Nine students completed this reflective video journal. The prompt read, "Talk about a time you were learning something that was really difficult. What did you do to succeed? How did you prepare for a tough assignment or test? What would you do differently?" An analysis of the responses to this prompt led the researcher to create a prompt in line with Moon's (1999) reflective journaling map.

PROMPT FOUR

The fourth reflective video journal asked students to focus on a specific incident that happened at school where you felt misunderstood, overwhelmed, hurt, or messed up somehow. Describe the incident objectively (without bias or blame) as possible. This prompt was based on Moon's (1999) reflective journaling map. The provided guiding questions were:

1. What were the assumptions that you were operating with?
2. Is there another way to see this event?
3. How would your teacher/ other students explain this event?
4. How does your explanation differ from your teacher/ other students explanation?
5. What would you do differently?

The researcher created an example video for this prompt and posted this video on the password protected wiki site. Eight students completed this reflective video journal. The consistent growth demonstrated by participants in their reflective journaling led the researcher to create a prompt with little scaffolding for the fifth journal assignment.

PROMPT FIVE

The fifth reflective video journal allowed students to chose their own topic. The prompt read, "You now get to make your own vlogs. Make as many as you want, but try to

focus on one topic at a time. These can be about whatever you want, but use these guiding questions:

1. What is the topic?
2. Describe what happened
3. What were your assumptions?
4. What did you observe?
5. What could you do to help?
6. What action will you take?
7. What outcomes do you hope to achieve?
8. Reflect on the outcome, what did you learn?
9. What would you do differently?

Due to scheduling difficulties (many students had a major project due the next day), and students struggling to define a topic, only two students actually created a reflective video journal during this session. These results are further explored in the following chapter. This lack of response led the researcher to create a more structured prompt for the final session.

PROMPT SIX

The final video prompt asked students to reflect on their experiences in the video club. Four students completed this reflective journal. The guiding questions were: What have you learned by participating in the video club? What has been your favorite part about making videos? What has been challenging about making videos?

Data Collection

Multiple methods of data collection were used including individual student surveys, content analysis of reflective video journals, and anecdotal evidence from the researcher journal. Each of these data collection activities occurred on weekly basis with the key artifacts of this study being the reflective video journals which were transferred onto the researcher's computer for portability and transcription. The researcher performed a content analysis of the reflective video journals, coding responses according to three reflective journaling frameworks. The constant comparative method was used to examine emerging themes and to inform the next study session. Modifications were made to the experiment during its implementation to ensure student reflection improved over the course of the study.

These modifications included the role of the researcher, tailoring the journal prompts to student experiences, and incentives to encourage student attendance.

Modification of the Intervention.

Themes and patterns emerged from the weekly analysis of the data collected according to the four-question framework suggested by Baumann et al. (1996):

1. As the intervention is implemented, what factors enhance or inhibit its effectiveness in achieving the pedagogical goal?
2. How can the intervention and its implementation be modified to more effectively achieve the pedagogical goal?
3. What unanticipated positive or negative effects does the intervention produce?
4. Has the instructional environment changed as a result of the intervention?

As the focus of this formative experiment is achieving the pedagogical goal, the research plan was necessarily modified from the proposal within the first few meetings of the study. This was to be expected, noted Baumann et al. (2007), as formative experiments do not include a control group and permit modifications to the intervention to better achieve the instructional goal. The role of the researcher is to respond to ongoing data collection and analysis, changing the intervention as factors enhancing or inhibiting the accomplishment of the pedagogical goal become clear (Reinking & Watkins, 1996).

Though some place a description of these modifications in the methods section of a dissertation (Duffy-Hester, 1999; Garfield, 2000), the themes that emerged during the study and prompted these modifications are more appropriately understood as findings of this study. Therefore, the themes and their modifications are reported in the following chapter on results of the study.

PHASE FIVE

A post assessment was conducted during phase five to provide a point of comparison with the baseline data. After the sixth session, the baseline measures were re-administered. These measures included the Junior Metacognitive Assessment Inventory, the technology attitudes survey, and a post-intervention survey focusing on student's technology experience, attitudes toward reflective journaling, and proficiencies in creating videos. Results from these measures were analyzed and changes are noted in the results section of this dissertation.

PHASE SIX

Phase Six involved consolidating findings and analyzing the results of the intervention. These results are presented and discussed in the next two chapters of this dissertation.

CHAPTER 4

RESULTS AND DISCUSSION

The pedagogical goal of this formative experiment was to increase adolescent students' metacognitive reflection. This goal was addressed by engaging students in an after school club creating reflective video journals. In the first chapter, I outlined a rationale for this intervention based on the phenomenon of adolescents creating personal videos and posting these "reflective video journals" on public websites such as YouTube. The informal learning occurring during this activity coupled with the frequency of students' contributions to video sharing sites necessitated an investigation of the phenomenon of creating and posting reflective video journals. In Chapter Two, I reviewed literature relevant to reflective journaling. Kolb's learning cycle, several metacognitive frameworks, and research on reflective journaling were reviewed. Several means of measuring metacognition were presented including Hatton and Smith's (1995) Reflective Writing Framework, Hubbs and Brand's (2005) Reflective Journaling Matrix, and Mitchell and Coltrinari's (2001) Reflective Journaling Map. Chapter Three described the research design, data collection, and analysis methods used in this study.

This chapter presents the results of this experiment. In keeping with the tradition of a formative experiment, this chapter will begin with a content analysis of the reflective video journals the students created. This analysis was conducted following the three evaluative frameworks for reflective journaling. As the study progressed several themes emerged that both increased and decreased the attainment of the pedagogical goal. An investigation of these themes will be discussed within a framework of the research questions guiding this formative experiment and will be presented following the content analysis of the student journals. Lastly, the quantitative data collected during the study will be examined, comparing the baseline data obtained during the second phase of the study to the post experimental data gathered during Phase Six.

CONTENT ANALYSIS

This chapter begins with a content analysis of the student reflective video journals. This analysis helped to determine the factors leading students to utilize reflective video journaling as a tool to increase their metacognitive reflection. The following section presents each reflective video prompt, outlines example student responses, and analyses the content of these responses based on several of the frameworks presented in the research literature. These frameworks include Hatton and Smith's (1995) Reflective Writing Framework, Mitchell and Coltrinari's (2001) Reflective Journaling Map, and Hubbs and Brand's (2005) Reflective Journaling Matrix.

The first framework used to analyze students' reflective video journals was Hatton and Smith's (1995) Reflective Writing Framework (see Table 4). This framework helps researchers categorize student responses into four levels. The first level is descriptive writing, in which a description of the actions is provided, but no attempt to justify the actions is included. The second level, descriptive reflection is the first stage of reflection, where students make some attempt to provide reason or justification for their actions. This reflection is based on their own personal perspective. The third level, dialogic reflection, demonstrates a "stepping back" from the events and looking at their actions from alternate perspectives. The fourth level, critical reflection, is where students demonstrate an awareness that actions and events are located in and influenced by multiple historical and socio-political contexts. This framework is particularly appropriate for this study as it assists the researcher in determining the students' growth in reflection

A second framework used to analyze the content of students' reflective video journals was Mitchell and Coltrinari's (2001) Reflective Journaling Map. In it, they describe the five stages of reflective journaling. First, the description stage, is a simple retelling of what happened. Second, the metacognition stage includes a reflection on students' thoughts, feelings, assumptions, beliefs, values, and attitudes. Analysis is the third stage, where students explain the reasoning and thinking behind their actions. Next comes evaluation, the fourth stage, in which student consider the implications of their actions. Finally, the fifth stage is reconstruction, where students consider any changes that should be made and any plans for future actions. This framework was appropriate for this study as it helped the

researcher identify the depth of reflection exhibited by the participants in their reflective video journals.

Table 4. Hatton and Smith's (1995) Reflective Writing Framework

Level of reflection		Criteria
Lower level of reflection 	Level 1 (Descriptive Writing)	-Not reflective -Description of events or actions that occurred in learning -No attempt to provide reasons/justification for events or actions that a student experienced in learning of reflection
	Level 2 (Descriptive Reflection)	-Reflective, not only a description of events but some attempt to provide reason/justification for events or actions in a reportive or descriptive way -Recognition of alternative viewpoints in discussion -Reflection is based on one perspective/factor as rationale or based on the recognition of multiple factors and perspectives
	Level 3 (Dialogic Reflection)	-Demonstrates a "stepping back" from the events/actions leading to a different level of mulling about discourse with self and exploring the experience, events, and actions -Uses qualities of judgments and possible alternatives for explaining and hypothesizing -The reflection is analytical or integrative, linking factors and perspectives
Higher level of reflection	Level 4 (Critical Reflection)	-Demonstrates an awareness that actions and events are not only located within and explicable by multiple perspectives, but are located in and influenced by multiple historical and socio-political contexts

A third framework used to analyze the content of students' reflective video journals was Hubbs and Brand's (2005) 2x2 matrix for review of reflective journals (see Figure 5). This matrix contains a content-process continuum and a superficial-complex continuum. A content statement focuses "outside" the student, whereas a process statement discloses the student's level of introspection. A student's superficial entry would focus on content with no emotional value, but an entry that integrates personal and introspective insights would suggest movement toward understandings of greater complexity. Both students and instructors are encouraged to review reflective journal entries, plotting them on both continuums of the matrix. The goal, states Hubbs and Brand (2005), is for students to demonstrate progress toward reflective and inwardly focused entries.

In the following review of students' reflective video journals, each response was coded and analyzed according to these three frameworks. For each session, the prompt is introduced, an overview of example responses is provided, and then the three frameworks are used for content analysis. This analysis is then used to inform the following session's journal prompt.

	Content (focused outward)	Process (focused inward)
Superficial reflection	A	B
Critical Reflection (depth)	C	D

Figure 5. Hubbs and Brand's (2005) reflective journaling matrix.

REFLECTIVE VIDEO JOURNAL ONE

The first journal prompt served as an introduction to the intervention. It consisted of a series of questions asking students about themselves and their technology experiences. Ten students completed this reflective video journal. The responses allowed the researcher to gain a better understanding of the students participating in the study.

In this first journal, many students spoke about their technology experiences. Students' favorite aspects of technology ranged from playing games online, to finding information on topics interesting to them, to connecting with friends on social networking sites such as Myspace and Facebook. Kyle noted, "My favorite aspect of using technology is how simple it is to get information across to anywhere in the world. That idea is simply amazing to me." David stated that technology, "makes it really easy to focus on school." Annette's favorite aspect of technology is the, "fact that it is there for us to use." These students demonstrate an understanding of how technology has impacted both the world and their daily lives.

Students also addressed their favorite online activities in their first journal. Chad stated that he is “most engaged on Myspace and YouTube because I make my own videos and put them on there.” Terrance noted, “when I go online, I like to use Myspace most of the time.” Many students mentioned Myspace, the world’s most popular social networking site, including Kyle who noted, “it just allows me to connect to my friends and talk to them.” Others indicated that Instant Messaging was a favorite online activity. Amy, for example, noted “the thing I do most online is IM. I’m on it like 24/7.” Despite these positive impressions and frequent use of technology, only one student had actually created a blog before. Annette explained, “it’s just basically an online diary of what you think and what your thoughts are” and “it can be about anything, it can be about your personal life, it can be about something that you really love, like physics, or robotics.” None of the student participants had created a video blog before, though many students cited YouTube as a favorite website to view online videos.

In their first video, students reported never having used any type of learning journal in school before. Chad stated, “I’ve never kept a learning journal for school, just because I think that just doesn’t sound like something I would enjoy doing.” Jordan said, “No, I do not keep learning journals for school. I don’t know why. They just don’t seem like something I should keep.”

Students indicated that they were generally excited about participating in the study. Kyle noted, “I’m honestly expecting it to be very informative. It will tell us all more about ourselves, how we learn and what we are doing, and what we’re willing to record and not.” Annette looked forward to the study, explaining that “the way I feel so far about making Vlogs is how my brain feels as I’m doing it. How I’m trying to organize my thoughts and say them in a way that is clear and precise and understandable to the audience.” She went on, “my head feels it’s buzzing right now... my brain is just buzzing with all these thoughts of what I want to say.” She then addressed the user friendly aspect of creating journals on video, “it feels like I’m thinking faster.” She explained, “like when I’m doing my schoolwork I’m generally slow.”

It was clear from the first session that students view technology as a tool to help them in their learning and reflective process. An analysis of the content of these first videos follows according to the three reflective journaling frameworks.

Hatton and Smith's (1995) Reflective Framework revealed low levels of reflection among students' first journals, though a few students exhibited critical reflection by demonstrating an awareness that actions are located and influenced by historical and socio-political contexts. Example quotes from this analysis are presented in Table 5.

Table 5. Analysis of Journal 1 using Hatton and Smith's (1995) Framework

Stage	Name	Example Quote/ Description
1 (descriptive writing)	Johnny Juliana Sean Jordan Chad Terrance	Simple description. "I'm your basic 9th grader." Just descriptive. "I play games online." Descriptive/ but no reasons or justification "I go on YouTube and search for videos"
2 (descriptive reflection)	Annette	"It was fun all around"
4 (critical reflection)	David Kyle Amy	Considers how technology impacts the world. "I have a lot of good ideas on how to change this world" "This will make me more used to technology so I can teach my grandchildren and other people."

