A Case Study Analysis of Web 2.0 Technology Use in Higher Education: Effects of Using a Wiki on Outcomes and Attitudes in Legal Education

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A CASE STUDY ANALYSIS OF
WEB 2.0 TECHNOLOGY USE IN HIGHER EDUCATION:
EFFECTS OF USING A WIKI
ON OUTCOMES AND ATTITUDES
IN LEGAL EDUCATION

A Dissertation

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Louisiana State University and
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Doctor of Philosophy

In

The Department of Educational Theory, Policy & Practice

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ABSTRACT

Using a case study methodology with descriptive and qualitative techniques at a major law school in the South, this research study explored factors that contribute to the perceived pedagogical value of wiki technology in legal education, as well as attitudes and perceptions of law faculty and students regarding the effectiveness of using wikis as a productivity tool for improving outcomes in authentic group activities in a collaborative environment in legal education. This study also explored the dynamics of the interactions that occurred among users while utilizing wiki technology over a 6-week period.

The results suggest that law students exhibit a preparedness and willingness to utilize technology in legal education; that law students recognize positive features relating to the use of a wiki as a productivity and collaborative tool; that the use of a wiki can improve outcomes in authentic collaborative projects in legal education; that both law students and law faculty recognize a perceived pedagogical value in using wikis in the area of legal education; that the use of a wiki can promote continued use of technology by law faculty in legal education, as well as continued use of wiki technology by law students in their future practice of law; that the culture and historical climate of legal education continues to be resistant regarding the use of technology, especially among older faculty members who appear to be less willing to use technology in legal education; and that barriers can influence the use of technology and wikis in the area of legal education and the practice of law, to include the need for buy-in, time constraints, a need for advance training, and competing technology. These results are consistent with those of other researchers who have studied wiki technology.
CHAPTER ONE:  
INTRODUCTION

To provide a background for this research, this chapter begins with a brief history of technology from the introduction of the personal computer and the Internet to the development of advanced web-based technologies, as well as the use of technology in education to support teaching and learning. In addition to establishing the rationale for this study, this chapter articulates a statement of the problem, the purpose of the study, guiding questions for the study, the significance of the study, and a number of limitations. The chapter ends with a list of associated terms.

1.1 Rationale for Study

Since the advent of affordable personal computers in the late 1970s and early 1980s, computers and computer technology is now being used in virtually every human endeavor. Computers and computer technologies have had a profound influence on the manner in which people work, play, and learn (Makridakis, 1995). From supercomputers, to mainframes, to workstations, to personal computers, to mobile computers, to embedded computers, there is almost no aspect of human activity or enterprise in which these ubiquitous technological marvels, in one form or another, are not being utilized. Like an invading army, computers have marched into the countryside of the global human experience, instituted an unvanquishable occupation, and have brought about change in practically every area (Jaffarian, 2009).

In education, teachers and students are living in an exciting and transitional period. The speed at which new technologies are being developed continues to increase (Broussard, 2008). As the benefits of the use of computers and computer technologies by
teachers and students at all levels of education and in all areas of the curriculum continues to be studied and becomes better understood, computer technology has the potential of having an even greater impact on teaching and learning. Considering the popularity of technology with 21st century students at all levels, it is important and appropriate to continue to consider how technology can be employed to enhance teaching and learning in all areas of instruction. In addition to motivating students, Schrand (2008) suggests that the use of technology in education can facilitate active learning. Furthermore, computer technologies can be used to enhance both learning in the classroom and learning outside of the classroom (Saxer, 1999). Computers and modern computer technologies, to include wikis, can also be used to support cooperative and collaborative learning and endeavors. According to Blumen and Stern (2011), collaboration can produce short-term and long-term benefits to retention and recall; which stem from repeated exposure to content and cross-cuing, or additional retrieval opportunities which have been demonstrated to be important for long-term retention. As such, changing technologies should prompt a continued examination of the methods used for developing and delivering educational curriculums, and for promoting cooperation and collaboration among all learners in all areas.

One area of rapidly changing technology is the Internet. As pointed out by Hirsh and Miller (2004), “there can be little doubt that information technologies, and the Internet in particular, have profoundly changed American society” (p. 873). A Pew study conducted in 2002 and updated in 2009 regarding the use of computers and the Internet by college students showed that eighty-five percent (85%) of college students own their own computer, eighty-six percent (86%) of college students access the Internet, seventy-
two percent (72%) check their email at least once a day, seventy-three percent (73%) use
the Internet more than the library, and seventy-nine percent (79%) of the students
surveyed agree that the use of the Internet has had a positive impact on their college
academic experience. With the passage of time and ever-increasing access to affordable
computers and related technologies, one can reasonably assume that these numbers will
continue to increase. Beginning with its initial use in education, one of the most
powerful features of the Internet in teaching and learning has been the ability to use it to
engage learners in an interactive format (Hazari & Schnorr, 1999). Using the Internet,
students can interact and participate in an online learning environment that promotes
collaborative and cooperative learning 24 hours a day, 365 days of the year, regardless of
where they may be located. As a result of the Internet, people can connect with one
another in an immense computer network in the form of one enormous, global brain
(Jaffarian, 2009). And while the initial design of the World Wide Web did not provide
much opportunity for interaction with its read-only format, more recently developed Web
2.0 technologies have significantly increased the amount of interaction and collaboration
on the Internet with its more dynamic read and write format. As described by Hazari,
North, and Moreland (2008), Web 2.0 technologies can be considered to be an extension
of the previous generation of web technologies that only presented information to users,
but did not allow for a great degree of interaction.

Web 2.0 is an encompassing term used to describe the next generation of
communication and organizational tools on the Internet (Broussard, 2008), and include a
number of dynamic Internet technologies. Web 2.0 technologies include wikis, blogs,
podcasts, instant messaging, RSS feeds, digital storytelling, and social bookmarking
Web 2.0 technologies have changed the way users interact with the Internet (Hazari, North, & Moreland, 2008). These Web 2.0 applications can be used to facilitate interaction, and to even further facilitate cooperation and collaboration among users. As suggested by Black (2006), the continued development of new technologies for communication on the Internet is allowing users to engage and interact with one another in new and innovative ways. This new generation of Internet technologies encourages a participatory approach (Hazari et al., 2008). Web 2.0 technologies have changed Internet users from passive readers of provided content to active writers of co-created, collaborative content. The fundamental principle of this technology is the social networking aspect where users form a community involved in a common goal (Hazari et al., 2008). Web 2.0 technologies have reshaped the Internet into global communities that anyone can join and in which everyone can contribute (Parker & Chao, 2007; Tapscott & Williams, 2008). This new generation of Web tools is predicated on users’ modification of, contribution to, and enhancement of shared information (Broussard, 2008). Rather than just taking knowledge, members of these global communities can collaborate and create knowledge (Farabaugh, 2007; Mitchell, 2003). As a result of these dynamic features, the use of Web 2.0 technology in academia is increasing (Hazari et al., 2008). These technologies promote anytime and place access to information, while at the same time supporting any path and any pace learning. With a greater understanding of how to best utilize these technologies in all areas, the ability to use the Internet and Web 2.0 technologies to work and learn collaboratively and cooperatively in co-creating information and knowledge has the potential to transform the way teachers teach and students learn, in essentially all curricular areas.
Wikis are a popular type of Web 2.0 technology. The rapid proliferation of the use of Web 2.0 technologies in general, and wikis in particular, tends to indicate that such technologies will be a lasting communication technology. As argued by Noveck (2007), wikis are going to become a permanent fixture on our media landscape. At its basic level, a wiki is a user created website that can be easily modified by anyone who has been granted access. Because wikis can be accessed by multiple users, wikis can be used to produce collaborative, co-created information and knowledge. Using a wiki, authorized users can develop interlinked web pages on which content can be jointly created, added to, modified, and edited. The use of wikis can harness a group’s collaborative and creative energy, and allow the group to produce shared knowledge that benefits everyone (Evans, 2006). Such technologies can be used to enrich student learning, to support different learning styles, and to create rich and engaging learning environments. As a result of the free and public availability of wikis, such technology can be used in all areas of the curriculum and in a wide range of disciplines. Hazari et al. (2008) suggest that as this technology continues to develop as a commonly used tool for global communication and productivity, such technology must be utilized by educators in the delivery of curriculum content in all disciplines. Identified as the top key trend in education, the internationally recognized New Medium Consortium Horizon Report for 2012, a comprehensive research venture established in 2002 that identifies and describes emerging technologies likely to have a large impact on education, which includes higher education, noted that educational paradigms are shifting to include online learning, hybrid learning, and collaborative models. However, most law schools are far behind undergraduate institutions in integrating this and other technologies into the learning
process (Saxer, 1999). While wikis have been incorporated by educators for use by students in many undergraduate and graduate settings, the use of wikis in legal education has been afforded only limited use and examination.

1.2 Statement of the Problem

People expect to be able to work, learn, and study whenever and wherever they want (New Media Consortium, 2012). As in undergraduate institutions, computers and the Internet can play an important and growing role in law schools for promoting learning, both in and outside of the classroom (Hirsh and Miller, 2004). In addition, computers and Internet technologies can provide students, just as it does for legal practitioners, with the ability to actively and collaboratively engage in their chosen avocation from virtually any location. As such, the development of Internet-based learning tools stands to have a profound impact on legal education and practice (Broussard, 2008). However, while the Internet has the potential to play an integral role in legal education, legal educators have been slow to embrace this technology (Saxer, 1999). As pointed out by Hirsh and Miller (2004), “Notwithstanding the ubiquitous presence of computers and the Internet at most American law schools, little has been done to expose future attorneys to the role that information technology will play in their professional lives” (p. 874). In addition to using technology in law schools to enhance student learning, legal educators must also instruct law students in how to use technology to enhance their future law practice (Saxer, 1999). Courts and legal practitioners are using a variety of technologies to support them in their professional work. A 2014 report by the Supreme Court of Louisiana indicates that key technologies being used in the modern practice of law include case tracking and case management systems, electronic
filing, audio and video enhancements in courtrooms and courthouses, videoconferencing, and information sharing technologies; and that over two-thirds (69%) of judges recently surveyed indicated that a greater investment in courtroom technology is needed.

Additionally, the 2013 New Lawyers Survival Guide by the Young Lawyers Counsel states that, “Lawyers who believe that they don’t need to know much about technology in order to make good decisions are dangerous to their clients” (p. 14). While technology has transformed the practice of law, legal education has not kept pace (Hirsh and Miller, 2004). As pointed out by Broussard (2008), “The ability to not only write, edit, and produce documents collaboratively, but also to share supporting research, visuals, videos, and related audio will provide a tremendous advantage to a legal team” (p. 910). Using the features of even a basic wiki, users can develop and share these types of multimedia. Saxer (2000) points out that increasingly technology is being used in the legal profession and in legal studies in the form of word processing, databases, computer-assisted legal research, computer-assisted legal instruction, multimedia, the Internet, electronic mail, discussion lists, distance learning, and new developing technologies like artificial intelligence. Despite the fact that the practice of law has been revolutionized by technology, legal education in the United States has been fundamentally unchanged for the past 120 years (Hirsh and Miller, 2004). As pointed out by the New Media Consortium (2012), digital media literacy is increasingly important as a key skill in every discipline and profession, and this is especially true in teaching. Because technology has been and will become an even greater part of the structure of our learning institutions, the use of technology in modern legal education must be increased (Saxer, 1999). The use of technology might also better prepare law students for their future practice of law.
With the emergence of wikis as a type of collaborative Web 2.0 technology, research is needed to determine the pedagogical value of wikis in teaching and learning (Hazari et al., 2008). As pointed out by Broussard (2008), “It is quite possible that these applications will not only be incorporated into the existing curriculum, but, more significantly, they may indeed become the foundation of a new teaching and learning environment” (p. 904). While a review of the existing research discussing the use of wikis in education has revealed a number of studies addressing the potential advantages of using wikis in higher education, there has been limited comprehensive research specifically addressing the use of wikis in legal education. In addition, the limited number of articles that specifically addresses the use of wikis in legal education has thus far primarily been written by legal scholars as practical articles on the use of technology, rather than more rigorous empirical studies. However, these studies have discussed advantages of using Web 2.0 technologies like wikis in legal education and strongly support the use of such emerging technologies in legal education. The most comprehensive research to date dealing with the use of wikis has focused on the use of this collaborative tool in non-legal, higher education settings. However, these studies addressing the use of wikis in higher education support the use of wikis in other curriculums, to include the study of law. It is time for a more vigorous examination into how technology fits into the legal curriculum (Hirsh and Miller, 2004). However, potentially problematic is the manner in student assessment is conducted in law schools. Typically, law students receive only one grade in each course every semester, which is based upon one examination administered at the end of the semester. As a result, law students might potentially be less inclined to actively participate through the use of a wiki
when they understand that their sole grade is tied to their performance on the single examination. On the other hand, as most students in law schools tend to be highly motivated, it is conversely possible that they will be more inspired to use a wiki, despite the manner in which they are assessed.

1.3 Purpose of Study

The proliferation of Web 2.0 technologies is igniting new discussions of transforming teaching pedagogy (Broussard, 2008). As a result of the abundance of technology resources and relationships made easily accessible using the Internet, it is increasingly important for teachers to revisit their role as educators (New Media Consortium, 2012). This is true in every curriculum area and every level of instruction.

The purpose of this study is to explore the pedagogical value of wiki technology for improving outcomes through the utilization of wiki technology in legal education. The focus of this dissertation was to study the effectiveness of using wikis as a productivity tool in legal education to increase achievement, to increase collaboration, and to increase the use of technology in the effective completion of comprehensive group activities in a collaborative environment in legal education. As suggested by Hazari et al. (2008), pedagogical value can be defined as “the capacity of students to be engaged in learning by exhibiting interest in course assignments, retaining more material, participating actively, being motivated learners, and collaborating using constructivist learning principles” (p. 188).

1.4 Guiding Objectives and Research Questions

The primary objectives guiding this study include an exploration of the possible factors that contribute to a perceived pedagogical value of wiki technology in legal
education for law faculty and law students, as well as exploring the attitudes and perceptions of law faculty and law students regarding the effectiveness of using wikis as a productivity tool for improving collaboration and outcomes in comprehensive group activities in a collaborative environment in legal education.

Specific research questions designed to guide the research included the following:

1.) Do law students’ exhibit characteristics that demonstrate a preparedness and willingness to utilize technology in legal education?

2.) What are law students’ attitudes and perceptions as these relate to the use of a wiki as a productivity tool for student collaboration?

3.) Can the use of a wiki as a productivity tool for collaborative projects in legal education improve outcomes in comprehensive group activities in a collaborative environment in legal education?

4.) Do law students recognize a pedagogical value in using wikis as an instructional strategy in the area of legal education?

5.) Do law faculty recognize a pedagogical value in using wikis as an instructional strategy in the area of legal education?

6.) Can the use of wikis in legal education increase the use of technology in legal education and/or in the future practice of law?

7.) Is age associated with a perceived pedagogical value of technology in legal education?
8.) Are there possible barriers to the use of technology and wikis in the area of legal education and/or the practice of law?

In an attempt to answer the above guiding research questions, law students used a wiki for a comprehensive group activity in a collaborative environment in legal education and descriptive and qualitative data was collected and analyzed.

1.5 Significance of the Study

The significance of this study would include the unique contribution an empirical study focusing on the use of wiki technology in legal education could provide to the existing literature. As discussed above, there have been limited empirical studies regarding the use of wiki technology in legal studies, even though such technology has been studied in other areas of the curriculum and there has been increased utilization of wikis within the legal profession. However, nearly all of the researchers whose studies have been addressed herein believe that additional research is warranted to further explore how such technologies relate to student participation, attitudes, motivation, and outcomes. As a result, it would appear that there is a gap in the research regarding the use of wikis in this specific context. As such, the findings of this study could address this gap in the existing literature regarding the use of wikis in legal education. In addition, this study might provide valuable information regarding the use of wikis in education for other disciplines in that it could be replicated using content from other curricular areas not yet examined.

Another area of significance of this study would include the theoretical contribution it could make to the existing literature regarding the use of wikis in connection with various theories of learning, more specifically constructivism and
engagement theory. Constructivism involves an inquiry-based, discovery theory of learning in which learners construct their own personal interpretations of knowledge based upon their previous experiences and application of that knowledge in relevant context (Hazari, 2004). Because the use of wikis can promote inquiry-based, discovery learning, this study could provide valuable information regarding the use of wikis with specific regards to constructivism. Engagement theory, which is more specifically related to technology-based teaching and learning, focuses on human interaction in group activities, and provides a conceptual framework that encourages collaboration and engagement by using technology (Kearsley & Shneiderman, 1999). Because the use of wikis involve technology-based learning and encourages collaboration in a group’s activities, this study could provide valuable information regarding the use of wikis with specific regards to engagement theory.

A final area of significance of this study would include the broad, practical impact the findings might offer in regards to pedagogy and educational practices when using wiki technology. That is, providing educators with specific guidance in designing effective, well-structured wiki environments to better meet the learning characteristics of modern students, and guidance in providing both teachers and students with specific training in the use of this technology prior to its use in the educational setting. The vast majority of the studies dealing with the use of wikis thus far, including both undergraduate and graduate settings, have not provide a detailed foundation for teachers and students who were utilizing this technology. These studies are somewhat vague in describing exactly how this technology was utilized. Specifically, there is no mention of providing users with a solid foundation when using the wiki; for example, developing a
comprehensive design for the structure of the wiki when using this technology. Furthermore, these studies do not provide significant details regarding the training and resources that teachers and students were provided prior to and during the use of this technology. Providing teachers and students utilizing this technology with a sound design of the wiki, as well as training and easy-access to supportive resources, could result in wiki learning environments that support deeper conceptual understanding and increased collaboration, which could result in improved student participation, attitudes, motivation, and outcomes. As this study will utilize a well-structured, pre-established wiki design, specific training for both teachers and students prior to using the wiki, as well as easy access to supportive resources, this study could provide valuable information regarding a supportive approach to utilizing this technology in any educational setting.

1.6 Limitations of the Study

This study will be conducted in an advanced trial preparation program at a competitive, public law school in the southeast portion of the United States that offers legal coursework leading to a Juris Doctorate degree. Classes are generally small in size (often no more than 20-25 students per section), and there are only a limited number of sections offered each semester. This factor will limit the number of participants available to participate in the study. The low number of participants threatens the reliability of the study, and as such, the findings might not be generalizable to broader populations.

Further limitations of this study would include the fact that the study would involve using wikis in the limited context of legal studies, thus limiting its potential generalizability to non-legal contexts.
1.7 Definitions of Terms

The definitions of terms related to this study are as follows:

Web 2.0 – The term Web 2.0 is commonly associated with web applications which facilitate interactive information sharing, interoperability, user-centered design, and collaboration on the World Wide Web. A Web 2.0 site allows its users to interact with other users or to change website content, in contrast to non-interactive websites where users are limited to the passive viewing of information that is provided to them.

Wiki – A wiki is a website that uses wiki software, allowing the easy creation and editing of any number of interlinked Web pages, using a simplified markup language or a WYSIWYG text editor, within the browser. Wikis are often used to create collaborative websites, to power community websites, for personal note taking, in corporate intranets, and in knowledge management systems.

Blog – A blog, which is short for web log, is a type of website that includes content-related online entries, or posts, that tend to be written by a specific group of people who provide information and insight, such as technical experts, or people with unique viewpoints. Users scroll through the posts on a blog in chronological order in a manner similar to that of reading a diary or journal.

Podcast – A podcast, which is derived from the terms broadcast and iPod, is a type of website that includes a series of episodic digital media files, initially audio files, that users listen to by subscribing to and downloading or streaming online using a computer or mobile device through the process of web syndication.
Instant messaging – Instant messaging, or IM, is a type of online communication, or chat, which offers the synchronous, real-time transmission of text over the Internet.

RSS feeds – An RSS feed, which stands for Really Simple Syndication, is a type of online feed that allows users to subscribe to frequently updated Internet content, like news feeds, blog entries and podcast updates.

