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Kenneth Michael Snell

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SOCIAL STUDIES THROUGH WEB 2.0:  
A STUDY OF ONLINE LEARNING

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A Project  
Presented to the  
Faculty of  
California State University,  
San Bernardino

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In Partial Fulfillment  
of the Requirements for the Degree  
Master of Arts  
in  
Education:  
Instructional Technology

---

by  
Kenneth Michael Snell  
December 2010

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Kenneth Michael Snell  
December 2010

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*Nov/23/2010*  
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Date

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## ABSTRACT

There is an ever increasing problem with funding and class sizes in public education. There is also an ever increasing number of technology tools that can be utilized by educators to alleviate some of these issues through online education. The latest technology is web 2.0 that allows users to also be creators of internet content. This project sought to determine if two web 2.0 tools, message boards and social networking, could provide successful online learning environments.

Students volunteered for the project with the motivation of obtaining extra credit. The study was inconclusive as students could not find the time to complete the course. Results of student exit surveys and the quality of work however, did indicate that further study was warranted, with special attention placed on requirements for completing the course.

## ACKNOWLEDGEMENTS

I would like thank the faculty who were so important in guiding me to accomplishment. My advisor, Dr. Newberry laid the early foundation and was a more than an exemplary guide throughout the thesis writing process. My sincere appreciation goes out to Cheryl Schuler, who took time out of her very busy schedule to proofread this text. I would like to thank Dr. Leh for expressing confidence in me during trying times. I would like to extend a special thank you to Dr. Baek, my first reader, who had the unenviable task of ensuring that this work was comprehensible. Finally, a very warm thank you is due to my family whose time given up with me was equal to the time I gave up with them.

## DEDICATION

I would like to dedicate this thesis to my family, without their patience and support this endeavor would have been impossible. My wife Penny, children Brennan, Bradley, Lindsey, and Raena were an integral part of this project and thesis. From being a sounding board for ideas, to being guinea pigs in instructional design, to being first rate editors, to letting me do what was necessary; my family's talents were my pillars.

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## CHAPTER ONE

### BACKGROUND

#### Introduction

Web 2.0 is in town! Our kids are on My Space, our friends are on Facebook, and some people have even met their spouses on dating sites. The "net generation" has no fear of social networking sites, nor of web 2.0 and neither should the educational system. Indeed, the educational system should embrace technology and teach kids the way they know how to learn. The generation that is currently in our classrooms was born into the age of the Internet; they grew up hearing "Google is your friend" and were most likely sitting on the lap of a parent playing with the computer before they could even talk. That is not to say that we should turn students loose on My Space or Facebook to have them learn declarative knowledge, clearly direction is needed from instructors with deep content knowledge. Web 2.0 is a deep and swift flowing river and modern educators must become the high river banks to keep the water from flooding and to give the river direction.

In this day of increased pressure to meet standardized testing goals, coupled with antithetical budget cuts and increased class sizes, it is ever more apparent that our

educational system needs to move away from the industrial/agrarian form of teaching it currently utilizes and into the 21<sup>st</sup> century—to teach in the digital age. This project undertook the task to show a way that constructivist based, asynchronous learning through the use of modern technology can help learners to be engaged in critical thinking and to cultivate the attitude of lifelong learners.

#### Statement of the Problem

The problem was to address the fact that web 2.0 technologies, such as social networking, blogging, and message boards are not being used (or not being allowed) in a majority of our classrooms. This could be due to one or more of several reasons. The district may have a Course Management System (CMS) that does not allow for input by the students; the district may not have a CMS at all; the district might have an antiquated CMS that is not user-friendly for the students and/or teacher. The teacher should have a modicum of administrative control in order to instantaneously look up forgotten passwords, view log-in stats and latest entries, and modify inappropriate posts. Some have a CMS that allows the teacher to blog but not the students, and perhaps they do provide a simple message board but the teacher does not have access to log-in stats or

other administrative functions. In addition the message boards may not allow for students to delete or modify their own posts. Unfortunately, some districts also have policies to block out any teacher owned/operated web pages. This type of zero tolerance, non-appeal policy prevents qualified teachers from designing appropriate, effective, and meaningful e-learning environments.

#### Purpose of the Project

The purpose of the project was to develop a social networking site--complete with the abilities to create home pages, blog, and participate in a message board (Web 2.0)--to create a learning environment, based on constructivist principles and asynchronous learning, to teach a unit of U.S. Government. It was hoped that this project would demonstrate that a well designed e-learning environment could be competently administered by a teacher outside of, and as a supplement to, the district CMS.

#### Significance of the Project

The significance of the project was to find a method of learning that incorporated web 2.0 tools. Online learning has the potential to reduce class sizes, by offering an alternative to some classes, which could greatly benefit students and teachers. The project will attempt to show

that a social networking site, designed for instruction, could provide students a methodology of learning the way they learn best in today's digital age. This study could be used as a guide for future designers that may contemplate using web 2.0 tools in an e-learning environment. This study can also be an addition to the literature base for any studies that come after.

#### Limitations

During the development of the project, a number of limitations were noted. These limitations are the following

1. From the earliest stage it was recognized that it would not be wise to count on having access to the e-learning environment from a school district computer. As a consequence, circumstance dictated that the students would have to dedicate spare time to complete the course. A motivating factor of extra credit was offered, but the student suffered no loss if the course was not completed.
2. The timing of this project was not auspicious. The project was affected by spring break, California Standards Testing, Advance Placement tests, and school plays.

## Definition of Terms

The following terms are defined as they apply to the project.

1. Web 2.0: Web 2.0 is also known as the read-write web, as compared to the read-only web 1.0. Web 2.0 allows for readers to add input to the webpage.
2. Social Networking: Social networking refers to software that allows for the building of a virtual (online) community. Each member has a home, or profile page where they can control and add content.



## CHAPTER TWO

### REVIEW OF THE LITERATURE

#### Introduction

Fads, as Maddux, Liu, and Johnson (2008) warn, have a way of inspiring teachers to design and implement new learning environments without fully understanding what epistemologies, pedagogical strategies and learning theories should be employed. This causes the fad to be implemented poorly and as a result abandoned before being given appropriate time and evaluation. Maddux et al. (2008) further warn that technology, because of web 2.0, is in danger of becoming just another fad. The ease in which web 2.0 learning environments can be created is the root cause of this issue. It is not the purpose of this paper, however, to discuss if ease of creation is a boon for technology integration because there are more users, or a bane because of ill-conceived and/or ill-designed learning environments. This paper will attempt to show that the literature base validates the purpose and design of the project; that instructional designs that pay careful consideration to the underlying epistemologies and pedagogies is what is needed to ensure that web 2.0 does not become a fad. Research revealed four main areas of study, in

relation to on-line learning, that are critical to the design of the proposed project: constructivism, asynchronous learning, web 2.0, and virtual schools.

### Constructivism

Constructivism, as a learning theory can be traced back decades, while the actual application of the theory is relatively new (Richardson, 2003). Research shows that good pedagogical practices are more likely when including a constructivist approach as compared to a more traditional approach to education (Azzarito & Ennis, 2003; DiEnno & Hilton; Muller, Sharma, & Reimann, 2006). The term "traditional approach" is also referred to as transmission, or objectivist method. Research revealed that web based learning environments work best when using constructivism as a guide that include whatever pedagogies are seen to be needed (Azzarito & Ennis, 2003; Wang, 2008).

### Cognitive and Social Constructivism

There are two main schools of thought in constructivist learning theory: social constructivism and psychological, or cognitive, constructivism (Richardson, 2003). Cognitive constructivists believe that learners construct knowledge individually; that learning is acquired when a learner evaluates new information based on prior experience and that

knowledge is the result of "accurate internalization and reconstruction of external reality" (Wang, 2008). Social constructivists believe that knowledge is the outcome of collaborative construction in a socio-economic context mediated by discourse; that learning is fostered through interactive processes of information sharing, negotiation, and discussion (Richardson, 2003; Wang, 2008).

Bird (2007) reinforces this notion in his discussion of constructivism when he asserts that learners have an active role in "building understanding and making sense of information" (p. 155). Bird further explains "collaboration and social interaction are at the heart of learning" (p. 155).

Constructivist learning theory is project based and emphasizes collaborative learning through social interaction (Huett et al, 2008; Roblyer, 2006). Constructivist learning theory in virtual education would increase social interaction and group learning (Wahlstedt, Pekkola, & Niemela, 2008). Constructivist learning theory would increase student bonding, with teachers and students, leading to a sense of community and higher motivation. Virtual learning environments could have behavior problems in the form of cyber bullying, inappropriate blog posts, or the posting of inappropriate pictures. With a properly

designed virtual learning environment, teachers will experience fewer behavior problems and fewer motivational problems (Roblyer et al. 2008). Robleyer et al. further conclude that students will experience a larger amount of interaction with the teacher and more teacher support.

### Epistemologies and Pedagogies

A major problem with virtual learning environments is the assumption that a good classroom teacher equates to a good virtual teacher. Greenway and Vanourek contend this is not true in their statement "too many programs simply load lessons developed for the traditional classroom directly onto the web without making adjustments for the new delivery methods..." (p. 40). Huett et al. (2008) concur, concluding that "...teachers...are trained to design instruction for the traditional classroom. Presupposing that this training is sufficient to create solid, pedagogically sound, online instruction is a fatal flaw in the process" (p. 65).

Traditional education is based primarily on behaviorist learning theory (Huett et al; Podoll & Randle, 2005; Rice, 2006; Wahlstedt, Pekkola, & Niemela, 2008). Behaviorist (also known as traditional) learning theory views the learner as a receptacle to receive knowledge and the teacher as the conveyer of that knowledge. Behaviorist learning usually relies on techniques such as lecture and

drill and practice. The research is emphatic in concluding that relying on behaviorist learning theory in virtual education will lead students to feel isolated and discontented, increasing the chance of failure (Black, Ferdig, & DiPietro, 2008; Podoll & Randle, 2005; Rice, 2006; Roblyer et al, 2008; Wahlstedt et al., 2008).

Relativism is one epistemology based on constructivist learning theory. Relativist epistemology concludes that learning, according to Hannafin and Hill (2007), "...involves the individual's negotiating meaning in an effort to evolve personal understanding: design involves the creation of materials and activities that assist learners in constructing and refining individual representations and personal understandings." (p. 55).