Using Mitchell and Coltrinari's (2001) Reflective Journaling Map to analyze student responses to the first prompt, most students were only describing (stage one), though several students were already displaying metacognition, analysis, evaluation, and reconstruction (see Table 6).

A content analysis of students' reflective video journals using Hubbs and Brand's (2005) Framework indicated the beginnings of more inward, critical reflection. Despite these results, most students were focused on the external content and low levels of superficial reflection (see Figure 6).

After viewing, transcribing, and analyzing these first reflective videos, the researcher wrote the next reflective journal prompt to help students consider their school experiences.

REFLECTIVE VIDEO JOURNAL TWO

The second prompt led students into some deeper reflection on their school experiences. This prompt asked students to explain what they like and dislike about school

Table 6. Analysis of Journal 1 using Mitchell and Coltrinari's (2001) Map

Stage	Name	Example Quote/ Description
1 (description)	Johnny Juliana Sean Jordan Chad Terrance	"I use the computer when I'm bored" "I'm your basic 9th grader." Just descriptive. "I like sports." Basic description: "I make my own videos" "I go onto Myspace"
2 (metacognition)	Annette	"I absolutely love it!"
4 (critical reflection)	David	"Technology makes people's lives easier"
5 (reconstruction)	Kyle Amy	Looks forward and hypothesizes the results of participating in the video club. "This video club will make me more experienced in technology so I can learn more about myself."

	Content (focused outward)	Process (focused inward)
Superficial reflection	A Sean Chad	B David Juliana
↕		
Critical Reflection (depth)	C Jordan Terrance	D Kyle

Figure 6. Analysis of journal 1 using Hubbs and Brand's (2005) framework.

and what they would do to change it if they were the teachers. Ten students completed this reflective video journal.

A few students focused on what Hubbs and Brand call "superficial content," with little emotional value occurring "outside" of the student. Sean, explaining that he wishes he could sleep during school or Chad, longing for less homework in school, are examples of these low levels of reflection.

Even though this was only the second journal, many students did focus on complex process content, integrating personal and introspective insights. One such example was Kyle, who explained,

Where I come from, people think that, for some reason I am really dumb and that I am not going to do anything good with my life. This is the place where I can prove them wrong. This is the place where I can get the A's, and I can go to the good college, where I can get that job as a lawyer that I want. And prove them wrong! That I am worth something.

Juliana noted that what she liked about school were the teachers. She explains,

they are like teachers I've never had before and they know how to reach you on a deeper level. I could talk to them about anything that I wouldn't like talk to my best friends about. I can talk to them about my whole life. Like if I were in trouble, if I was, God forbid, if I was pregnant, I would probably go to one of my teachers rather than my friend or my mom. I know it's weird but without them, I don't know how I would survive.

Most students included some reflection on what they would change about school in their second journal. Amy, for example, noted that if she were a teacher "I would slow my methods down so that people can actually learn." Johnnyo stated, "and math, I would change it completely and make it more simple so students can actually understand and learn from all their mistakes." Annette focused on what she would change about the social aspects of school. "People are so eager to make friends that their willing to do anything like gossip or spread rumors or break promises," she reflected. "I think people do that because they want to be accepted by their peers so badly that they are willing to do anything."

An analysis of these second reflective video journals according to the three reflective frameworks revealed a progress in students' metacognition from the superficial to the complex.

Hatton and Smith's (1995) Reflective Writing Framework revealed moderate levels of reflection among students' second reflective video journals, with most students providing justification for actions (descriptive reflection) or "stepping back" from events and considering possible alternatives (dialogic reflection) as displayed in Table 7.

An analysis of student responses to the second prompt using Mitchell and Coltrinari's (2001) Reflective Journaling Map showed a fairly even divide among students demonstrating metacognition, analysis, and reconstruction (see Table 8).

Table 7. Analysis of Journal 2 using Hatton and Smith's (1995) Framework

Stage	Name	Example Quote/ Description
2 (descriptive reflection)	Amy Jordan Chad Terrance David	"The thing that bugs me..." "If I was a teacher..." Reflective on what he would change about school. "I like socializing with people and sharing my knowledge." Reflects, but does not dialogue on the reflection or look at it from another perspective.
3 (dialogic reflection)	Juliana Sean Johnny Kyle	"If I was a teacher, I would..." "I know I'm not supposed to sleep in school" Some students need that extra one on one attention Analyzes his teachers' classroom management
4 (critical reflection)	Annette	She made a connection to the historical context

Table 8. Analysis of Journal 2 using Mitchell and Coltrinari's (2001) Map

Stage	Name	Example Quote/ Description
2 (metacognition)	Juliana Jordan Chad Terrance	"You know what really bugs me about school?" "What's good about school is..." "I like most..." "I don't get along with some people"
3 (analysis)	Sean Annette Johnny	"I'm not supposed to sleep in school." "before I make a final judgement, I like to..." "it's too much work" "it's the best part"
5 (reconstruction)	David Kyle Amy	"Take more field trips and change the grading system" Considers others' opinion of him and sets long term goals "If I was a teacher..."

A content analysis of students' reflective video journals using Hubbs and Brand's (2005) Framework indicated further movement toward more inwardly focused, deeper reflection (see Figure 7).

An analysis of the responses to this second prompt led the researcher to ask students to create a more personally reflective video journal during the next session.

REFLECTIVE VIDEO JOURNAL THREE

The third prompt asked students to reflect on their own metacognitive strategies. The prompt read, "Talk about a time you were learning something that was really difficult. What

	Content (focused outward)	Process (focused inward)
Superficial reflection ↕	A David	B Jordan Chad Sean Johnny Juliana
Critical Reflection (depth)	C Terrance	D Kyle Katie Amy

Figure 7. Analysis of journal 2 using Hubbs and Brand's (2005) framework.

did you do to succeed? How did you prepare for a tough assignment or test? What would you do differently?" Nine students completed this reflective video journal.

While reflecting on their learning experiences and strategies, the students spoke quite candidly. James reflected on his poor study habits, "I don't usually study," he noted, "something I should probably do differently is change my study habits. I should study way more often so I can get a better grade." During this reflective video journal, students exhibited complex process reflection, as demonstrated in this entry by Annette, "comparing myself, presently to the past, like in 8th grade, I procrastinated a lot, to be honest. Right now I don't procrastinate as much as I did. Now I do my homework every day. I do things on time and I'm on task. She concludes that her recent school experiences, "pushes me to continue to be the best student that I can be."

Several students did cite specific metacognitive strategies. Chad, for example, noted that working with his teacher and making corrections on his homework "ended up teaching me a lot." Terrance spoke about a test he failed, "if I had to do it again, the thing I would do differently is study and pay attention more in the class. Because I was messing around too much and I won't do it again, so I don't get a bad grade." Kyle explained a learning strategy he used, "All you do is just go into your head, grab whatever you need, and just pull it in, and put it right there." He went on, "you'll start thinking about it all day... and you'll be like, 'oh, yeah!' there's that and then there's that." He concludes, "that's a great strategy I've figured out. I think I'll call it Kyleism."

An analysis of these responses according to the three reflective frameworks revealed a steady progression toward deeper reflection among most students.

Hatton and Smith's (1995) Reflective Writing Framework revealed moderate levels of reflection among students third reflective video journals, with most students providing justification for actions (descriptive reflection) or “stepping back” from events and considering possible alternatives (dialogic reflection) (see Table 9).

Table 9. Analysis of Journal 3 using Hatton and Smith's (1995) Framework

Stage	Name	Example Quote/ Description
2 (descriptive reflection)	Amy Juliana Jordan	“I think most of my grades are pretty good” based on her perspective only “I might change a few things...”
3 (dialogic reflection)	Sean Chad Terrance Kyle Annette Johnny	Dialogic reflection. Decides not to get corrections even though it helped him. Demonstrates deeper reflection. “This time.” He stepped back from the experience to examine it from another perspective Looks at an assignment and considers why he had difficulty “When it was time...” Provides coaches and teammates perspective

An analysis of student responses to the third prompt using Mitchell and Coltrinari's (2001) Reflective Journaling Map showed most students moving to the reconstruction stage of reflection (see Table 10).

A content analysis of students' reflective video journals using Hubbs and Brand's (2005) Framework indicated a more mixed result, with a fairly even divide between superficial and critical reflection (see Figure 8).

This third round of reflective journals showed students embracing video as a tool for metacognition, with all three frameworks indicating deep reflection among students. The next prompt was written to encourage students toward even deeper reflection, focusing on a specific incident.

REFLECTIVE VIDEO JOURNAL FOUR

The fourth prompt asked students to reflect on an incident in which they felt misunderstood. Eight students successfully completed this reflective video journal. Results of

Table 10. Analysis of Journal 3 using Mitchell and Coltrinari's (2001) Map

Stage	Name	Example Quote/ Description
2 (metacognition)	Jordan	"Everything comes pretty easy for me"
3 (analysis)	Sean	"Winging it... generally seemed to work out well."
5 (reconstruction)	Annette Johnny Amy Juliana Chad Terrance Kyle	"I'm a naturally determined person..." If you put effort into it, your work will pay off "I don't get it because I didn't give it a chance. I should study more." "I would study differently" "I had to study and ask for help." "I would probably..." He describes what he would do differently. Considers his learning strategies and applies them to future situations.

	Content (focused outward)	Process (focused inward)
Superficial reflection ↕ Critical Reflection (depth)	A Jordan	B Sean Johnny Annette
	C	D Amy Juliana Chad Terrance Kyle

Figure 8. Analysis of journal 3 using Hubbs and Brand's (2005) framework.

this fourth journal were varied, with a few students creating less than serious videos and others deepening their metacognition.

Three students produced less than serious videos for this prompt. Sean, for example, spoke about a hole in his shirt and though the video was quite silly, i.e., talking about how you can put sandwiches in the hole of his shirt, this video ended on a more somber reflective note when he mentioned that people "kind of look at you weird when you have this huge hole in your shirt," and "maybe I'll get enough money to buy a new shirt. Maybe not though, probably not, damn." Now that students were comfortable creating their reflective video

journals, several students moved to the common area of the school near their friends. This added presence of their peers distracted participants during the recording of their videos. Chad began his fourth journal in earnest, but became distracted by neighboring peers. "In fifth grade," his video stated, "I weighed a lot. Like, I weighed more than I weigh now." He continued, "Some kids were making fun of me at P.E. That wasn't very fun." This is unfortunately where the reflection ended. He was recording the video in the common area and became distracted by another student, "Yes, I'm still videoing! What's it look like I'm doing? [student name]... yeah that's what I'm doing, talking to myself." After the friend walked away he concluded the video by saying "I couldn't do anything differently because I mean I'm not fat now, but I was fat then. Couldn't do anything, they were just picking on me. You know how kids get made fun of." A second student was distracted during the recording of his video. Jordan began his video on a serious tone, but quickly his journal turned silly, referring to another student who walked by in the background, "And look! He's there again, he's right here! If you can see him, let see, right here, right here! See him, see that kid!"

Despite these less than serious responses, several students successfully created this fourth reflective video journal. One student who was able to accomplish this prompt was Terrance. He spoke about a time "I got in a messed up situation one day. I had a bad grade at my school, and my family was disappointed with me." He was grounded and felt very bad. He concluded by reflecting on his behavior and how he would change, "my teachers said that I didn't do my work, and they gave me the grade I got, because I was playing around. The thing that I would do differently is that, I would get to working, and I would do my work on time."

Annette's response focused on a serious incident that occurred in one of her honors classes the year before.

I was trying to take notes on what [the teacher] was talking about and the examples that he provided when he stopped talking and just basically yelled at me, 'Annette what are you doing? What do you think you are doing?' And I'm like, 'I'm taking notes'. Like I'm really caught off guard cause you know, I'm taking notes. And he's like, 'well you shouldn't do that right now. Put your pencil down and just listen.' She continues, "Myself and another girl were the only two ethnic people there and the majority of the class were white and we did get picked on a lot by the teacher." She concludes, "I mean, as a student, I tried to be in the most calm way possible because if I acted out in any other way it would probably

look like my fault, cause usually people take the teacher's side. But I was calm and I spoke to him in the most respectful way I could.

This kind of personal reflection exemplifies the power of reflective video journaling to help students consider their experiences, improving their metacognitive awareness.

An analysis of these fourth reflective video journals according to the three reflective journaling frameworks indicated a continuing deep reflection among students.

Hatton and Smith's (1995) Reflective Writing Framework revealed higher levels of reflection among students' fourth reflective video journals, with most students demonstrating dialogic reflection, a "stepping back" from events and considering possible alternatives and perspective (see Table 11).

Table 11. Analysis of Journal 4 using Hatton and Smith's (1995) Framework

Stage	Name	Example Quote/ Description
2 (descriptive reflection)	David	No stepping back or multiple perspectives.
3 (dialogic reflection)	Amy	"In this situation, I think I did wrong" "I understand why she would be mad."
	Sean	Demonstrated a stepping back, "great and awful." People look at you weird. Maybe I'll get enough money, but probably not.
	Annette	"Maybe he thought..."
	Chad	Explained perspective of teacher and other students.
	Terrance	Stepped back and considered his family's perspective.

An analysis of student responses to the fourth prompt using Mitchell and Coltrinari's (2001) Reflective Journaling Map showed most students continuing in the reconstruction stage of reflection (see Table 12).