Digital storytelling – Digital storytelling is a type of online digital media presentation that allows ordinary Internet users to share aspects of their lives or present an idea over the Internet using various forms of media; to include digital photographs, paintings, audio, video, and animations; in a creative and engaging fashion.

Social bookmarking – Social bookmarking, or tagging, is an online service that allows users to add, annotate, edit, organize and share bookmarks to web pages and documents in a centralized fashion.
2.1 Introduction

As noted in the New Media Consortium’s 2012 Horizon Report, “Technology continues to profoundly affect the way we work, collaborate, communicate, and succeed” (p. 8). Like a complex puzzle, a comprehensive understanding of how computers and technology can best be utilized to most effectively influence teaching and learning continues to be pieced together, and is not without detractors. The history of the use of technology in education has been one of cycles of exaggerated promises, highly publicized starts with committed teachers, and creative excuses explaining why the promises of the technology went unfulfilled (Cuban, 1986; Venezky & Osin, 1991). However, determining how technology impacts schools, teachers, and students in facilitating learning has been a long and perplexing problem (Kerr, 2005), and new technologies are often hailed as the next best thing (Mishra, Koehler, & Kereluik, 2009). As a result, a consensus on the most effective use of educational technologies in academia has yet to be agreed upon. The enthusiasm for using technology in education would be more understandable if there was strong and conclusive evidence that the use of technology would consistently lead to improved achievement (Kerr, 2005).

One of the issues impacting the use of technology in education involves how its impact on teaching and learning is determined. In the past, many of the ideas about the usefulness of technology in education were grounded in assumptions about technology’s role in promoting programmed learning or motivation (Cuban, 1986). However, according to Kerr (2005), today’s ideas regarding the usefulness of technology in
education are linked to notions of transfer (e.g., real-world situations and problem solving, simulations, and active learning), remedial support (e.g., students working with patient, non-judgmental tutors), collaborative or team effort (e.g., working and learning in groups), and the identification and application of practical information (e.g., searching the Internet and evaluating materials located there). The use of the Internet, and wikis in particular, can sustain all of these areas. Wikis can support the notion of transfer, can provide remedial support, can encourage collaboration and team effort, and can support the identification and application of practical information.

As the focus of this study is exploring the effectiveness of using wikis as a pedagogical tool in legal education for increasing collaboration and interaction, for improving outcomes in the completion of comprehensive group activities in a collaborative environment in legal education, and for increasing the use of technology both in legal education and the practice of law, the research included in this literature review and discussed below includes research studies dealing with various theoretical foundations, the Internet, Web 2.0 technology, wikis, and the use of other technology in higher education and legal studies. This area of literature is included because it is directly relevant to this study and provides important information that helped guide this research. The method used in collecting the research in this literature review included the use of library resources in the form of electronic reserves and databases at Louisiana State University.

2.2 Theoretical Foundations

This research is based on five theories of learning: constructivism, engagement theory, communities of practice, socio-cultural or social constructivism, and situated
cognition. Each of these theories of learning emphasizes a deeper, more active approach to learning than the ubiquitous traditional approach to education which utilizes a transmission model of learning. According to the transmission model, student understanding comes from teaching through telling, explaining, or demonstrating (Masikunis, Panayiotidis, & Burke, 2009). Renshaw (1995) suggests that this transmission model promotes only a superficial, surface-level approach to learning rather than promoting deeper understanding. In addition, in a traditional approach, teachers assume an authoritarian role while students assume the role of passive learners. Shana (2009) suggests that traditional models of teaching and learning do not provide modern students with the quality education they need in an informational age because modern students need to develop technical competencies to successfully live, learn and work in a rapidly changing society. As such, a deeper, more active, authentic learning approach to instruction is appropriate.

2.2.1 Constructivism

The first theoretical foundation upon which this research is based is constructivism. Jean Piaget, the Swiss philosopher and psychologist, is widely credited as the father of constructivist theory (Allen, 2008). According to the constructivist theory of learning, individuals learn by constructing personal meaning and knowledge as a result of engaging in a range of activities that encourage them to generate internalized understandings and insights (Masikunis, et al., 2009). Constructivism promotes a deeper, higher-order approach to teaching and learning. By engaging students in activities that allow them to generate their own personal knowledge, teachers become facilitators of learning by creating a climate for learning and making resources available to the students,
who assume the role of active learner. Instead of being a sage on the stage, teachers act as a guide on the side (Duraghee, 1998). The use of wiki technology for educational purposes can support the components of constructivism, especially in the area of legal education when promoting an internalization of legal concepts and an understanding of how these concepts relate to the practice of law.

2.2.2 Engagement Theory

A second theoretical foundation upon which this research is based is engagement theory. Engagement theory emerged from Greg Kearsley and Ben Shneiderman’s experiences teaching in digital environments, is more specific to technology-based teaching and learning, and provides a conceptual framework that encourages collaboration and student engagement through the use of technology tools and electronic systems (Kearsley & Shneiderman, 1999). Engagement theory focuses on human interaction in group activities using a problem-based learning approach. According to Kearsley and Shneiderman, engagement theory has three components: relating, which emphasizes team efforts that involve communication, planning, management, and social skills; creating, which emphasizes learning as a creative, purposeful activity; and donating, which stresses the value of making a useful contribution while learning (Hazari & North, 2008). The use of wiki technology for educational purposes can support all three of these components of engagement theory, especially in the area of legal education when law students are engaged in authentic, real-world activities designed to help promote the development of actual skills that they will need to acquire for success in their future practice of law.
2.2.3 Communities of Practice

Communities of practice is a third theoretical foundation upon which this research is based. In 1991, Jean Lave and Etienne Wenger published *Situated Learning: Legitimate Peripheral Participation*, which offered an important theoretical perspective for research on workplace learning: what these authors call legitimate peripheral participation in communities of practice. According to Wagner (1998), as individuals participate in an enterprise within a social context, they form informal communities through which they participate. A community of practice can be any network of people who share a common interest in a specific area of knowledge or competence, and who are willing to work and learn together overtime to develop and share that knowledge (Moule, 2006). The source of coherence for these communities is mutual engagement, a joint enterprise, and a shared repertoire (Wenger, 1998). A successful community of practice encourages every member to take responsibility for information-sharing and problem-solving, and highly regards the contribution of each member (Yang, 2009). A community of practice can be conducted in-person at a central location or through an online environment. Web-based technology supports collaborative learning, both for individual knowledge construction and for group knowledge sharing (Liaw, Chen, & Huang, 2008). When paired with a community of practice, an online environment can work as a compliment to knowledge exchange (Sheehy, 2008). In addition to being used to develop knowledge, communities of practice are an ideal forum for sharing best practices (Wenger & Snyder, 2000). As such, communities of practice are often used as a means of developing professional expertise (Wesley and Buysse, 2001). The use of wiki technology for educational purposes, and especially in a legal setting when law students
are developing the knowledge or competence of a legal practitioner and when being used in an authentic fashion relating to the actual practice of law, can support the components of communities of practice.

### 2.2.4 Social Constructivism

A fourth theoretical foundation upon which this research is based is socio-cultural or social constructivism. Based upon Vygotsky’s work (1978), this theory of learning views the learner as being engaged in the process of entering the practices, values, and the ways of thinking and speaking of a particular community. According to the socio-cultural or social constructivist theory of learning, knowledge comes from engaging learners in the process of entering the practices, values, and ways of thinking and speaking of the practice world of the particular field (Masikunis, Panayiotidis, & Burke, 2009). Through social participation, students are guided to adopting the language, practices, forms of representation, and attitudes of a particular knowledge community. In this model of learning, teachers serve as the meddler in the middle (McWilliam, 2008) in that teachers serve as co-designers and co-editors as the teacher and students mutually collaborate in constructing social products. As wikis are currently being utilized by many practicing attorneys to support their participation in the legal community, a corresponding use of wiki technology in a legal education setting can support the components of socio-cultural or social constructivism by promoting in law students the adoption of the practices, forms, language, and ways of thinking of participants in the legal community.

### 2.2.5 Situated Cognition

A final theoretical foundation upon which this research is based is situated cognition, which is especially relevant when Web 2.0 technologies are utilized in specific
professional areas, like teaching, medicine, nursing, and law. Drawing from a variety of perspectives, situated cognition advocates that social and physical contexts are integral components of learning (Hur & Brush, 2009). To fully understand concepts, learners must use them in the social and physical contexts in which they are embedded (Brown, Collins, & Duguid, 1989). According to this theory, learning is more memorable and can be more easily transferred to other activities, when it is situated in a realistic context. As described by Hung and Der-Thang (2001), situated cognition implies that the learning activities and the environment are parts of a mutually constructed whole. The use of wiki technology for educational purposes in a legal setting can support the components of situated cognition, especially when used in an authentic, real-world manner associated with the practice of law.

2.3 Historical Perspective of Internet Technologies in Education

As mentioned above, the speed at which new technologies are developing continues to increase (Broussard, 2008). One area of rapidly changing technology is the Internet, which continues to introduce new and engaging technologies that not only increase its functionality but also the ability of users to interact and engage with one another. In an era of rapid technological change, a review of technology and its evolving role in education takes on even greater importance. A new emphasis in education is on active learning, which is a more student-centered approach to learning allowing students to take control of how they engage with a subject area’s content (New Media Consortium, 2012). The continued growth of dynamic and interactive web-based technologies that can be used to promote active learning is making the Internet an
increasingly important potential tool in education; one that is worthy of continued exploration and study.

2.3.1 The Internet: Web 1.0

Fundamentally, the Internet is nothing more than a large global network of many smaller computer networks. However, from its humble beginning as a means to connect the military with a small number of research institutions in the late 1960s, the Internet has grown into a strong and far-reaching information network that now connects computers virtually everywhere (Bitter & Pierson, 2002). The original design of the Internet, often referred to as Web 1.0, only allowed users to engage with the Internet in a non-interactive manner similar to a book, a movie, or a sound recording by reading, watching, and listening (Harris, 2009). This initial design of the Internet did not provide much opportunity for interaction among users with its limited read-only, view-only, listen-only format.

Beginning with its initial use in education, one of the most powerful features of the Internet in teaching and learning has been the ability to use it to engage learners in an interactive format (Hazari & Schnorr, 1999). One aspect of the Internet that is often overlooked is its capacity to create hypertext and hypermedia. While hypertext contains text hyperlinks that connect users to other documents on the Internet, hypermedia contains text, graphics, video, and sound hyperlinks that connect users to other documents on the Internet. Baggott, et al. (1999) contends that the Internet is one of the most significant advancements in the information revolution because it provides access to information in a variety of media. Hypertext and hypermedia allow learners to access knowledge in a non-liner manner as they branch off and investigate subjects of interest,
and engage in discovery learning. In addition, learners can access information in numerous formats, thus supporting various learning styles. Many educational institutions today use the Internet to deliver content to students and to support the learning process (Shana, 2009). When effectively utilized, the Internet can virtually open the walls of any classroom, which has the potential to transform the nature of education in numerous curricular areas. In fact, the Internet’s potential as educational tool is often the primary reason why modern families acquire Internet access (Pew Internet & American Life Project, 2001). However, the use of the Internet as an educational tool is still evolving as an increasing number of newer and more dynamic technologies are allowing for much greater interactivity among users than when it was first introduced. Some of the new and emerging Internet technologies have the potential to create remarkably engaging learning environments (Saeed, Yang, & Sinnappan, 2009).

### 2.3.2 The Internet: Web 2.0

Web 2.0 is an encompassing term used to describe the next generation of communication and organizational tools on the Internet (Broussard, 2008), and includes blogs, wikis, podcasts, instant messaging, RSS feeds, digital storytelling, and social bookmarking (Parameswaran & Whinston, 2007). Web 2.0 technologies have also led to the development and evolution of web-based communities through the use of online services such as social-networking sites, video sharing sites, and folksonomies. These types of Web 2.0 technologies differ from the first generation of the World Wide Web in that they are user-driven platforms that are freely available and invite greater public participation through open access and decentralized methods of Internet publishing (Cobus, 2009). As suggested by Hazari, North, and Moreland (2008), Web 2.0
technologies can be considered to be an extension of the previous generation of Internet technologies that only presented information to users and did not allow for a great degree of interaction. Tim O’Reilly (2005) coined the term Web 2.0 to describe changes he noted in the World Wide Web in the form of loosely related web-based technologies that share a user-focused approach to their design and functionality, and have a strong partiality towards user created content, syndication, and open collaboration between members. As a result, the term Web 2.0 is associated with Internet applications that employ a user-centered design which permits interoperability between users, and facilitates interactive information sharing and collaboration on the Internet. In contrast to non-interactive Web 1.0 websites where users are limited to the passive accessing of information provided to them, Web 2.0 websites allow users to interact with other users and freely contribute to the website’s content without a high degree of technological expertise. As a result, Web 2.0 is often referred to as the read/write web.

Web 2.0 technologies have changed the way users interact with the Internet (Hazari, North, & Moreland, 2008). As alluded to above, while traditional web pages are considered “read only” because viewer cannot alter the web page’s content, Web 2.0 technology allows users to create, modify, and contribute to content on a web page. As such, Web 2.0 applications facilitate interaction and collaboration among users, and have changed Internet users from passive readers of provided content to active writers of co-created, collaborative content. This new generation of Internet technologies encourages a participatory approach (Hazari et al., 2008), and is predicated on users’ modification of, contribution to, and enhancement of shared information (Broussard, 2008). Such technologies can be used to enrich student learning, to support different learning styles,
and to create rich, interactive learning environments. As suggested by Black (2006), the continued development of new technologies for communication on the Internet is allowing users to engage and interact with one another in new and innovative ways.

The use of Web 2.0 technologies in education is increasing (Hazari et al., 2008), and many educational institutions today use web-based environments to deliver content to students and to support the learning process (Shana, 2009). The proliferation of Web 2.0 technologies is igniting new discussions of transforming teaching pedagogy (Broussard, 2008). Hazari et al. (2008) suggest that as these technologies continue to develop as a commonly used tool for global communication and productivity, such technologies must be utilized by educators in the delivery of a curriculum’s content. Using such technologies, educators have the potential to create engaging learning environments (Saeed, Yang, & Sinnappan, 2009). In addition to increasing the functionality of the Internet, Web 2.0 technologies are also designed to enhance creativity, information sharing, and collaboration. With a greater understanding of how to best utilize these technologies, the ability to use the Internet to share information and work collaboratively has the potential to transform the way teachers teach and students learn, in all areas of academic study.

In addition to undergraduate institutions, the use of Web 2.0 technology is also being utilized in educational institutions that provide professional training. For example, Lemley and Burnham (2009) analyzed the extent to which Web 2.0 technologies are being used by educators in the curricula of medical and nursing schools because the increased use of Web 2.0 tools in the curricula of medical and nursing schools creates exciting opportunities for increased collaboration. Using a survey and descriptive
analysis, the authors found that the most common Web 2.0 tools used in the curricula of both medical and nursing schools include blogs, wikis, videocasts, and podcasts. Medical and nursing schools made the greatest use of Web 2.0 tools in campus-based courses and hybrid courses. Based on their findings, the researchers determined that Web 2.0 tools are slowly being introduced into the curricula of medical and nursing schools for a variety of uses. Furthermore, as a result of the growing popularity of Web 2.0 tools in society, Lemley and Burnham also found that medical students and practitioners both desired more training to become proficient users of Web 2.0 technologies. Of the various forms of Web 2.0 technologies being used in education, two of the more common Web 2.0 technologies being utilized are blogs and wikis.

### 2.3.2.1 Blogs

The term blog is short for web log. While blogs are a type of Web 2.0 technology, blogs are typically content-related. Blog posts tend to be written by a specific group of people who provide information and insight, such as technical experts, or people with unique viewpoints or writing styles. People scroll through the posts on a blog in chronological order, in a fashion similar to that of reading a diary or journal.

Churchill (2009) explored the use blogs with a class of post-graduate students in an information technology program with a focus on discovering the ways a blog environment can supplement classroom teaching and lead to improved learning experiences. The researcher collected data through observations, analysis of blog activities, artifacts, continuous teacher-reflection, interviews with selected students, and a questionnaire. The author found that the questionnaire suggests that the students agreed that blogging facilitated and contributed to their learning, and due to the use of blogs, that
the facilitator appeared to be more involved in their learning. In addition, the students agreed that the facilitator’s blogging activity encouraged them to blog. The author also found that the aspects of blogging that contributed most to the students’ learning were accessing and reading blogs of others, both those of other students and the facilitator; receiving comments; previewing completed tasks of students; and reading personal feedback. The interviews indicated that what students liked most about blogging was viewing the work of others and receiving comments on their work. Finally, the researcher found that assessment was an important factor in motivating the students to engage in the blogging component of the course. In addition, while students indicated their willingness to blog in the future, if required to do so by a facilitator, they appeared less willing to continue blogging on their own to support their learning without being required to do so. However, based on these findings, the author suggests that blogs can be effective and useful activities for learning. In addition, by utilizing blogs, a teacher can create an environment that helps students feel that they are important parts of the classroom community, and that their needs and opinions are recognized and addressed. Finally, in order to maximize opportunities, all of these aspects of a blog can be expanded through other Web 2.0 applications, like wikis.

Yang (2009) examined the use of blogs by English as a Foreign Language (EFL) student teachers in two teacher training programs at two science and technology institutions as a reflective platform in their training processes. The research questions guiding this study included what types of reflection were involved in student learners’ reflection, what were the teacher trainers’ roles in the process of blogging, and how can a blog promote critical reflection and a community of practice. The author analyzed the
participants’ postings on the blog, surveys of the participants’ reflective experiences using the blogs as reflection tools, and the participants’ group reflective dialogues recorded by the instructors in class meetings over the implementation of blogs during the course. The researcher found that student teachers actively discussed teaching theories and their implications through blogs. All of the blogs of the participants were reflective, and some critically reflected on their thoughts and made significant comments. In addition, the researcher found that instructors would challenge student teachers’ thinking by posting questions and asking for further reflection in order to raise participants’ critical reflection. A majority of students reported that due to such challenges by the instructors, their thinking went deeper and became more critical. Furthermore, the participants considered technology a useful platform for reflecting and communicating with each other. Finally, the researchers found that blogging provided for more time for the participants to reflect and discuss course content, which lead to critical reflection. In addition, a community of practice is driven by the process of stepping back, reflecting, and analyzing. Furthermore, when using blogs as a platform for reflection, the authors found that participants were afforded more opportunities to make comments and challenge each other’s viewpoints, and they could talk about or express ideas that had been left out in the traditional classroom. This research study is pertinent in that it identifies how a wiki could be structured and utilized to support collaborative learning, as well as many positive student perceptions regarding interactions and collaboration using Web 2.0 technologies.

While blogs have been successfully utilized in education and have been found to make significant, positive contributions to the learning process, blogs have limitations.
First and foremost, the format is limited; the postings on a blog appear as an online journal with new entries appearing in chronological order. In addition, once a posting has been made, it can only be edited by the original author of the post, and often only within a limited amount of time. Users of a blog cannot modify the postings of others on the blog; they can only make comments as a separate post beneath another user’s posting. As such, while all contributions to the blog can be viewed by all users, the input and modification of content on the blog is limited to a single person. Furthermore, the postings on a blog can become irrelevant or outdated over time. However, while wikis provide the same advantages as a blog, wikis are much more dynamic and have numerous advantages over blogs.

2.3.2.2 Wikis

Wikis are a type of Web 2.0 application that allows for increased participation and collaboration (Knobel & Lankshear, 2006). Unlike a blog, a wiki user with proper access can modify any or all of the content posted by another user on the wiki at any time. In addition, wikis offers a much more dynamic format. Created by Ward Cunningham in 1994 and named after the shuttle at the Honolulu Airport in Hawaii, wikis are a type of web application that makes it easy for groups of people to work together in virtual environments (Chawner & Lewis, 2004). A wiki can be defined as a collection of web pages designed to enable anyone who has access to contribute or modify its content using a simplified markup language. According to Treleaven and Cecez-Kecmanovic (2001), wikis can be used to support the learning process; to extend the curriculum; to stimulate motivation and self-esteem; to allow students to work together, achieve shared understanding, and co-create knowledge; to allow students to complete tasks outside of
class; to support the development of life-long learning capabilities; and to prepares
students for the future. Wikis support collaborative activities by providing a format for
the submission of contributions, a way to organize and update the website, and automatic
maintenance of the links among pages and to external websites without the necessity of
understanding or developing sophisticated Web-building skills (Clyde, 2005).