In order to design an effective on-line learning environment, the epistemologies and pedagogies that will serve as the foundation, must be thoroughly examined (Azzarito & Ennis, 2003; DiEnno, C., & Hilton, 2005; Richardson, 2003; Wang, 2008). It is of critical importance that epistemologies—views on student learning, and pedagogies—beliefs about teaching and learning (Rosen & Nelson, 2008), be considered from the inception of an instructional design until the last lesson is completed.

One of the main reasons for the failure of online learning environments is poor course design. DiEnno and Hilton (2005), in their study involving a high school environmental class, showed that constructivist pedagogical techniques produce at least as good of results as traditional methodologies. According to Gulati (2008), "online educators and theorists have identified the constructivist position as necessary for developing learner-centered strategies" (p. 184).

The research revealed that problems were encountered when a course designer relied on one pedagogical strategy to the total exclusion of others. Whether it be a course that only has online lectures and worksheets (objectivist) or a course that utilizes radical social constructivism by only giving students a problem to solve together with no instructor support (Gulati, 2008). Even when using a constructivist approach, "content" or "declarative knowledge", is still needed (Bird, 2007). That is to say, that a reading assignment (objectivist) may still be needed to provide learners with the necessary background knowledge for the learning activity. So what pedagogical techniques should be employed? If one considers pedagogy to be, as Gulati (2008) states, a "... becoming aware of the different learning strategies and how, for whom, and when to apply

these strategies" (p. 183), then the answer would be to use what works. In order to create an effective learning environment the designer should take a close look at the desired learning outcomes, who the learners are and what their needs are. Studies further show that constructivist based pedagogies should be incorporated in technology driven learning environments (Azzarito & Ennis, 2003; DiEnno, C., & Hilton, 2005; Richardson, 2003; Wang, 2008).

### Asynchronous Learning

Asynchronous learning is when learners are able to log in at any time to complete the work, even if they are the only one on-line (Tallent-Runnels & Shaw, 2006). Much of the literature addressing asynchronous learning also mentions collaborative learning. Many of the studies compare asynchronous learning to face-to-face classroom settings and provides drawbacks and benefits to each (Hull & Saxon, 2008; Wang & Woo, 2007).

### Best Practices

The most oft mentioned practices, in regards to designing on-line learning, are reflection, collaborative learning, and establishing a community of learners.

One of the biggest advantages of asynchronous learning is the fact that learners can access the learning material

on demand and that they have time to reflect and even research their responses. Learners also have time to reflect on the responses of other learners and instructors.

In fact, allowing time for the learner to reflect and respond is critical to the success of the instructional design (Hawkes 2007; Saritas, 2008; Schellens et al., 2009; Wang & Woo, 2007). Technology, in and of itself does not guarantee a good instructional design. Indeed, "...the benefits lie not in the mechanics of the technology but in the reflection, manipulation or discussion that the technology facilitates..." (Coffin et al, 2009, p. 95). Both Schellens' (2009) study on tagging and Saritas' (2008) examination of social participation conclude that time to reflect will increase critical thinking. In his study of problem based learning and discourse in asynchronous environments, Hawkes (2007) found that asynchronous learning was more suited to complex tasks due to the very nature of collaboration and time to reflect. Reflection is not just for the learners. It is also important that instructors focus on the final product as well as the questions, ideas, and explanations along the way (Lakalla 2007).

Collaborative learning is another pedagogical concept often encountered in the research of asynchronous learning.

As aforementioned, collaborative learning has its roots in



constructivist epistemologies. Many studies describe and extol the use of collaborative learning when designing on-line instruction (Amhag & Jakobsson, 2008; Hawkes, 2007; Saritas, 2008). Amhag and Jakobson (2008) state that to ignore collaborative learning in on-line education is to lose the "essence of how meaning arises when two or more voices connect, both as speaking and listening voices" (p. 667). Many studies conclude that on-line, asynchronous learning is best utilized by providing learners the opportunity to build a community by learning collaboratively (Amhag & Jakobsson, 2008; Hull & Saxon, 2009; Lakalla et al., 2007; Saritas, 2008; Tallent et al., 2006). The studies also conclude that the instructor must carefully weave the social interaction into the design throughout the course and not to just give the learners a problem and wait for the result. There must be time for the students to reflect on their own work, the work of their peers and on the comments placed with surgical precision by the instructor, in order for a community of learners to become established and thus work collaboratively. Collaborative learning would also be best completed by using meaningful, real world tasks.

Lakalla et al. (2007), citing Kozma (2003) lists three characterizing features of successful, technology integrated pedagogy:

- (a) the usage of ICT [Information and Communication Technology] is integrated into the curriculum;
- (b) students work collaboratively and use ICT to search for information, publish results and create products;
- (c) teachers change their role from delivering knowledge to organizing, guiding and assessing students' learning process.

It is important to note that although the studies may have focused on one pedagogical practice, such as Progressive Inquiry Theory (Lakala et al., 2007), and while it was empirically shown that collaborative, social learning is effective, none of them maintain that there is one practice that is best. Quite the opposite, the research calls for an active, knowledgeable instructor to carefully craft a learning environment built on sound epistemologies and pedagogies; to carefully monitor that learning environment and to respond to learners in a way to foster higher order thinking.

The most common mistake made in asynchronous learning was not enough instructor involvement (Hull & Saxon, 2009).

This could be because the instructor was too traditional (relying on classroom type instructional techniques such as recorded lectures), or because the instructor was too hands off in the attempt to let the learners construe their own meaning. Instructors should know when and how to intervene, to pose meaningful questions, and prompt higher order cognitive reasoning. Learning will best take place when the learners build a community through learning tasks (Hull & Saxon, 2009).

#### Web 2.0

The succinct definition for web 2.0 would be whereas web 1.0 allowed a user to read information on the Internet, web 2.0 allows the user to also contribute to that information. Tu et al. (2008), citing Educause (2008), states that "The power of Web 2.0 environments, a social operating system, is networks that surround people, rather than simply present content" (p. 254). Some web 2.0 technology is associated with the younger generation such as MySpace, Facebook, YouTube and Flickr. Blogs however, have been (and are increasingly so) used by many of the older generations—even presidential hopeful Hilary Clinton

sponsored a blog (Rosen and Nelson, 2008). Blogs are also considered to be web 2.0 since readers can comment (contribute) to them. Photosharing sites, wiki sites, message boards, and even the comment sections of your local on-line newspaper are web 2.0 technologies as they all allow for user generated information.

### Blogs and Message Boards

During the course of the research it was evident that blogs have been the aspect of web 2.0 most studied in education. Blogs afford learners and instructor the opportunity to reflect and consult outside sources before writing (or responding to) a post (Kerawalla et al., 2008).

Blogs also provide the instructional designer with the opportunity to take advantage of new technology to design truly technological integrated learning environments.

Since blog technology provides time for the learner to reflect and consult outside sources before posting personal expressions or comments, the posts will most likely exhibit higher order thinking skills (Churchill, 2009; Gunawardena, 2009; Tu et al., 2008). If the instructional design utilizes blogs appropriately, it can help foster a community of learners (Kerawalla et al., 2008). The studies showed that if the instructional design did not utilize blogs appropriately, then students would not use them or would use

them more as a place to store notes and images (Kerawalla et al., 2008).

So what is the appropriate use of blogs? Three best practices are (1) reading others blogs, (2) receiving feedback on own blog from others (and instructor), and (3) the ability to preview tasks of others and reading the feedback for those tasks (Churchill, 2009). Churchill (2009) also identified three ways to encourage students to blog—thus fostering the community of learning: “(1) regular learning tasks which require students to present outcomes in their blogs, (2) blogs being an assessment requirement and (3) regular blogging of a teacher.” (p. 183). Kerawalla et al. (2008) developed a framework to guide course designers when utilizing a blog aspect. In the framework the learner must address—central to blogging behavior is the audience, comments, the blogging community, and the presentation of the blog (p. 253).

Message boards do not necessarily have the same focus of research that other web 2.0 aspects have. However, much of the literature lumps message boards in the general mix of all web 2.0. In addition, even the negative web 2.0 literature draws attention to the fact that even the younger generation may need guidance through the technological aspects of web 2.0 (Selwyn, 2007). Threaded discussions may

be the best forum where the learners can go for tech guidance from the instructor and other learners. In addition, many message boards contain a search function that will allow common problems to be searched out and solved in a timely manner.

### Social Networking

Social networking is defined by Gunawardena (2009) as "expanding knowledge by making connections with individuals of similar interests" (p. 4). Citing a review by Erlandson (2008), social networking is further classified as "...Facebook, MySpace, and LinkedIn, where users set up a profile, create formal connections to people they know, communicate, and share preferences and interests." (p.4). It should be noted that Selwyn (2007) warns that Facebook would not make a good formal learning environment because, among other things, students would resent their social activities being usurped by education. However, Selwyn does not address the possibility of a Facebook type of learning environment, used only for learning, being safe and successful.

Other literature recognizes the enormous potential of social networking software. Tu et al. (2008) maintain that web 2.0 has the potential to build collaborative learning communities because learners and instructors are connected in order to "...craft identity, to institute mutual awareness,

to develop social interactions, to form social relationships" (p. 254). Such interaction discloses alternative perspectives, which also promotes collective learning (Rosen & Nelson, 2008). Epistemologies and pedagogies based on social constructivism are seen to be the best when designing learning environments using web 2.0 technologies (Gunwardena, 2009; Kerawalla et al., 2008; Rosen & Nelson, 2008; Tu et al., 2008). It should be noted that no author advocates that only constructivism pedagogies should be used, indeed, they implicitly state only that constructivism is best to foster collaborative learning; not that only collaborative learning should be used. For instance, a part of the design could call for the learner to independently read/research a concept before posting to the community would be considered to be transmission education.

Gunawardena (2009) developed a theoretical framework that could prove useful to both designers and those that critique designs (Figure 1).