Table 12. Analysis of Journal 4 using Mitchell and Coltrinari's (2001) Map

Stage	Name	Example Quote/ Description
2 (metacognition)	David	Describes failing math class.
3 (analysis)	Annette	"I guess he never saw someone work that hard."
5 (reconstruction)	Amy	"I hope we can be better friends and I can regain her trust."
	Sean	"If I get the money..."
	Chad	He made changes and decided on future actions.
	Terrance	Describes what he would do in the future.

A content analysis of students' reflective video journals using Hubbs and Brand's (2005) method indicated a further movement toward inward focused process, reflection as presented by Figure 9.

	Content (focused outward)	Process (focused inward)
Superficial reflection ↕	A Sean	B David Chad
Critical Reflection (depth)	C	D Terrance Juliana

Figure 9. Analysis of journal 4 using Hubbs and Brand's (2005) framework.

After conducting a content analysis on the reflective video journals from the fourth session, the researcher decided to allow students to work more independently, creating the fifth reflective journal prompt to encourage student choice.

REFLECTIVE VIDEO JOURNAL FIVE

The fifth video prompt incited some surprising results. The prompt read, "You now get to make your own vlogs. Make as many as you want, but try to focus on one topic at a time. These can be about whatever you want, but use the reflective journaling guiding questions." Due to scheduling difficulties (there was a major project due the next day), and students struggling to define a topic, only two students actually created a reflective video journal during this session.

After creating four reflective video journals, students were quite familiar with iMovie, knowing they could always edit their recorded video later. Kyle, Annette, and Katie in particular recorded content for this journal, but struggled to complete the assignment. Kyle noted in his final journal, "For some reason I've never been very good at making my own prompts. I have a hard time doing stuff like video log number five. I cannot come up with an idea. It's just hard to think about." Chad agreed, mentioning in his final journal, "it's

challenging to come up with ideas.” Only two students successfully created a reflective video journal for prompt number five.

The students who did accomplish this task were surprisingly personal. Though this prompt stumped many students, the open ended prompt allowed students tremendous flexibility in their content. As noted in the review of the literature, the focus of assessing reflective journals should be on the reflection exhibited in the journal entries and not solely on the completion of the assignment.

James's reflective video journal spoke about his after school life. He recounted in vivid detail, the activities of a recent day off from school including:

- Being offered alcohol by a stranger:

We were waiting for the 7 to go downtown, and uh, some car pulls up like on the street, and looks at us and says and like wags his finger at me, like that way and he is like “hey come over here. And I went “okay, can I help you?” And the guy was like, “do you want some beer?” And I was like, “uh what’s going on, what’s going on today.” And he’s like “I don’t know.” Like, he was planning something. And he’s like, “here, here take my number.” And I was like “I’m on a tight schedule, I’m late for something.” And I took his number.

- And an uncensored commentary on fellow bus passengers:

I rode the 901, to Coronado, and the ugliest Mexican people got on. And then sat right next to us and then of whole places on the bus and they had to sit next to us. And so me and my cousin kept texting each other and making jokes about them. This kid had a big old forehead; it looked like he had elephantitis. And we just kept joking, he was so ugly. And all these ugly Mexican girls. They smelled like dead animals.

These direct quotations from James's surprisingly candid reflective video journal, as shocking as they are, reveal a willingness among students to use video blogging to discuss deeply personal issues in vivid detail. Though a bit of education, redirection, and even censorship may be appropriate before posting these reflections to a video sharing site, clearly students are comfortable using reflective video journals to consider their experiences both inside and outside of the classroom.

Juliana's fifth reflective video journal was also surprisingly personal. In it, she explains a dramatic situation in which one of her friends is arrested for murdering her mother. Her response, unfiltered and raw, allowed her to process her feelings and reflect on, as she puts it, “what's going on in my life today.” Here are a few excerpts:

The item I am choosing to talk about today is about one of my friends... She was recently in the newspaper because on Sunday, at around 8 am, she decided to go down to the kitchen, grab a hammer, and hit her mom on the head with it. And her mom ended up dying yesterday, at noon, due to head trauma.

She continues:

The girl who was my old friend is now in juvenile hall, and I just can't believe that she did it. It's like your mom! How can you do that, it's like part of your own flesh and blood? And like she raised you, she gave you everything and then you're going to do that? And the worst part of all is that her mom was like the sweetest person in the world.

She concludes:

It just came as like a total shock to me. It keeps hitting me at random times during the day; like she's going to be in jail; like probably the length of my life. I'm 15 now; she could be in jail 15 years. She won't get to like finish her normal high school. She won't get to have like boyfriends or experience anything like that. She won't get to go to college. She won't get to hang out with friends on the weekends. She won't get to see movies at the theater. She won't get to go out and eat lunch with her friends. She won't get to like do anything. It is just like so hard. Like, it's just so weird that she would actually do that. Like, oh my goodness I just can't still fully believe it. So... that's what's going on in my life today.

This reflective video journal speaks to the personal nature of students' comfort level with multimedia creation tools. Students are using laptops equipped with video cameras to record deeply personal reflections. The above transcription is characteristic of many of the video blogs posted on public video sharing websites such as YouTube.

Due to the lack of completion among students for this open-ended reflective video journaling prompt, a content analysis was not performed on the prompts. This lack of response led the researcher to create a more structured prompt to assist students in completing the final video journal.

REFLECTIVE VIDEO JOURNAL SIX

The sixth prompt asked students to summarize their experiences in the study. Four students completed this final reflective video journal. These questions centered around the impact of feedback and audience on students journals and what students had learned from their participation in the study.

Although their reflective video journals were not shown to an audience, students were asked to hypothesize what impact feedback and audience might have on the creation of their

journals. Specifically, students were asked how their videos might change were several groups of people to view their videos. Chad stated that he “usually doesn't watch vlogs on YouTube because they are usually boring, and this is probably boring to someone if they've just started watching it.” He explained that feedback would help him come up with better ideas for his reflective video journals. Sean explained that allowing an audience to see his videos would change his videos, “I'd be a little more cheery and enthusiastic,” he explained, “Cause, being all serious like this is kind of lame.” Kyle was concerned about the impact his honest videos might have on the people he knows, particularly peers at school, “I would probably kind of cut back on a lot of the things that I say, even though it may seem like its perfectly honest and simple. A lot of the things I say would hurt other people actually.”

Beyond peers, several students mentioned parents and teachers as a potential audience. Chad stated that his parents and teachers have watched and like his videos in the past. Sean was concerned about this particular audience. “If my parents watched them,” he explained, “I wouldn't swear at all, not that I have been swearing in any of the videos but I would prevent myself from letting them slip out.” And if Sean's teachers were to watch his videos, “I'd just maybe cut back on the comments about them, just so they don't get angry at me.”

Finally, students were asked what they learned from participation in the study. Terrance explained that though creating reflective video journals is challenging at first, once you've made one, it's “really easy.” Chad agreed, stating that participating in this video club has helped him learn to use different angles and make video blogs. Kyle went into more detail, stating, “I can start making videos on YouTube, and that's the easiest way to get my ideas out there. Now that I know how to make videos and I can put my ideas out there, I'll start doing that more.

Hatton and Smith's (1995) Reflective Writing Framework revealed higher levels of reflection among students sixth reflective video journals, with each student demonstrating dialogic reflection, a “stepping back” from events and considering possible alternatives and perspective (see Table 13).

An analysis of student responses to the sixth prompt using Mitchell and Coltrinari's (2001) Reflective Journaling Map showed most students remaining in the reconstruction stage of reflection (see Table 14).

Table 13. Analysis of Journal 6 using Hatton and Smith's (1995) Framework

Stage	Name	Example Quote/ Description
3 (dialogic reflection)	Sean Chad Terrance Kyle	Exploring the experience Considers other viewers perspective. Considers teacher's perspective. “Now that I know how to make videos, I can put my ideas out there.”

Table 14. Analysis of Journal 6 using Mitchell and Coltrinari's (2001) Map

Stage	Name	Example Quote/ Description
3 (analysis)	Sean	Making changes, “I'd cut back on the comments about teachers”
5 (reconstruction)	Chad Terrance Kyle	“After watching my videos, I could probably make them better.” Considers the audience and decides he would post videos online anyway. Now that he knows how to create video journals, he plans his next steps.

A content analysis of students' reflective video journals using Hubbs and Brand's (2005) Framework indicated that all of the journals featured inward focused reflection, moving from the superficial to the critical (see Figure 10).

	Content (focused outward)	Process (focused inward)
Superficial reflection ↕ Critical Reflection (depth)	A	B Chad Sean Terrance
	C	D Kyle

Figure 10. Analysis of journal 6 using Hubbs and Brand's (2005) framework.

SUMMARY OF CONTENT ANALYSIS

The following section presents a visual overview of the increased reflection exhibited by individual students participating in this study. Presenting the data in this way allows the reader to understand the reflective process students completed by participating in this formative experiment. This section is followed by an investigation of the quantitative data collected during this study.

The following section presents a graphical representation of each student's reflection according to both Mitchell and Coltrinari's (2001) Map and Hatton and Smith's (1995) Reflective Journaling Framework. Students submitting four or more journals were included in this graphical analysis.

Two students demonstrated equal growth in their reflective processes during this formative experiment. Chad began his first journal with very little reflection according to both measures, with the content focused on basic description. This was also true of Terrance, whose first journal was void of any reflection. Both of these participants grew in their reflective process as exhibited in Figure 11 (Terrance) and Figure 12 (Chad). Their final three videos demonstrated high levels of reflection according to both measures, focused on reconstruction on Mitchell and Coltrinari's (2001) Map, and dialogic reflection on Hatton and Smith's (1995) framework.

Figure 11. Content analysis of Terrance's reflective video journals.

Figure 12. Content Analysis of Chad's reflective video journal.

Three students created journals with increasing, though inconsistent levels of reflection. Sean's first journal began with simple description, followed by a growth in reflection through journals two, three, and four. In his fifth journal, his rating fell to analysis on the first measure, while remaining high on the second measure (see Figure 13). Juliana's results were mixed as well, beginning low and ending high on the first measure, but shifting between descriptive and dialogic reflection on the second measure (see Figure 14). A content analysis of Annette's reflective video journals revealed a rise in metacognition, reaching the highest levels, but concluding lower on both measures (see Figure 15). These results, though mixed, do reveal a trend toward deep reflection among all study participants.

Figure 13. Content analysis of Annette's reflective video journals.

Figure 14. Content analysis of Juliana's reflective video journals.

Figure 15. Content analysis of Sean's reflective video journals.

Both Amy and Kyle were students who naturally took to reflective video journals. Each of their four journals scored very high on Mitchell and Coltrinari's (2001) map. This was due to their consistent focus on reconstructive metacognition, considering how they might act differently in the future based on what they had learned through the reflective process. Their scores were measured a bit lower using Hatton and Smith's (1995) framework as reflections on other's perspectives was less frequent. Amy's content analysis is presented in Figure 16 and Kyle's is presented in Figure 17.

In conclusion, a content analysis of all of the reflective video journals revealed that the metacognitive levels of students generally increased over the course of this study. Themes and factors influencing deeper student reflection are presented later in this chapter.

Figure 16. Content analysis of Amy's reflective video journal.

Figure 17. Content analysis of Kyle's reflective video journal.

PRESENTATION OF QUANTITATIVE DATA

The final section of this chapter presents the quantitative data collected during this formative experiment. First, the baseline data collected during Phase Two will be examined, including the student technology attitudes survey and the Junior Metacognitive Awareness Inventory. Next, a brief summary of the mid-study survey will be presented. Finally, the post-experimental data will be reviewed. Summaries, conclusions, and recommendations based on both the qualitative and quantitative data gathered during this study will be discussed in the fifth chapter.

Pre-Experimental Data

Baseline data were collected during Phase Two of the experiment. Data collection consisted of determining (a) students' levels of technological proficiencies, (b) their current levels of metacognition, (c) their frequency of technology use, and (d) their attitudes toward reflective video journaling. These characteristics of students were measured through quantitative instruments and survey questions described in Chapter Three of this dissertation.

Students completed a Technology Attitudes Survey to provide an indication of their technology experiences and proficiencies. This survey utilized a 1 to 5 Likert scale, asking students about their use of specific technologies, ranking the frequency of their usage from 1 (never) to 5 (more than once a week). Nine students completed both this survey and the post-experimental survey.

As indicated by the Technology Attitudes Survey (see Appendix D and E), students participating in this study use technology frequently in their school. Responses indicated that all students use computers in general, word processing, Internet research, and online discussion boards at least once a week in the classroom. Students also view DVDs, online videos, and use presentation software in class, though not as often. Technologies used less frequently include graphic and web design programs, video cameras, and digital photography, with a majority of students using these technologies once a month or less. A table presenting these raw scores is included in Appendix F.

Junior Metacognitive Awareness Inventory

The Junior Metacognitive Awareness Inventory (Jr. MAI), is a metacognitive framework specifically tailored to adolescent students (Sperling et al., 2002). This inventory includes 18 items and was designed to be a short, easily administrable instrument to determine the effectiveness of ongoing interventions. Inventory items fall within the two metacognitive domains of knowledge of cognition and regulation of cognition.