Increasingly, wiki applications are employing a What You See Is What You Get
(WYSIWYG) technology, which means the interface looks and behaves very much like
common word processing applications, making it exceptionally easy to use (Fitch, 2007).

Higdon and Topaz (2009) analyzed the use of wikis and blogs to support a
teaching method using these Web 2.0 tools to gather student responses to questions on
pre-class reading assignments for undergraduate students in a numerical analysis course
taught during two different eleven-week terms. Because the technological requirements
of Web-based teaching methods may prevent some instructors from effectively
implementing such methods, this article also analyzed the technological requirements of
wikis and blogs, and the content-specific questions that prevent some instructors from
using them. The authors used grades as a quantitative measure, and student responses
and observations as a qualitative measure. In analyzing the data, the authors found that
the use of wikis and blogs in this context helped to foster deep, conceptual understanding
of course material while also helping to create learning environments that align with
Bransford, et al’s (2000) four centrisms of constructivists learning environments: learner-
centered, knowledge-centered, assessment-centered, and community-centered. The
authors also found that the use of Web 2.0 technologies like wikis could be used in a
wide range of disciplines, with little technological overhead and minimal instructor
workload implications. In addition, the authors achieved all of their stated instructional goals, which included fostering mastery-goal orientation among students by focusing on the underlying skills, principles, and strategies needed to complete a task or perform a function, which promotes a community-centered environment; promoting meta-cognitive reflection among students, which supports a knowledge-centered environment; promoting the active transfer of course concepts, which also supports a knowledge-centered environment; responding to individual differences among learners, a central dimension of a learner-centered environment; and increasing the amount of effortful time that students spend working with the material, providing increased opportunities for feedback and more time to learn, which is central to a productive assessment-centered environment. However, the authors also found that much depends on what instructors are willing to do to foster this type of learning. As such, the authors suggest that future research should provide more information about the degree of success of such an approach, and suggest further adjustments to better meet the learning needs of students.

Matthew, Felvegi, and Callaway (2009) explored how contributing to a class wiki affected the learning of pre-service teachers, both undergraduates and graduates, enrolled in three language arts methods classes over two semesters with a focus on how contributing to a class wiki affected students’ learning of the course content, what were students’ perceptions of contributing to a class wiki, and what technology concerns arose when using a wiki. Using a case study methodology, data collection sources included online observations, student reflections before and after the activity, e-mail correspondence, interview transcripts, and researcher notes. After analyzing the data, the authors found a number of benefits from using a wiki. Regarding how contributing to a
class wiki affected student learning, the authors found that using a wiki led to a deeper understanding of the course content, enhanced retention of the material, students building on each other’s work, more careful reading of the course textbooks, and reinforcement of classroom activities and extended classroom discussions. In addition, the use of a wiki allowed students to make increased connections between courses in their degree program, professional development sessions, tutoring sessions, outside readings, and Internet research. Regarding students’ perceptions to contributing to a class wiki, the authors discovered that students found wiki technology personally useful, students exhibited increased ownership of their learning and efforts, and students had concrete ideas for future uses of wiki technologies. Finally, regarding the technical concerns that arose when using a wiki, the authors found that while advanced technology skills were not required, some students’ technology concerns revealed that they lacked technology skills. As such, the authors provided some recommendations for improving the use of a classroom wiki. These included assigning roles, assigning different levels of access to the wiki, and teaching students how to properly post with references.

Hazari, North, and Moreland (2008) investigated the pedagogical value of Wiki technology by identifying its relationship with factors that may have the potential for improving learner outcomes. The participants of this study were students in an undergraduate university business course. The authors developed and tested a survey to measure attitudes towards learning and pedagogy, motivation, group interaction, and the use of technology. These four hypotheses were tested to determine if factors such as age, gender, work experience, and web-development experience influenced students’ satisfaction with the use of wiki technology. After analyzing the data, the authors found
that wikis can promote collaboration in group assignments, can encourage negotiation, and can make students comfortable with this new generation of technology tools. In addition, the authors found that by using wikis students can build collectively on each other’s knowledge by forming participatory communities. Because the goal of wiki technology is to promote student engagement, the authors also found that educators should use participatory approaches in which users become active contributors and producers of content. While this study focused on the use of wiki technology in a business school, the authors believe that additional research is needed to explore how Web 2.0 technologies relate to student learning, attitudes, motivation, and learner outcomes. The authors also recommend studying wikis in different curricula and disciplines.

While Web 2.0 technologies like blogs and wikis have been studied in various higher education curriculum areas and these studies have identified a number of significant benefits to teaching and learning, the use of such Web 2.0 technologies in legal education has not been as extensively studied.

2.4 Review of Conceptual Research in Legal Education

As mentioned above, there can be no doubt that information technology, and the Internet in particular, has profoundly changed American society (Hirsh and Miller, 2004). In particular, Web 2.0 technologies have led to the development and continued evolution of numerous web-based communities. The proliferation of new communication technologies on the Internet allows individuals to engage and interact with one another in novel and innovative ways (Black, 2006). The growth of emerging web-based technologies is making the Internet an even more important tool in education. Emerging
web-based technologies, to include wikis, are transforming the Internet into an interactive space where control of web-based content has been decentralized allowing everyone to collaborate, create, publish, subscribe, and share information (Asmus, Bonner, Esterhay, Lechner, & Rentfrow, 2005). In academic settings, students and teachers alike are achieving many benefits from these interactions (Baird & Fisher, 2005). In addition, these technologies allow for increased collaboration and increased communication. Furthermore, in his book entitled *Best Practices for Legal Education*, Stuckey (2007) suggests that technologies like wikis can be used with law students to encourage reflection on the learning process, to create cooperative learning projects, to increase student opportunities for practice and feedback, and to encourage student adoption of active learning practices, thereby allowing law professors to implement best practices in legal education. However, as mentioned previously, while the development of Internet-based learning tools stands to have a profound impact on legal education and practice (Broussard, 2008), legal educators have been slow to embrace such technology (Saxer, 1999). Despite the fact that the practice of law has been revolutionized by technology, legal education in the United States has been fundamentally unchanged for the past 120 years (Hirsh and Miller, 2004). This actuality is reflected in the research dealing with the use of Web 2.0 technology, and specifically wikis, in legal education. While there have been some research in this area, the vast majority of it has been limited to practitioner articles. Thus far, there has been limited rigorous empirical research in this area.

### 2.5 Historical Perspective of Technology in Legal Education

Relying upon a literature review of legal research, Saxer (2000) provides a comprehensive, historical survey of technologies in legal education, as well as new and
potential technologies. These technologies include computer-assisted legal research, through the powerful research tools LEXIS and WESTLAW; computer-assisted legal instruction, which has not been established as effectively to meet legal educational goals; word processing, which has proven to be a valuable tool; grading technology, which has greatly reduce professors’ burdens associated with grading; multimedia, which has thus far received mixed reactions; electronic mail, which was not initially accepted but has become more common place; discussion lists, which have proven to be an excellent yet underutilized tool; the Internet, which legal educators have been slow to embrace despite its potential; distance learning, which has yet to be fully embraced; and new developing technologies like artificial intelligence, which has not yet proven successful. While technology has continued to develop since this study was conducted, Saxer also points out that increasingly technology is being used in the legal profession. More recent advances in legal technology include networking software, electronic discovery software, database processing software, case mapping and note taking software, time mapping software, image and graphic presentation software, trial presentation software, and case summation software. According to PBworks (2011), wikis are currently being utilized at 24 of the top 25 law firms in America to improve management and coordination of cases through shared workspaces; to accelerate transactions with a secure, rapidly deployed, universally accessible, and secure and auditable negotiation workspace; to support practice management by leveraging existing knowledge and maximizing the utility of a law firm’s time with a legal knowledgebase; to document and share organizational knowhow with easy-to-use workspaces; and to increase client satisfaction and retention by providing a secure workspace for each client matter. As such, the use of wikis as part
of a student’s legal education can help prepare law students for their future career in the law. In addition, as suggested above, digital media literacy continues to rise in importance as a key skill in every discipline and profession (New Media Consortium, 2012). As a result, the use of wikis in a law school setting can both enhance students’ legal education and help prepare students for their future career as a legal practitioner. Furthermore, law faculty can use wikis to collaborate on projects like editing a textbook, preparing a journal article, assembling a syllabus or reading list, or soliciting ongoing input for research or projects where community input can help inform and direct subsequent investigation (PBworks, 2011). However, as mentioned above, despite the availability of technology and the fact that the practice of law has been revolutionized by information technology, to include wikis, legal education in the United States has been fundamentally unchanged. As such, in addition to using technology in the classroom to enhance student outcomes and support curriculum requirements, legal educators must also train students in how to use technology to enhance their future practice of law (Saxer, 2000).

Hirsh and Miller (2004), studied law school education in the 21st century and also advocate for adding information technology instruction into the law curriculum. In reviewing the current use of technology in American law schools, these authors found that there has been little effort to contextualize the importance of technology for law students, even though state-of-the-art technologies are now commonplace in law offices, most federal courthouses, and some state courtrooms. As such, these authors firmly believe that there needs to be a more vigorous examination regarding how technology fits into the legal curriculum.
2.5.1 Web 2.0 Technology in the Area of Law

In a practitioner’s law review article, Broussard (2008) addresses the use of technology in the legal profession and in legal studies with a specific focus on Web 2.0 technologies. This author identified four Web 2.0 technologies that will have the most significant impact on teaching and practicing law, which include wikis, blogging, research tagging tools, and the ability to access information and produce documents collaboratively. Broussard believes that the proliferation of Web 2.0 technologies is creating new possibilities for transforming teaching pedagogy to meet the needs of a generation of digital learners. In addition, this research study also provides valuable survey statistics regarding the technological characteristics and expectations of modern law students, which also support the use of technology in legal education. As such, the author believes that legal educators must be willing to accept developing effective teaching styles that incorporate and integrate new technological and communication tools, like wikis, into the legal curriculum.

In another practitioner’s article, Black (2006) studied the potential uses, benefits, and educational opportunities inherent in the use of blogs in the study of law and identified a number of educational benefits, many of which also apply to the use of wikis. These include benefits to student communication, to student discussions, to shared knowledge, to increased ownership in learning, to student-to-student interactions, and increased collaboration. This author found that the high level of information technology literacy demonstrated among law students and their ability to master technology relatively quickly suggests that law students would be willing and able to engage with other new communication technologies, like wikis.
In a case study, Thomson (2010) analyzed the use of wikis in an Administrative Law class as a means to increase engagement and involved the students in the class more than had they would if they were limited to classroom lectures. This author found that opportunities for collaborative work abound in law school courses and that wikis could be used to support collaborative learning. While a few students resisted the use of this technology, the vast majority of students was willing to accept it as a viable learning tool and willingly participated. Using wiki technology, students completed two collaborative group assignments: an outline of the administrative law class materials worth 10% of the students overall grade and a collection of information about 11 different federal agencies that was presented to the class and was worth 20% of the students overall grade. The author found that the final products were of excellent quality. Not only did the students enjoy using wikis, the students’ work went above and beyond the instructor’s expectations. In addition, the students included numerous links to information outside the wiki. Furthermore, while the instructor found that wiki technology skills were not overly difficult to develop, using the technology in a legal context was challenging because it was a new technology, one that law students were not familiar with in supporting their learning. Based on the result of this study, the author recommended the continued use of a wiki in legal education for improving participation, collaboration, and student achievement.

2.6 Review of Empirical Research in Legal Education

Relying upon personal interviews and surveys, Costa and Bondia (2007) analyzed the use of wikis as a tool to produce a collaborative environment for the completion of assignments in two law courses. The participants in this study were students in an
environmental law course, and a consumer and tourism law course. To identify the strong and weak points of these uses of wikis and to compare them with collaborative assignments that have traditionally been used in law-related qualifications, the authors analyzed both how teaching is planned to ensure that objectives are fulfilled, and how both teachers and students assess the particular academic activity. While not all of the results were as satisfactory as anticipated, the authors were able to draws some key conclusions. In analyzing the results, the authors suggest some valuable recommendations that can improve upon the use of wikis as a tool for drafting collaborative documents. These suggestions include training in the functioning and use of wikis for both teachers and students in order to make the best use of the features of wikis prior to being used; the need to establish clear and simple ground rules; the need to understand that wikis are compatible with other tools (like discussion lists, email, or mobile telephones), which are also recommended for overcoming psychological barriers; the need to be cognizant of problems that might arise and detract from the user-friendly environment, which could result in technological stress for students and lead to a lack of confidence in wikis; the need to motivate students to use the wiki as a means of producing collaborative work; the need to monitor the participation of each student to detect any possible errors as soon as possible in order to take swift corrective measures; the need to understand and monitor roles during the process; the need to actively monitor the continual changes that occur in the drafting of documents; and the need to understand that students might not be convinced that the use of wikis can produce results that are superior in qualitative terms to the ones that would have been achieved by employing traditional methodologies. While the law students participating in the study used a wiki in a somewhat limited context, the results of this study identify important concerns that should be considered when using a wiki in any educational environment.
2.7 Barriers to Technology in Education

As the previous research dealing with the use of technology in the area of legal education indicates a seeming reluctance for utilizing educational technology, it is appropriate to examine possible barriers that might explain why the potential benefits of technology are being overlooked in the area of legal education. While utilizing different approaches and techniques, previous research has identified a significant number of potential barriers to technology integration in education. According to Schoepp (2005), potential barriers to technology integration can include a lack of time, technical problems, negative attitudes towards technology, inadequate funding, a lack of teacher confidence, a resistance to change, ineffective administrative support, a lack of computer skills, a poor fit of technology with the curriculum, a lack of incentives, scheduling difficulties, poor training and support opportunities, and a lack of vision as to how to integrate the technology. Numerous researchers support these potential barriers while at the same time some point out additional possible barriers. For example, Harris and Sullivan (2000) expand upon resistance to change as a barrier by suggesting that the integration of educational technology actually results in two types of change: teachers must replace their familiar teaching tools with vastly different classroom tools and teachers must change the way they teach, to include their role as teacher and the physical arrangement of the classroom. Dias (1999) also supports the notion of a resistance to change barrier calling it an extremely important yet frequently overlooked barrier. In addition to recognizing a resistance barrier, other researchers have identified teacher passivity, accepted school cultures, and/or accepted traditions of teaching (Beacham, 1994; Cafolla & Knee, 1995; Cohen, 1987; Cuban, 1986; Ertmer, 1999; Hope, 1997; Lumley & Bailey,
1993) as potential barriers. In addition to recognizing a lack of time barrier, other researchers have expanded upon this idea by identifying the time required for planning, for organizing and preparing instructional materials, for personal exploration, for online access, and/or for skill development (Duffield, 1997; Stronge, 2007; Hope, 1997; Lan, 2000; Leggett & Persichitte, 1998; Sheingold & Hadley, 1990) as potential barriers. In addition to recognizing an unwillingness to integrate educational technology, other researchers have suggested that this unwillingness could be the result of anxiety, a lack of interest, and/or a lack of motivation (Duhaney, 2001). However, according to Becker (1994), barriers exist even among exemplary users of technology. Another barrier pointed out in the research includes a lack of access to the right type of technology in the right location (Fabry & Higgs, 1997).

In addition to the research that has identified numerous barriers potentially affecting technology integration, additional research has categorized the various barriers. According to Ertmer (1999), barriers can occur because of a variety of issues to include personal concerns, technical and organizational support issues, and pedagogical beliefs; and that technology integration barriers can be categorized as extrinsic first-order barriers (access, time, support, resources, and training) and intrinsic second-order barriers (attitudes, beliefs, practices, and resistance). While first-order barriers are external to the teacher, second-order barriers are internal to teachers, pose a greater challenge, and can include their beliefs about how students learn and teachers’ perceived pedagogical value of technology (Ertmer, et al., 2012). According to Bitner and Bitner (2002), teachers’ attitudes regarding the value of technology integration are important. Hughes (2005) suggests further that the ability to develop an accepted pedagogy that is supported by
technology lies in the teacher’s interpretation of the technology’s value. Furthermore, this research indicates that if the value of educational technology can be demonstrated in advance, teacher might have better attitudes about its use. Additionally, while teachers may indicate that they recognize a value in educational technology, they may not able to make a connection regarding how it fits into their classroom instruction (Franklin, et al., 2002). According to Eastin and LaRose (2000), prior experience is necessary before teachers feel comfortable about integrating technology into their instruction. It is reasonably possible that such prior experience might equally benefit students as well.

2.8 Summary and Implications for Study

While a review of the research discussing wikis in education has revealed studies regarding the potential advantages of using wikis in higher education, there has been limited comprehensive research specifically addressing the use of wikis in legal education. The overwhelming majority of research that specifically addresses the use of wikis in legal education has thus far been written by legal scholars as practical journal articles. However, all of these studies have discussed the advantages of using Web 2.0 technologies like wikis in legal education and strongly support the use of such emerging technologies legal education. The vast majority of the authors addressed above strongly advocate that further research is needed to explore how such technologies specifically relate to student learning, attitudes, motivation, and outcomes. In addition to this common trend, a number of these studies suggest that the use of wikis could not only potentially transform legal teaching pedagogy to meet the needs of a generation of digital learners, but change the pedagogic perspective in legal education from one that is teacher-centered to one that is student-centered. Furthermore, many of the researchers
that have been addressed above believe that modern technologies need to be included in legal education because state-of-the-art technologies are now commonplace in law offices, most federal courthouses, and some state courtrooms. As such, the failure to include advanced technologies in legal education can result in a failure to adequately prepare future legal practitioners. An inclusion of modern technologies like wikis will help to better prepare future lawyers for a practice in which the use of technology is commonplace. In addition, it is also possible that the use of technologies such as wikis will provide legal students with improved communication, improved student discussions, increased shared knowledge, increased ownership of learning, improved student-to-student interactions, and increased collaboration; much more so than what is provide in using traditional methods in legal education.
CHAPTER THREE: RESEARCH METHODOLOGY

This chapter begins with an outline of the rationale for utilizing an exploratory case study as the methodology of choice in this study. This is then followed by a discussion of the research objectives and the research questions that guided the study. Finally, this chapter concludes with a discussion of the research site, the participants, the instrument, the procedures, and the analysis plan, to include data collection and analysis procedures.

3.1 Introduction

As illustrated by the literature review above, there has been a limited amount of empirical research specifically addressing the use of technology in general in both legal education and in the practice of law, and more specifically empirical research addressing the use of wiki technology as a collaborative educational technology in legal education. In addition, there has been limited research on wiki technology in which the wiki is being used in an authentic context, one that makes a connection between the use of a wiki in legal education and the use of a wiki in a manner in which it would be authentically utilized in the practice of law. As a result, the primary focus of this study includes an exploration of possible factors that contribute to a perceived pedagogical value of wiki technology in legal education for law faculty and law students, as well as exploring the attitudes and perceptions of law faculty and law students regarding the effectiveness of using a wiki as a productivity tool for improving collaboration and outcomes in comprehensive authentic group activities in a collaborative setting in legal education. An analysis of these questions can help legal educators design effective wiki learning
environments that promote student achievement through cooperative learning among law students as a component of their legal education. Therefore, this study explores the general perceptions of law students regarding the use of technology in legal education, their general understanding of wiki technology and its ease of use, their perceptions regarding the value of wiki technology in promoting learning, their perceptions regarding the value of wiki technology in promoting collaboration, their planned future use of wiki technology in their future practice of law, as well as exploring the amount and type of interactions and collaboration that takes place among law students while utilizing wiki technology in completing an authentic activity in legal education. Furthermore, this study explores the general perceptions of law faculty regarding the use of technology in legal education, perceptions regarding the use of wiki technology as an instructional technology in legal education, and any possible planned future use of wiki technology in legal education. This research focus will be addressed through the use of wiki technology by upper-level law school students in completing an authentic collaborative assignment in an upper-level trial advocacy program offered at a competitive, public law school in the southern region of the United States. The following sections in this chapter discuss the research design being employed in the study, the variables being addressed in the study, the measures being analyzed in the study, the participants in the study, the procedures being followed in the study, and the analysis plan of the study.