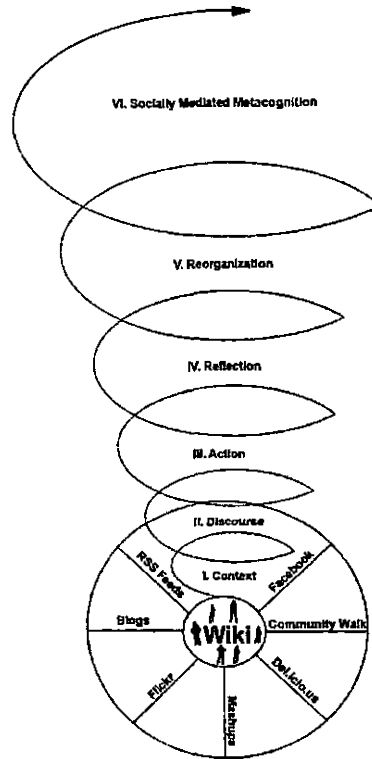


Figure 1. Social networking spiral.

Figure 1. Social Networking Spiral

Gunawardena, C., Hermans, M., Sanchez, D., Richmond, C., Bohley, M., & Tuttle, R. (2009, March). A theoretical framework for building online communities of practice with social networking tools. *Educational Media International*, 46(1), 3-16. Retrieved May 10, 2009, doi:10.1080/09523980802588626



The framework is called the Social Networking Spiral and it follows the learner through context, discourse, action, reflection, reorganization, and finally to socially mediated metacognition (p 13). In the example above, the reading/research assignment would simply be the first step in the spiral. The student would then post his views, have it commented on by other students and the instructor, read other students posts and their feedback, reflect on the new and perhaps alternative views of others before reorganizing and reaching socially mediated metacongition.

#### Virtual Schools

Virtual schools are a controversial subject for public education. The topic of virtual schools is important because the numbers of students enrolled in e-learning environments are increasing each year. It is imperative that the designs of those learning environments are based on sound research and learning theory.

Virtual schools must be defined. The evolution of virtual schools should also be discussed. The numbers of students enrolling in virtual schools are increasing each year, sometime doubling over the course of just one year. Students that enroll in virtual schools have a high rate of dropout and failure. There are numerous reasons why

students do not succeed in virtual schools. It is important to discuss those reasons to ensure the success of as many students as possible. There are numerous reasons why students succeed in virtual schools and it is imperative that those characteristics are emulated in future designs. The pedagogies that teachers apply in virtual schools have a large impact on student success. Virtual schools are going to continue to increase, as is evidenced by the rise of student populations enrolled in web-based instruction. It is important to take a close look at what virtual schools need in the areas of research, course design, and policy to guide the field in the future.

#### Virtual School Definition

Virtual school is synonymous with e-learning, distance learning, distance education, web-based instruction, and online learning (Rice, 2006). These terms are used interchangeably. Rice (2006) related that the best definition for virtual school, or distance education, provided by the Association for Educational Communications and Technology is "Institution-based, formal education where the learning group is separated, and where interactive telecommunications systems are used to connect learners, resources, and instructors" (p. 426). Rice elaborates that the learner and the teacher are separated by time and

space and utilize interactive telecommunications to interact. There are several means of facilitating learning through this separation of time and space. The Institution can utilize video or audio conferencing technology to synchronously facilitate learning. The institution could also take advantage of web-based communications to facilitate learning asynchronously.

Guidelines for designing virtual schools and e-learning classes however have been lacking. This dearth of design guidelines has resulted in high rates of failure for students enrolled in virtual school education (Black, Ferdig, & Dipietro, 2008).

#### Virtual School Population

Rice (2006) states that there were 30 virtual schools in fourteen states, servicing 40,000-50,000 K-12 students in 2001. In 2003, that number had increased to 60 virtual schools servicing approximately 100,000 students. Davis, et al. (2007) estimate that at last count, in 2005, there were approximately 300,000 participants in virtual schools. Chen & Qiao (2009) estimate that since 1996 virtual schools in China have serviced over 600,000 students. Davis et al. (2007) further explain that the annual growth of participants in virtual school was 50-100%. Michigan has even passed a State educational law that students must

successfully complete at least one e-learning class to graduate. Michigan is the only state in the Union to have passed such a law.

### Student Characteristics in Virtual Schools

Student characteristics are seen to be one of the most important factors in determining success or failure in virtual school environments (Black et al., 2008; Chen, 2003; Greenway & Vanourek, 2006; Hartley & Bendixen, 2001; Podell & Randle, 2005; Rice, 2006; Roblyer, Davis, Mills, Marshall, & Pape, 2008). Critics of virtual schools often cite the high dropout rate and the high number of failures of students enrolled in virtual school environments (Black et al., 2008; Roblyer, 2006; Roblyer et al., 2008). Roblyer (2006) cautions that the high rate of failure could be skewed by the high percentage of at-risk students that are enrolled in virtual school environments. Roblyer et al. (2008) cautions that high risk students are likely to be lacking in characteristics needed for success in virtual school environments. Characteristics that students need to have to succeed include "cognitive factors (e.g., locus of control, field dependence/independence, learning styles, attitudes); technology skills, experiences, and attitudes; experience and demonstrated abilities with course content; and general abilities as reflected in grade-point average

(GPA)" (p. 92). Black et al. (2008) and Rice (2006) concur with the premise that student abilities are an important student characteristic. Low abilities for the given content, according to Rice, can cause the student to find the virtual environment "difficult and discouraging" (p. 435). This discouragement can lead the student to give up and drop out.

Poor time management by the students is another common cause for dropouts and failures (Chen & Qiao, 2009; Podoll & Randle, 2005; Rice, 2006). Poor time management is often due to the low abilities of the student, but this is not always the case. Rice, for instance, conveys that even good students (students with higher GPAs) reported issues with time management. Students that are deemed high risk have more problems with time management. Motivation factors are another characteristic that can determine the success or failure of students in virtual school environments (Greenway & Vanourek, 2006). Students that have low motivation are more likely to have poor time management.

Studies have shown that students that are successful in virtual school environments share certain characteristics (Cavanaugh, Gillan, Kromrey, Hess, Blomeyer, & North Central Regional Educational Lab, 2004; Huett, Moller, Foshay, & Coleman, 2008; Rice, 2006). Since a virtual school learning

environment results in a high degree of autonomy, successful students possess good self-regulatory skills. Successful students also have a high degree of self-efficacy. This leads to good problem solving skills in difficult situations rather than a feeling of hopelessness. An internal locus of control or self-responsibility is another characteristic that successful students have in common. These same studies caution that these characteristics can differ in different age groups. Teachers, and course designers, should ensure that virtual learning environments are appropriately scaffolded based on Piaget's model of cognitive development. This will ensure that students acquire these successful characteristics and succeed in virtual learning.

#### Teacher Characteristics in Virtual Schools

It would be irresponsible to place all of the blame for the failure of virtual learning environments squarely on the shoulders of students. The research clearly shows that teachers and poor course design are a main cause of student failures and dropouts. Teachers need training to understand web based education (Chen & Qiao, 2009). Chen & Qiao found "that teachers generally lack a deep understanding of e-learning, and consequently they do not provide sufficient support" (p. 141). Poor teacher quality and teachers being unprepared for virtual education was cited by other

researchers (Black et al., 2008; Davis et al., 2007; Greenway & Vanourek, 2006; Rice, 2006). Starkman (2007) concluded:

The students are open to it [virtual schools] because they're comfortable with technology. Often, the most resistant are teachers, either because they're worried that their jobs will be overtaken by computers or because they're just not inclined to change their mode of teaching. (p. 3)

This conclusion is consistent with the research of Davis et al. (2007) and Greenway & Vanourek who found that, in general, teachers were not as sophisticated as students in the realm of technology. Wahlstedt (2008) concluded that a low level of technology sophistication was one of the reasons that teachers in virtual learning environments were found to be disengaging and impersonal, which leads to low student motivation.

## Guidelines and Models for Instructional Design

### Guidelines for Designing Online Learning Environments

When designing online learning environments it is imperative to keep some guidelines in mind in order to

produce the most effective learning outcomes. Research identified guidelines from two sources that should be adhered to during the design process: The first principles of instruction (Merrill, 2007), and design principles to establish "world-class benchmarks" (Hirumi, 2005).

Merrill (2001) contends that "the most effective learning environments are those that are problem-based and involve the student in four distinct phases of learning. The four phases--activation, demonstration, application, and integration--are centered on a real world problem, or whole task. Merrill (2007) describes the four phases as follows:

1. Learning is promoted when existing knowledge is activated as a foundation for new knowledge.
2. Learning is promoted when new knowledge is demonstrated to the learner.
3. Learning is promoted when new knowledge is applied by the learner.
4. Learning is promoted when new knowledge is integrated into the learner's world. (p. 63).

Hirumi (2005) reviewed many instructional design guidelines and found many did not contain what he described as "world-class benchmarks" that should "not only define what should be done but also delineate how well it should be done." Hirumi suggested the following guidelines:



1. The alignment of objectives and assessments.
2. The alignment of objectives and instructional events.
3. The nature of feedback.
4. The design and sequencing of e-learning interaction
5. Motivational design. (p. 318)

In essence, the assessments should align to the instruction. Instructional events (how something is taught) should be based upon and determined by, what is taught. Feedback is essential as it can confirm to students what was done correctly or suggest improvement. Since spontaneous interactions are rare in e-learning environments, interactions should be woven into the design. Finally, designers should utilize research based models (Keller's ARCS model is suggested) of student motivational techniques within the learning environment (Hirumi, 2005).

#### Instructional Design Models

The purpose of an instructional design model is to provide a "systematic process...to develop education and training programs in a consistent and reliable fashion" (Reiser & Dempsey, 2007, p. 11). The list of instructional design models that are available are as extensive as the day is long; Andrews and Goodson, in Anglin (1995) identified

40, and that was a short list. That being said, all quality models contain the core elements, or phases, of analysis, design, development, implementation, and evaluation—this is commonly known as the ADDIE process, (Reiser & Dempsey, 2007).