This inventory was developed by Sperling et al. (2002) to address the need for measures of metacognition to assess the effects of learning strategy interventions on learners' metacognitive processing and strategy use. A second reason this inventory was developed was to further understand the relationships among constructs comprising self-regulation, such as strategy use, metacognition, and motivation. Complete results of the pre-experimental

Junior Metacognitive Awareness Inventory are presented a comparison table under the following post-experimental section (see Table 16, p. 61).

Mid-Study Survey

To help assess student progress during this formative experiment, a mid-study survey was administered during the fourth session. This survey asked students about their impressions of reflective video journals, what has been challenging for them while creating their journals, and how audience might change the content of their journals. The results of this mid-study survey were used to inform the experiment to further enhance students' reflection and the researching of the pedagogical goal. Seven students completed this survey. Table 15 presents the results of the matrix questions. The following section examines the results of the open-ended questions.

Table 15. Results of the Matrix Questions on the Mid-Study Survey

	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree
My video skills have increased in this club.			43% (3)	57% (4)
I am more likely to make videos after this club			57% (4)	43% (3)
My attitude towards vlogging has changed during this club.	14% (1)		57% (4)	29% (2)
I have learned something about myself by creating these vlogs.	14% (1)	14% (1)	14% (1)	57% (4)
I would like to create more vlogs in the future.			43% (3)	57% (4)
Other students should create vlogs.		14% (1)	71% (5)	14% (1)
Creating vlogs helps you with your learning in school.		29% (2)	57% (4)	14% (1)

When asked what students had learned about making videos in this video club, responses were divided between logistics of the technology and reflections on the content of their journals. Amy, Juliana, and Jordan noted that they've learn how to create the videos,

including recording, editing, and saving. Sean mentioned that "It's a little harder than it looks, but it's kinda fun." Katie explained that creating the videos takes both time and patience. Others, such as Annette, explained the impact the reflective process was having on them. "I learned that I actually do have something to say," she explained, "When I usually think that I don't."

Many students reported that their attitude towards creating reflective video journals had changed. "I used to not care about vlogging," explained Katie, "but now I really do enjoy doing them. I would say that they are really fun to do and they help me vent." Annette and Jordan recognized that their attitudes towards blogging were more positive. Kyle agreed, "I have learned that vlogging isn't a waste of time. Before this, I thought that vlogging was something that teenage girls do when they are completely bored and had nothing else to do. Now, I think that vlogging is a great way to communicate and get your ideas out."

Several students noted that creating reflective video journals has helped them in many ways. Kyle noted that these journals provide an outlet for expressing his potentially unpopular opinions. "A lot of the things I have to say about the students and staff [at school] would not be appreciated by them." Jordan notes that creating reflective video journals "helped me see what I think of certain subjects," Sean explains that these journals have helped him, "be more reflective of myself." Finally, Juliana notes, reflective journals have helped me "discover a little more about myself than I knew before this class."

The feedback from this mid-study survey helped the researcher modify the study to help increase student reflection. Annette noted, "if the vlog's topics were more school related, vlogging might actually really affect my learning. For example, 'What did you learn in math today?'" This feedback was noted in the detractive factors section below and was used to modify the final prompt to encourage deeper student reflection.

POST-EXPERIMENTAL QUANTITATIVE DATA

The quantitative measures that were administered during Phase Two of the study were administered again during the sixth session. After attending six sessions and creating at least four reflective video journals, it was expected that the quantitative data would parallel the growth in student metacognition as indicated by the qualitative frameworks discussed in the previous section. The results of these quantitative measures are presented below.

Technology Attitudes Survey

Study participants completed the Technology Attitudes Survey again to determine whether their utilization of and attitudes toward technology had changed over the course of the study. As might be expected students frequency of using video cameras increased dramatically from an average of 2.44 to 3.22 on a five point likert scale. Another large change was in the frequency of instant messaging from 2.44 to 3.78 on a five point likert scale, perhaps attributable to an increase in confidence and social interactions as the school year drew to a close.

Junior Metacognitive Awareness Inventory

The Junior Metacognitive Awareness Inventory was again administered after the study's completion to determine the relationship between students' utilization of existing metacognitive strategies and their levels of reflection as indicated in their reflective video journals.

Though the administration of the Jr. MAI revealed no clear conclusions, there were several changes worth noting. For example, students' raw scores on "knowledge of cognition" items increased, while raw scores on "regulation of cognition" decreased. These results are noted in Table 16.

Students indicated gain in individual metacognitive strategies that are worth noting. All students reported an increase in the knowledge of cognition item, "I can make myself learn when I need to." Students also indicated an average gain in both "procedural knowledge of cognition" items including an average 1.17 point gain in the item, "I sometimes use learning strategies without thinking," and a .83 gain in the item, "I try to use ways of studying that have worked for me before."

These results coupled with the content analysis make a strong case for the utilization of reflective video journals as a tool to positively impact student's metacognitive awareness. Though there was little change between students' utilization of metacognitive strategies pre and post experiment, there were indications that measures on the Junior Metacognitive Awareness inventory and the frameworks analyzed in the content analysis were related. For example, Chad's ratings on all both reflective journaling frameworks consistently increased

while his knowledge of cognition increased on all three measures. David's growth in reflection was clear as well, with an increase among all three measures.

Table 16. Results of the Junior Metacognitive Awareness Inventory

	pre	post	control
<u>Knowledge of Cognition</u>			
Declarative knowledge	4.11	4.22	4.38
Conditional knowledge	3.67	4.42	3.83
Procedural Knowledge	3.25	4	4.06
<u>Regulation of Cognition</u>			
Information Management Skill	4.08	3.5	3.41
Evaluation	4.17	3.42	2.22
Monitoring	4.06	3.89	3.13
Planning	4.5	3.83	3.34

THE CONTROL GROUP

Although formative experiments do not allow for a traditional control group, it was important to frame the intervention and its results within the larger school context. This is in keeping with the “thick description” required in phase three of the formative experiment methodology. To accomplish this, the Junior Metacognitive Awareness Inventory was administered to a group of sixteen students not participating in the intervention around the same time as the study's conclusion. Table 16 presents a comparison between these two groups.

THEMES AND CATEGORIES THAT EMERGED

The next section of this chapter investigates the themes that emerged as the study progressed. The researcher used the constant comparative method to conduct this analysis. The constant comparative method is a research design for studies involving multiple data

sources, where data analysis begins early in the study and is nearly completed by the end of data collection (Bogdan & Biklen, 2006). Sources used for this analysis included the content of students' journals (as examined above), observational data, the researcher's own reflective video journals, and a mid-study student survey.

Themes emerged following a modification of Baumann et al.'s (1996) four-question framework for conducting formative experiments. This framework included two additional research questions to help guide this study. Each of these questions were examined on a weekly basis, as the study was being conducted, to ensure the experiment was necessarily modified towards achieving the pedagogical goal. These questions were:

1. What factors in the educational environment enhance or inhibit students' metacognition?
2. How can the intervention (an after-school reflective video journal program) and its implementation be modified during the experiment to more effectively achieve the pedagogical goal (increased student metacognition)?
3. What unanticipated positive effects does the intervention produce?
4. What unanticipated negative effects does the intervention produce?
5. What impact does feedback and peer response have on students' reflective video journal creation?
6. What factors contribute to the long-term adoption (user persistence) of reflective video journals as a tool for metacognition?

The following section, reporting the results of the study, is organized according to this framework. Starting with a discussion of the factors that enhanced effectiveness in reaching the pedagogical goal, we then examine the factors that inhibited the intervention's effectiveness. Within each category I will describe how the intervention was modified to enhance contributive factors and to offset the effects of non-contributive factors. Next, an investigation of the impact of feedback and peer response on students' journals will be reported. Then, unanticipated positive and negative effects by the intervention will be explained. Finally, an examination of the factors contributing to the long-term adoption of reflective video journals will end this chapter.

FACTORS THAT ENHANCED EFFECTIVENESS IN REACHING THE PEDAGOGICAL GOAL

Several factors that enhance the effectiveness of reflective video journaling as a tool to increase student's metacognition emerged during the course of the study. By watching

students' reflective video journals and reviewing their survey responses, I identified factors that positively affected the course of the experiment. These factors include highly structured prompts, privacy during production, and a focus on content over production value.

HIGHLY STRUCTURED PROMPTS

The first factor that positively impacted the attainment of the pedagogical goal was providing students with highly structured prompts. Although students did exhibit a high degree of confidence while using the laptop computers, they needed very specific instructions to guide their decisions of what to include in their reflective video journals. Highly structured prompts that gave students specific questions to consecutively answer received the most responses. Prompts one through three were highly structured and received the most responses. Prompt four was less structured and required the most amount of instructor intervention. After students expressed unease about choosing a topic for this prompt, the researcher created an example video and posted it to the club's wiki-based website for students to watch. Students needed an example and a few suggestions to answer this prompt. The least structured prompt, number five, received the fewest number of responses. Students attempted to complete this prompt but found it difficult to choose a topic. Even after a topic was decided upon, several students changed their minds, reshooting, editing, and reworking their reflective video journal until the point of frustration. The two students who did complete reflective video five, however, were deeply personal in their responses. Perhaps with more time and training in the production process, other students would be successful with unstructured prompts. To accommodate for the poor response to the unstructured fifth prompt, the final assignment was restructured to include specific guiding questions. This structure helped more students complete the final reflective video journal. Finding a compromise between highly structured and less structured prompts while allowing for student choice is essential in increasing the quality and number of student responses.

Privacy during Production

A second factor that enhanced the attainment of the pedagogical goal in this study was privacy during production. During the first session, I asked students to stay in the classroom to create their reflective video journals. As one student stared blankly at his screen, I asked if he needed any help. "No," he stated, "but I don't want to talk in front of

everyone.” When another student asked if she could take her laptop to another room for more “privacy,” I rescinded my initial charge, “just stay somewhere in the building.” Within a few minutes, only two students remained in the room. As I roamed the hallway checking in on specific students, it became clear that students felt much more comfortable creating their videos in private, without an audience. The two students who chose to shoot their reflective journals in the student commons where others could observe their production process were often distracted. One student, Terrance, was so unfocused in his first response journal that I asked him to recreate this journal in a more private setting. His second attempt was much more focused.

The desire for privacy while creating their video journals changed the instructional environment. Instead of all of the students sitting in one classroom receiving direct instruction, the researcher floated from classroom to classroom, checking in on students, answering specific questions, and ensuring students were on task. This structure set a precedent of privacy, increasing the reflective levels of students while decreasing their willingness to participate in group discussion.

Content over Production Value

A third factor that emerged during the study which improved the effectiveness of the intervention was a focus on content over production value. As a graphic designer and multimedia technology teacher, the researcher teaches student the importance of high production value on a daily basis. Elements impacting production value include lighting, high quality sound, an engaging soundtrack, clear titles, and interesting multi-angle editing techniques. Students, for the most part, are very amused by the “bells and whistles” of video editing software programs, such as iMovie. With over thirty different types of fonts and titles, many transition effects, and other editing features, training students to focus on the content of their reflective video journals, rather than these features is essential in producing and receiving high quality reflective pieces. Though these elements might increase the entertainment value of a video production, they were not necessary for the students' reflective video journals. Ensuring the focus was primarily on the content of the reflection had a positive impact on achieving the pedagogical goal.

Despite this focus, several students did allow the software's advanced editing features to detract from their reflection and completion of their video journals. After discovering the titling feature of iMovie, Juliana spent most of the fourth session choosing the perfect font, background color, and animation effect for her title. She never did complete her reflective journal for that particular session. A second student, Tom became fascinated with the soundtracking features of iMovie. Discovering he could create his own musical score in the program GarageBand, he spent the better part of three sessions searching the Internet for orchestral sounds to include in his video journal's introductory title sequence. He never did end up completing any reflective journals and his unfinished content was not included in this study. Katie, as a third example, became so fascinated with the video transition and advanced editing features in iMovie that she only completed one journal. Her response was not included in this study either. The most effective responses had relatively low production value. A simple title stating the students' name and journal number seemed to be the least distraction producing element. Reminding students to focus on the content of their reflective video journals rather than the advanced editing capabilities of the software program was essential in moving toward increased student reflection.

FACTORS THAT INHIBITED ACHIEVING THE PEDAGOGICAL GOAL

Just as categories enhancing the attainment of the pedagogical goal emerged, other factors became evident that inhibited the progress of this formative experiment. These factors include student autonomy, the voluntary nature of this study, and prompts not tied to a content area. Modifications were made to the experiment to lessen the impact of these factors.

STUDENT AUTONOMY

The first factor that inhibited progress towards the pedagogical goal was student autonomy. For the most part, students created their reflective video journals on their own, in different sections of the school building. Though several students used their autonomy to create very personal responses, several students brought their laptops to a more public area of the school where they were quite distracted. Others quickly moved off task, taking countless pictures of themselves with their laptop or visiting YouTube to watch music videos. To

counteract this effect, Jordan, David, and Johnny were asked to stay in the classroom to create their reflective video journals, while other students remained autonomous. The researcher maintained an active presence to help students focus on creating their reflective journals.