3.2 Research Design

The research approach selected for use in this study is a qualitative methodology. As suggested by Denzin and Lincoln (2000), qualitative research methods are appropriate for studying subjects in their natural settings and attempting to make sense of, or
interpret, observed phenomenon as it relates to the meanings that people connect to them. Furthermore, these types of judgments are not established by means of statistical procedures or quantification (Strauss & Corbin, 1990). According to Daly (2007), qualitative research embraces the idea that reality is subjective and participatory. Unlike other methods of inquiry, qualitative research attempts to explore the why and how of a particular area of interest. According to Creswell (2009), qualitative research includes studies in natural settings, of holistic and emergent designs, for interpretive inquiries which rely on multiple sources of data, where the researcher is a key instrument for inductive data analysis, and when the emphasis is on participant interpretations. As addressed above, this study involves law students and legal practitioners using a wiki in a natural setting of law while preparing for a trial, the authentic design of the wiki and the manner of its use included a holistic and emergent approach, and an emphasis was placed on trying to interpret the attitudes and perceptions of those using the wiki through an analysis of multiple sources of data. One approach in qualitative research is the case study, which will be utilized in this research. Case studies involve studying an issue by exploring it through one or more cases within a bounded system (Creswell, 2007). According to Yin (2009), a case study is an empirical inquiry that investigates a phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not distinctly obvious. Yin suggests further that a case study is appropriate for situations where there are more variables of interest than data points and when there are multiple sources of evidence, which is the situation in this research study.
In this study, demographic data was collected using an initial online survey, which was based upon the research questions and relevant literature identified in the literature review. This survey also collected data relating to law students’ general understanding of wiki technology and its ease of use, their perceptions regarding the value of wiki technology in promoting learning, their perceptions regarding the value of wiki technology in promoting collaboration, and their planned future use of wiki technology in their future practice of law.

Additional data was collected through direct observations of the amount of interactions and collaboration that took place among the law students while utilizing the wiki, as well as the type of interactions and collaboration that took place among the law students while utilizing the wiki. To identify the amount of student interactions and collaboration that occurred while using the wiki, close and frequent observations of the wiki were conducted, to include a utilization of the history feature provided on wikis created through PBworks. The wiki was actively monitored on a daily basis and a detailed frequency count was developed regarding the number of changes, or edits, that occurred on the wiki. In addition, a detailed frequency count was developed regarding the number of visits to the wiki and the number of pages each wiki user visited, using a visit counter on the FrontPage of each wiki and the user page count feature provided on wikis created through PBworks. To identify the type of student interaction and collaboration that occurred while using the wiki, close and frequent observations of the wiki were again utilized. The wiki was monitored on a daily basis and a detailed frequency count was developed regarding not only the number of edits that occurred on the wiki, but also recording the type of each change. A detailed record of the number of
continual changes that occur on the wiki, the number of visits, the user page counts, and the type of changes was maintained in a Microsoft Excel spreadsheet. This method was utilized because it is an effective way to systematically record the amount and type of all student activity that occurred while using the wiki.

Additional qualitative data was collected through a number of participant interviews using interview protocols based upon the research questions, the results of the initial online survey, and relevant literature identified in the literature review. An interview with the law faculty member was conducted after the students had used the wiki in an attempt to identify the perceptions of law faculty regarding the use of technology in general in legal education, the perceived pedagogical value of using wikis as an instructional strategy, the quality of student collaboration that occurred while the students were using the wiki, and the instructors planned future use of wiki technology in legal education. In addition, an interview with the legal practitioner serving as an attorney-coach was conducted after the group had used the wiki. These interviews are important because law faculty and legal practitioners may have different perspectives regarding the students’ use of the wiki and this method will be an effective way to systematically record their perspectives. Additional qualitative data was also collected through a number of follow-up interviews with law students using typical case sampling after the wiki had been used. These interviews were conducted in an attempt to triangulate the data obtained through other sources, and thereby increase the credibility and validity of the results. All of these interviews were conducted at the end of the trial program after the wiki had been used. Furthermore, all interviews were recorded, transcribed, and repeatedly analyzed for emergent themes.
3.3 Primary Purpose, Research Objectives, and Research Questions

As discussed above, the primary purpose of this study is to explore possible factors that contribute to the perceived pedagogical value of wiki technology in legal education for law faculty and law students, as well as exploring the attitudes and perceptions of law faculty and law students regarding the effectiveness of using wikis as a productivity tool for improving collaboration and outcomes in comprehensive group activities in a collaborative environment in legal education.

3.3.1 Specific Research Objectives

In an attempt to address the primary purpose, the following specific objectives were formulated to guide the research study:

1. Describe upper-level law students (2\textsuperscript{nd} or 3\textsuperscript{rd} year) in a competitive public law school in the southern region of the United States regarding demographic characteristics to include gender, age, years of computer experience, years of work experience, experience with Webpage design, willingness to adopt new technology, and perceptions on the use of a wiki.

2. Explore the attitudes and perceptions of law students in a competitive public law school in the southern region of the United States regarding the use of a wiki as a productivity tool for law student collaboration in the area of legal education.

3. Explore the attitudes and perceptions of law students and law faculty in a competitive public law school in the southern region of the United States regarding the use of a wiki as a productivity tool for improving outcomes in collaborative projects in legal education.
4. Explore the use of a wiki and the amount of collaboration of upper-level students in a competitive public law school in the southern region of the United States as measured by direct wiki observations and the wiki’s history feature.

5. Explore the use of a wiki and the type of collaboration of upper-level students in a competitive public law school in the southern region of the United States as measured by direct wiki observations and the wiki’s history feature.

6. Explore the attitudes and perceptions of law students and law faculty in a competitive public law school in the southern region of the United States regarding the perceived pedagogical value in using a wiki as an instructional strategy in legal education.

7. Explore the attitudes and perceptions of law students in a competitive public law school in the southern region of the United States regarding the use of a wiki in legal education and their planned future use of technology in their future practice of law.

8. Explore the attitudes and perceptions of law faculty in a competitive public law school in the southern region of the United States regarding the use of a wiki in legal education, possible planned future use of technology, and the adoption of new teaching techniques of legal educators in a competitive public law school in the southern region of the United States as measured by individual instructor interviews.

9. Explore the attitudes and perceptions of law students and law faculty in a competitive public law school in the southern region of the United States regarding whether age is associated with a perceived pedagogical value of technology in legal education.
10. Explore and identify possible barriers to the use of technology and wikis in the area of legal education and the practice of law in a competitive public law school in the southern region of the United States.

### 3.3.2 Research Questions

To help address these research objectives, a number of research questions were developed to guide the study.

Research Question 1: Do law students’ exhibit characteristics that demonstrate a preparedness and willingness to utilize technology in legal education?

Research Question 2: What are law students’ attitudes and perceptions as these relate to the use of a wiki as a productivity tool for student collaboration?

Research Question 3: Can the use of a wiki as a productivity tool for collaborative projects in legal education improve outcomes in comprehensive group activities in a collaborative environment in legal education?

Research Question 4: Do law students recognize a pedagogical value in using wikis as an instructional strategy in the area of legal education?

Research Question 5: Does law faculty recognize a pedagogical value in using wikis as an instructional strategy in the area of legal education?

Research Question 6: Can the use of wikis in legal education increase the use of technology in legal education and/or in the future practice of law?

Research Question 7: Is age associated with a perceived pedagogical value of technology in legal education?
Research Question 8: Are there possible barriers to the use of technology and wikis in the area of legal education and/or the practice of law?

3.4 Site Selection

This research study was conducted at a competitive public law school in the southern region of the United States. Because meaningful data was pursued from a small group who can purposefully inform an understanding of the research problem, the concept of purposeful sampling is typically used in qualitative methods as a strategy for identify participants (Creswell, 2007; Kenney, 2009). In certain types of qualitative research, to include case studies, access to participants often begins with a “gatekeeper.” The gatekeeper serves as the initial contact for the researcher and leads to other study participants (Hammersley & Atkinson, 1995). As a result, the site was selected based upon voluntary participation. The deans and faculty of four law schools were contacted and participation was solicited. As suggested by Bogdan and Biklen (1992), these gatekeepers were informed why they were selected; what was to be done at the site during the research study; the level of disruption that could possibly occur; how the results would be reported; and what the gatekeeper, the participants, and the site would gain from the study. Through this process only two law faculty members responded. While both initially agreed to participate, one eventually withdrew. The remaining law faculty member agreeing to participate in this study serves as the facilitator of a trial preparation program designed for upper-level law students.

3.5 Participants

The accessible population for this research study was upper-level law students at a competitive public law school in the southern region of the United States. More
specifically, the study participants were upper-level law students who had voluntarily signed up for a trial preparation program facilitated by the university. Through the program, student participants develop important trial preparation and trial advocacy skills through the process of preparing a simulated case for trial to be adjudicated in a national competition. Additional participants included the law faculty member facilitating the trial advocacy program, as well as a number of attorneys serving as coaches. This level of participation was useful because the student participants in the trial competition were engaged in activities that included tasks that are completed through group collaboration in a natural setting, which are traditionally done in a face-to-face manner but could also be supported with wiki technology. Access to other upper-level law students or law students in lower-level law courses was not obtainable because, as illuminated in the above literature review, legal educators demonstrated a lack of interest in technology research in a legal context and the researcher could gain access to only one gate keeper. In addition, assignments in lower-level law course are not traditionally done in a collaborative manner. This upper-level trial advocacy program was being offered during the spring semester. In addition, student participation in this program can vary. Because student enrollment in the program was limited, all students participating in the program were to be included in the sample. In addition to being upper-level law students, a relevant characteristic of this population of law students would also possibly include a familiarity with technology. As described by Prensky (2001), the term “digital native” refers to a young person who is a member of the generation who grew up with access to online technologies and who are completely comfortable with emerging technologies. Students born after 1980 and who have been raised with access to technology are
generally considered to be digital natives. As such, the vast majority of the student participants in this research study can be aptly described as digital natives. In addition, as pointed out by Broussard (2008), technology has become an important aspect of modern law students’ daily lives in that the vast majority of these students prefer to use e-mail as their primary communication tool and belong to social networking websites, with many subscribing to blogs and RSS feeds. As such, these students should be more comfortable with using different types of technology as a part of their education. Broussard further contends that these students will expect to use technology as a part of their legal education. Upper-level students were also desirable because these students are closer to graduation, and as such, would hopefully exhibit less stress in being asked to utilize a new educational tool. However, as demonstrated in the research, such law students might show a lack of interest when participation in the study and when use of the wiki is not contingent upon a participation grade. As identified as a limitation in chapter one, students in law school typically receive only one grade in each course each semester. In addition, this sole grade in typically tied to each student’s performance on a single examination administered at the end of each semester. As a result, the fact that each law student receives only one grade tied to a single examination could be problematic.

3.6 Instrument

The development of the survey instrument and the interview protocols utilized in this study was based upon the research questions; relevant literature identified in the literature review, to include the survey instrument develop by Hazari, North, and Moreland (2008); and the researcher’s observations and prior experiences. This survey instrument is attached in Appendix A. The survey instrument collected data considered
relevant to this study to include the demographic data (gender, age, years of computer experience, years of work experience, experience with Webpage design, willingness to adopt new technology, and perceptions on the use of a wiki), data relating to an understanding of the wiki and its use, data relating to a need to have the wiki’s value demonstrated in advance, data relating to valued features of the wiki, data relating to a perceived pedagogical value, data relating to future use of wikis, data relating to ease of use of wikis, and data relating to the significance of training. Participants signed a non-clinical consent prior to the completion of the instrument. Permission and approval to conduct this study was obtained from the Institutional Review Board (IRB) of the selected institution. The professor for the course was conferred with in advance of the administration of the instrument in order to determine the dates on which data could be conveniently collected. Instructions, which were provided to all participants at the time of the administration of the instrument, included the comment that all information provided will be held in the strictest of confidence, and that all forms will be in the researcher’s possession only and stored in a secure place. In protecting the participants’ information and confidentiality, all digital data obtained during this study was stored on a computer that does not have Internet access to ensure that unauthorized users cannot access it.

3.7 Researcher as Instrument

As suggested by Creswell (2009), qualitative research includes studies where the researcher is a key instrument for inductive data analysis. As such, it is appropriate to address the background and interpretations that this researcher brings to this study. In addition to having graduated from a private competitive law school, this researcher has
also actively engaged in the practice of law. Based on these experiences, this researcher possesses an understanding of the types and nature of activities that are involved in trial preparation from the perspective of both law students and legal practitioners. In addition, having earned degrees and certification in technology, and having experience using wikis, this researcher also possesses an understanding of how wikis can be specifically designed and utilized to support such activities.

### 3.8 Procedures

In conducting this research study, a number of preliminary procedures were planned:

#### 3.8.1 Wiki Training

Adhering to the recommendations of Costa and Bondia (2007), advanced wiki training was planned. All participants would attend this training session prior to the wiki being used. This training session was developed to cover the functioning and use of the wiki, as well as to include a demonstration of all key features of the wiki. The training was designed to ensure that all participants had the ability to make the best use of the features of wikis prior to it being utilized.

#### 3.8.2 Online Resources

The initial training was supported with online resources, which were provided on a resource page on the wiki. The first resource was a detailed tutorial, which provided step-by-step instructions and detailed illustrations in how to use the various features of a wiki. Second, a question and answer section was created at the bottom of the resource page, along with specific instructions describing how it was to be use, to allow students
to ask questions and receive prompt answers to specific questions regarding the use of wikis. Third, a clear and simple list of ground rules was established, to include best practices in the use of wikis as illustrated in the literature, with an expressed requirement from the law faculty member facilitating the trial preparation program making it mandatory that students utilize the wiki in completing their preparations.

3.8.3 Wiki Provider Selected and Wiki Design

While there are a number of different wiki providers on the World Wide Web, the wiki provider selected for use in this study was PBworks (formerly PBwiki), a wiki provider that offers free services. In addition to offering free personal, educational, and business wikis, PBworks has also begun offering wikis to members of the legal profession. The students enrolled in the trial advocacy program could participate in one of seven different trial competitions, which dictated the number of wikis being utilized in this study. All seven wikis were designed in the same manner using a format based upon best practices and a thorough needs analysis. Once created, as suggested by the research, student participation on the wiki was actively monitored to detect any possible technical problems in order to take swift corrective measures. In addition to attempting to ensure that the wiki was a user-friendly environment, these procedures were implemented in an effort to reduce the amount of technological stress for participants, which could potentially lead to a lack of confidence in the use of wiki technology.

3.9 Data Collection

The study began in the spring semester of 2013 and data collection was completed by the end of that semester. All seven wikis had been designed and were made available
prior to the beginning of the semester. The faculty member facilitating the trial advocacy program emailed the researcher’s contact information to all participants, along with an explanation regarding the use of the wiki and a copy of the step-by-step tutorial. Participants contacted the researcher by email and were granted access to their group wiki. At the completion of the trial advocacy program, after the wiki had been used, participants were emailed instructions regarding the initial survey along with a link to the survey. Again, students were assured that all data collected would be kept strictly confidential. The survey was made available online using survey monkey. The survey was designed in a manner in which it could not be submitted unless all of the survey questions were answered. Data was collected from the law faculty member utilizing the interview protocol attached in Appendix B. Using typical case sampling, additional data was collected from a number of law students utilizing the student interview protocol attached in Appendix C. All of these interviews were approximately 15-20 minutes in duration and were recorded using a digital recorder. These digital recordings were then transcribed so that they could then be repeatedly analyzed for emergent themes. Observational data regarding the amount of wiki use by participants and the type of student interactions and collaboration while using the wiki was collected on a daily basis throughout the trial advocacy program. This included digital artifacts relating to a history of all changes and edits made by the participants while using the wiki, as well as digital artifacts recording the page access history of each user.

3.10 Data Analysis Plan

Data in this research study was collected through the use of an online survey, through interviews of participants, and through observation of user activity on the wiki.
3.10.1 Online Survey Instrument

Data obtained through the online survey instrument was transferred to a Microsoft Excel spreadsheet. Frequencies and percentages were used to analyze variables that are measured on a categorical scale (nominal or ordinal). Descriptive statistics were calculated for gender, age, years of computer experience, years of work experience, willingness to adopt new technology, experience with Webpage design, and perceptions on the understanding and use of the wiki (survey questions 1-8) in order to summarize the population. During this analysis, no outliers were identified that could significantly affect the study. To assist with answering whether law students’ exhibit characteristics that demonstrate a preparedness and willingness to utilize technology in legal education, frequencies and percentages were then calculated. These percentages indicate law students’ characteristics as these relate to a preparedness and willingness to utilize technology in legal education. To assist in identifying law students’ attitudes and perceptions as these relate to the use of a wiki as a productivity tool for student collaboration, frequencies and percentages were calculated for survey questions 12 and 13. These percentages indicate law students’ attitudes and perceptions as these relate to the use of a wiki as a productivity tool for student collaboration. To assist with determining whether law students recognize a pedagogical value in using wikis as an instructional strategy in the area of legal education, frequencies and percentages were calculated for survey questions 14 and 18. These percentages indicate whether law students recognize a pedagogical value in using wikis as an instructional strategy in the area of legal education. Finally, to assist in determining whether the use of wikis in legal education can increase the use of technology in legal education and/or in the future.
practice of law, frequencies and percentages were calculated for survey questions 19 and 22. These percentages indicate that wiki use in a legal education setting can increase the use of technology in legal education and by law students in their future practice of law.

3.10.2 Interview Data

To assist in determining whether the use of a wiki as a productivity tool for collaborative projects in legal education can improve outcomes in comprehensive group activities in a collaborative environment in legal education, and research questions three through eight, an interview with the law faculty member and the attorney-coach was conducted. To assist with answering research questions one through four (discussed above), and to determine whether age associated with a perceived pedagogical value of technology in legal education and/or whether there are possible barriers to the use of technology and wikis in the area of legal education and/or the practice of law, follow-up interviews with law students were conducted.

Data obtained through these semi-structured interviews was digitally recorded and transcribed immediately following each interview. As recommended by Creswell (2009), all transcripts were checked for errors to ensure reliability. Interview protocols for law faculty and students are attached below in Appendix B and C. As suggested by Creswell (2007), open coding was used by coding the data for its major categories of information, and from this coding, categories that relate to and surround the core phenomenon become visible. Afterwards, axial coding was employed to better understand the context and relationships of the emergent themes. The constant comparative method suggested by Strauss and Corbin (1998) was also employed. The researcher constantly returned to the audio recordings and transcripts that were already coded and double-checked them to
ensure accuracy and to look for deeper relationships between the new data to the emerging themes and categories. This was also done to ensure that there was no shift in meaning during the coding process. As suggested by Gibbs (2007), employing such techniques can address potential reliability issues. To help answer the research questions more thoroughly, the resulting data was then used to supplement data obtained from other sources.