In the beginning of instructional design (the 1940s) designers followed the ADDIE model in a linear process—completing one phase and moving to the next until the learning environment was completed. As time went on, the design process began to cycle through the five phases, repeatedly (Piskurich, 2006). Piskurich (2006) presents a spiderweb model, which “mirrors the reality of ISD as an iterative process in which we keep making and remaking decisions all through the five phases as we create our design....” (p. 4). Another model, Rapid prototyping, allows for the building of a prototype learning environment before actually completing all of the phases (Piskurich, 2006, Tripp and Bichelmeyer, 1990). Rapid prototyping originally developed in software engineering, “involves the development of a working model of an instructional product that is used early in a project to assist in the analysis, design, development, and evaluation of an instructional innovation” (Jones & Richey, 2000, p. 63). Regardless of the model used,

or even using a combination of models, the phases contain much, if not all, of the same elements.

The analysis phase is done in order to determine what needs to be taught (Piskurich, 2006) and most commonly consists of a needs assessment (Rossett, 1995). This phase can also include a task analysis as well as an audience assessment—what needs to be learned and who needs to learn it (Piskurich, 2006). Rossett (1995) explains that “the role of the needs assessment is to point the instructional technologist and the project in the right direction.” (p. 195). The needs assessment will focus on gathering data, and can be done in a number of different ways, including: Focus groups, interviews with subject matter experts, questionnaires, observation, and document collection (Piskurich, 2006).

The next phase in the ADDIE process is the design phase. The design phase is when it is decided what will work best for the content that is needed to be delivered, what environment will be the most effective for the learners, and what will be the most efficient learning environment—this is also called the delivery decision (Piskurich, 2006). Learning objectives will also be written in this phase, as will the specifications of media and

learning media (Reiser & Dempsey, 2007). This is the when, where, what, and how of the instructional design process.

The development stage is when materials (for the students and instructor) will be prepared (Reiser & Dempsey, 2007). This will include everything from lesson plans, materials needed for activities, student handouts, and assessments. If the delivery decision was online learning, this is when the learning environment will actually be created and the materials placed appropriately in it (Piskurich, 2006).

Implementation is when all the hard work pays off. The learning environment has been designed and developed (based on the analysis) and is ready to be delivered to an audience. This phase, especially in rapid design, or rapid prototyping, might include alpha and beta tests in order to get feedback so revisions can be made before being delivered to the intended audience (Piskurich, 2006).

The final phase of ADDIE is the evaluation phase which includes both formative and summative evaluation, and even revision if need be (Reiser & Dempsey, 2007). The designer will want to determine if the learning environment was successful in fulfilling the stated goals as determined by the analysis phase. The designer will also want to know the reaction of the learners to the course (Piskurich, 2006).

## Summary

The literature has shown that the idea to design an instructional learning environment using social networking software and a constructivist approach to asynchronous learning is justified. It has been shown that constructivist approaches work at least as well as traditional approaches (DiEnno & Hilton, 2005). The literature also revealed that in a technological learning environment, asynchronous learning (based on constructivist learning theories) is the most effective method to increase learning. The literature provided evidence that web 2.0 has the tools to enhance constructivist styled pedagogies and also provided a framework for creating a learning environment using web 2.0 as a platform.

The research also revealed guidelines that should be adhered to, such as Merrill's first principles, in order to make the learning as effective as possible. The research also revealed systematic approaches to designing the course.

The ADDIE process will be used along the lines of rapid instructional design and rapid prototyping.

The project, in essence a virtual classroom, is further justified through the literature review of virtual schools.

The number of virtual schools (and students in them) is increasing every year. It is imperative that these virtual

schools and courses be subject to very careful course design--based on empirically researched learning theories, epistemologies, and pedagogies--to ensure student success.

## CHAPTER THREE

### PROJECT DESIGN PROCESSES

#### Introduction

A review of the literature showed that the project, a learning environment based on web 2.0 and social constructivist learning theory, epistemologies, and pedagogies was justified. This chapter will discuss the design process for *Social Studies through Web 2.0: A Study of Online Learning*. The discussion was presented in an ADDIE format (Analysis, Development, Design, Implementation, Evaluation), but it should be noted that rapid prototyping model was followed in the design and development process. As a result, some tasks will occur in two or more phases.

#### Analysis

There were three major undertakings during the analysis phase. The document retrieval process continued, as did the search for the right delivery system, and a task/learning analysis was performed.

The first step was to perform a needs assessment in order to ascertain what was going to be taught, who it was going to be taught to, and how it was going to be taught. In the initial phase of the project, which was before the

current school year, the project was going to teach a unit of economics to high school seniors. However, the juxtaposition of teaching assignments over the summer necessitated the focus of the curriculum to be U.S. Government. The decision was made to use the document retrieval method of data collection for the course. Materials from current and past government courses (classroom) were gathered to be reviewed and the California State Standards were collected for consultation.

There were different options as to who to teach. The project could have been limited to the students of other teachers, or to the researcher's students. In the end the decision was made to go with students in the researcher's classes, as it would be easier to control the motivation to participate—namely extra credit.

There was a host of web 2.0 platforms and tools that could be used as a delivery system, including the district CMS, an independent website such as Moodle or Wikispaces, or the author's personal website. The district CMS would allow for access from school or home, but the system navigation can be burdensome and options for students to participate in a learning community are limited. A personal website would run the risk of having access blocked from district computers, but would allow more control and



flexibility over the design. Since the project was online learning, control and flexibility won out over access from school. On the basis of the needs assessment it was decided that a unit of study in U.S. Government, *Political Issues*, would be the purpose of the learning environment. The study of political issues was chosen for two reasons. First, during the regular school year that topic is taught towards the end of the school year, thus the chance that the study would overlap the progression of study in the classroom was minimized. Second, the topic of political issues afforded a relevant, real world task that could be performed by a small community of learners--namely the formation of a political action committee (this will be discussed in more detail in chapter four).

More detailed curriculum development will be discussed in the design phase. It should be noted that great care was taken not to merely dump the classroom course online. In fact the learning/task analysis showed a need that the content from the regular course (three chapters) would need to be reorganized to present a coherent unit of study with a real world culminating project.

A close inspection (re-inspection actually) of the CMS operated by the district showed a need to choose another delivery system. Although a message board is possible, it

is bare bones, hard to follow topics and threads, and has no way to insert media into posts. In addition, while a blog can be set up for the teacher and you can allow comments, the students do not have the capacity to blog. Finally, there is no way for a student to upload/store files or media, nor is there a way for them to create content.

The research showed success with the use of message boards and blogs. The research also showed a need for further study in the area of social networking software. Further analysis discovered Small Machine Forums (SMF) powered forums (message boards) and Elgg social networking software. Both were open source (free with no strings attached), could be hosted on a third party site or installed on a private domain, and could be "walled" off from public view. The Elgg software was designed to be used in the educational field and had the capacity to blog, create pages, comment, send system wide short messages, and create smaller learning groups. Both SMF forums and Elgg had numerous plug-ins, user communities, and extensive problem solving literature.

### Design

The first step in the design phase was to make a delivery decision. Since one of the research questions was

to determine, if possible, any differences between web 2.0 platforms, it was decided to utilize both SMF message boards and Elgg social networking software (both open source) with a group of randomly assigned students in each. A web domain, (<http://www.schoolonthego.com>), was created and both platforms were installed on it. A home page was developed using Adobe Dreamweaver, with links to each learning environment. In order to install the software it was necessary to set up data bases, this required further document retrieval. In the end, the detailed instructions, supplemented by some research to meaning of terms, was sufficient to successfully set up php and MySQL databases.

The process of "building", or setting up the features and organization of each environment, including closing it from public view and alpha/beta testing, was an on going process. Meanwhile attention needed to be focused on curriculum development.

Through the consultation of California State Standards, the review of current materials, and previous teaching experience, the following learning objectives were developed:

1. Students would be made aware of acceptable behavior through the Acceptable Use Policy.

2. Students would be made aware of expectations of the quality of work through the development of rubrics.
3. Assignments would be utilized to help students learn the functions and navigation of the learning environment.
4. Students would be able to successfully evaluate online sources.
5. Students would master the vocabulary needed for the successful completion of the culminating activity.
6. Students would be able to place themselves on a political spectrum.
7. Students would form groups based on political ideologies to form political action committees.
8. Students will determine which political representatives (or those running) would receive contributions, and what amount those contributions would be. Students will explain the rationale behind their decisions.

These objectives were written with a constructivist principle in mind, but also with the realization that some individual research/reflection and declarative knowledge would be needed.

The following content outline was developed:

- I. Political Issues learning environment
  - i. Acceptable Use Policy
  - ii. Grading Rubrics
    1. blog/post rubric
    2. cooperative rubric
    3. vocabulary rubric
  - iii. Set up profile
  - iv. Evaluation of online resources
    1. research on internet
    2. summarize critical information
      - a. interactions
        - i. teacher-student
        - ii. student-student
          1. student revises as necessary
  - v. Vocabulary
    1. search for given terms
    2. provide url of source
    3. provide definition for term
    4. answer focus question(s) if present
    5. develop images to illustrate term
      - for bonus points
        - a. interactions

- i. teacher-student
  - ii. student-student
    - 1. student revises as necessary
- vi. Political spectrum
  - 1. locate and take two political spectrum quizzes
  - 2. identify placement on political spectrum
  - 3. reflection on results
    - a. interactions
      - i. teacher-student
      - ii. student-student
        - 1. student revises as necessary
- vii. Party platforms
  - 1. Identify number of political parties
  - 2. summarize platforms of Republican, Democrat, and one third party
    - a. interactions
      - i. teacher-student
      - ii. student-student

1. student revises as  
necessary
- viii. Form Political Action Committee (PAC)
  1. choose political party
  2. choose two current issues
    - a. post/blog about issues
      - i. interactions
        1. teacher-student
        2. student-student
          - a. student revises  
as necessary
      - b. form PAC with other members  
based on common issues
        - i. name PAC
        - ii. specify where funding is  
from
        - iii. research candidate (U.S.  
House and Senate)
        - iv. determine percentage of  
money to give to each  
candidate
        - v. Letter to candidate

The instructional strategies focused on constructivism and placed emphasis on teacher-student and student-student

interactions. Students would be directed to search the web for information, reflect, and post their findings. Feedback, both corrective and confirmatory, would be given in a timely manner in order to encourage the learning process.