Voluntary Nature of this Study

A second factor that inhibited progress towards reaching the pedagogical goal was the voluntary nature of this study. As the study progressed and the end of the school year drew near, attendance dropped off. Students who failed to attend the last few sessions cited catching up on homework from other classes and other school events as their top reasons for missing the sessions. Several of these students expressed a desire to create the journals on their own, but without an administrator log in, the logistics of creating video journals outside of the study sessions prevented many students from completing their final reflective video journals. As this study was not part of an official class or run by one of the students' teachers, the accountability inherent in traditional assignments was nonexistent. For example, when Jordan was falling behind in his geography class and needed to "color in" a map of the world, he decided not to attend the video club. When the facilitator of the video club located Jordan and inquired as to his absence, he explained that he was behind in his homework and needed to miss the session. To counteract potential absences, the researcher worked with the school administration to offer extra credit in each students' humanities class. Though this was not part of the initial recruitment, and thus not a factor influencing student participation in the study, this additional incentive may have encouraged students to complete their reflective video journals after school, especially while their peers were playing basketball outside or watching the latest humorous videos on YouTube in the computer lab. Modifying the experiment in this way may have led to more students completing the sixth journal prompt and the final survey.

Prompts Not Tied to a Content Area.

A third factor that negatively impacted progress toward the goal was that the journal prompts were not tied to the content area. Although this was inevitable, given that the researcher was not one of the students' classroom teachers, the reflective video journal prompts were very general. The more detailed and specific the prompt, the more students

seemed to seriously consider their responses. By not tying prompts to students' recent school experiences, many of the examples students cited in their journals occurred either off campus or during previous school years. Tying the prompts to activities in their actual classrooms may have had a more positive impact on student responses.

One example in which this may have helped is in the students' mathematics class. Three students, Juliana, Kyle, and Amy, mentioned the difficulty they were having in this class. Tying their reflective journaling to specific assignments in this class would have given students an outlet to share their frustration. To counteract this factor, the researcher modified several of the prompts including prompts two, three, and four to help students reflect on their recent learning experiences.

MODIFICATIONS TO THE FORMATIVE EXPERIMENT

As each of these contributive and detractive factors were identified during the study, the experiment was necessarily modified. These modifications, though explained above contextually, are summarized here as well. They include the researcher's role, tailoring the journal prompts to student experiences, and incentives to encourage student attendance.

First, the researcher's role changed during the course of the experiment in a few specific ways. It was the researcher's intention from the first session to teach lessons on reflective video journal creation. Students were much more experienced in creating videos than the researcher expected. With only a short lesson on how to use iMovie during the first session, students "hit the ground running." It has been noted that today's students learn through discovery by "using objects and tools, texts, codes, etc., and using them to create a product that is considered important to them (Seely-Brown, 2000). This was clear by the speed of adoption students demonstrated in creating their reflective video journals. Little training was required to get them started.

Though confident in their use of technology, several students required redirection to stay on task. This necessarily modified the researcher's role from facilitator to teacher, encouraging students to stay focused and complete their journals. Without this verbal encouragement, several students may have missed the study sessions altogether or at the very least, completed fewer reflective video journals than they did.

A second modification made during this formative experiment was specifically tailoring the journal prompts to student experiences. Since the prompts were not tied to a particular content area, students had difficulty deciding on topics on which to reflect. To counteract this, the researcher modified several of the prompts including prompts two, three, and four, to help students focus on reflecting on their recent learning experiences. This modification, though effective, still lacked the curricular cohesion necessary for deeper student reflection, prompting specific examples from students' recent learning experiences. To get a deeper sense of the students' educational context, an internship or even student shadowing may have assisted the researcher in writing more specific curriculum relevant journal prompts. Another possible solution would be to collaborate with school faculty to develop prompts tied to the curriculum.

A third modification necessary to successfully implement this intervention was encouraging student attendance. Students were recruited to participate in "an after school video blogging club," implying an informal "come when you can" atmosphere. The researcher, unfamiliar with these students, attempted to balance a casual environment, while reminding students to stay on task. The voluntary nature of the study required the researcher to utilize any available tools to encourage students to consistently participate. Two such tools were effective in encouraging students to attend the study sessions after school while their friends were watching online videos or playing basketball outside. As stated in the IRB protocol, the researcher provided refreshments. Ordering pizza to arrive near the end of each study session motivated several students to stay focused and complete their reflective video journals. Jordan, for example, noted in his sixth reflective video journal, "the video club is great and I get free pizza so that's what makes it awesome." Another tool was tying participation to extra credit in the students' humanities class. With the school year coming to a close, many students were looking for ways to improve their grades. This extra credit provided the needed incentive to complete the tasks for this study. These modifications were necessary to help students achieve the pedagogical goal of this formative experiment.

UNANTICIPATED POSITIVE OR NEGATIVE EFFECTS

While conducting a formative experiment, Baumann et al. (1996) notes, it is important for the researcher to consider unanticipated positive and negative effects produced

by the intervention. Two unanticipated positive effects resulting from this study emerged including students having an outlet to process issues beyond their formal learning and students understanding how technology impacts their lives. Two unanticipated negative effects of this study include students complaining about teachers in their videos and students answering prompts without much forethought.

Unanticipated Positive Effects

The first unanticipated positive response was watching students discover an outlet for discussing their thoughts and feelings beyond the classroom including dating (David and Johnny), peer pressure (James), and long term educational goals (Kyle). The content of the reflective video journals showed a lack of filtering from students, i.e., “sensitive” subjects such as opinions of teachers, teen pregnancy, bullying, and even social relationships were addressed quite candidly by participants whereas these topics may not have been so openly discussed were the reflective video journals part of a formal classroom assignment.

A second unanticipated positive impact was students understanding of the role technology is playing in our changing world. Students were clear on explaining how their contributions to sites such as YouTube could teach others, connect them with people from around the world, and help expand their own knowledge. In his first reflective video journal, Kyle, for example, noted that it is “simple amazing” how “simple it is to get information across to anywhere in the world.” He later explained in his last reflective video journal “now that I know how to make videos... I can get my ideas out there.”

Unanticipated Negative Effects

A first unanticipated negative effect produced by this intervention was students complaining about their teachers in their reflective video journals. Though it was encouraging to watch students' confidence grow in creating their journals, some of what they were saying was disheartening to the researcher, himself a classroom teacher. Reflective video journals do provide an outlet for students to share their thoughts and experiences, including negative perceptions of teachers, their schools, and even other students. One could see the potential harm a negative comment could cause were the unintended audience to watch the student's candid journal.

Students answering prompts without any forethought was a second unanticipated negative effect produced by this experiment. Although these improvised journal entries often contained deep reflection, students who did not at least outline their journals before recording created, for the most part, disorganized videos. Without preplanning, students may believe they are “finished” creating their reflective video journals before any deep reflection has occurred. The immediacy of sites such as YouTube many have contributed to this hurried production process. Just as in writing, the preplanning stage is essential in encouraging deep reflection.

THE ROLE OF FEEDBACK AND AUDIENCE

One of the goals of this study was to investigate the impact of audience and feedback on students’ reflective video journals. Two factors inhibited the investigation of this research question. These include the University's Institutional Review Board and student reactions.

First, the University's Institutional Review Board (IRB) process changed the research proposal and the role of feedback within the study. The IRB was very concerned about the potential risk of student exposure when posting their reflective video journals on a public site such as YouTube.com. They also expressed concern about potential risk to students receiving negative feedback on their personal reflective video journals, even from their peers. In a compromise to conduct the study, feedback was not introduced in this experiment, though students were asked to consider the role feedback might play in the creation of their reflective video journals.

Second, student reactions changed the role of feedback in this study. As the study progressed, I asked students their perceptions on sharing their reflective video journals with an audience. “So... other people would watch our videos?” asked Juliana. “Yes.” I replied. “I’d rather not,” she said. Kyle and Sean stated that they would modify what they said in their videos if, for example, their teachers were to see their reflective video journals. It was clear from these and other interactions with students that they did not want to share their reflective video journals with others, even fellow study participants.

Though students were hesitant to have others watch their video journals, they did not seem to mind the fact that the researcher would be viewing and analyzing them. Building trust with students during the course of this study was essential in students creating more

personally reflective responses. As noted in the literature review, students may have more positive reflective journaling experiences when educators help establish a trusting relationship with their students (Dyment & O'Connell, 2003). Kerka (2003) noted that many students experience hindered levels of reflection at first, knowing that others will read their entries. To counteract this, a relationship with the researcher was built quickly and allowed students to create honest reflections without concern of embarrassment or exposure.

In regards to audience and feedback, a counterintuitive dichotomy emerged between students' perceptions of what is public and what is private. Although students indicated that they were willing to post their videos on a public website for anyone in the world to see, when it came to allowing peers to watch their reflective video journals on their computer, students declined. This same phenomenon occurred when students were recording their journals. Students who recorded their videos in front of their peers were often silly, unfocused, and unsuccessful. Students who took the equipment into another room, a more private setting, however felt at liberty to share their thoughts and reflections. These privately recorded reflective video journals were longer, more focused, and demonstrated higher levels of reflection. Students who stayed in the classroom with their peers or brought their computer to the larger common area of the school, where other students could overhear their reflections, created shorter videos, often interrupted by students not participating in the study. Providing students with a private allowed them to record without concern for audience, knowing that if something inappropriate was said, it could be edited before being shared.

Students were also hesitant to share their feedback on the intervention's progress in front of the whole group of student participants. The researcher attempted to conduct a group discussion during the third session but found students hesitant to share their responses on camera in front of peers. As noted in the literature review, some learners may feel that e-journals provide a safer environment to express opinions, ideas, and concerns than the classroom (Myers, 2001; Parkyn, 1999; Phipps, 2005). To accommodate their timidity in front of their peers, the group discussion questions were repurposed into a mid-session survey given during the fourth session. The results of this survey, transcriptions from students' reflective journals, and anecdotal evidence points to the conclusion that the introduction of audience should occur in post production, after the students have made the final export of their reflective video journals. Prior to this, students are more focused on what

their peers think of what they say or how they sound while they are recording, rather than on the content of their reflections.

LONG-TERM ADOPTION

The next section of this study reviews the factors contributing to the long-term adoption of reflective video journals as a tool for metacognition. Although this study concluded with only a few weeks left in the school year, there were several indications that two factors in particular would encourage students' continued creation of reflective video journals even after the study's conclusion. These factors include accessibility to equipment and technical support and privacy.

Accessibility was a factor contributing to the long-term adoption of reflective video journals. Students need access to technology equipment and technical support. The computers students used in this study were locked in a laptop cabinet. In order to access the computers, a faculty member would need to unlock the cabinet and sign a laptop out to a student. These logistics could inhibit students from creating impulsive reflective video journals when the idea strikes. In addition to equipment, students would need access to technical support to handle any computer issues that might arise. During the course of the study, a few students did have difficulty logging in, recording, saving, and/or exporting their reflective video journals. Available technical support would increase student confidence in continually creating reflective video journals.

A second factor contributing to the long-term adoption of reflective video journals as a tool for metacognition was privacy. Students who consistently attended the video club would sign out a laptop, check the website for the latest prompt, and quickly find a private corner of the school building to record their journal. It was not uncommon for the researcher to be in the room with only two or three students present, but nine laptops signed out. The majority of students preferred to record their reflective video journals in a private setting. For students to continue creating their reflective video journals, they would need regular access to a private space, such as an empty classroom or office.

SUMMARY

This chapter discussed the data analysis and results of this formative experiment. The chapter began with a content analysis of the reflective video journals the students created

according to three evaluative frameworks. This qualitative analysis was followed by a review of quantitative data collected during the study. Themes that enhance the effectiveness of reflective video journaling include highly structured prompts, privacy during production, and a focus on content over production value. Factors inhibiting the attainment of the pedagogical goal include student autonomy, the voluntary nature of this study, and prompts not tied to a content area. The experiment was necessarily modified to accommodate the contributive and detractive factors in reaching the pedagogical goal as these factors emerged. These modifications include the researcher's role, tailoring the journal prompts to student experiences, and providing incentives to encourage student attendance. Two unanticipated positive effects resulting from this study emerged including students having an outlet to process issues beyond their formal learning and students understanding how technology impacts their lives. Two unanticipated negative effects of this study include students complaining about teachers and students answering prompts without any forethought. The factors of time and privacy contributed to the long-term adoption of reflective video journals as a tool for metacognition.

In the final chapter, issues of generalizability and the limitations of the study are addressed and recommendations for classroom practice, school policy, teacher education, and future research are discussed.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter summarizes and discusses the results of the study. Beginning with a review of the formative experiment methodology, this chapter summarizes the themes revealed during the study's implementation. After this review, issues of generalizability and the limitations of the study are addressed. Next, recommendations for classroom practice, school policy, teacher education, and future research are discussed.

This study was designed to help fill a void in the research literature. Up to this point, an exploration of the effect of video blogging on students' metacognition has not been available, despite the prevalence of social software tools and students utilization of video sharing websites. Classroom teachers have long used paper-based reflective journals to encourage students to engage in this process of reflecting on their learning, though little research exists on reflective video journals. Reflective journals have been used as a tool to facilitate students' metacognition and have been shown to enhance critical thinking skills, encourage observational skills, and develop creative skills (Anderson, 1993; Dymont & O'Connell, 2003). The internal processes occurring during reflective journaling help improve students' engagement, learning, and academic performance (Brown, 1987; Paris & Winograd, 1990; Moses & Baird, 1999). Both technology advances in video camera equipped laptop computers as well as the growing popularity of video sharing websites have led to a wide adoption of video journaling among Internet savvy adolescents (Gustafson, 2007). Despite the possibilities for learning implicit in these technologies, schools for the most part have taken an adversarial stance, often completely blocking student access to these websites (Carvin, 2007). Research on the educational possibilities need to occur to investigate these online tools. This study sought to discover the factors that encourage metacognition among adolescent students through the creation of reflective video journals. This study is the latest in a growing field of exploratory studies evaluating the hidden

educational value of students' online activities (eg. Hinduja & Patchin, 2008; Shieh & Cheng, 2007; Trier, 2007).