3.10.3 Wiki Observational Data

Data obtained through the observations of the wiki was transferred to a Microsoft Excel spreadsheet. To analyze the data collected regarding the amount of wiki use, as well as the type of interaction and collaboration that took place, frequency analysis and coding was utilized. To identify the amount of student interactions and collaboration that occurred while using the wiki, detailed frequencies and percentages were calculated. This included data relating to the number of visits to the wiki, the number of changes to the wiki, and the page count for each participant using the wiki. To identify the type of student interaction and collaboration that occurred while using the wiki, detailed frequencies were calculated. Every change by every participant was compiled for each of the wikis in a Microsoft Excel spreadsheet. Then, as discussed above, open coding was performed segmenting the data into categories (Strauss & Corbin, 1990). This process allowed for the emergence of themes. For each of these emergent themes, frequencies and percentages were calculated. Following the recommendations of Creswell (2009), dual-coding was employed to ensure reliability. To help answer the research questions more thoroughly, the resulting data was then triangulated with the data obtained from other sources.
3.11 Qualitative Validity and Reliability

As suggested by Creswell (2009), a variety of strategies were utilized in this study to help ensure qualitative validity. In addition, as posited by Lincoln and Guba (1985), the trustworthiness and worth of qualitative research can be established through employing techniques that help ensure credibility, transferability, dependability, and confirmability. The credibility of this study was ensured through prolonged engagement, persistent observation, triangulation using more than one method of data collection (observations, interviews, analysis of documents), peer debriefing by seeking feedback from participants regarding the data collected through interviews and surveys, and member checking. The transferability of this study was ensured through thick description, which involves providing sufficient details to the extent that the conclusions drawn from the study can be transferred to other times, settings, situations, and people. The confirmability of this study was ensured through triangulation. As further suggested by Creswell (2002), the credibility of the study can also be established through a review of the literature, the careful selection of the participants in the study, and the through credentials of the researcher. As recommended by Gibbs (2007), reliability was addressed by adhering to a strict set of procedures. As discussed above, audio recordings of all interviews were made and listened to multiple times, and transcripts were made and repeatedly checked to ensure accuracy. Furthermore, codes were created and given definitions, and data were repeatedly compared with each code to help ensure that no shift in meaning occurred during the coding process. A summary of the qualitative validity and reliability procedures discussed is presented below in Table 3.2.
3.12 Summary

A case study approach was selected as the methodology for this research because this approach is appropriate for studying subjects in their natural settings and for attempting to interpret observed phenomena as it relates to the individual meanings that these subjects attach to them. In addition to answering the why and how of observed phenomena, the data obtained through this design was easy to implement for a single researcher. In addition, it did not require an inordinate amount of resources to collect and analyze this data. Descriptive techniques and qualitative methods were employed to guide this research. The selected methodology, the online instrument being utilized, and the data collection and analysis procedures being utilized were connected in answering the research questions. The results helped to provide a better understanding regarding of the use of wiki technology in the area of legal education.

In addition to employing techniques to ensure reliability, techniques were also employed to ensure validity. As recommended by Creswell (2009), qualitative validity was insured through the use of a variety of techniques. First, data obtained was triangulated to ensure a justification for emergent themes. In addition, member checking was utilized by conducting follow-up interviews with selected participants to ensure that the findings of the researcher were accurate. Lastly, an alternative interpretation of the data was obtained through the use of peer debriefing.

Table 3.1 presents a summary of the data source and the data analysis for each research questions. Tables 3.2 presents a summary of the qualitative validity and reliability techniques utilized in this study.
### Table 3.1 Data Analysis Summary

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Data Sources</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RQ 1:</strong> Do law students’ exhibit characteristics that demonstrate a preparedness and willingness to utilize technology in legal education?</td>
<td>• Online Instrument&lt;br&gt;• Student Interviews</td>
<td>• Frequencies and Percentages&lt;br&gt;• Responses analyzed for emergent themes</td>
</tr>
<tr>
<td><strong>RQ 2:</strong> What are law students’ attitudes and perceptions as these relate to the use of a wiki as a productivity tool for student collaboration?</td>
<td>• Online Surveys&lt;br&gt;• Student Interviews</td>
<td>• Frequencies and Percentages&lt;br&gt;• Responses analyzed for emergent themes</td>
</tr>
<tr>
<td><strong>RQ 3:</strong> Can the use of a wiki as a productivity tool for collaborative projects in legal education improve outcomes in comprehensive group activities in a collaborative environment in legal education?</td>
<td>• Online Surveys&lt;br&gt;• Student Interviews&lt;br&gt;• Instructor Interviews&lt;br&gt;• Wiki Observations</td>
<td>• Responses analyzed for emergent themes&lt;br&gt;• Frequencies and Percentages</td>
</tr>
<tr>
<td><strong>RQ 4:</strong> Do law students recognize a pedagogical value in using wikis as an instructional strategy in the area of legal education?</td>
<td>• Online Surveys&lt;br&gt;• Student Interviews</td>
<td>• Frequencies and Percentages&lt;br&gt;• Responses analyzed for emergent themes</td>
</tr>
<tr>
<td><strong>RQ 5:</strong> Does law faculty recognize a pedagogical value in using wikis as an instructional strategy in the area of legal education?</td>
<td>• Instructor Interviews</td>
<td>• Responses analyzed for emergent themes</td>
</tr>
<tr>
<td><strong>RQ 6:</strong> Can the use of wikis in legal education increase the use of technology in legal education and/or in the future practice of law?</td>
<td>• Instructor Interviews</td>
<td>• Responses analyzed for emergent themes</td>
</tr>
<tr>
<td><strong>RQ 7:</strong> Is age associated with a perceived pedagogical value of technology in legal education?</td>
<td>• Student Interviews&lt;br&gt;• Instructor Interviews</td>
<td>• Responses analyzed for emergent themes</td>
</tr>
<tr>
<td><strong>RQ 8:</strong> Are there possible barriers to the use of technology and wikis in the area of legal education and/or the practice of law?</td>
<td>• Student Interviews&lt;br&gt;• Instructor Interviews&lt;br&gt;• Wiki Observations</td>
<td>• Responses analyzed for emergent themes&lt;br&gt;• Frequencies and Percentages</td>
</tr>
</tbody>
</table>
Table 3.2 Qualitative Validity & Reliability Summary

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Analysis Procedures Used</th>
<th>Reliability &amp; Validity Techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Wiki Activity</td>
<td>• Open-coding</td>
<td>• Dual-Coding</td>
</tr>
<tr>
<td>• Interviews</td>
<td>• Coding using constructed codes</td>
<td>• Triangulation</td>
</tr>
<tr>
<td></td>
<td>• Axial Coding</td>
<td>• Prolonged engagement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Multiple reviews of interview audio and transcripts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Constant comparison triangulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Member checking</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Peer debriefing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Thick description</td>
</tr>
</tbody>
</table>
CHAPTER FOUR: RESEARCH RESULTS

This study was designed to explore the pedagogical value of wiki technology for improving outcomes through the utilization of wiki technology in legal education, as well as exploring the attitudes and perceptions of law faculty and students towards the effectiveness of using wikis as a productivity tool in legal education to increase achievement, to increase collaboration, and to increase the use of technology in the effective completion of comprehensive group activities in a collaborative environment in legal education. Data was first analyzed for descriptive characteristics. Subsequently, online survey questions and qualitative interview data from law faculty and law students were analyzed in order to understand the results of the qualitative data more in depth.

The results of this study are reported in the following sections of this chapter: 1) site selection, 2) wiki development and structure, 3) descriptive characteristics of wiki participants, 4) descriptive characteristics of wiki use, 5) analysis of initial online survey data, 5) analysis of interview data, and 6) summary of results.

4.1 Site Selection

As illustrated in the review of the literature, methods of teaching in modern law schools have remained largely unchanged for many decades, despite the availability of dynamic technologies that can be used to support legal instruction and which are being actively utilized in the modern practice of law. Both the literature and the results of this research indicate a culture in legal faculty of resistance to change; legal education seemingly remains inseparable from an overwhelming reliance upon the Socratic Method. Consequently, selection of a site for this study proved to be somewhat
problematic. The Deans of and faculty from all four law schools located in the state were contact in regards to soliciting law faculty members and law students whom might be willing to participate in this study. The means of contact was first by letter providing a brief description of the details of the study, to include how wikis are currently being utilized in the practice of law and possible benefits. This letter was followed up with an email. As alluded to in the research, there did not appear to be much interest in a study dealing with technology in the area of law. Of the four law schools, the researcher was able to solicit interest from only two law professors, both at the research university 1 law school. The researcher met with each of these law professors at their convenience in their offices to discuss the details of the study. While both initially expressed an interest in participating in the study and agreed to participate, one law professor eventually withdrew. The remaining law professor facilitated a trial preparation program in which students voluntarily join to participate in a mock trial competition. This law professor served as a gatekeeper through which access to law student participants were obtained. Law students volunteering to participate in the trial competition signed up for one of the seven different competitions in which the university was participating. Subsequently, these volunteering law students were asked to register for the wiki for the corresponding competition. There was one wiki for each competition for a total of seven. The number of law students signing up for each competition varied based upon the particular interests of each law student. As a result, each team and the corresponding wiki being used by that team did not have the same number of students. In addition, while participating law students were requested by the law professor facilitating the competition to sign up for and use the team’s wiki, each team was also assigned a legal practitioner to serve as a
team attorney-coach. Consequently and unexpectedly, these team attorney-coaches proved to be a second gatekeeper, ones to which the researcher did not have access and to which the law professor did not want to disaffect by mandating the use of the team wiki. As a result, the use of each team’s wiki varied based upon the willingness of these attorney-coaches to promote and utilize wiki technology.

4.2 Wiki Development and Structure

As discussed above in Chapter 3, instead of utilizing a single wiki page as was done in most of the previous studies of wiki technology, the wikis utilized in this study were developed using a more structured, comprehensive, holistic user-centered design wherein the wikis were structured in a manner in which they would be utilized in the real-world practice of law. In consultation with the law professor facilitating the student participants in the trial preparation program, a needs analysis was developed and each wiki was structured based upon the wiki users, their tasks and goals, their experience level, what functionality they needed from the wiki, what information they required, and how the wiki should work. The wikis were structured as follows: 1) a FrontPage with a hyperlinked Wiki Table of Contents to all wiki pages (Figure 4.1), 2) a SideBar, which appears on every wiki page, providing easy-to-access hyperlinks to every main section in the wiki (Figure 4.2), 3) a Theory of the Case Folder with an index page (Figure 4.3), 4) a Good Facts/Bad Facts Folder with an index page (Figure 4.4), 5) a Motions in Limine and Evidentiary Issues Folder with an index page (Figure 4.5), 6) an Openings Folder with an index page (Figure 4.6), 7) a Direct Examinations Folder with an index page (Figure 4.7), 8) a Cross Examinations Folder with an index page (Figure 4.8), and 9) a Closings Folder with an index page (Figure 4.9). Additionally, each wiki was structured
with a Multimedia Folder with an index page on which students could have the ability to upload videos of their trial preparations for potential reviews and comments (Figure 4.10), a Resources Folder with an index page that included hyperlinks to instructional resources that included a step-by-step illustrated wiki tutorial, an instructional document about wikis, and a Trial Notebook (Figure 4.11), as well as a Comment Section on which students could potentially post questions about how to use the wiki (Figure 4.12). Seven individual wikis were developed utilizing an identical design for each, one for each competition team, and the law professor approved of each. The law faculty provided the researcher’s email to all participants so that they could request access to their particular wiki.

Table of Contents:

- Theory of the Case
- Good Facts/Bad Facts
- Motions in Limine and Evidentiary Issues
- Openings
- Direct Examinations
- Cross Examinations
- Closings

Figure 4.1 Wiki Table of Contents
Figure 4.3  Theory of the Case Folder

Figure 4.4  Good Facts/Bad Facts Folder

Figure 4.5  Motions in Limine and Evidentiary Issues Folder

Figure 4.6  Openings Folder

Figure 4.7  Direct Examinations Folder

Figure 4.8  Cross Examinations Folder
Figure 4.9 Closings Folder

Figure 4.10 Multimedia Folder

Figure 4.11 Resources Folder Contents

Figure 4.12 Wiki Support Comments Section
In addition to the resources mentioned above, a model wiki was developed to illustrate to students how a wiki could be designed and utilized in a legal context. Utilizing a structure similar to the seven individual team wikis, the model wiki utilized a sample trial case and included legal pleadings and documentation to include: 1) a complaint, 2) an answer and affirmative defenses, 3) stipulations, 4) depositions, with two different witness depositions, 5) a joint exhibits list, 6) case exhibits, with 7 different exhibits, 7) expert reports and vitae, with documentation from two different expert witnesses, 8) jury instructions, and 9) jury interrogatories. While it was not possible to precisely track exactly who visited the model case wiki and/or how often, the model wiki shows that it was visited a total of 436 times. In addition to the resources provided directly on the wikis, the law instructor emailed every student a copy of the step-by-step illustrated wiki tutorial, which is attached as Appendix F. The email also informed every student participating that they were required to use their group wiki.

4.3 Wiki User Demographics

The law school for research university 1 has a total enrollment of 634 full-time students, of these 57.6% are male and 42.4% are female. A total of 35 student participants signed up for the trial competition wikis. Of the total number of participants, of these 20 (57.1%) were males and 15 (42.9%) were female. As discussed above, each trial team was assigned a number of attorney-coaches who were practicing attorneys. Of the participants requesting wiki access, only two trial team attorney-coaches requested access, of which one used the wiki and one did not. As the student participants were allowed to sign up for the trial competition team of their choice, each competition team utilized a separate wiki. Based upon email requests submitted to the researcher, wiki
access was granted as follows: 1) wiki #1 had a total of 7 students requesting access, of these 5 (71.4%) were male and 2 (28.6%) were female, 2) wiki #2 had a total of 11 students requesting access, of these 9 (81.8%) were male and 2 (18.2%) were female, 3) wiki #3 had a total of 1 student requesting access, who was male (100%), 4) wiki #4 had a total of 4 students requesting access, of these 1 (25%) were male and 3 (75%) were female, 5) wiki #5 had a total of 6 students requesting access, of these 3 (50%) were male and 3 (50%) were female, 6) wiki #6 had a total of 2 students requesting access, of these 1 (50%) was male and 1 (50%) was female, and 7) wiki #7 had a total of 4 students requesting access, of these all 4 (100%) were female. Table 4.1 below reports the requested access to the different wikis.

Table 4.1 Wiki User Assignments

<table>
<thead>
<tr>
<th>Wiki</th>
<th>Total # of users</th>
<th>Total Male/Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wiki #1</td>
<td>7</td>
<td>Male = 5; Female = 2</td>
</tr>
<tr>
<td>Wiki #2</td>
<td>11</td>
<td>Male = 9; Female = 2</td>
</tr>
<tr>
<td>Wiki #3</td>
<td>1</td>
<td>Male = 1; Female = 0</td>
</tr>
<tr>
<td>Wiki #4</td>
<td>4</td>
<td>Male = 1; Female = 3</td>
</tr>
<tr>
<td>Wiki #5</td>
<td>6</td>
<td>Male = 3; Female = 3</td>
</tr>
<tr>
<td>Wiki #6</td>
<td>2</td>
<td>Male = 1; Female = 1</td>
</tr>
<tr>
<td>Wiki #7</td>
<td>4</td>
<td>Male = 0; Female = 4</td>
</tr>
<tr>
<td>Totals</td>
<td>35</td>
<td>Male = 20; Female = 15</td>
</tr>
</tbody>
</table>

4.4 Frequency and Duration of Student Wiki Use

While it was assumed that students would willingly utilize their wiki, especially because the law professor mentoring the trial competition program had mandated wiki use, actual wiki use proved to be inconsistent; the attitudes of each team’s attorney-coach, which will be discussed further below, played a key factor in wiki use. The actual wiki use of the 7 wikis by students ranged from 1 to 6 weeks, with an average use of 3
weeks. Generally, as trial competition teams finalized the development of their trial competition documentation, wiki use diminished accordingly. In addition, because each trial competition was organized on a different schedule, wiki use varied accordingly. Duration of access was measured from the date on which the user was granted access to the wiki to their last day of use. Because some users were granted access before the semester began and did not utilize the wiki during this period, frequency of wiki use was determined by including only the period of time the wiki was actively being accessed by group members. Numeric data was obtained using page count features provided through the wiki interface, a counter on each wiki’s FrontPage, and a count of user edits. Actual wiki use breaks down as follows:

4.4.1 Most Used Wikis

Wiki #1 was actively used over a 3-week period, and was the most used wiki. The wiki was accessed a total of 169 times with a total of 63 edits. During week #1 the wiki was accessed a total of 125 times and edited a total of 44 times, during week #2 the wiki was accessed a total of 29 times and edited a total of 14 times, and during week #3 the wiki was accessed a total of 15 times and edited a total of 5 times. As mentioned above, as the trial competition team finalized the development of their trial documentation, wiki use diminished accordingly. An analysis of wiki edits is provided in greater detail in Table 4.2.

Table 4.2 Wiki #1 Access and Edit Data

<table>
<thead>
<tr>
<th></th>
<th>Views</th>
<th>Edits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>125</td>
<td>44</td>
</tr>
<tr>
<td>Week 2</td>
<td>29</td>
<td>14</td>
</tr>
<tr>
<td>Week 3</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Totals</td>
<td>169</td>
<td>63</td>
</tr>
</tbody>
</table>
Of the 7 participants using wiki #1, user #1 accessed the wiki over a 32-day period, and during the 3-week period of active use viewed 12 wiki pages during week #1, 2 wiki pages during week #2, and 19 wiki pages during week #3, for a total page count of 33 views. User #2 accessed the wiki over a 22-day period, and during the 3-week period of active use viewed 47 wiki pages during week #1, 21 wiki pages during week #2, and 21 wiki pages during week #3, for a total page count of 89 views. User #3 accessed the wiki over a 7-day period, and during the 3-week period of active use viewed 19 wiki pages during week #1 and 3 wiki pages during week #2, for a total page count of 22 views. User #4 accessed the wiki over a 1-day period, and during the 3-week period of active use viewed 0 wiki pages, for a total page count of 0 views. User #5 also accessed the wiki over a 1-day period, and during the 3-week period of active use viewed 0 wiki pages, for a total page count of 0 views. User #6 accessed the wiki over a 20-day period, and during the 3-week period of active use viewed 6 wiki pages during week #1, and 4 wiki pages during week #2, for a total page count of 10 views. Finally, user #7, the group’s attorney-coach, accessed the wiki over a 21-day period, and during the 3-week period of active use viewed 44 wiki pages during week #1 and 29 wiki pages during week #2, for a total page count of 73 views. Table 4.3 presents the results of this analysis.

Table 4.3  Wiki #1 User Frequency of Page Access, Edits, and Duration of Use

<table>
<thead>
<tr>
<th>User</th>
<th>Week #1</th>
<th>Week #2</th>
<th>Week #3</th>
<th>Total Page Count</th>
<th>Total Edits</th>
<th>Duration of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>User #1</td>
<td>12</td>
<td>2</td>
<td>19</td>
<td>33</td>
<td>1</td>
<td>32 Days</td>
</tr>
<tr>
<td>User #2</td>
<td>47</td>
<td>21</td>
<td>21</td>
<td>89</td>
<td>15</td>
<td>22 Days</td>
</tr>
<tr>
<td>User #3</td>
<td>19</td>
<td>3</td>
<td>0</td>
<td>22</td>
<td>4</td>
<td>7 Days</td>
</tr>
<tr>
<td>User #4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1 Days</td>
</tr>
<tr>
<td>User #5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>1 Days</td>
</tr>
<tr>
<td>User #6</td>
<td>6</td>
<td>4</td>
<td>0</td>
<td>10</td>
<td>4</td>
<td>20 Days</td>
</tr>
<tr>
<td>User #7</td>
<td>44</td>
<td>29</td>
<td>0</td>
<td>73</td>
<td>36</td>
<td>21 Days</td>
</tr>
<tr>
<td>Totals</td>
<td>128</td>
<td>59</td>
<td>40</td>
<td>227</td>
<td>63</td>
<td></td>
</tr>
</tbody>
</table>
Not only did this group use their wiki much more than any other group, this group also placed higher in the trial competition. This group placed 1st in Defense Nationally and 2nd Overall Nationally, which was the best performance in research university 1 law school’s history in the trial competition.