Three pencil-paper prototypes were also developed in this stage; the main page, the message board, and the social networking site. The main page prototype was designed in accordance to the visual design model ABC'S R'US--Alignment, Balance, Contrast, Chunking, Repetition, Utility, Simplicity--(Joanne Beriswill), the message board and social networking were pre-designed and only required content to be added. It should be noted however, that the message board did allow for board and thread organization; and the social networking allowed freedom in where to place widgets, or information, on individual pages. The main page was created using Adobe Dreamweaver, and simply consisted of the page title, links to the learning environments, and a statement of purpose.



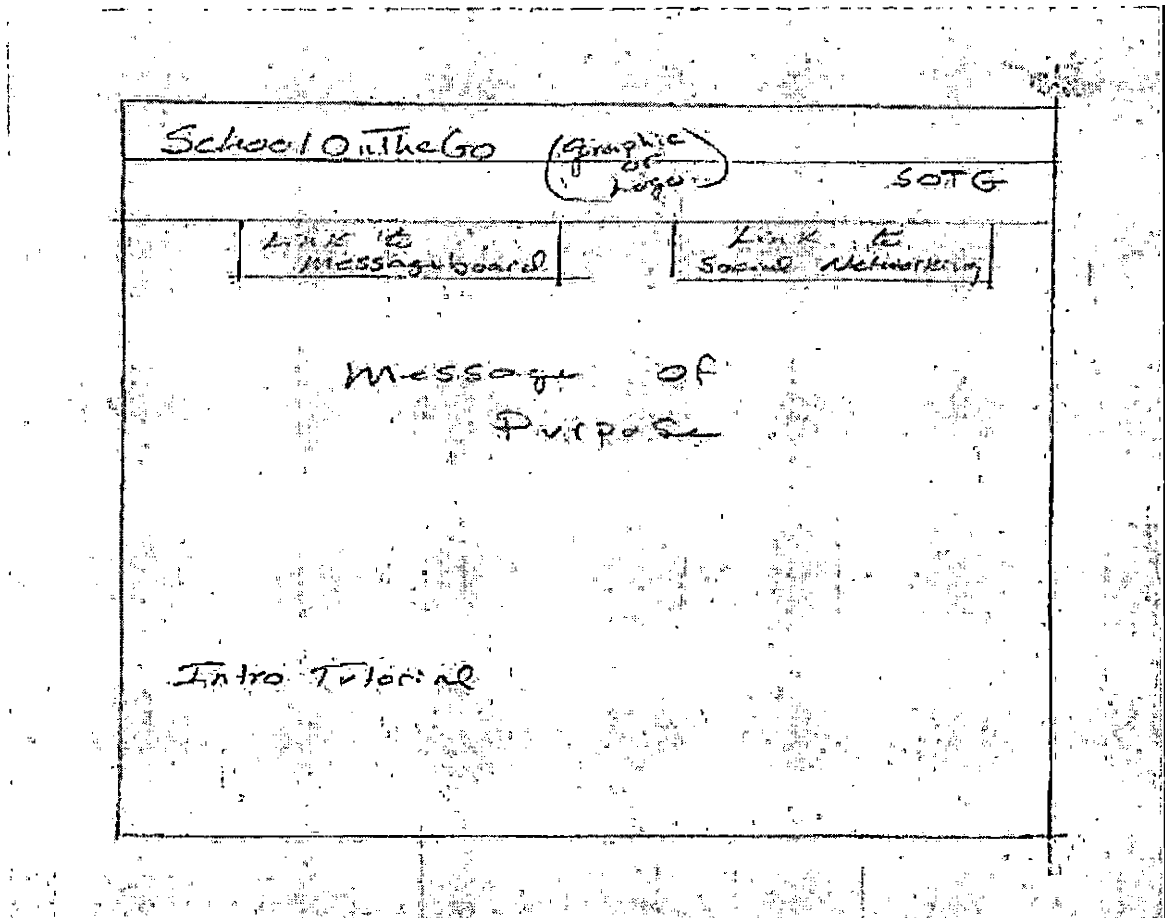


Figure 2. Main Page Prototype

### Development

Once SMF forums and the Elgg platforms were installed and everything seemed to be functioning properly, it was time for the alpha test the delivery system. Both delivery systems were set to require administrator approval and email

activation before a user could log on to the actual system.

On Elgg a "walled garden" was installed using a plug-in called site-access. A simple welcome message was created to alpha testers with instructions to create a profile and post a picture. Family, friends, and acquaintances of the author were asked to see if they could log in and accomplish the task of setting up a profile.

For the most part the alpha test was successful. One tester stated he could not log on but that was because he did not check his email for the activation message/link. Once that problem was taken care 100% of the users were able to log on and complete the task.

It was determined that it might be useful to have instructional videos that demonstrated how to use the functions of the Elgg software. Adobe Captivate was utilized to make a narrated screen recording of setting up a profile on Elgg and Flash was used to convert the file for viewing on mobile devices.

Most of the learning material was created and/or uploaded to the learning environments during this phase. An Acceptable Use Policy was developed, as were parent and student informed consent forms. Rubrics were also developed so students would know how their work would be evaluated. These forms were permanently posted in the learning

environments. In the message boards these documents received their own boards (Figure 3); in Elgg they were placed in permanent tabs and as pages on the instructor's page (Figure 4).