To investigate reflective video journaling, this study followed the six-phase methodology of a formative experiment as posed by Reinking and Bradley (2008). Formative experiments allow researchers to test, modify, and develop pedagogical theories through innovative instructional interventions aimed at achieving specific instructional goals and bringing about constructive change in classrooms (Moll & Diaz, 1987; Reinking & Bradley, 2004). The flexibility of the formative experiment methodology makes it especially useful for studying new technology innovations (Newman, Griffin, & Cole, 1989; Reinking & Pickle, 1993; Reinking & Watkins, 1996).

To fully explore reflective video journals as an intervention to increase the metacognition of adolescent students, an after-school video blogging program was conducted. This six session program guided students through the process of creating reflective video journals and explored the factors that encourage student creation of these journals.

This study was conducted at a new charter school that draws its students from all areas of metropolitan San Diego and is somewhat representative of the general student population. Purposeful sampling was used for the selection of participants in the study to ensure generalizability to the larger population. Twelve students participated in the creation of reflective video journals. All of the students completed the pre and post assessments.

To provide a substantiated baseline description, qualitative and quantitative data was gathered as a reference point from which progress was gauged. The Junior Metacognitive Awareness Inventory and a Technology Attitudes Survey were administered to provide these points of comparison.

The six-session program was led by a state certified teacher with six years of classroom experience teaching multimedia technology to adolescent students. During each of the sessions, the student participants were given a topic or question on which to create a reflective video journal. These prompts were posted on a password protected wiki-based website. Each participant had access to a laptop computer with video capture and editing software. Sessions ran an average of an hour and a half after school.

Multiple methods of data collection were used including individual student surveys, content analysis of reflective video journals, and anecdotal evidence from the researcher journal. Each of these data collection activities occurred on weekly basis with the key artifacts of this study being the reflective video journals which were transferred onto the researcher's computer for portability and transcription. The researcher performed a content analysis of the reflective video journals, coding responses according to three reflective journaling frameworks. The constant comparative method was used to examine emerging themes and to inform the next study session. Modifications were made to the experiment during its implementation to ensure student reflection improved over the course of the study. These modifications included the role of the researcher, tailoring the journal prompts to student experiences, and incentives to encourage student attendance.

Several themes emerged as the study progressed following Baumann et al.'s (1996) four-question framework for conducting formative experiments. The factors of highly structure prompts, privacy during production, and a focus on content over production value contributed to increased student reflection. Student autonomy, the voluntary nature of this study, and prompts not tied to a content area were factors that detracted from student reflection. Minding these themes in future research, those interested in studying reflective video journals will have a clear framework from which to work.

GENERALIZABILITY

In his book on educational research methods, Jan Van Den Akker (1999) explains,

Since data collection in formative research is usually limited to small (and purposive) samples, efforts to generalize findings cannot be based on statistical techniques, focusing on generalizations from sample to population. Instead one has to invest in 'analytical' forms of generalization.

These analytical forms include a “thick” description of the research context and a clear theoretical articulation of the study's design principles. Although the quantitative and qualitative data reported a mixed result, this formative experiment revealed that reflective video journaling does help facilitate student reflection. This mixed result reveals a need for further research, investigating the variables within student experience to further isolate the contributive factors toward increasing the metacognitive reflection of students. Reinking and Watkins (1996) report that variations in the results of a formative experiment “become opportunities to extend understanding of the relation between the intervention and the

pedagogical goal” (p. 69). Though not necessarily generalizable to another population, the conclusions of this formative experiment provide important points of discussion that may serve to inform the practice of others.

LIMITATIONS AND WEAKNESSES OF THE STUDY

The results of this study must be interpreted in light of several limitations. These limitations include the small number of participants, the relatively short period of study, and the unique structure of the school site.

First, the small number of participants makes it difficult to generalize the findings of this study. It's conceivable that a substitution of only a few students would have a dramatic effect on the overall group levels of the quantitative measures. A larger number of participants, though perhaps more difficult to facilitate, might lead to more generalizable results.

A second limitation of this formative experiment was the relatively short duration of the study. Originally, the study was intended to last beyond eight weeks. Due to the impending conclusion of the school year and a long IRB negotiation process, the study only lasted six biweekly sessions. A longitudinal study over the course of a year or more will help researchers further understand the impact of reflective video journals on students' daily metacognitive practices.

A third limitation of this formative experiment are the unique characteristics of the school site. Only in its first year of operation, the total enrollment of this school was just over one hundred and eighty students. This small population allowed for many quiet corners students took advantage of while creating their reflective video journals. This school also had a unique faculty with high educational levels and positive attitudes towards innovative technology. The education level of the teachers is far above that of more traditional schools with the majority holding at least a Master's degree and forty three percent of teachers with Doctoral degrees. Teachers at this school were also very open to innovative technologies with almost ninety percent agreeing that technology is an effective instructional technique, that technology use in the classroom improves student performance, and recommending that teachers of all grades use technology in their classroom. These teachers are also using

technology in their classrooms frequently, indicating at least weekly use of online discussion boards, watching online videos, Internet research, and presentation programs.

Despite these limitations, much can be learned from this formative experiment. Both the qualitative and quantitative data collected in this study serve to promote several factors for further researchers to consider while investigating innovative technologies such as reflective video journaling.

RECOMMENDATIONS

Though this formative experiment focused on students' use of reflective video journals, several recommendations stemming from this study apply to broader contexts. The following section presents recommendations for classroom practice, school policy, teacher education, and future research informed by both this study and the growing body of literature investigating social software and web-based multimedia technologies.

Recommendations for Classroom Practice

This study poses a few recommendations for classroom practice. These recommendations include the need for an outlet for student reflection and more integration of today's online tools into regular classroom practice.

One recommendation of this study is to encourage teachers to provide opportunities for student reflection in the classroom. With the growing demands on today's teachers, from preparing for standardized testing to covering the "state standards", adding one more aspect to daily classroom practice may seem overwhelming. This study, however, indicated the value of reflective journaling for students. The literature on reflective journaling is well documented. Reflection must occur for students to learn (Kolb, 1984). Encouraging opportunities for reflective journaling is a key ingredient of teaching for understanding.

As Schön (1983) noted that reflection is the natural process of contemplation of present or past behavior that facilitates the development of future action by enhancing decision-making power and autonomy. This process of reflection helps students become metacognitively aware of their cognitive process and better able to monitor, analyze, and evaluate their learning processes and performance (e.g., Ertmer & Newby, 1996). Teachers need to encourage opportunities for this natural process in their classrooms.

There are many ways to integrate reflective journaling into the classroom. This journaling does not necessarily need to be video based, though the technology is becoming more ubiquitous. Teachers might consider using traditional paper-based journaling; audio journaling, with tools such as VoiceThread or K7 that allow students to record and email audio reflections through digital voice mail; web based text journaling, such as blogging on sites such as Wordpress or Ning.com; or reflective video journaling as presented in this study. Whichever tool classroom teachers choose, the focus must be on encouraging student reflection.

A model for facilitating reflective journaling into daily classroom practice is posed by the researcher (see Figure 18). The process begins with the classroom activity, whether a lesson taught, a group activity, or individual project. Next, students are given class time for descriptive reflection, a period of time in which they describe their experience with the content. Third, these descriptions are taken home and used as a starting point for dialogic reflective journaling. During this stage, students review the concepts they learned and consider further actions. Next, these reflections are posted to a shared site such as YouTube, Ning, or VoiceThread, in which students comment and provide feedback on peer reflections. Finally, the teacher provides a follow-up activity for the class to review student reflections and help reinforce the curricular concept.

Figure 18. A proposed model for the reflective journaling process in the classroom.

A second recommendation for classroom practice is further integration of today's technology tools into daily curricular activities. Several students in this study recognized the many ways technology is changing our world. What is the goal of education, if not to prepare students to engage and participate in the world beyond the classroom? Teachers face the daily task of preparing today's students for tomorrow's world. Rather than using yesterday's tools, the classroom should be on the cutting edge, encouraging students to explore the possibilities of burgeoning technologies. At the very least, web-based research, mobile devices, sharing digital projects online, commenting and feedback, and document sharing should be part of the daily classroom experience. Today's students "use the Internet, interactive simulations, Instant Messenger (IM) and text messaging as a natural part of their everyday lives" (Lenhart, Madden, & Hitlin, 2005). It has been noted that technology isn't just a part of students' lives, it is their life (Doherty, 2005). The regularity of students' technology use should have a greater impact on their classrooms, their schools, and their teachers. Recommendations for accomplishing this goal regarding both school policy and teacher training are addressed in the following sections.

Recommendations for School Policy

Two recommendations stemming from this formative experiment impact school policy. These recommendations include an updated approach to technology in schools and a renewed focus on upgrading school technology to support innovative tools.

The first recommendation for school policy is an updated approach to using technology in the school. According to a 2006 study by the U.S. Department of Education, 100% of all public schools use technologies and procedures to prevent student access to inappropriate material on the Internet. These methods include 99% using blocking/ filtering software, 96% monitoring student computers by teachers or other staff, and 67% using monitoring software, which allows system administrators to review student accounts for their Internet activity and a list of sites accessed (Wells, Lewis, & Greene, 2006). Many of the filters schools use to block access to inappropriate sites also block social software tools such as Myspace and YouTube. In fact, a large number of school technology departments have blocked access to these sites altogether (Carvin, 2007). Frey and Fisher (2008) note that merely banning technology does little to teach students how to use these tools responsibly.

Students should be encouraged to use technology appropriately for learning and communication, not simply banned from it. Educators need to consider ways to use today's technology safely to improve student engagement, collaboration, and learning.

A second recommendation for schools implied by this study is a renewed focus on upgrading school technology to support the use of innovative social software tools. It is time for schools to review their technology policies to consider upgrading hardware such as laptops or thin clients, infrastructure such as higher bandwidth and wireless access, and technology for non-instructional functions of the school culture. It has been noted that technology continually grows smaller, faster, and cheaper (Bresnahan, Brynjolfsson, & Hitt, 2002). One-to-one laptop programs, for example, once out of reach financially for struggling schools are now that much closer to meeting budgetary restraints. Schools need to upgrade their technology infrastructure to accommodate today's tools. This includes higher bandwidth speeds to accommodate the large file sizes of student created video files and wireless network access to promote student creation and flexible learning spaces. Finally, technology must continue to infiltrate all areas of the school culture. Adoption of innovative technologies in non-instructional capacities will "trickle down" into classroom practice. As technology positively impacts all areas of the school culture, students will inevitably benefit.

Implications for Teacher Education

This study poses several recommendations for teacher education and professional development programs. Teachers need to be made aware of the tools available today and they need to be trained to use these tools to impact student learning in their classroom.

Teachers need to be aware of the tools that are available today. With Web 2.0 technologies and social software tools, the Internet has changed dramatically in the last five years. The five most popular websites in the United States in 2008 have only been in existence for around a decade, as presented in Table 17 (Alexa, 2008).

Teachers need ongoing professional development to introduce them to current technologies and view exemplary classroom applications of these tools.

A second recommendation for teacher education is to make training available to teachers to use today's web-based technologies in their classroom. Not only do teachers need to be aware of the tools that are available but also to know how to use them. The gap in

Table 17. Five Most Popular Websites in the United States (October, 2008)

<u>Name</u>	<u>Online Since</u>	<u>Years of Operation</u>
Google	1997	11
Yahoo	1995	13
Myspace	1996	12
YouTube	2005	3
Facebook	1997	11

technological proficiency between teachers and students is a growing theme in the research literature and may explain the slow adoption of innovative technologies into the classroom (Hew & Brush, 2007). 83% of all public schools in 2005 offered professional development for using the Internet in the classroom. Although this statistic indicates available training for a majority of teachers, more than half of these schools (54%) had less than half of their teachers attend the professional development (Wells, Lewis, & Greene, 2006). Teachers need hands on training to learn exemplary way to utilize social software tools in their classrooms.

Recommendations for Future Research.

This study suggests a few recommendations for further research. These recommendations include more studies on social software, an updated approach to approving online research, and investigating the ways technology is fundamentally changing the learning environment.

First, more studies of social software tools need to occur to break the stigmas against innovative, collaborative tools. As noted in the review of the literature, technology advances in video camera equipped laptop computers and the growing popularity of video sharing websites have led to a wide adoption of video journaling among Internet savvy adolescents (Gustafson, 2007). These activities need to be studied, understood, and utilized. This present study is the latest in a growing field of exploratory studies evaluating the hidden educational value of students' online activities; though more research needs to be done (Hinduja & Patchin, 2008; Shieh & Cheng, 2007; Trier, 2007).

A second recommendation for further research is an updated approach to investigating student activities online. From this study's inception, it was clear that the human

subject committee of the Institutional Review Board might have a few concerns. Researchers from all fields of study need to collaborate on best practices for proposing, approving, and conducting research online.