Wiki #2 was actively used over a 6-week period, and was the second most used wiki. The wiki was accessed a total of 84 times with a total of 19 edits. During week #1 the wiki was accessed a total of 22 times and edited 0 times, during week #2 the wiki was accessed a total of 11 times and edited a total of 4 times, during week #3 the wiki was accessed a total of 5 times and edited 0 times, during week #4 the wiki was accessed a total of 15 times and edited a total of 4 times, during week 5 the wiki was accessed a total of 24 times and edited a total of 11 times, and during week #6 the wiki was accessed a total of 7 times and edited 0 times. An analysis of wiki edits is provided in greater detail below in Table 4.4.

Table 4.4  Wiki #2 Access and Edit Data

<table>
<thead>
<tr>
<th></th>
<th>Views</th>
<th>Edits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>Week 2</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>Week 3</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Week 4</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>Week 5</td>
<td>24</td>
<td>11</td>
</tr>
<tr>
<td>Week 6</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Totals</td>
<td>84</td>
<td>19</td>
</tr>
</tbody>
</table>

Of the 11 participants using this wiki, user #1 accessed the wiki over a 1-day period, and during the 6-week period of active use viewed 0 wiki pages, for a total page count of 0 views. User #2 accessed the wiki over a 1-day period, and during the 6-week period of active use viewed 1 wiki page during week #5, for a total page count of 1 view.
User #3 accessed the wiki over a 41-day period, and during the 6-week period of active use viewed 2 wiki pages during week #1, 6 wiki pages during week #4, and 1 wiki page during week #5, for a total page count of 9 views. User #4 accessed the wiki over a 41-day period, and during the 6-week period of active use viewed 7 wiki pages during week #4 and 10 wiki pages during week #5, for a total page count of 17 views. User #5 accessed the wiki over a 1-day period, and during the 6-week period of active use viewed 3 wiki pages during week #2, for a total page count of 3 views. User #6 accessed the wiki over a 31-day period, and during the 6-week period of active use viewed 1 wiki page during week #5, for a total page count of 1 view. User #7 accessed the wiki over a 5-day period, and during the 6-week period of active use viewed 17 wiki pages during week #6, for a total page count of 17 views. User #8 accessed the wiki over a 31-day period, and during the 6-week period of active use viewed 1 wiki page during week #5, for a total page count of 1 view. User #9 accessed the wiki over an 8-day period, and during the 6-week period of active use viewed 2 wiki pages during week #3, and 7 wiki pages during week #4, for a total page count of 9 views. User #10 accessed the wiki over a 36-day period, and during the 6-week period of active use viewed 1 wiki page during week #5, for a total page count of 1 view. User #11 accessed the wiki over a 1-day period, and during the 6-week period of active use viewed 0 wiki pages, for a total page count of 0 views. Table 4.5 presents the results of this analysis.

<table>
<thead>
<tr>
<th>User</th>
<th>Week #1</th>
<th>Week #2</th>
<th>Week #3</th>
<th>Week #4</th>
<th>Week #5</th>
<th>Week #6</th>
<th>Total Page Count</th>
<th>Total Edits</th>
<th>Duration of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>User #1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1 Days</td>
</tr>
<tr>
<td>User #2</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1 Days</td>
</tr>
<tr>
<td>User #3</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>9</td>
<td>2</td>
<td>41 Days</td>
</tr>
<tr>
<td>User #4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>10</td>
<td>0</td>
<td>17</td>
<td>2</td>
<td>41 Days</td>
</tr>
</tbody>
</table>

* Indicates user had not yet requested access to the wiki.
Wiki #5 was actively used over a 2-week period, and was the third most used wiki. The wiki was accessed a total of 58 times with a total of 10 edits. During week #1, the wiki was accessed a total of 35 times and edited a total of 5 times. During week #2, the wiki was accessed a total of 23 times and edited a total of 5 times. As mentioned above, because each trial competition was scheduled on a different date, this wiki’s use varied accordingly. An analysis of wiki edits is provided in greater detail below in Table 4.6.

Table 4.6 Wiki #5 Access and Edit Data

<table>
<thead>
<tr>
<th></th>
<th>Views</th>
<th>Edits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>35</td>
<td>5</td>
</tr>
<tr>
<td>Week 2</td>
<td>23</td>
<td>5</td>
</tr>
<tr>
<td>Totals</td>
<td>58</td>
<td>10</td>
</tr>
</tbody>
</table>

Of the 6 participants using this wiki, user #1 accessed the wiki over a 20-day period, and during the 2-week period of active use viewed 6 wiki pages during week #1, 13 wiki pages during week #2, for a total page count of 19 views. User #2 accessed the wiki over a 1-day period, and during the 2-week period of active use viewed 1 wiki page during week #1, for a total page count of 1 view. User #3 accessed the wiki over a 4-day period, and during the 2-week period of active use viewed 9 wiki pages during week #1,
for a total page count of 9 views. User #4 accessed the wiki over a 1-day period, and during the 2-week period of active use viewed 3 wiki pages during week #1, for a total page count of 3 views. User #5 accessed the wiki over a 1-day period, and during the 2-week period of active use viewed 1 wiki page during week #1, for a total page count of 1 view. Finally, user #6 had accessed the wiki over a 5-day period, and during the 2-week period of active wiki use viewed 4 wiki pages during week #1, for a total page count of 4 pages accessed. Table 4.7 presents the results of this analysis.

Table 4.7 Wiki #5 User Frequency of Page Access, Edits, and Duration of Use

<table>
<thead>
<tr>
<th>User</th>
<th>Week #1</th>
<th>Week #2</th>
<th>Total Page Count</th>
<th>Total Edits</th>
<th>Duration of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>User #1</td>
<td>6</td>
<td>13</td>
<td>19</td>
<td>5</td>
<td>20 Days</td>
</tr>
<tr>
<td>User #2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1 Days</td>
</tr>
<tr>
<td>User #3</td>
<td>9</td>
<td>0</td>
<td>9</td>
<td>2</td>
<td>4 Days</td>
</tr>
<tr>
<td>User #4</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1 Days</td>
</tr>
<tr>
<td>User #5</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1 Days</td>
</tr>
<tr>
<td>User #6</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>5 Days</td>
</tr>
<tr>
<td>Totals</td>
<td>24</td>
<td>13</td>
<td>37</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

This group used their wiki the 3rd most of any of the groups. Furthermore, this group placed 2nd highest among the groups using the wiki in their competitions. This group placed 3rd Regionally, which was the best performance in research university 1 law school’s history in this competition.

A final factor affecting the use of the wiki by each individual user on each wiki was the particular role in which each student was assigned to serve on each of the trial competition teams. Different students were assigned responsibilities for completing different trial documentation which was due at varying times. As a result, assorted trial team documentation was completed and uploaded according to a different time schedule for each competition, which also influenced individual wiki use. However, the manner in which each wiki was used is still pertinent.
4.4.2 Least Used Wikis

The remaining 4 wikis showed very little to no use and no edits. As mentioned above, one factor influencing this phenomenon was the attitude of each team’s attorney-coach. Most of the attorney-coaches for these four trial competition teams explicitly expressed to their team a lack of interest in using the team’s wiki. As was discovered through the interview data, these attorney-coaches told their team that they would not be utilizing the wiki, which was in direct contradiction to the dictates of the law professor facilitating the competition. In addition, another attorney-coach instructed their team that they were not going to use the wiki themselves but that their students were free to use the wiki if they decided to do so. However, as discovered through the interview data, because the team’s attorney-coach did not use the wiki, the law students on the team decided not use the wiki as well. Finally, while one team (wiki #7) tried to use the wiki, the team found that the wiki was not conducive to the type of competition in which they were competing in that this event was a mediation competition which utilized a different format and a different set of procedures.

Only one student registered for Wiki #3 and it was accessed over a 5-week period. This one student accessed the wiki a total of 2 times during week #1 and a total of 13 times during week #5, for a total page count of 15 pages accessed. There were no edits to wiki #3. Four students registered for access to Wiki #4 and it was never accessed or edited by any of these students. Two students registered for access to Wiki #6 and it was also never accessed or edited. Finally, Wiki #7 was accessed over a 2-week period. Of the 4 participants who registered to use this wiki, user #1 accessed the wiki over a 1-day period and viewed 2 wiki pages during week #1, for a total page count of 2 views. User
User #2 accessed the wiki over a 2-day period and viewed 1 wiki page during week #1, for a total page count of 1 view. User #3 accessed the wiki over a 2-day period and viewed 1 wiki page during week #2, for a total page count of 1 view. User #4 never accessed the wiki. There were no edits to wiki #7. In addition, it should be noted that the use of the wiki for group #7 proved to be a bad fit. Unlike the other groups that were participating in a trial competition, this group was participating in a mediation competition, which utilized a different set of procedures than the trial competitions. As a result, while the group attempted to use the wiki, the initial wiki design proved to be unsuitable for this type of competition. Table 4.8 presents the results of the analysis for the four remaining groups.

Table 4.8 Wikis #3, #4, #6 & #7 User Frequency of Page Access, Edits, and Duration of Access

<table>
<thead>
<tr>
<th>Wiki</th>
<th>Duration of Access</th>
<th>User #s</th>
<th>Users</th>
<th>Week Accessed</th>
<th>Access Frequency</th>
<th>Total Page Access</th>
<th>Edits</th>
</tr>
</thead>
<tbody>
<tr>
<td>#3</td>
<td>5 Weeks</td>
<td>1</td>
<td>User #1</td>
<td>Week 1</td>
<td>2</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Week 5</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#4</td>
<td>0 Week</td>
<td>4</td>
<td>All 4 Users</td>
<td>None</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>#6</td>
<td>2 Weeks</td>
<td>2</td>
<td>User #1</td>
<td>Week 1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Week 2</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>User #2</td>
<td>Week 1</td>
<td>*</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Week 2</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#7**</td>
<td>2 Weeks</td>
<td>4</td>
<td>User #1</td>
<td>Week 1</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Week 2</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>User #2</td>
<td>Week 1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Week 2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>User #3</td>
<td>Week 1</td>
<td>*</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Week 2</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>User #4</td>
<td>Week 1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Week 2</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Indicates user had not yet requested access to the wiki.
** Team indicated a bad fit for their mediation competition.
4.4.3 Summary of Wiki Use Data

An analysis of the overall wiki use data shows that wiki use by law students on each team that used the wiki varied according to the role in which each student was appointed to serve on the team and the timing of the team’s competition schedule. As different students were assigned responsibility for completing different trial documentation, which were due at varying times, the students’ frequency and duration of use of the wiki varied accordingly. The scheduling of each team’s performance in the competition also impacted overall wiki use. Another key influence on overall wiki use was the attitude of each teams’ attorney-coach. The teams with attorney-coaches who demonstrated positive attitudes towards the wiki exhibited a much greater degree of wiki use. In addition, the trial competition teams that used their team’s wiki most also performed much better in the trial competition. Conversely, teams with attorney-coaches who demonstrated negative attitudes towards the wiki exhibited little to no use of wiki.

4.5 Analysis of Wiki Edits

In an attempt to analyze the types of collaborative interactions taking place between students, wiki edits were categorized based upon the type of the edit. After the edit data was compiled and organized into a Microsoft Excel spreadsheet, open coding was performed (Strauss & Corbin, 1990) segmenting the data. All data were dual-coded by the researcher and another doctoral student who has expertise in educational technology to ensure reliability. Six themes emerged from the analysis of the edit data: 1) coordination, 2) communication, 3) content edit, 4) file-sharing, 5) formatting, and 6) wiki organization. Table 4.9 below presents the operational definitions of each of these codes.
Table 4.9 Wikis Edit Coding Frequencies

<table>
<thead>
<tr>
<th>Code</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordination</td>
<td>• User posts content with intent to facilitate teamwork</td>
</tr>
<tr>
<td></td>
<td>• User creates a checklist or schedule to follow</td>
</tr>
<tr>
<td></td>
<td>• User edits a checklist or schedule</td>
</tr>
<tr>
<td></td>
<td>• User posts informative content</td>
</tr>
<tr>
<td>Communication</td>
<td>• User posts content with the sole intent to inform of meeting times and places</td>
</tr>
<tr>
<td></td>
<td>• User leaves comment(s)</td>
</tr>
<tr>
<td>Content Edit</td>
<td>• User edits the text content on a document page</td>
</tr>
<tr>
<td>File Sharing</td>
<td>• User uploads a document to share</td>
</tr>
<tr>
<td>Formatting</td>
<td>• User reformats text on a page</td>
</tr>
<tr>
<td>Wiki Organization</td>
<td>• User creates a new page or folder</td>
</tr>
<tr>
<td></td>
<td>• User renames a page, folder or document</td>
</tr>
<tr>
<td></td>
<td>• User creates a hyperlink</td>
</tr>
<tr>
<td></td>
<td>• User moves a page or document within wiki</td>
</tr>
</tbody>
</table>

An analysis of the actual wiki edits performed by the users of wiki #1 shows that the wiki was edited a total of 63 times. Of these 63 edits, in ranked order, a total of 30 were wiki organization edits, 13 were communication edits, 8 were file-sharing edits, 5 were coordination edits, 5 were content edits, and 2 were wiki formatting edits. An analysis of the actual wiki edits performed by the users of wiki #2 shows that the wiki was edited a total of 19 times. Of these 19 edits, in ranked order, a total of 13 were file-sharing edits, 4 were organizational edits, and 2 were coordination edits. An analysis of the actual wiki edits performed by the users of wiki #5 shows that the wiki was edited a total of 10 times. Of these 10 edits, in ranked order, a total of 6 were file-sharing edits, 3 were coordination edits, and 1 was an organization edit. An analysis of the number of wiki edits, the types of edits, and the frequency of edits is provided in greater detail below in Table 4.10.
<table>
<thead>
<tr>
<th>Total Edits</th>
<th>Edit Type</th>
<th>Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wiki #1</td>
<td>Organization</td>
<td>30 (47.6%)</td>
</tr>
<tr>
<td></td>
<td>Communication</td>
<td>13 (20.6%)</td>
</tr>
<tr>
<td></td>
<td>File Sharing</td>
<td>8 (12.7%)</td>
</tr>
<tr>
<td></td>
<td>Coordination</td>
<td>5 (7.9%)</td>
</tr>
<tr>
<td></td>
<td>Content Edits</td>
<td>5 (7.9%)</td>
</tr>
<tr>
<td></td>
<td>Formatting</td>
<td>2 (3.2%)</td>
</tr>
<tr>
<td>Wiki #2</td>
<td>File Sharing</td>
<td>13 (68.4%)</td>
</tr>
<tr>
<td></td>
<td>Organization</td>
<td>4 (21.1%)</td>
</tr>
<tr>
<td></td>
<td>Coordination</td>
<td>2 (10.5%)</td>
</tr>
<tr>
<td>Wiki #5</td>
<td>File Sharing</td>
<td>6 (60%)</td>
</tr>
<tr>
<td></td>
<td>Coordination</td>
<td>3 (30%)</td>
</tr>
<tr>
<td></td>
<td>Organization</td>
<td>1 (10%)</td>
</tr>
<tr>
<td>Totals</td>
<td>Organization</td>
<td>35 (38.04%)</td>
</tr>
<tr>
<td></td>
<td>File Sharing</td>
<td>27 (29.35%)</td>
</tr>
<tr>
<td></td>
<td>Communication</td>
<td>13 (14.13%)</td>
</tr>
<tr>
<td></td>
<td>Coordination</td>
<td>10 (10.87%)</td>
</tr>
<tr>
<td></td>
<td>Content Edits</td>
<td>5 (5.43%)</td>
</tr>
<tr>
<td></td>
<td>Formatting</td>
<td>2 (2.17%)</td>
</tr>
</tbody>
</table>

### 4.5.1 Summary of Wiki Edit Data

An analysis of the overall wiki edits data shows that the edits generally fall into three levels. The primary edits on the wikis were organizational, with team members organizing the content on the wiki, and file sharing, in which wiki team members would post the trial documents they were responsible for developing to share with their trial team. This seems understandable in that a primary aspect of the trial competition preparation involved the development of this trial documentation, which was posted on the wiki and organized for easy access. The second level consisted of edits serving to communicate informative content with other members of the trial team and coordinating team activities, with schedules and checklists. Finally, the last level of edits, which were minimal, consisted of basic edits to content and basic formatting.
4.6 Analysis of Online Survey Data

The online survey instrument can be found in Appendix A. After students answered a number of demographic questions in the first section of the survey, students were asked a number of questions designed with the intent of eliciting data relating to their attitudes about wiki technology. These include their understanding and use of the wiki, the need to have the wiki’s value demonstrated, various features of the wiki, the perceived pedagogical value of wikis, the ease of use of wikis, possible planned future use of wikis, and wiki training.

4.6.1 Law Student Demographics

In the first section of the survey, students were asked questions designed to elicit demographic characteristics. Of the 35 users who registered for the wiki, 20 (57.1%) were males and 15 (42.9%) were female. Of the student participants, 21 responded to the online survey. While repeated attempts were made; the overall response rate was 60.0%. One attorney-coach responded to the online survey. However, in calculating student demographic data, the attorney-coach results were filtered out.

The results of the online survey show that the student respondents ranged in age from 22 to 33, with a mean age of 25.2 and the median age was 24. The population contains 12 (57.1%) males and 9 (42.9%) females. The sample contains a similar representation of males and females as compared to all registered users of the wikis. Student respondents ranged in years of previous work experience from 0 to 11. The mean for years of previous work experience was 4.0 and the median of previous work experience was 4 years. Student respondents ranged in years of computer experience from 0 to 25. The mean years of computer experience was 11.4 and the median of
computer experience was 10 years. Regarding how student respondents classified their computer skills and experience working with technology, 1 (4.8%) self-identified as beginner, 17 (80.9%) as intermediate, and 3 (14.3%) as expert. Regarding how student respondents classified their tendency to adopt new or emerging technology, 1 (4.8%) self-identified as innovator (One of the first to try new technology), 12 (57.1%) as early adopters (Not the first, but ahead of most), 8 (38.1%) as early majority (Will try once it becomes popular), 0% as late majority (Slow to adopt new technology), and 0% as laggards (One of the last to adopt new technology). Regarding how student respondents classified their experience with webpage design tools (webpage creation, blogs, wikis, etc.), 13 (61.9%) self-identified as beginner, 8 (38.1%) as intermediate, and 0% as advanced. The attorney-coach who completed the online survey was a 39 year old male, with 21 years of work experience and 20 years of computer experience, who self-identified as having intermediate experience working with technology, as being in the early majority regarding his tendency to adopt new or emerging technology, and being a beginner regarding his web experience. Table 4.11 below summarizes these results.

<table>
<thead>
<tr>
<th>Table 4.11  Law Student Demographics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
</tr>
<tr>
<td><strong>Years of Computer Experience</strong></td>
</tr>
<tr>
<td><strong>Computer Skills</strong></td>
</tr>
<tr>
<td><strong>Technology Adopt</strong></td>
</tr>
<tr>
<td><strong>Webpage Design Experience</strong></td>
</tr>
</tbody>
</table>
4.6.2 User Understanding of Wiki and Rating of Use

The next section of the online survey asked users to rate their understanding of the wiki and their use of their group’s wiki. These survey items were designed to elicit a response based on a scale of 1-5, with 1 being the least and 5 being the most. Means were calculated, and a mean of above 3 would indicate a positive response while a mean below 3 would indicate a negative response to the question. Regarding how students classified their understanding of the wiki, 1 (4.8%) classified their understanding as a 1, 5 (23.8%) classified their understanding as a 2, 10 (47.6%) classified their understanding as a 3, 4 (19.0%) classified their understanding as a 4, and 1 (4.8%) classified their understanding as a 5. The mean of student understanding of the wiki was 2.95, with a median of 3. Regarding how students classified their use of their group’s wiki, 5 (27.8%) classified their use as a 1, 4 (22.2%) classified their use as a 2, 7 (38.9%) classified their use as a 3, 2 (11.1%) classified their use as a 4, and 0% classified their use as a 5. Three students indicated that they had not used the wiki because either their attorney-coach or other students did not use it. The mean of understanding of the wiki was 2.56, and a median of 2. The attorney-coach who completed the online survey, who also facilitated the wiki that was used the most, rated his students’ understanding of the wiki as a 3 and their use of the wiki as a 4.