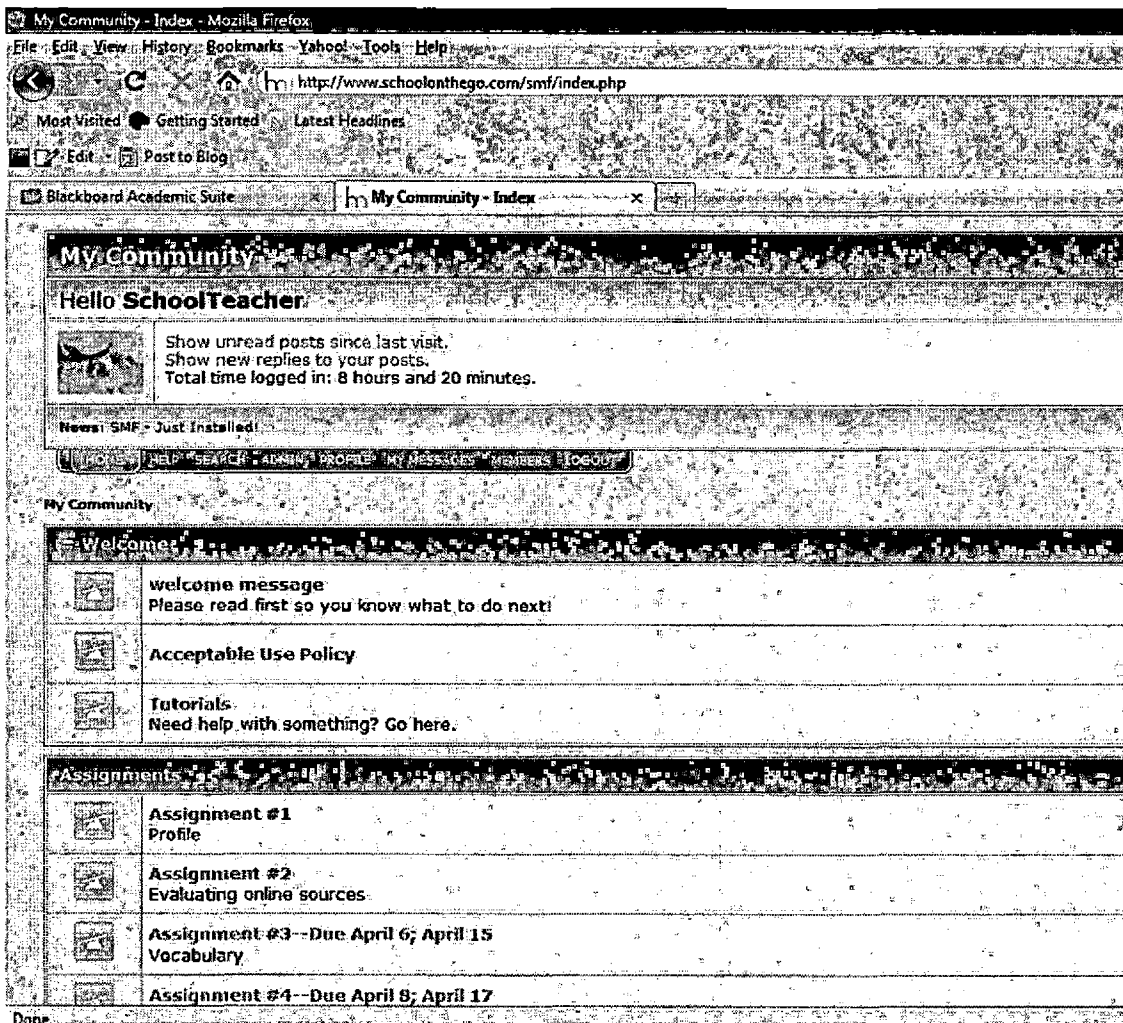


Figure 3. Home Page of Message Board

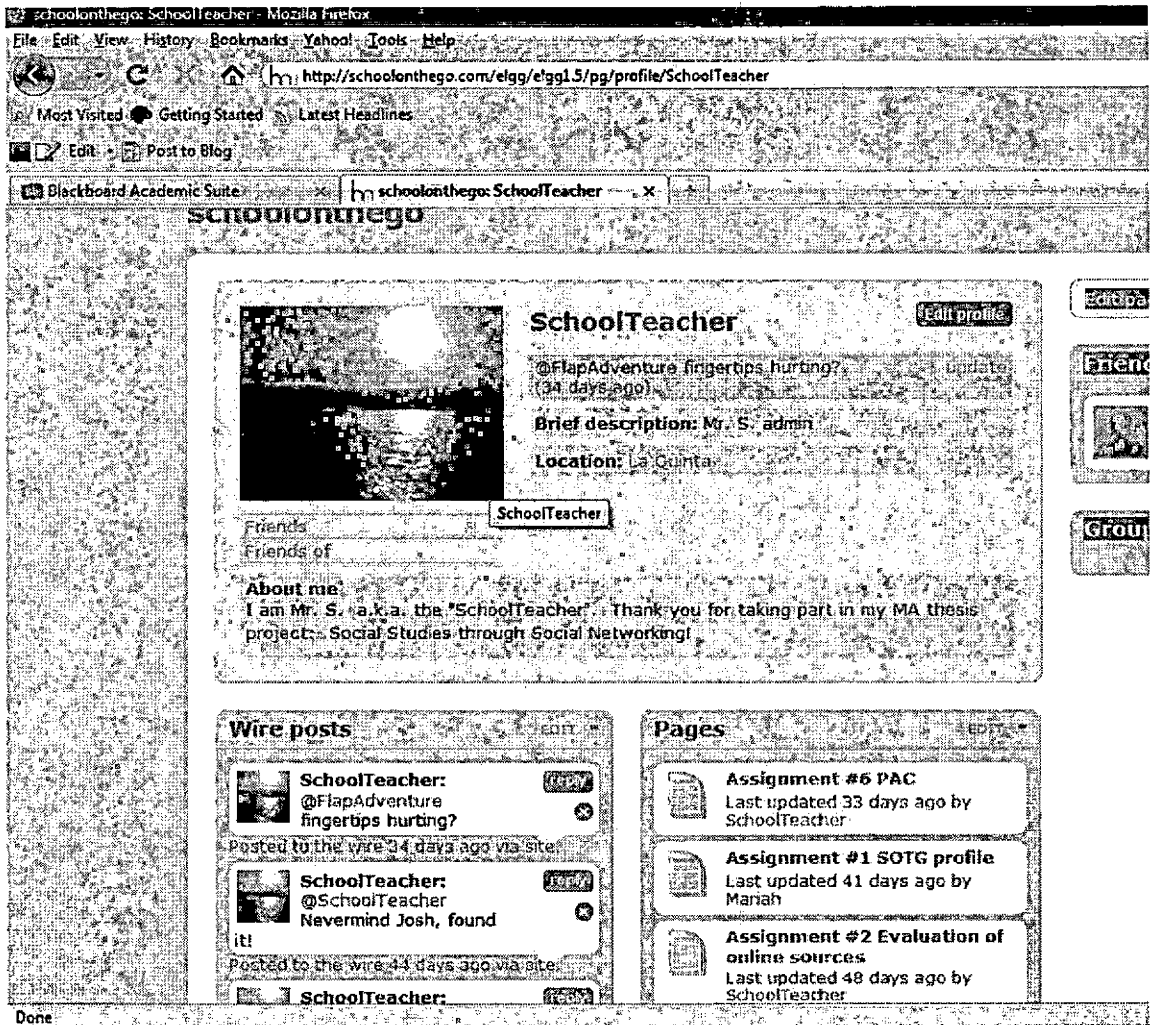


Figure 4. Instructor Profile Page on Elgg

The document mining resulted in pulling information from three different units that would be taught in the classroom, in order to design one cohesive online unit that contained a collaborative, real world, culminating activity.

Curriculum from the classroom was not used in the online environments. Rather, what was taught in the classroom was

used as a guide. In the online environments students were instructed to use Google to locate information. At times the students were instructed to use an exact phrase in their search to ensure information was found.

It was known that students would have U.S. Government textbooks at home that were issued by the school; students were not instructed to consult their textbook for information, nor were they directed to avoid the textbook.

The unit was chunked into six assignments. All assignment directions were readied on the web sites; invisible until the click of a mouse "released" the assignment.

#### Implementation

It was summer when the learning environment was ready to beta test. A group that was similar in age to the target audience was used, but the government curriculum was not used. This test was about ensuring the functions and privacy of the learning environments were operating properly. It was apparent, after the beta test, that the design was not technologically complicated. Not one beta tester accessed the step by step instructional help video, and only one tester had any questions on how to perform a task—she was quickly assisted by other learners.

It was after the beta test that it was discovered that the message boards were susceptible to spam-bots. The boards were flooded with spam over the course of two weeks.

Fortunately, it was easy to install recaptcha and the problem was solved. Unfortunately, the school district's protection crawler also detected the spam and blocked access to the web site.

The project was implemented in the Spring of 2010. Approximately 160 students were informed that up to 9% extra credit for the classroom course was available to those interested, and were given a brief overview about the study.

Fifty four students returned parent or informed consent forms to participate in the study.

The participants were randomly assigned to either the message boards or social networking learning environments. Participant names were typed into an Excel spreadsheet, in no particular order. The website <http://www.random.org/sequences/> was used to generate a sequence of random numbers. The random sequence was pasted into the Excel spreadsheet, next to student names. The spreadsheet was sorted numerically from low number to high.

Participants were alternately assigned to either the social networking or message boards learning environment.

During class students were allowed to take the pre-test and were given the Acceptable Use Policy with instructions to visit [www.schoolonthego.com](http://www.schoolonthego.com) and which platform to register for.

### Evaluation

An evaluation of the course was done by consulting user data in the learning environments, the quality of work, an exit survey, a comparison of pre- and post-tests, and a comparison of post-tests and tests given to classroom students (non participants) after the same material was covered in the classroom as in the online course.

The study was beset immediately by problems in the realm of participation. Of the original 54 students that signed up for the study (and took the pre-test), 19 never registered for the assigned learning environment. Of the thirty-five students that did register, only 10 students completed the second assignment, and not one student completed all six assignments.

On the surface this data alone would indicate that the research failed; that the e-learning environment was not effective. However, before that determination can be made, a number of mitigating factors should be discussed.

First and foremost was the timing of the study. Since the project was implemented in the spring, it encountered a number of interruptions when the participants would seek out alternate activities. Spring break—a weeklong vacation from school—occurred one week after implementation. A review of user data revealed very little activity during spring break. A week after returning from spring break there was school-wide state standards testing. Since seniors are not tested a great majority of them tend to not attend school. The week after standards testing, came two weeks of International Baccalaureate and Advanced Placement testing, many of the participants were affected. Even though the project was not designed for use during school—and having the website blocked by the district ensured this—most students found alternate activities and thus did not have “extra” time to participate in the study. Finally, everything from sports to school plays, prevented students from finding the extra time to participate in the project. This information was gleaned from informal exchanges (there was not an exit interview) with the students during the normal contact the author had with them during class. Many students expressed that if they had had the time during class to work on the project instead of participating in class, they would have completed the project. This



sentiment can also be seen in this message from CodyP (Figure 5):

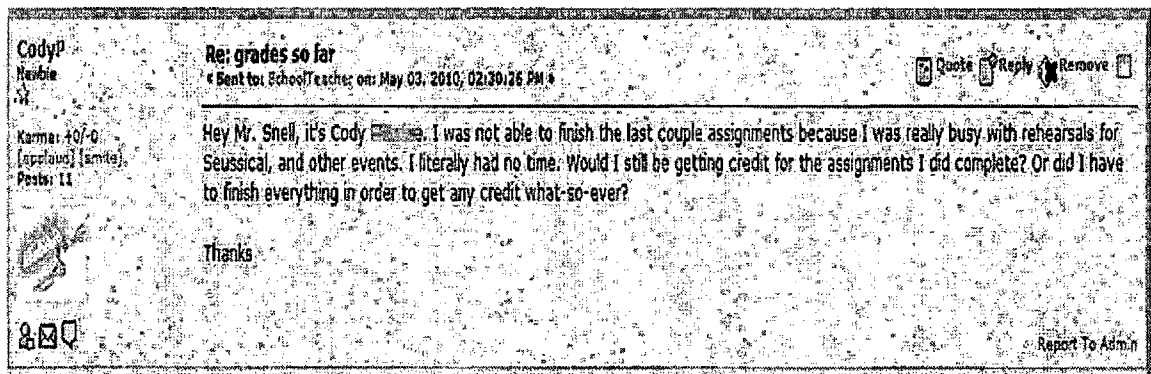


Figure 5. Message from Student

Several steps were taken in an attempt to increase participation during the study. Comments were left on posts that either prodded for further knowledge, praised for the work done, encouraged others to add comments, or any combination thereof. Posts were made on boards in regards to due dates and grade updates. The same techniques were done through the river page on the social networking site, which is the page students saw when they logged in (figure 6), using a site wide message. In addition, all six assignments were "released", or made visible, so students could see the end result and the logic in the incremental steps (chunks).

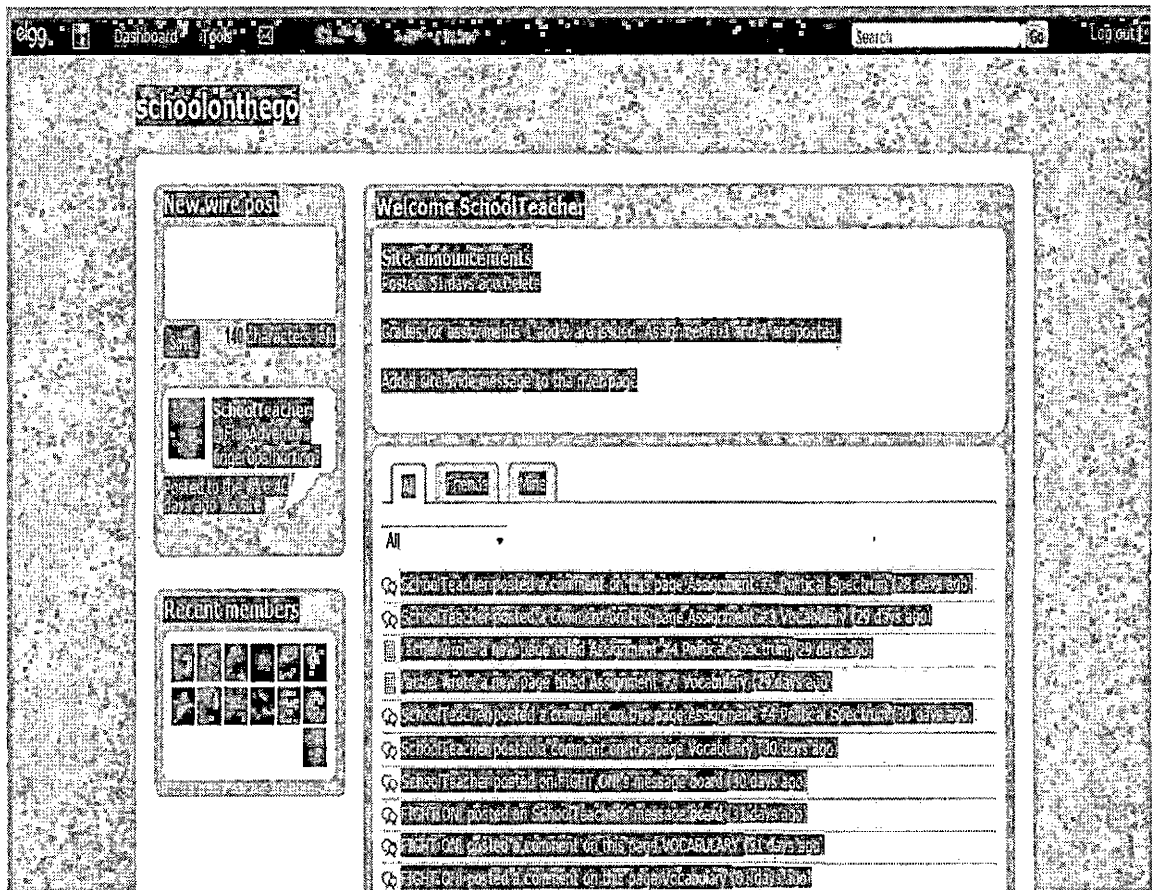


Figure 6. Elgg River Page

When taking this information into account it would be erroneous to assume that the learning environment suffered from a poor design or platform. The results of the survey would tend to support this conclusion. Out of 32 respondents 9.4% strongly agreed and 68.8% agreed that the course was enjoyable; 81.1% agreed (or strongly agreed) that they had learned from the course; and 90.7% felt that the course was challenging but not beyond their abilities. In