A third recommendation for further research is to encourage studies that investigate the ways technology is fundamentally changing the classroom learning environment. The way we think about learning designs as they relate to the technology enhanced social collaboration now made possible with tools such as video blogging needs further exploration. DeGannaro's (2008) design principles stemming from her work with students and social software seem particularly applicable and worth further investigation. She recommends learning environments that ground learning activities in real world experience, allow technology to foster adaptive activity, invite learners to innovate, and celebrate unique forms of participation.

It is the researcher's hope that each of these recommendations, though seemingly ambitious at present, will one day in the not too distant future be laughable. Perhaps readers of this dissertation in the future will look back and remember with ironic nostalgia a time when educators struggled to use technology in their classroom and when schools blocked access to tools with such great potential for student learning. One can only hope.

SUMMARY

This study sought to determine the factors that enhance the effectiveness of reflective video journals to increase the metacognition of adolescent students. To achieve this pedagogical goal, this study followed the six-phase methodology of a formative experiment as posed by Reinking and Bradley (2008). Twelve high school students participated in a six session after-school reflective video journaling program. Diverse data collection methods were used to determine the factors in the educational environment that enhance or inhibit students' metacognition, how the intervention and its implementation were necessarily modified to more effectively achieve the pedagogical goal, the potential impact of feedback and peer response, and any unanticipated positive or negative effects the intervention produced. The research revealed several factors that enhance students' metacognition including highly structure prompts, privacy during production, and a focus on content over production value. Factors detracting from the pedagogical goal include student autonomy, the

voluntary nature of this study, and prompts not tied to a content area. Recommendations of this study relate to classroom practice, school policy, teacher education, and future research.

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APPENDIX A
THE GENERAL MONITERING STRATEGIES
CHECKLIST

Please indicate how true the following statements are about you when you have taken a test or completed a difficult task. (1 = Always False; 5 = Always True)	
I asked myself periodically if I was doing well.	① ② ③ ④ ⑤
I consciously focused my attention on important parts of the problem.	① ② ③ ④ ⑤
I had a specific purpose for each test-taking strategy I used.	① ② ③ ④ ⑤
I am a good judge of how well I understand something.	① ② ③ ④ ⑤
I found myself pausing regularly to check my comprehension.	① ② ③ ④ ⑤
I knew when each strategy I used was most effective.	① ② ③ ④ ⑤
I stopped and went back over answers that were not clear.	① ② ③ ④ ⑤
I was aware of what strategies I used when I solved problems.	① ② ③ ④ ⑤
I changed strategies when I failed to understand a problem.	① ② ③ ④ ⑤
I stopped and reread when I got confused.	① ② ③ ④ ⑤

APPENDIX B

TEACHER TECHNOLOGY USE AND ATTITUDES

SURVEY

This survey is part of my dissertation on students' use of reflective video journals. To help describe the school environment, this survey investigates teachers' technology use and attitudes. Please complete all sections. Your name, the school's name, and any student names will not be used in the actual public or private reports. After analyzing the responses, you may be chosen for an optional follow-up survey. Thank you for your time!

1. Frequency of technology use:

How often do you use educational technology in your professional activities?	Frequency					How long?
	Do not use technology for this activity	Less than once a month	A few times a month	A few times a week	Daily	Number of years since you began using technology for this activity
To create instructional materials (handouts, tests, etc.)	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
To gather information for planning lessons	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
To access model lesson plans	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
To access information and research on best practices for teaching	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
To create multimedia presentations for the classroom	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
To do administrative record keeping (i.e., grades, attendance, etc.)	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
To communicate with colleagues and/or other professionals	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
To communicate with students' parents	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	

(Table continues)

How often do you use educational technology in your professional activities?	Frequency					How long?
	Do not use technology for this activity	Less than once a month	A few times a month	A few times a week	Daily	Number of years since you began using technology for this activity
To communicate with students outside of classroom hours	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
To post homework or other class requirements, project information or suggestions	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
To post/ share student work on the Web	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
Other, please specify: _____	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	

2. Approximately how often do you use each of these applications with your students?
(Check one)

Type of Application	Daily	Weekly	Once a month	Once a year	Never
Computers in general					
Word processing					
Graphic design programs					
Web design programs					
PowerPoint					
Internet research					
Video cameras/ editing					
Digital photography					
Online discussion board					
Personal response (clickers)					
Watching DVDs					
Drill/ practice programs					
Watching online videos					
Simulation programs					

3. Which of the following do you use to stay current with technology trends and teaching techniques? (check all that apply)

☐ attending conferences   ☐ reading professional journals
☐ online discussion groups   ☐ reading educator magazines
☐ email group/ list serve   ☐ visiting technology websites
☐ online video tutorials   ☐ attending classes

4. Please indicate your agreement with each of the following statements. (Check one)

	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
I believe that technology use in the classroom is an effective instructional technique in most content areas.					
I believe that technology use in the classroom improves the performance level of students.					
I believe that technology use in the classroom is an efficient teaching technique.					
I plan to increase my use of technology in the classroom.					
I plan to make use of future opportunities for additional training in technology use.					
I would recommend that teachers of all grades use technology in their classrooms.					

5. How familiar are you with the following technologies?

	Never Heard Of	Never Visite d	Visite d	Contributed	Frequent Contributor
Social Networking (Myspace/ Facebook)					
Online collaboration (Wikis/ Discussion Forums)					
Personal Blogging (Wordpress/ Blogger)					
File Sharing (Limewire/ Bit Torrent)					
Video Hosting/ Sharing (YouTube)					
Photo Hosting/ Sharing (Flickr/ PhotoBucket)					
Online Invitations (Evite)					
Instant Messaging (AIM)					

6. What are the major disadvantages of using educational technology in teaching?

Choose all items you consider to be disadvantages. **Check all that apply.**

- ☐ Students confuse quality of presentation with quality of content.
- ☐ The gap between 'gifted' and other students is widening.
- ☐ Students are able to hide their lack of knowledge in a subject with the aid of technology
- ☐ Students confuse finding information about a topic on the Internet with understanding of that topic
- ☐ Students only want to focus on the area of a project that involves the Internet and computers
- ☐ Students who do not have access to computers at home are not performing well in school
- ☐ Technology interferes with the student/teacher relationship
- ☐ It is difficult to manage student activities on the Internet
- ☐ It is hard to keep up with the latest technology

_____ It is difficult to integrate computer activities into most of your regular lesson plans

_____ When technology breaks down, the lesson plan is ruined

_____ Other, please specify _____

7. Please indicate your level of formal education. **Choose all that apply**

Degree Earned

_____ Bachelor's degree

_____ Teaching credential

_____ Master's degree

_____ Master's +30

_____ Doctorate (Ph.D. or Ed.D.)

_____ Other, please specify: _____

8. Please indicate your years of teaching experience (including this year) _____.

9. During an average week of class time, what percentage of class do you spend in each of the following activities?

	0-20%	21-40%	41-60%	61-80%	81-100%
Students working together in small groups to complete an assignment as a team					
Students working on their own assignments					
Students leading a discussion or giving a presentation					
Teacher leading a whole-class discussion (students listening and answering questions)					

Thank you for your feedback!

APPENDIX C
JUNIOR METACOGNITIVE AWARENESS
INVENTORY

We are interested in what learners do when they study. Please read the following sentences and circle the answer that relates to you and the way you are when you are doing schoolwork or homework. Please answer as honestly as possible. 1 = Never 2 = Seldom 3 = Sometimes 4 = Often 5 = Always					
1. I know when I understand something.	1	2	3	4	5
2. I can make myself learn when I need to.	1	2	3	4	5
3. I try to use ways of studying that have worked for me before.	1	2	3	4	5
4. I know what the teacher expects me to learn.	1	2	3	4	5
5. I learn best when I already know something about the topic.	1	2	3	4	5
6. I draw pictures or diagrams to help me understand while learning.	1	2	3	4	5
7. When I am done with my schoolwork, I ask myself if I learned what I wanted to learn.	1	2	3	4	5
8. I think of several ways to solve a problem and then choose the best one.	1	2	3	4	5
9. I think about what I need to learn before I start working.	1	2	3	4	5
10. I ask myself how well I am doing while I am learning something new.	1	2	3	4	5
11. I really pay attention to important information.	1	2	3	4	5
12. I learn more when I am interested in the topic.	1	2	3	4	5
13. I use my learning strengths to make up for my weaknesses.	1	2	3	4	5
14. I use different learning strategies depending on the task.	1	2	3	4	5
15. I occasionally check to make sure I'll get my work done on time.	1	2	3	4	5
16. I sometimes use learning strategies without thinking.	1	2	3	4	5
17. I ask myself if there was an easier way to do things after I finish a task.	1	2	3	4	5
18. I decide what I need to get done before I start a task.	1	2	3	4	5

APPENDIX D

PRE-EXPERIMENTAL TECHNOLOGY

AWARENESS SURVEY RESULTS

1. Approximately how often do you use each of these applications during class at school?

	Never	Once a year	Once a month	Once a week	More than once a week	Rating Average	Response Count
Computers in general	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	100.0% (9)	5.00	9
Word processing	0.0% (0)	0.0% (0)	0.0% (0)	11.1% (1)	88.9% (8)	4.89	9
Graphic design programs	55.6% (5)	0.0% (0)	22.2% (2)	22.2% (2)	0.0% (0)	2.11	9
Web design programs	66.7% (6)	11.1% (1)	0.0% (0)	11.1% (1)	11.1% (1)	1.89	9
PowerPoint	0.0% (0)	0.0% (0)	55.6% (5)	22.2% (2)	22.2% (2)	3.67	9
Internet research	0.0% (0)	0.0% (0)	0.0% (0)	22.2% (2)	77.8% (7)	4.78	9
Video cameras/ editing	33.3% (3)	22.2% (2)	22.2% (2)	11.1% (1)	11.1% (1)	2.44	9
Digital photography	44.4% (4)	0.0% (0)	22.2% (2)	22.2% (2)	11.1% (1)	2.56	9
Online discussion board	0.0% (0)	0.0% (0)	0.0% (0)	11.1% (1)	88.9% (8)	4.89	9
Personal response (clickers)	0.0% (0)	11.1% (1)	66.7% (6)	0.0% (0)	22.2% (2)	3.33	9
Watching DVDs	0.0% (0)	0.0% (0)	22.2% (2)	44.4% (4)	33.3% (3)	4.11	9
Drill/ practice programs	33.3% (3)	22.2% (2)	11.1% (1)	22.2% (2)	11.1% (1)	2.56	9
Watching online videos	11.1% (1)	0.0% (0)	11.1% (1)	11.1% (1)	66.7% (6)	4.22	9

2. How familiar are you with the following technologies?

	Never Heard Of	Never Visited	Visited/ Seen/ Gone to the website	Contributed/ Posted content online	Frequent User/ Contributor/ Often post content online	Rating Average	Response Count
Social Networking (Myspace/ Facebook)	0.0% (0)	11.1% (1)	22.2% (2)	0.0% (0)	66.7% (6)	4.22	9
Online collaboration (Wikis/ Discussion Forums)	0.0% (0)	33.3% (3)	11.1% (1)	22.2% (2)	33.3% (3)	3.56	9
Personal Blogging (Wordpress/ Blogger)	0.0% (0)	44.4% (4)	22.2% (2)	33.3% (3)	0.0% (0)	2.89	9
File Sharing (Limewire/ Bit Torrent)	0.0% (0)	22.2% (2)	11.1% (1)	22.2% (2)	44.4% (4)	3.89	9
Video Hosting/ Sharing (YouTube)	0.0% (0)	0.0% (0)	37.5% (3)	12.5% (1)	50.0% (4)	4.13	8
Photo Hosting/ Sharing (Flickr/ PhotoBucket)	0.0% (0)	33.3% (3)	11.1% (1)	33.3% (3)	22.2% (2)	3.44	9
Online invitations (Evite)	33.3% (3)	22.2% (2)	22.2% (2)	11.1% (1)	11.1% (1)	2.44	9
Instant Messaging (AIM)	0.0% (0)	11.1% (1)	0.0% (0)	44.4% (4)	44.4% (4)	4.22	9
Email (Hotmail, Gmail, etc.)	0.0% (0)	0.0% (0)	22.2% (2)	11.1% (1)	66.7% (6)	4.44	9

APPENDIX E

POST-EXPERIMENTAL TECHNOLOGY

AWARENESS SURVEY RESULTS

1. Approximately how often do you use each of these applications during class at school?

	Never	Once a year	Once a month	Once a week	More than once a week	Rating Average	Response Count
Computers in general	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	100.0% (9)	5.00	9
Word processing	0.0% (0)	0.0% (0)	0.0% (0)	11.1% (1)	88.9% (8)	4.89	9
Graphic design programs	55.6% (5)	22.2% (2)	11.1% (1)	0.0% (0)	11.1% (1)	1.89	9
Web design programs	66.7% (6)	22.2% (2)	11.1% (1)	0.0% (0)	0.0% (0)	1.44	9
PowerPoint	0.0% (0)	0.0% (0)	55.6% (5)	33.3% (3)	11.1% (1)	3.56	9
Internet research	0.0% (0)	0.0% (0)	11.1% (1)	11.1% (1)	77.8% (7)	4.67	9
Video cameras/ editing	11.1% (1)	22.2% (2)	22.2% (2)	22.2% (2)	22.2% (2)	3.22	9
Digital photography	22.2% (2)	11.1% (1)	33.3% (3)	33.3% (3)	0.0% (0)	2.78	9
Online discussion board	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	100.0% (9)	5.00	9
Personal response (clickers)	0.0% (0)	0.0% (0)	77.8% (7)	22.2% (2)	0.0% (0)	3.22	9
Watching DVDs	11.1% (1)	0.0% (0)	44.4% (4)	11.1% (1)	33.3% (3)	3.56	9
Drill/ practice programs	44.4% (4)	22.2% (2)	22.2% (2)	11.1% (1)	0.0% (0)	2.00	9
Watching online videos	0.0% (0)	0.0% (0)	11.1% (1)	33.3% (3)	55.6% (5)	4.44	9