4.6.3 Need to Have Value Demonstrated

As a result of substantial scheduling conflicts and the time limitations of the trial competition, the participants in this study were not able to benefit from a formal training session in the use of wiki technology as planned, training in which the potential value of the wiki could have been demonstrated, and because the research demonstrates that an
identified barrier to the use of new and unfamiliar technology is whether the value of the technology has been demonstrated to the potential user in advance of its use, the next item on the survey is a question designed to elicit user attitudes regarding the need to have the benefits of the wiki demonstrated in advance.

Regarding whether the users would have used the wiki more if its benefits were clearly demonstrated in advance, 18 (85.7%) of students reported that they would have used the wiki more if its benefits were clearly demonstrated in advance while 1 (4.8%) reported that they would not have used the wiki more. In addition, 2 (9.5%) did not indicate an affirmative or negative response, and either did not indicate or left comments that included, “The greater participation of other students, the more valuable the wiki.” The attorney-coach who completed the online survey answered affirmatively to the need to have its benefits clearly demonstrated in advance.

4.6.4 Valued Features of the Wiki

The next items on the survey included questions designed to elicit user attitudes regarding various features of the wiki. In ranked order, features of a wiki that students valued include the ability to collaborate with users (80.9%), the ability to share files (71.4%), the ability to share knowledge (61.9%), the ability to co-create content (57.1%), the ability to comment on content (57.1%), the ability to access content anywhere (57.1%), the ability to track changes (52.3%), the ability to access content anytime (52.3%), the ability to communicate with users (47.6%), the ability to track project development (42.8%), the ability to interact with users (33.3%), and the ability to edit user content (28.6%). Regarding user attitudes towards the potential value of a wiki for a group include, in ranked order, the ability to interact more with other users (57.1%), the
ability to easily achieve a project's objectives (42.8%), the ability to stay on task more (42.8%), the ability to come to a consensus faster (38.1%), and the ability to participate more on a project (33.3%). The features of a wiki that the attorney-coach who completed the online survey valued included the ability to access content anytime, to co-create content, to collaborate, to comment on content, to communicate with other users, to share files with other users, and to track changes. The attorney-coach’s attitude towards the potential value of a wiki for a group included the ability to interact more and to participate more.

4.6.5 Student Perceived Pedagogical Value

The next items on the survey included questions designed to elicit student attitudes regarding the possible pedagogical value of a wiki. Regarding whether the use of a wiki could enhance a user's interest in a project, 6 students (28.6%) reported that a wiki could enhance a user's interest in a project, while 2 (9.5%) left comments that included, “I think it has a great potential if people actually use the program. It doesn't really help one or few individuals using the program” and “Possibly.” Only 1 student (4.8%) reported that they felt it would not. In addition, 12 students (57.1%) indicate that they were not sure. Regarding whether a user could learn more because of information posted by other students on a wiki, 19 students (90.5%) reported that a user could learn more because of information posted by other students on a wiki while 0% reported that users would not. In addition, 2 students (9.5%) indicated that they were not sure. Regarding whether a wiki promotes collaboration and interaction, 19 students (90.5%) reported that a wiki could promote collaboration and interaction while 0% reported that a wiki does not. In addition, 2 students (9.5%) indicate that they were not sure. Regarding
whether the student respondents would like seeing other students’ interaction with material they posted on a wiki, 16 students (76.2%) reported that they would while 4 students (19.0%) reported that they would not. However, it should be noted that these negative responses to this particular question could be influenced by the competitive nature promoted in law schools. Regarding whether the technical features of a wiki could help enhance learning, 17 students (80.9%) reported that a wiki could help enhance learning while 0% reported that it could not. In addition, 4 students (19.0%) did not indicate an affirmative or negative response, and either did not indicate or left comments that included, “If used properly” and “Possibly, but I’m not sure.” Regarding whether the benefits of using a wiki are worth the extra effort and time required in learning how to use it, 9 students (42.8%) reported that it was worth the extra effort and time while 5 students (23.8%) reported that it was not. In addition, 7 students (33.4%) did not indicate an affirmative or negative response, and either did not indicate or left comments that included, “Possibly,” “In some subjects it may not be as rewarding, but in others it has more value,” “If all or most students participate,” “Depends on total buy in by group members,” “I need more experience with the wiki,” and “I did not use.” Table 4.12 presents the results of these question. In addition, the attorney-coach who completed the online survey indicated that he believed the use of a wiki could enhance a user's interest in a project, could help users learn more because of information posted by other students on a wiki, could promote collaboration and interaction, that students would like seeing other students’ interaction with material they posted on a wiki, that the technical features of a wiki could help enhance learning, and that the use of a wiki was worth the extra effort and time required in learning how to use it.
Table 4.12  Student Perceived Pedagogical Value

<table>
<thead>
<tr>
<th>Promotes Collaboration And Interaction</th>
<th>Positive</th>
<th>Negative</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promotes Collaboration And Interaction</td>
<td>90.5%</td>
<td>0%</td>
<td>9.5%</td>
</tr>
<tr>
<td>Could Learn More</td>
<td>90.5%</td>
<td>0%</td>
<td>9.5%</td>
</tr>
<tr>
<td>Could Help Enhance Learning</td>
<td>80.9%</td>
<td>0%</td>
<td>19.1%</td>
</tr>
<tr>
<td>Likes Seeing Other Students’ Interaction With Material</td>
<td>76.2%</td>
<td>19.0%</td>
<td>0%</td>
</tr>
<tr>
<td>Worth The Extra Effort And Time</td>
<td>42.8%</td>
<td>23.8%</td>
<td>33.4%</td>
</tr>
<tr>
<td>Could Enhance Interest in a Project</td>
<td>28.6%</td>
<td>4.8%</td>
<td>66.6%</td>
</tr>
</tbody>
</table>

4.6.6  Student Future Use of Wikis and Technology

The next items on the survey included questions designed to elicit user attitudes regarding their possible future use of wikis. Regarding whether the student would like to use wikis in other law courses, 7 students (33.3%) reported they would while 8 students (38.1%) reported that they would not. In addition, 6 students (28.6%) did not indicate an affirmative or negative response, and either did not indicate or left comments that included, “I don’t know how it’s possible in law classes,” and that “There are currently too many competing systems for collaboration. The school should try to standardize this. What's difficult is when every professor has a different system.” Regarding whether the student would recommend classes that use wikis to other students, 10 students (47.6%) reported they would while 9 students (42.9%) reported that they would not. In addition, 2 students (9.5%) did not indicate an affirmative or negative response, and left comments that included, “Depends on the class” and “Might be other factors.” Regarding whether the student would explore the use of wiki technology in their legal career, 15 students (71.4%) reported that they would while 4 students (19.0%) reported that they would not.
In addition, 2 students (9.5%) did not indicate an affirmative or negative response, and either did not indicate or left comments that included, “Unsure,” and “Especially for large, complex cases with many participants.” Table 4.13 presents the results of these questions.

Table 4.13 Possible Future Use of Wikis

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would Like in Other Law Courses</td>
<td>33.3%</td>
<td>38.1%</td>
<td>28.6%</td>
</tr>
<tr>
<td>Would Recommend Classes Using Wikis</td>
<td>47.6%</td>
<td>42.9%</td>
<td>9.5%</td>
</tr>
<tr>
<td>Would Use in Legal Career</td>
<td>71.4%</td>
<td>19.0%</td>
<td>9.5%</td>
</tr>
</tbody>
</table>

4.6.7 Wiki Ease of Use

The next items on the survey included questions designed to elicit user attitudes regarding the ease of use of the wiki. Regarding whether the wiki interface and features were overall easy to understand, 17 students (80.9%) reported that the interface and features were overall easy to understand while 2 students (9.5%) reported that it was not. In addition, 2 students (9.5%) did not indicate an affirmative or negative response, and either did not indicate or left comments that included, “Sort of.” Regarding whether browsing and editing content and information on the wiki was easy, 13 students (61.9%) reported that browsing and editing content and information on the wiki was easy while 5 students (23.8%) reported that it was not. In addition, 3 students (9.5%) did not indicate an affirmative or negative response, and either did not indicate or left comments that included, “May become easier with use” and “Team did not use.” Regarding whether compared to other discussion forums like Moodle, Blackboard, WebCT, the wiki was easy to use, 14 students (66.6%) reported that compared to other discussion forums the
wiki was easy to use while 2 students (9.5%) reported that it was not. In addition, 4 students (19.0%) reported that they never used such discussion forums. Furthermore, 1 student added that the wiki was not easy to use because of “the limited time we had to learn it.” Finally, regarding whether the benefits of using the wiki outweighed any technical challenges of its use, 9 students (42.8%) reported that the benefits of using the wiki outweighed any technical challenges of its use while 6 students (28.6%) reported that it was not. In addition, 6 students (28.6%) did not indicate an affirmative or negative response, and either did not indicate or left comments that included, “It depends on use by all members,” that it “Doesn’t help much when just one individual is using it,” that is was “Not challenging, but inconvenient,” that “It does not help much when not everyone is using it,” that they are “Rather neutral on this point,” that it was “In some areas,” and “Sort of.” Table 4.14 presents the results of these questions.

Table 4.14 Wiki Ease of Use

<table>
<thead>
<tr>
<th></th>
<th>Positive</th>
<th>Negative</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wiki Interface &amp; Features</strong></td>
<td>80.9%</td>
<td>9.5%</td>
<td>9.5%</td>
</tr>
<tr>
<td><strong>Browsing &amp; Editing Content</strong></td>
<td>61.9%</td>
<td>23.8%</td>
<td>9.5%</td>
</tr>
<tr>
<td><strong>Compared To Other Discussion Forums</strong></td>
<td>66.6%</td>
<td>9.5%</td>
<td>23.8%</td>
</tr>
<tr>
<td><strong>Benefits Outweigh Technical Challenges</strong></td>
<td>42.8%</td>
<td>28.6%</td>
<td>28.6%</td>
</tr>
</tbody>
</table>

In addition, the attorney-coach who completed the online survey indicated that he believed that the wiki interface and features were overall easy to understand, that browsing and editing content and information on the wiki was easy, and that compared to other discussion forums like Moodle, Blackboard, WebCT, the wiki was easy to use.


However, regarding whether the benefits of using the wiki outweighed any technical challenges of its use, he indicated that, “it depends on use by all members.”

4.6.8 Training and Resources

In designing this study, an initial formal training session was planned. However, as a result of the acute time constrains of the trial competition and substantial scheduling demands of the law professor facilitating the program, the practicing attorneys serving as attorney-coaches, and the students participating in the competition who never formally met with the entire group, there proved to be no opportune time available on which to schedule a formal training session for everyone to attend. As a result, the remaining items on the survey include questions designed to elicit user attitudes regarding the importance of formal training, as well as their attitudes regarding the learning resources that were provided for users on the wiki. Regarding whether wiki training would have helped users to better understand how to use the wiki, 15 students users (71.4%) reported that wiki training would help users better understand how to use the wiki while 3 student users (14.3%) reported that it would not. In addition, 3 student users (14.3%) did not indicate an affirmative or negative response, and either did not indicate or left comments that included, “I think an initial training session would have helped both encourage participation as well as help people use the software” and “If prior to the project.”

Regarding whether the step-by-step tutorial provided on the wiki helped users better understand how to use the wiki, 14 student users (66.7%) reported that the tutorial helped them better understand how to use the wiki while 0% reported that it did not. A total of 7 student users (33.3%) reported that they did not use the tutorial. In addition, one user also reported that, “Students have enough to learn as it is. In class training could help
with this.” Finally, regarding whether the video provided on the wiki helped users better understand how to use the wiki, 5 student users (23.8%) reported that the video helped them better understand how to use the wiki while 0% reported that it did not. A total of 16 student users (76.2%) reported that they did not watch the video. Table 4.15 presents the results of these questions.

Table 4.15 Useful of Training* and Learning Resources

<table>
<thead>
<tr>
<th></th>
<th>Would be Useful</th>
<th>Not Useful</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wiki Training</td>
<td>71.4%</td>
<td>14.3%</td>
<td>14.3%</td>
</tr>
<tr>
<td>Useful</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Useful</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step-by-Step Tutorial</td>
<td>66.7%</td>
<td>0%</td>
<td>33.3%</td>
</tr>
<tr>
<td>Video</td>
<td>23.8%</td>
<td>0%</td>
<td>76.2%</td>
</tr>
</tbody>
</table>

* Wiki training could not be scheduled because of scheduling constraints.

In addition, while the attorney-coach who completed the online survey indicated that he believed that prior training in the use of the wiki would have been helpful, he also indicated that he did not use the tutorial and had not watched the video.

4.6.9 Summary of Online Survey Data:

An overall analysis of the online survey data shows that law students participating in this study had an average age of 25.2 with 4 years of previous work experience. In addition, these law students indicated a familiarity with technology, with an average of 11 years of computer experience and a majority self-describing their tendency to adopt new or emerging technology as early adopters (57.1%) or early majority (38.1%). However, while most of these law students indicated an acquaintance with and eagerness to use technology, they also indicated a minimal amount of experience with web-design tools like wikis, with the majority self-identifying themselves as beginners (61.9%) or intermediate (38.1%), and the majority describing both their understanding of and use of
the wiki as average or below. However, after using the wiki, the majority of law students indicated that the wiki interface and features were easy to use (80.9%), even when compared to other discussion forums (66.6%), and that browsing & editing content was easy (61.9%). As indicated above, while formal wiki training had been planned, it could not be accomplished. Consequently, this seems to have resulted in a negative impact on wiki use. The vast majority of law students (85.7%) reported that they would have used the wiki more if its benefits were clearly demonstrated in advance. In addition, the majority of law students (71.4%) indicated that wiki training would have been useful. This data seemingly supports the importance for formal wiki training indicated in previous research. Regarding the features of a wiki that students valued most, the majority of respondents identified the ability to collaborate with other users (80.9%), the ability to share files (71.4%), the ability to share knowledge (61.9%), the ability to co-create content (57.1%), the ability to comment on content (57.1%), the ability to access content anywhere (57.1%), the ability to track changes (52.3%), and the ability to access content anytime (52.3%). Regarding the law students’ perceived pedagogical value of a wiki, the vast majority of law students indicated a positive pedagogical value indicating a belief that a wiki promotes collaboration and interaction (90.5%), could help students learn more (90.5%), and could help enhance learning (80.9%). Finally, while these law students did not indicate much interest in using wikis in other law courses, the majority did indicate that they would like using a wiki in conjunction with their future practice of law (71.4%).
4.7 Analysis of Interview Data

In addition to the analysis of the use of the wiki and the data collected from the online survey instrument, further data was collected through semi-structured interviews with wiki users. All wiki users had provided their email addresses when they registered for the wiki and interview participants were selected using the typical cases strategy (Patton, 1990). Survey data from the initial online survey was analyzed for participants to ensure that they were representative of the population. In doing so, the survey results from the one attorney-coach who completed the initial online survey were eliminated from this analysis as an outlier.

In addition to the law professor facilitating the trial advocacy program, two attorney-coaches were interviewed. The interview with the law professor was conducted in a public place on campus. The interviews with the attorney-coaches were conducted while the coaches were at their law offices. Prior to the start of each interview, the study was explained to each participant and each participant signed a consent form, which outlined the purpose of the study and any risks or benefits that may be associated with participation (Appendix D). Interviewees were then asked to give their permission for the interview to be recorded. All participants agreed. Recordings were obtained through the use of the researcher’s digital audio recorder. Audio files were automatically created at the end of each session and the researcher transcribed each recorded interview using Microsoft Word. In addition, four law student interviews were conducted with two females and two males who ranged in age from 24-27. These students represented groups that used the wiki more frequently, as well as students from groups that did not use the wiki in order to cross check and verify the data. These student interviews were
conducted in public areas on campus. The procedure for interviewing each law student was identical to the procedure described for the law faculty and attorney coach.

Research questions and codes developed from the analysis of the use of the wiki were used as a basis for interview coding. Axial coding was conducted in order to analyze the relationships among emergent themes (Strauss and Corbin, 1990). An analysis of the relationships among the emergent themes can be organized into six categories: 1) a general acceptance of wiki technology, 2) a general reluctance to utilize technology, 3) a need for buy-in, 4) time constraints, 5) training, and 6) other barriers. These themes are discussed in greater detail in the following sections.

4.7.1 General Acceptance of Wiki Technology

Nearly all of the participants, to include students, attorney-coaches, and the law faculty member, recognized a value in using a wiki in the area of law. This is especially true of those who more frequently used the technology.

One of the attorney-coaches who frequently used the wiki stated, “I really like the collaborative effort and the way you could compartmentalize information, and … get instant feedback.” He went on to add:

I found it very beneficial for everything … a convenient communication tool, …for collaborative information sharing, …for task management, …project management, and …great for consolidation on a single task. You have that permanent store of information. I think it’s a phenomenal tool.

In addition, he said, “For a collaborative purpose, I haven’t come across a stronger technology for that. It gives me a chance to immediately give them feedback.”

The law professor stated, “I think what it did was allowed coaches to give more effective feedback that was available to the entire team.” He went on to clarify the importance of
such feedback by adding, “All of the students are seeing the critique, which allows them to grow and adapt faster than they would have with the usual feedback.”

Students also commented positively on the features of the wiki. One student stated, “I like the organization part of it… it was well organized. I think it’s a good program.” Another student stated that the wiki “promotes collaboration.” That student went on to state, “It was useful to share documents. I mean, that was the biggest thing that we used if for. It was helpful for that. It was nice to have that and we could share easily back and forth, instead of just emailing the same thing over and over again.” This student added, “That’s definitely a beneficial tool.”

Even some of the students who did not use the wiki with much frequency still recognized the potential benefits of a wiki. For example, one of these students stated, “I did check out the wiki and it did look more efficient.” This student went on to say, “My teammates attempted to use it. But coach was like no, I’m not using a wiki. So, we didn’t.” This student went on to say, “it would have made more sense, whether exchanging ideas and materials.” Furthermore, another of these students indicated that the wiki could enhance learning “If used properly.” Speaking about a wiki’s potential in legal education, another student said, “They might promote better in-class communication and participation with professors.” None of the participants indicated that a wiki would not be beneficial in the area of legal education.

Furthermore, participants seemed to recognize a value in using a wiki in the practice of law. One of the attorney-coaches stated, “I could see it being extremely beneficial.” He went on to state that a wiki would be a “…very easy way to share information” and to “…work on something across distances.” One student stated that, “It
could have a use in practice.” Another student stated, “I think that’s definitely possible. I would definitely consider it. I’m sure I will. I think it would just depend on the circumstances.”

Similar to the recognition of a wiki’s potential in legal education, some of the infrequent users of the wiki also indicated recognition of the potential benefits of using a wiki in the practice of law. For example, one of these students indicated that in the practice of law a wiki could, “makes a lot of things a lot less tedious, a lot more efficient.” Another of these students said regarding a wiki’s use in the practice of law said, “I would imagine once I learned how to actually use it, I would use it more and actually get other people to use it.” On the initial survey, another of these students indicated that a wiki could be good “Especially for large, complex cases with many participants.” Another student said, “I believe that with e-discovery and the globalization of the legal practice, being able to utilize collaborative technologies like a wiki page will help ease law students’ transition into the work force.” No participant indicated that a wiki would not be beneficial to the practice of law.