addition a majority of respondents (56.3%) indicated that they preferred the online environment to the typical classroom instruction and 84% of respondents indicated that they were able to navigate the environments with ease. Preference for one learning environment was almost an exact tie, but a slight edge went to the message boards (53.1% to 51.6%).

For the work that was completed, the quality was good but not exemplary. There were a few instances where it was necessary to ask students questions to get them to delve deeper into the information and clarify their answers. It was hoped, in these situations, that the students would respond admirably and post much more thorough answers the second time... that happened twice. There were also a couple of instances of obvious copy and paste (from websites containing information). Students were informed of why this was not acceptable and were asked to repost.

Comments on others work tended to be of the superficial "good information" nature, although there were a couple of insightful or constructive comments. It is believed that higher participation would have led to a higher incidence of insightful comments--provided the instructor was able to model properly during the first two assignments.

When the scores of the pre tests of the two groups were compared there appeared to be no significant difference: Message board participants scored an average of 8.6 and social networking participants scored an average of 8.0. The test was worth 20. When students that did not complete at least the third assignment were dropped from the formula, the average scores changed to 8.0 and 11.0 respectively.

Post tests were given to all students who at least completed the first assignment. When analyzing the data those that did not at least complete the third assignment (specific government coursework) were not deemed relevant. The average score went up to 12.7 for social networking participants and down to 6.9 for message board participants. As a result of no students finishing the course it would be erroneous to read too much into these statistics. There is not enough information to conclude, for example, that social networking will work better than message boards.

#### Summary

This chapter has explained, using the ADDIE model as an outline, the rapid prototype design methodology that was utilized to carry out this study. Whereas ADDIE is linear—doing each step before moving on, rapid prototyping is fluid, with movement between the steps during the design

process. Rapid prototyping was an excellent design tool as it allowed for the simultaneous building of the model (message board and social networking) and development of curriculum.

An examination of the results (student participation, scores), extenuating circumstances, exit surveys, and impromptu conversations with students, indicates that there was not necessarily a flaw in the design. The project was designed with the specific criterion that learning would take place in "spare time", not at school. This criterion was set by default, as the researcher had no other options.

## CHAPTER FOUR

### CONCLUSIONS AND RECOMMENDATIONS

#### Introduction

It is apparent, just by watching the news, that in public education today fewer teachers are serving more students with less money. School districts should, and in many cases do, seek for alternatives to the classroom walls.

Online learning is one very viable alternative; learning anytime, any place could provide a much needed relief for physical classrooms. Educators should proceed with caution however, with the emergence of web 2.0 the ease of creation has increased, and so has the temptation to implement poorly designed courses. An ill-conceived design for an online course could impede its acceptance and effectiveness. Educators should ensure that their courses are based on sound learning theories, epistemologies, and pedagogies—and realize that these may be different than their classroom experience.

#### Conclusions

This project sought to add to the literature base in regards to what would make an effective online learning platform. Specifically the project sought to determine if a

learning environment utilizing message boards and social networking software (two tools of web 2.0), based on constructivist learning theory, epistemologies, and pedagogies, could provide an effective platform for an online learning environment. After reviewing the data from tests, quality of coursework, user data, surveys, and informal conversations, the following conclusions can be made:

1. Extra credit is not enough of a motivator to get 54 busy high school seniors to complete a unit of study in their spare time.
2. There is a need for online education in public education. Classroom sizes are ever increasing and students are increasingly pressed for time and to meet graduation requirements.
3. Message board and social networking software can be a viable option for online learning environments. There were no significant differences in students' preference. Due diligence must be performed to ensure the proper balance of learning and social interaction in such an environment.
4. The effectiveness of the constructivist-based curriculum cannot be ascertained due to the 100%

non completion by the students. However, success in the first three assignments could indicate that the entire model would be successful given a more conducive situation.

Conclusions one, two, and four reflect the researcher's frustrations in several attempts to have an outside website unblocked by the district. Each time the researcher was informed that district policy was to not unblock any teacher maintained websites and there was absolutely no appeals process. While it is easy to understand that conflicts or problems can arise from students being allowed to "run free" in web 2.0, it is imperative the district technology leadership realize the district CMS censorship can easily be bypassed by students. In the end, no matter if student interaction takes place on the district owned site or a teacher owned site, it is up to the teacher—many holding multiple degrees—to maintain decorum in student interaction. Conclusion three reflects that students are open to, and even enjoy, web 2.0 learning environments.



## Recommendations

The results of the survey, the quality of the work done, and informal conversations indicate that this project could have been more successful in a different setting, a setting that was not voluntary and an extra obligation. If a future researcher were to undertake a similar endeavor, and that researcher were to happen upon this document, there are a few points that researcher should pay heed to:

1. It is recommended that further study be done in this area.
2. Future studies should first and foremost strive for a situation in that the participation in the learning environment replaces the class, not in addition to.
3. Strongly consider releasing all assignments at once so the students know where they are going. This was done mid-project, but had no discernable effect on the level of participation.
4. A larger endeavor may be undertaken in having multiple courses simultaneously in the same learning environment. The message board or social networking software could serve as the umbrella or "school".

## Summary

The attempt to discover if message boards and social networking software could be an effective learning environment was inconclusive. If looking at the completion level of assignments only then the answer would be "no, they are not". The results of the survey and informal conversations however, yield positive results.

The SMF forums were quite easy to install once preparation was done. Preparation consisted of reading up on simple scripts, MySQL, and phpAdmin. Once the databases set up on the server, and the installation instructions were followed. The Administrative functions are logical, easy to use, and provide for options such as manually registering a user. On the user side, students showed very little evidence of hardship or confusion in regards to the navigation or functions of the message board. Questions that were asked were sometimes answered by other students. Students demonstrated the ability to create a profile page, post, quote, post images, and post links.

The Elgg software was installed after the SMF forums and was a bit easier due to the previous database experience. Elgg did prove a little more challenging in regards to figuring out the administrative functions and platform jargon such as "widgets". Widgets are like

categories (such as pages, friends, groups, files) that can be dragged to different parts of the page by the user. This function gives the user control over where items will appear on their page. Students, akin to the forums, took right to the navigation and functions. Only a couple of questions like "where do I put my name?" were asked. As in the forums, questions were also answered by other students. Students on Elgg exhibited more signs of a community of learners. Students posted questions or conversant messages on the instructor's homepage, or on the assignment page itself. Some students used the friends function, and posted on each other's personal message board. Students demonstrated the ability to create a profile page, upload and post images, blog, create pages, and navigate the system and view other user's pages and blogs.

Though both platforms allow for asynchronous learning they each have particular strengths. The message board allows for a more linear dialogue—it easier to keep track of the conversation and where the conversation is. The Elgg is more conducive for breaking up into smaller groups and to uploading media such as images and video. The researcher is looking forward to the opportunity to attempt the project again.

APPENDIX A  
CD OF PROJECT

APPENDIX B  
PRINCIPAL CONSENT FOR PROJECT



La Quinta High School

International Baccalaureate Programme



June 25, 2009

Institutional Review Board  
California State University  
5500 University Parkway  
San Bernardino, CA 92407

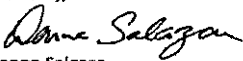
Dear IRB Members:

I have reviewed the description of the study that Mr. Ken Snell has proposed, titled *Social Studies through Web 2.0: A Study of Economics using Social Networking*. I have also forwarded the proposed study materials to our district superintendent, Dr. McGehee for her review and approval.

Mr. Snell has permission to conduct this study at La Quinta High School during the 2009-10 school year.

If you have any further questions regarding this matter, please feel free to contact me.

Sincerely,

  
Donna Salazar  
Principal

Desert Sands Unified School District  
79-255 Westward Ho Drive • La Quinta, California 92253 • (760) 772-4160 • Fax (760) 772-4166 • Fax (760) 771-4171

APPENDIX C  
INSTITUTIONAL REVIEW BOARD  
ADMINISTRATIVE REVIEW

CALIFORNIA STATE UNIVERSITY  
SAN BERNARDINO

February 8, 2010

Academic Affairs  
Office of Academic Research • Institutional Review Board

Mr. Kenneth Snell  
c/o: Prof. Eun-Ok Baek  
Department of Science, Math and Technology  
California State University  
5500 University Parkway  
San Bernardino, California 92407

**CSUSB**  
**INSTITUTIONAL**  
**REVIEW BOARD**  
Administrative Review  
IRB# 09074  
Status  
**APPROVED**

Dear Mr. Snell:

Your application to use human subjects, titled, "Social Studies through Web 2.0: A Study of Online Learning" has been reviewed and approved by the Chair of the Institutional Review Board (IRB) of California State University, San Bernardino and concurs that your application meets the requirements for exemption from IRB review Federal requirements under 45 CFR 46. As the researcher under the exempt category you do not have to follow the requirements under 45 CFR 46 which requires annual renewal and documentation of written informed consent which are not required for the exempt review category. However, exempt status still requires you to attain consent from participants before conducting your research.