2. How familiar are you with the following technologies?

	Never Heard Of	Never Visited	Visited/ Seen/ Gone to the website	Contributed/ Posted content online	Frequent User/ Contributor/ Often post content online	Rating Average	Response Count
Social Networking (Myspace/ Facebook)	0.0% (0)	22.2% (2)	0.0% (0)	11.1% (1)	66.7% (6)	4.22	9
Online collaboration (Wikis/ Discussion Forums)	0.0% (0)	0.0% (0)	44.4% (4)	22.2% (2)	33.3% (3)	3.89	9
Personal Blogging (Wordpress/ Blogger)	12.5% (1)	25.0% (2)	37.5% (3)	12.5% (1)	12.5% (1)	2.88	8
File Sharing (Limewire/ Bit Torrent)	0.0% (0)	22.2% (2)	11.1% (1)	0.0% (0)	66.7% (6)	4.11	9
Video Hosting/ Sharing (YouTube)	0.0% (0)	11.1% (1)	22.2% (2)	11.1% (1)	55.6% (5)	4.11	9
Photo Hosting/ Sharing (Flickr/ PhotoBucket)	0.0% (0)	25.0% (2)	37.5% (3)	12.5% (1)	25.0% (2)	3.38	8
Online Invitations (Evite)	22.2% (2)	33.3% (3)	33.3% (3)	11.1% (1)	0.0% (0)	2.33	9
Instant Messaging (AIM)	0.0% (0)	22.2% (2)	22.2% (2)	11.1% (1)	44.4% (4)	3.78	9
Email (Hotmail, Gmail, etc.)	0.0% (0)	0.0% (0)	22.2% (2)	11.1% (1)	66.7% (6)	4.44	9

APPENDIX F

INFORMED CONSENT AGREEMENTS

San Diego State University/University of San Diego

Consent to Act as a Research Subject: Teacher

REFLECTIVE VIDEO JOURNALS AS A TOOL TO INCREASE HIGH SCHOOL STUDENTS' METACOGNITION

You are being asked to participate in a research study. Before you give your consent to volunteer, it is important that you read the following information and ask as many questions as necessary to be sure you understand what you will be asked to do.

This study is being conducted by Brian Dixon, a doctoral candidate in educational technology at San Diego State University. The study is being supervised by Dr. Douglas Fisher, professor of education at San Diego State University and Provost of Curriculum and Instruction at Health Sciences High

The purpose of this study is to explore how reflective video journals might be used with high school students to increase their reflection on their learning experiences. The findings of the research will be used to create a description that other researchers can follow to implement reflective video journaling.

You are being asked to participate in an interview as a follow up to the technology survey you recently completed. During this interview, we will review your survey responses and I will ask you to provide examples and illustrations about how technology is used within the school. You will also be asked about your thoughts on you and your colleague's attitudes toward technology. The interview will take place at a time and location that is convenient to you. Interviews should last about 20 minutes and will be digitally recorded.

You may feel uncomfortable talking about your attitude towards technology and your level of technological proficiency. You may also feel uncomfortable answering questions about the school environment in which you work. If that should occur, you may discontinue participation, either temporarily or permanently.

This research may contribute a better understanding of the role reflective video journals may play in students' learning experiences. I cannot guarantee, however, that you will receive any benefits from participating in this study.

Your name will be replaced with a code on all the data collected. Your name and the school's name will be replaced with a pseudonym in any publications or reports. Quotes from the interviews may be used for publication; however, you will not be identified by name. Digital recording will be used for transcription. Your participation will remain confidential (this means that we will conceal your identity and only codes will be used on interview forms and notes we take) and will not be reported to any school administrator in a way that might identify you. All research files including recordings will be kept on a personal, password-protected computer for two years.

There is no compensation for participation in this study.

Participation in this study is voluntary. Your choice of whether or not to participate will not influence your future relations with Health Sciences High, San Diego State University or the University of San Diego. If you decide to participate, you are free to withdraw your consent and to stop your participation at any time without penalty or loss of benefits to which you are allowed.

You may contact the researcher with questions by email (brian@brianjdixon.com) or phone (858-205-2418). If you have any questions about your rights as a participant in this study, you may contact the Institutional Review Board at San Diego State University (telephone: 619-594-6622; email: irb@mail.sdsu.edu).

The San Diego State University Institutional Review Board and the University of San Diego Institutional Review Board have approved this consent form, as signified by the Boards' stamps. The consent form must be reviewed annually and expires on the date indicated on the stamp.

Your signature below indicates that you have read the information in this document and have had a chance to ask any questions you have about the study. Your signature also indicates that you agree to be in the study and have been told that you can change your mind and withdraw your consent to participate at any time. Your signature also indicates that you consent to the use of digital recording and understand how the recording will be used for this study. You have been given a copy of this consent form. You have been told that by signing this consent form you are not giving up any of your legal rights.

Name of Participant (please print) _____

Signature of Participant	Date

Signature of Investigator _____ Date _____

Parental Permission Form**REFLECTIVE VIDEO JOURNALS AS A TOOL TO INCREASE HIGH SCHOOL STUDENTS'****METACOGNITION**

Your child is being asked to participate in a research study. Before you give your consent for your child to volunteer, it is important that you read the following information and ask as many questions as necessary to be sure you understand what your child will be asked to do.

This study is being conducted by Brian Dixon, a doctoral candidate in educational technology at San Diego State University. The study is being supervised by Dr. Douglas Fisher, professor of education at San Diego State University and Provost of Curriculum and Instruction at Health Sciences High.

This study will be conducted during a weekly after school club in which students create reflective video journals. The purpose of this study is to investigate how creating these journals impacts student learning and their attitudes towards their learning, specifically focusing on the way they reflect on their learning experiences. About twelve students with varying technological abilities and various backgrounds will be invited to participate.

The study will take place in a classroom at Health Sciences High. If your child participates in the program, he/she will be asked to:

- attend the six weekly club meetings (Wednesdays from 3:30- 5:00)
- participate in class activities and discussion about his/her experience making the video journals
- complete weekly reflective video journals (1-3 hours per week)
- participate in two interviews, one at the beginning of the study and one at the end of the study, to share his/ her overall experience participating in the study
- complete two technology surveys about what techniques help them learn best, two at the beginning of the study and two at the end of the study that should take less then 10 minutes each.

Your child will be asked to create at least two of these reflective videos per week. These videos will allow your child to talk about the academic experiences he/she has had in various classes throughout the day. To create these, he/she will brainstorm ideas, plan journals, record his/herself talking in the computer's built in camera, watch the video, and edit the video journal to accurately reflect his/her own point of view.

SAN DIEGO STATE UNIVERSITY INSTITUTIONAL REVIEW BOARD	
Approved By: _____	_____
Expires: 5/3/2009	_____

Videos should run less than ten minutes and will feature your child candidly speaking about his/her learning process and experiences. Reflective video journals are creative works over which students maintain complete control. The researcher will teach your child to use the video editing equipment, but your child will decide what he/she records, edits, and shares. These reflective video journals will not be made public, but may be viewed by other students participating in this study, only with your child's permission. All video and audio recorded for this study will be deleted at the conclusion of the study.

Your child may feel uncomfortable talking about his/her educational experiences or creating reflective video journals. To counteract this discomfort, the researcher will train your child to use the technology equipment and guide him/her through the reflective journaling process. Your child does not have to share anything they do not feel comfortable sharing. Your child may discontinue participation at any time, either temporarily or permanently.

This study may help increase your child's awareness of his/her own learning process. This study may also further understanding of how reflective video journals can be used to increase student reflection. I cannot guarantee, however, that your child will receive any benefits from participating in this study.

Confidentiality will be maintained at all times, to the extent allowed by law. Only your child and other study participants will have access to the classroom and equipment during the program. All video files created during the program will be password protected and will only be available to your child and other study participants. All videos produced by your child during this study will be stored in your child's password protected accounts. These videos will be removed by your child upon completion of this study. Pseudonyms (or fake names) for the school, teachers' names, and your child will be used in all publications or reports to maintain confidentiality. Your child's participation will remain confidential (this means that we will conceal your child's identity and only codes will be used on research forms and notes we take) and will not be reported to any school administrator in a way that might identify him/her. All research materials including interview transcripts and surveys will be kept in a personal password-protected computer for two years.

Although your child will not be paid to participate in this study, refreshments will be provided during each weekly meeting. There are no costs associated with participation in this study.

Participation in this study is voluntary. Whether or not you allow your child to participate will not influence your child's grades or you or your child's future relations with Health Sciences High, San Diego State University or the University of San Diego. If your child decides to participate, he/she is free to withdraw consent and stop participation at any time without penalty or loss of benefits to which you or your child are allowed.

You may contact the researcher with questions by email (brian@brianjdixon.com) or phone (858-205-2418). If you have any questions about your child's rights as a participant in this study, you may contact the Institutional Review Board at San Diego State University (telephone: 619-594-6622; email: irb@mail.sdsu.edu).

The San Diego State University Institutional Review Board and the University of San Diego Institutional Review Board have approved this consent form, as signified by the Boards' stamps. The consent form must be reviewed annually and expires on the date indicated on the stamp.

Your signature below indicates that you have read the information in this document and have had a chance to ask any questions you have about the study. Your signature also indicates that you agree to allow your child to be in the study and have been told that you can change your mind and withdraw your consent for your child's participation at any time. Your signature also indicates that you consent to the use of digital recording and understand how the recording will be used for this study. You have been given a copy of this consent form. You have been told that by signing this consent form you are not giving up any of your legal rights.

Name of Child (please print)

Signature of Parent/Guardian of Participant   Date

Signature of Investigator   Date

San Diego State University/University of San Diego

Assent to Act as a Research Subject: Student

**REFLECTIVE VIDEO JOURNALS AS A TOOL TO INCREASE HIGH SCHOOL
STUDENTS' METACOGNITION**

You are being asked to participate in a research study. Before you agree to be a volunteer, it is important that you read the following information and ask as many questions as necessary to be sure you understand what you will be asked to do.

My name is Brian J. Dixon, and I am a doctoral candidate at San Diego State University and the University of San Diego.

I am trying to learn more about the way students learn.

If you agree to participate in the study, you will be asked to complete the attached survey and hand it back to your Literacy teacher, along with the signed consent and assent forms. The survey will ask questions like, "I learn more when I am interested in a topic" and "I learn best when I already know something about the topic." This survey should take you about ten minutes to complete. Then, in about six weeks, I will ask you to complete this same survey again as a follow-up.

You may feel uncomfortable answering some of the questions about technology. If you feel uncomfortable, you do not have to continue you can stop participating at any time.

This study may increase your awareness of your learning process. I cannot guarantee, however, that you will receive any benefits from participating in this study.

Take this packet home and review it with your parents before you decide whether to participate. We will also ask your parents if it is all right with them for you to take part in this study. If your parents say that you can be in the study, you can still decide not to participate.

You will never be identified by name in the study results. No one will be able to link the information you provide to your name. You will hand in your consent and assent forms in two separate envelopes, so that no one will be able to link you to your survey responses. I will use a fake name for you, your teachers and your school in my report.

Participation in this study is voluntary. This means that you do not have to participate if you don't want to. No one will be upset if you don't want to participate. You may also change your mind and stop at any time with no penalty.

You can ask me any questions that you have about this study and I will try to answer them for you. If you have questions that you think of later, you can contact me by email (brian@brianjdixon.com) or phone (858-205-2418).

Take this packet home and review the enclosed consent and assent forms with your parents. We will also ask your parents if it is all right with them for you to take part in this study. If your parents say that you can be in the study, you can still decide not to participate.

You will never be identified by name in the study results. During the program, you will store your videos in your own personal password-protected account. Once the study is over, you will remove your own files from this account. No one will be able to link the information you provide to your name. I will use a fake name for you, your teachers and your school in my report. Your participation is confidential, this means that the things you say, the videos you create and your survey responses will not be reported to your teachers or anyone else in a way that identifies you personally.

Participation in this study is voluntary. This means that you do not have to participate if you don't want to. No one will be upset if you don't want to participate. You may also change your mind and stop at any time with no penalty.

You can ask me any questions that you have about this study and I will try to answer them for you. If you have questions that you think of later, you can contact me by email (brian@brianjdixon.com) or phone (858-205-2418).

Please mark one of the choices below to tell us what you want to do:

_____ No, I do not want to be in this project _____ Yes, I want to be in this project.

_____
Write your name here

_____
Date

_____
Project Representative

_____
Date