The CSUSB IRB has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval notice does not replace any departmental or additional approvals which may be required.

Although exempt from federal regulatory requirements under 45 CFR 46, the CSUSB Federal Wide Assurance does commit all research conducted by members of CSUSB to adhere to the Belmont Commission's ethical principles of respect, beneficence and justice. You must, therefore, still assure that a process of informed consent takes place, that the benefits of doing the research outweigh the risks, that risks are minimized, and that the burden, risks, and benefits of your research have been justly distributed.

You are required to do the following:

- 1) Notify the IRB if any changes (no matter how minor) are made in your research prospectus/protocol.
- 2) If any adverse events/serious adverse/unanticipated events are experienced by subjects during your research.
- 3) And, when your project has ended.

Failure to notify the IRB of the above, emphasizing items 1 and 2, may result in administrative disciplinary action. You are required to keep copies of the informed consent forms and data for at least three years.

If you have any questions regarding the IRB decision, please contact Michael Gillespie, IRB Compliance Coordinator. Mr. Michael Gillespie can be reached by phone at (909) 537-7588, by fax at (909) 537-7028, or by email at [mgillesp@csusb.edu](mailto:mgillesp@csusb.edu). Please include your application identification number (above) in all correspondence.

Best of luck with your research.

Sincerely,

*Sharon Ward, Ph.D.*  
Sharon Ward, Ph.D., Chair  
Institutional Review Board

SW/mg

cc: Prof. Eun-Ok Baek, Department of Science, Math and Technology

909.537.7588 - fax: 909.537.7028 - <http://irb.csusb.edu/>

5500 UNIVERSITY PARKWAY, SAN BERNARDINO, CA 92407-2393

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Maritime Academy • Monterey Bay • Northridge • Pomona • Sacramento • San Bernardino • San Diego • San Francisco • San Jose • San Luis Obispo • San Marcos • Sonoma • Stanislaus



APPENDIX D  
HUMAN SUBJECTS PROTOCOL CHANGE

INSTITUTIONAL REVIEW BOARD (IRB)  
CALIFORNIA STATE UNIVERSITY, SAN BERNARDINO

Human Subjects Protocol Change Form

DATE: 03 / 02 / 2010

IRB NUMBER: 09074

REVIEW CATEGORY: EXEMPT  EXPEDITED  FULL BOARD

Note: All changes to your originally approved protocol, *no matter how minor*, require IRB approval before implementation.

INVESTIGATOR(s) / RESEARCHER(s): Kenneth Snell \_\_\_\_\_  
E-mail Address: snell300@csusb.edu

DEPARTMENT: Science, math, and technology

PROJECT TITLE: Social Studies Through Web 2.0: A Study of Learning Using Social Networking

Please return this fully completed form to the IRB Coordinator, Mr. Michael L. Gillespie, in the Office of Academic Research (Administration Building). Attach additional sheets if necessary to describe in detail any changes to the original approved protocol or methodology related to your research or the human subjects thereof.

Change in the administration of the pre and post test. Students will be allowed to take the tests during their normal class time.

Have there been any adverse events or unanticipated problem(s) that relate to the research conducted and/or human subjects utilized in your research, since your protocol was originally approved? You are required to fill out the (AE) adverse event report if an adverse event occurred during the conduct of your research (see IRB website). Fill that form out and turn it in with this protocol change form.

YES  NO

Investigator(s) Assurance:

The information and answers to the questions above are true and accurate to the best of my knowledge, and I understand that prior IRB approval is required before initiating any changes that may affect human subject participant(s) in the originally approved research protocol. I also understand that in accordance with federal regulations I am to report to the IRB or its administrative designee any adverse events that may arise during the course of this research.

Kenneth M. Snell  
Signature of Investigator(s)/Researcher(s)

3/21/2010  
Date

Jim O'Connell  
Signature of Faculty Advisor for Student Researchers

3/31/2010  
Date

M. Ward  
Signature of IRB Chair Approving this Change

3/11/2010  
Date

Approval of renewed protocol / methodology is granted from: 2/8/10 to 2/7/11

*Please renew in early January 2010 if you have not completed your project. But -  
Muel*

APPENDIX E  
STUDENT EXIT SURVEY

## SOTG exit survey

### 1. Instructional Technology Orientation

Thank you for taking the time to take this survey. The purpose of this survey is to determine the effectiveness of the SchoolOnTheGo.com online learning environment. This survey should take less than 5 minutes and will assist the instructor in the design of future online courses. All responses are for informational purposes only and confidentiality is assured.

**1. I found the course to be enjoyable.**

- Strongly agree
- Agree
- disagree
- Strongly disagree

**2. I felt like I learned from this course.**

- Strongly agree
- Agree
- disagree
- Strongly disagree

**3. The course was challenging but was not beyond my abilities.**

- Strongly agree
- Agree
- disagree
- Strongly disagree

**4. The course was challenging and was beyond my abilities.**

- Strongly agree
- Agree
- disagree
- Strongly disagree

## SOTG exit survey

**5. I preferred this course to the typical classroom instruction.**

- Strongly agree
- Agree
- disagree
- Strongly disagree

**6. I had more interaction with the instructor than I would have had in the classroom.**

- Strongly agree
- Agree
- disagree
- Strongly disagree

**7. I would have preferred the message board portion of this course.**

- Strongly agree
- Agree
- disagree
- Strongly disagree

**8. I would have preferred the social networking portion of this course.**

- Strongly agree
- Agree
- disagree
- Strongly disagree

**9. I had a difficult time finding the information required for this course.**

- Strongly agree
- Agree
- disagree
- Strongly disagree

## SOTG exit survey

**10. When I needed assistance I found the tutorials helpful.**

- Strongly agree
- Agree
- disagree
- Strongly disagree

**11. I found the instructional media (podcasts, powerpoints) in this course to be informative and relevant.**

- Strongly agree
- Agree
- disagree
- Strongly disagree

**12. I was able to navigate through the learning environment with ease.**

- Strongly agree
- Agree
- disagree
- Strongly disagree

**13. I found that the learning environment functioned well.**

- Strongly agree
- Agree
- disagree
- Strongly disagree

APPENDIX F  
CHILD ASSENT

### **CHILD ASSENT**

The study in which you are being asked to participate is designed to investigate if social networking and message board software can be a successful way to teach social studies at a high school level. This study is being conducted by Kenneth M. Snell under the supervision of Eun-Ok Baek, Ph.D. Professor of Instructional Technology, California State University, San Bernardino

If you choose to participate you will be learning a unit of U.S. Government entirely online. You will be asked to use either the social networking or message board website to interact with the instructor and other students, receive and submit assignments, and to create projects. This study will not use time in class for instruction.

Your Participation in the study is voluntary. Your grade in the regular U.S. Government course will not be affected if you choose not to participate. If you choose to participate you will have the chance to earn extra credit points that will be applied to your grade in the regular course. If you choose to participate and then change your mind you can quit at any time without any penalties and you will still get the extra credit points that you had earned up to that time. Extra credit will be based on participation and the quality of assignments.

The research will be confidential and you will not be mentioned by name at any time. The study is expected to last three to five weeks.



APPENDIX G  
INFORMED CONSENT

## INFORMED CONSENT

The study in which your child is being asked to participate is designed to investigate if web 2.0 software (social networking, blogs, and message boards) is a viable way to teach social studies on a high school level. This study is being conducted by Kenneth M. Snell under the supervision of Eun-Ok Baek, Ph.D. Professor of Instructional Technology, California State University, San Bernardino. This study has been approved by the Institutional Review Board, California State University, San Bernardino.

**PURPOSE:** The purpose of the research is to determine if collaborative on-line learning (using social networking and message boards) that engages the students in authentic, real world tasks can be a successful means of teaching the standards based curriculum of a current U.S. Government course at a local public high school.

**DESCRIPTION:** If your child participates, they will be requested to create a unique user name to be used on a private social networking or message board site that is located at <http://schoolonthego.com>. The domain is the property of the researcher and the site is on the researcher's server. Your child will be requested to utilize the social networking software or message boards to interact with the instructor and other students, receive and submit assignments, and to create projects based on real world tasks. There will be textbooks available, however students acknowledge that they will be directed to reading material and asked to find sources via the internet. There will be a need to perform some tasks collaboratively. Extra credit earned from participation will be applied to the current semester grade. The amount of credit earned (from zero to nine percent) will be ascertained through the use of an assessment rubric.

**PARTICIPATION:** Participation in the study is voluntary. Refusal to participate will involve no penalty or loss of benefits to which the subject is otherwise entitled and your child may discontinue participation at any time without penalty or loss of benefits, to which they are otherwise entitled. Extra credit will be based on participation and the quality of assignments. The study will abide by the discipline policy set forth by the school. Any inappropriate behavior could result in the researcher removing the student from the study. Withdrawing/removal from participation in the study will not constitute forfeiture of extra credit points earned.

**CONFIDENTIALITY OR ANONYMITY:** The research will be confidential and records that identify your child will be kept on a password protected file on the researcher's home computer.

**DURATION:** The expected duration of the research is three to five weeks.

**RISKS:** There are no foreseeable risks or discomforts, physical or mental, to your child in the research.

**BENEFITS:** Your child may gain insight and skills in the use of web 2.0 software. The research may also contribute to the scholarly study in the field of using web 2.0 software in standards driven public education.

\_\_\_\_\_ I understand that screenshots that reveal my child's unique user name, and/or first name, last initial, may be used in the reporting of the research (initials).

\_\_\_\_\_ I understand that in order to maintain confidentiality that real names and photographs of children should not be posted (initials).

**CONTACT:** Should any concerns arise regarding the research and the rights of the subject, or questions about the research, please contact Eun-Ok Back, Ph.D. Professor of Instructional Technology, California State University, San Bernardino, 909-537-5454; [eback@csusb.edu](mailto:eback@csusb.edu).

**RESULTS:** Should the subjects desire to see the results of the study, a copy of the thesis paper will be posted to the website used for the study (<http://www.schoolontheho.com>).

Parent/Guardian Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Student (age 18) Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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