4.7.2 Reluctance to Use Technology

While participants recognized a number of positive benefits in using the wiki in both legal education and the practice of law, and while there appears to be a broad acceptance of technology in general, there also appears to be a reluctance to use technology. One of the attorney-coaches who used the wiki stated, “I’ll be honest, I came in with some trepidation factor.” However, this attorney-coach ended up using the technology more than any other participant. Based upon his experience using the wiki, he went on to state, “I really enjoyed it. I found the technology pretty easy to grasp.
Everyone seemed to be able to pick up on it very quickly. I can see that incorporated a lot more so than it was.” Despite this, the data also indicated a general reluctance in some participants to use technology. Students in several of the groups reported that their attorney-coaches refused to use the wiki from the start, before even attempting to explore its use. For example, one of the students in a group that did not utilize the wiki indicated that the team had attempted to use the wiki but stated that, “Then our coach was like, you know, we don’t really need this. I’m not using the wiki.” While referring to the use of the wiki by other attorney-coaches in charge of other student groups, another student said, “I think initially they did, but I think they kind of gave up on it.” Another student stated, “I just think it was underutilized because people did not want to have to figure it out.” In discussing the ability to leave comments, another student stated in regards to her group’s attorney-coaches, “I think that if they had known of those features it could have been something they could have utilized to get us comments and feedback back sooner.” Furthermore, the data also indicates that many of the law students were also reluctant to use the wiki. The law professor stated, “I know a lot of them did not use it to their full potential.” He went on to state that groups, even the ones that used the wiki most, “Still could have gotten more out of it. But for what they did do with it, I think what they did was a marked improvement from what they had done in the past.”

Furthermore, as pointed out in previous research, there still appears to be a continued reluctance to use technology in legal education. One student stated, “I have not seen professors who’ve really utilized it.” However, that student went on to say, “I’m sure there are ways that they can learn to integrate technology and I certainly would like
to see it.” While acknowledging a reluctance to use technology by some younger law faculty, another student also pointed to an association with age. This student said:

I think there is a generational divide and some older professors are less inclined to use technology in the classroom. However, there are also younger professors who have not figured out how to effectively utilize technology in the classroom, so they abstain from doing so and limit the use of laptops in their classrooms. Additional interview data seems to indicate that age appears to be a contributing factor. For example, one student stated, “Some of the older professors have been a little bit more reluctant, like they just haven’t figured out the newer technology. But definitely some of the newer, the younger professors are more willing to utilize new technology.” Another student stated:

I think it would be helpful that some of the older professors would use it, but I think their style has just been so ingrained for so many years that it would be hard for them to use the technology and to incorporate it into their lectures, their teaching.

When speaking about the use of technology in legal education, another student stated, “I think some of the younger professors have a better understanding of it just because, you know, being exposed to it differently.” This student went on to clarify this impression by saying, “I’m talking about some of the older professors who may not have been exposed to it. I’m not saying all, but some may not understand it as well.” These observations appear to be supported by law faculty. The law faculty member stated, “Older law professors have not been willing to use technology.” He went on to say:

Some of the older faculty members are more entrenched. That’s the way law school has always been taught. And it’s effective, certainly. The Socratic method is very effective for conveying and training students to think “like a lawyer” but I think with this new discussion of how law schools can better train students how better to practice, there are lots of thoughts and ways to incorporate technology into that.
4.7.3 Need for Buy-In

Although the wikis were developed and employed in a manner that would have supported the specific needs of the groups utilizing the wikis for their trial preparation, the interview data appears to indicate that user buy-in is an important factor. As the old adage goes, “You can bring a horse to water, but you can’t make it drink.” This notion seems to fit well with technology. As the attorney-coach who used the wiki the most stated, “It all depends on buy-in. It’s one of the biggest factors that I’ve noticed, and I’ve noticed it with a lot of good technology.” He went on to say, “If you have 100% buy-in, I think it’s great. If you have less than 100% buy-in, then you’re actually now creating dual paths that you have to follow.” As a result, there seems to be negative consequences when complete buy-in is not obtained. As the attorney-coach stated, “If you have 100% buy-in with your team, it’s outstanding. If you have holdouts …what you’re actually doing is creating almost a secondary hurdle.” This principle seems to be confirmed in the data. While reluctant at first, this attorney-coach embraced the technology and actively promoted it with his group. As a result, this group used the wiki much more than any other group. In addition, this group performed better than any other group using the wikis and placed higher in the trial competition than any other team in the research university law school’s history.

In addition, one of the students stated that, “I looked at it through the email you sent and was like, wow, this is really cool, but we didn’t use it.” This student indicated that the wiki would have been used more by the group, “if everyone would have.” This student went on to say that, “Our coaches weren’t interested; therefore, we weren’t interested.” Another of these students said, “those of us who hadn’t been on teams
assumed that those that had, had a better understanding of it.” This student went on to indicate that had the students with prior trial competition experience decided to use the wiki, “I think everyone would have used it more.” This student elaborated further, “everyone is doing it this way, we’ll just do it this way.”

4.7.4 Time Constraints

The interview data indicates that another major constraint identified by participants as a potential deterrent regarding wiki use was a lack of time. As stated previously, the groups using the wikis were participating in a trial competition with an extremely tight schedule. In addition, the university was hosting the competition, which proved to be a further hindrance. As pointed out by one of the students, it was difficult “trying to learn how to use a new technology when I’m so busy preparing for my trial.” He went on to say, “I didn’t want to spend the time to learn how to use something.” Another student stated, “Students were very busy. So having a sit down formal training, it’s hard for us. All having time to, you know, sit down and formally have a training.” Another student stated that the wiki was not easy to use because of “the limited time we had to learn it.” While discussing the time demands of the competition and the lack of use of the wiki, another student stated that, “honestly, I think that is probably the biggest factor.” This student went on to say, “I think if it weren’t for, you know, such a compressed time, and we had longer, over a longer period we were communicating, I think the wiki would have been more useful.” While discussing why their group had not used the wiki, another student said, “I think it’s just the particular circumstances surrounding our competition.” The student stated further, “We assembled as a team and started on fairly short notice. The nature of that situation caused us to not use it much.”
While discussing the demands of the trial competition, another student said, “you could be using your time to do other things instead of investigating this new type of technology.”

The time constraints of the trial competition also appeared to negatively impact the amount of editing that took place on the wiki. As stated by the attorney-coach who used the wiki the most, “We were going through some distinct time pressures, based on the very impending nature [of the competition], so there wasn’t a lot of editing that occurred.” He went on to state, “Therefore, the only person really doing the editing was the one who was originally posting it because they were getting the feedback live.” He also indicated that the group would have used the wiki more “had we been [in a] more drawn out competition.”

4.7.5 Need for Training

Another major constraint identified as a potential deterrent regarding wiki use was a lack of training. As stated previously, while formal training had been planned, as a result of the time constrains of the trial competition and scheduling demands of the law professor facilitating the program, the practicing attorneys serving as coaches, and the students participating in the competition who never formally met with the entire group, there proved to be no time available to schedule a formal training session. As a result, this lack of training proved to be a common theme. One student said, “Some level of training is helpful.” Another student stated, “I think that maybe if we had been trained on it before the semester started, or as part of our training with our trial team in general, rather than having to learn how to use it once we got there, I think it would have been
more effective.” Another student said, “Students have enough to learn as it is. In-class training could help with this.” While discussing the lack of training and the group’s use of the wiki, another student said, “I think it would have made it more likely that we would have used it more.” Another student stated, “I know if I had somebody hands-on who was like this is how to use it, these are the benefits, then I would be like, yeah, okay. Well, let’s use it.” Another student said, “Knowing about it ahead of time, I think, would have increased its use.”

In addition, because the participants had not undergone any type of training in the features of the wiki, many of these features were not utilized. For example, when discussing coaches leaving comments under a student page using the comment section of the wiki, one student said, “I don’t think we knew that was an option.” The importance of formal training was also pointed out by the law faculty member, who said:

I think the teams certainly would benefit from training in the system itself. I think the students are very tech savvy at a basic level, but understanding exactly how the wiki can benefit their trial development, I don’t know if they made that connection.

4.7.6 Other Barriers

In addition to the need for buy-in and time constraints as potential deterrents, there appear to be other challenges of implementing wiki technology in legal education pointed out in the interview data.

One of these barriers appears to be the contextual barrier of the nature of law school and the widely accepted historical design of legal instruction. First, as discussed above, many law professors have been somewhat unwilling to embrace new technologies. As pointed out by the law faculty member, “It’s not because they are all unwilling to try.
Reworking their curriculum is hard. There is a large amount of time involved. When you’ve been teaching a class a certain way for 15 or so years, it’s easy to just keep doing it the same way.” This idea was echoed by one of the students who said, “It’s not necessarily because they’re unwilling but maybe they don’t know how to better use technology.”

Related to the contextual barrier of the design of the curriculum and the attitudes of law faculty is the manner in which students are assessed. As pointed out by the law faculty member, “I am not sure if first year students would be willing to use a collaborative system like this. The way the system works, it does not reward collaboration. The grading curve and GPAs are a major part of the system.” However, he stated further that, “I think even for the first year [courses] it could work with some real thought in how they are going to engage the students in doing this.” As such, there is the possibility that these barriers can be overcome. As suggested by the law faculty member:

The Socratic method is very effective for conveying and training students to think “like a lawyer” but I think with this new discussion of how law schools can better train students how better to practice, there are lots of thoughts and ways to incorporate technology into that.

He went on to say, “Some schools are changing their opinion about that. For example, Stanford and Berkley are starting to promote collaboration by having students work together.” Furthermore, there are other areas in the law school curriculum where technology might prove to be an appropriate fit. For example, wikis and other collaborative technologies could be utilized in courses beyond the first year curriculum. For example, the attorney-coach indicated that wikis could work in “practical courses and
seminars.” This suggestion is supported by the law faculty member who stated that wikis could work in, “Advanced courses, skills development courses, and clinics certainly. In all of those I think wikis could be a wonderful asset.” Students also appear to support this idea. As suggested by one student, “it depends on the course.” Another student said, “In some subjects it may not be as rewarding, but in others it has more value.”

Another barrier pointed out in the interview data is competing technologies and personal preferences. When users are challenged with learning how to use a new technology, especially when pressed for time, there appears to be a tendency to utilize technologies with which they are already familiar. For example, one student stated, “A lot of our collaboration ended up being done by Dropbox. I find that something like Dropbox is a little bit easier for me because I already have something on my desktop.” Dropbox is a recent Internet-based file sharing application that relies upon the concept of cloud computing, which describes a variety of technologies that involve a large number of computers connected through a synchronous, or real-time, communication network. The Dropbox application appears on the Computer’s desktop as a folder, in which users can drag and drop files without logging on to the application. In addition, it was reported that other groups simply resorted to email. For example, one student said, “I don’t even know if the coaches were using the wiki site. They would normally email us comments back.” Another student said, when discussing how attorney-coaches would review their documents, “They asked that we email it to them.” Another student added, “There are currently too many competing systems for collaboration. The school should try to standardize this. What's difficult is when every professor has a different system.” One of the students in a group that did not use the wiki said, “We just did everything through
email. We did email. So, that was kind of our reasoning for not using it. Our coach really didn’t care to. So we used email.”

An alternative preference or group consensus was another barrier pointed out in the interview data. For example, one of the students whose group did not use the wiki indicated that group members just went along with the preference chosen by students who had prior trial competition experience. This student said, “Some people who had been on teams before had never used them. And those of us who hadn’t been on teams before, we were just kind of like, okay.” As a result, this team only collaborated in person, as the more experienced group members had done in the past. The student said it was “a group consensus.”

Finally, there appears to be unseen technical issues that can result in a barrier. While the technology utilized by the wiki interface provides a method for monitoring all successful changes that were being made on the wiki, it does not provide the ability to monitor attempted but unsuccessful changes, and thereby provide the ability to give needed assistance. For example, one student said, “I tried to upload the video to the wiki site but the file was too large.” Another student reported that, “One time I tried to use it and it did not save all of the text that I had entered, so I was immediately frustrated.” However, the wiki interface does not record such failed attempts to utilize the technology. As a result, some users might have attempted to use the wiki and quit because of similar unresolved technical problems. While a Q&A forum was set up on each wiki’s resource page to handle such issues, this page went unused. Relating back to training, had it been possible to conduct a formal training session, this feature would have been emphasized and students would have been trained in its use.
4.7.7 Summary of Interview Data

An analysis of the interview data illustrates several emergent themes. First, participants recognized a value in using a wiki in the area of law, especially among those who more frequently used the technology. Participants indicated that the use of a wiki is a beneficial tool for effectively promoting communication and collaboration. There was also a recognition of the benefits of using a wiki in the practice of law. Participants indicated that a wiki would be beneficial for working more efficiently and sharing information across distances, especially for large and complex cases involving many contributors. Second, despite a general acceptance of technology in general, participants indicated a general reluctance in legal education to use technology. Furthermore, participants pointed to an association with age, with students and most younger law faculty being much more willing than older faculty to utilize technology as a part of their legal instruction. Third, the interview data appears to indicate that user buy-in is an important factor in technology acceptance and utilization. While positive benefits were indicated when there was complete buy-in, negative consequences were identified when there are holdouts, to include secondary hurdles like dual communication paths. Fourth, participants identified time constraints as a major barrier. Because groups using the wikis were participating in a trial competition with an extremely tight schedule and the research university’s law school was hosting the competition, there was a lack of time for both a formal training session and time in learning how to use unfamiliar technology, which appeared to have negatively impacted the amount of editing that took place on the wiki. Had the competition been more drawn out, participants indicated an increased likelihood of both accepting the unfamiliar technology and committing to learning how to utilize it.
This fourth barrier ties into the fifth identified barrier: lack of training. While formal training had been planned, there was no time available to schedule a formal training session as a result of the time constrains of the trial competition and scheduling demands of all participants, who indicated that the wikis would likely have been utilized more had there been time for formal training. Finally, a number of other barriers were identified by some participants as challenges to implementing wiki technology in legal education. These include a contextual barrier of the nature of law school and the widely accepted historical design of legal instruction, with many law faculty strictly utilizing the Socratic Method; a contextual barrier of the design of the curriculum and the attitudes of law faculty is the manner in which students are assessed, with many faculty members relying upon a pre-existing curriculum which promotes competition and does not encourage collaboration, especially in primary law courses; a barrier of the availability of other competing technologies and personal preferences, with which participants were more familiar and more willing to utilize as a result; and a barrier of unseen technical issues, to include the current inability of the wiki platform used to identify failed attempts to utilize the technology leading to increased frustration and an abandonment of future attempts to utilize the technology. While the interview data indicates that these barriers can result in many law professors and some law students being unwilling to embrace and utilize new technologies like wikis, the data also suggests that these barriers can be overcome.

4.8 Conclusion

This study was designed to provide data about the potential use of wiki technology in the area of law. The initial online surveys provided data with respect to user attitudes and perceptions about incorporating wiki technology for educational purposes and in the
practice of law. In addition, detailed data on how the wikis were actually used was collected. In addition to the results of the initial online survey and detailed tracking of how users actually utilized the wikis, follow up interviews served to add more depth and breadth to this data and provided detailed information about use, attitudes, and perceptions of those using the wiki.

An analysis of the overall wiki edits data shows that the edits generally fall into three levels: 1) wiki edits were organizational and file sharing, as a primary aspect of the trial competition preparation involved the development of trial documentation which posted on the wiki and organized for easy access, 2) wiki edits that served to communicate informative content with other members of the trial team and coordinating team activities, and 3) wiki edits which consisted of basic edits to content and basic formatting.

An analysis of the online survey data shows that law students participating in this study indicated a familiarity with technology and a tendency to adopt new and emerging technology. However, while most law students indicated an acquaintance with and eagerness to use technology, they also indicated a minimal amount of experience with web-design tools like wikis. Yet, after using the wiki, the majority of law students indicated that the wiki interface and features were easy to use. Furthermore, the vast majority of law students reported that they would have used the wiki more if its benefits were clearly demonstrated in advance. In addition, the majority of law students indicated that wiki training would have been useful. Regarding the law students’ perceived pedagogical value of a wiki, the vast majority of law students indicated a positive pedagogical value indicating that a wiki promotes collaboration and interaction, could
help students learn more, and could help enhance learning. Furthermore, while these law
students did not indicate much interest in using wikis in other law courses, the majority
did indicate that they would like using a wiki in conjunction with their future practice of
law.

Finally, an analysis of the interview data illustrates several emergent themes.
First, participants recognized a value in using a wiki in the area of law, especially among
those who more frequently used the technology. Second, despite a general acceptance of
technology among law students, participants indicated a general reluctance in legal
education to use technology. Among law faculty, this reluctance seems to be association
with age. Third, the interview data appears to indicate that user buy-in is an important
factor in technology acceptance and utilization, with positive benefits with complete buy-in
and negative consequences when there are holdouts. Fourth, participants identified
time constraints as a major barrier. With more time, participants indicated an increased
likelihood among users to both accept unfamiliar technology and commit to learning how
to utilize it. Fifth, participants indicated the importance of training. Finally, a number of
miscellaneous barriers were identified as challenges to implementing wiki technology in
legal education, to include a contextual barrier in the nature of law school and the widely
accepted historical design of legal instruction, a contextual barrier in the use of
curriculum designs that promote competition and the attitudes of law faculty is the
manner in which students are assessed, the availability of other competing technologies
and personal preferences, and a barrier of unseen technical issues, to include the current
inability of the wiki platform to identify failed attempts to utilize the technology leading
to increased frustration and an abandonment of future attempts to utilize the technology.
While the interview data indicates that these barriers can result in many law professors and some law students being unwilling to embrace and utilize new technologies like wikis, the data also suggests that these barriers can be overcome.
CHAPTER FIVE:  
DISCUSSION AND CONCLUSIONS

The primary purpose of this exploratory case study was to explore possible factors that contribute to a perceived pedagogical value of wiki technology in legal education, as well as exploring the attitudes and perceptions of law faculty and law students regarding the effectiveness of using wikis as a productivity tool for improving outcomes in group activities in a collaborative environment in legal education. To further guide this primary purpose, a number of research questions were developed for the study. These include: 1) Do law students’ exhibit characteristics that demonstrate a preparedness and willingness to utilize technology in legal education, 2) What are law students’ attitudes and perceptions as these relate to the use of a wiki as a productivity tool for student collaboration, 3) Can the use of a wiki as a productivity tool for collaborative projects in legal education improve outcomes in comprehensive group activities in a collaborative environment in legal education, 4) Do law students recognize a pedagogical value in using wikis as an instructional strategy in the area of legal education, 5) Does law faculty recognize a pedagogical value in using wikis as an instructional strategy in the area of legal education, 6) Can the use of wikis in legal education increase the use of technology in legal education and/or in the future practice of law, 7) Is age associated with a perceived pedagogical value of technology in legal education, and 8) Are there possible barriers to the use of technology and wikis in the area of legal education and/or the practice of law?

Qualitative methods were utilized in this study in order to obtain data that could possibly answer these research questions. The results of an analysis of collected data in this case study enabled the researcher to draw conclusions and make recommendations
for future practice and study. As a result, this chapter is organized into four sections: 1) Discussion of Findings, 2) Conclusions, 3) Recommendations for Practice, and 4) Implications for Future Research.

5.1 Discussion of Findings

Demographic and qualitative data acquired through online surveys of participants and through detailed tracking of the use of the wiki was the primary source used to answer the research questions listed above. The use of additional qualitative data obtained through participant interviews was used to provide additional support for the results obtained and to enable the researcher to triangulate the data and discuss the results with greater detail.

The data implies that law students are accepting of technology and of wikis. In addition to exhibiting a desire to use technology in legal education, to include wikis, law students also appear to possess the technical skills required to use technology at an advanced level. Moreover, legal practitioners and law faculty, especially younger faculty, are also generally accepting of technology and wikis. The data suggests that the law students, legal practitioners, and law faculty in this case study indicated a recognition of both the wiki’s value as a pedagogical tool, as well as its value in promoting collaboration. Furthermore, the data suggests that participants may have held the wiki in even higher esteem had the wiki’s value been demonstrated to them in advance. However, this was not possible in this case study because the participants never met with the whole group, and as such, were not able to undergo training in the wiki’s use, which could have demonstrated the value of the wiki in advance. Nevertheless, while the data
implies a general acceptance of technology in general and collaborative technologies like wikis, this acceptance is not unconditional.

The data indicates that a number of prerequisite conditions need to be in place in order for wiki technology to be fully utilized. Regarding a wiki’s pedagogical value, the data indicates that wikis could be very valuable in advanced law courses, and in practical courses, skill building courses, and seminars. While a wiki could have a pedagogical value in lower-level law courses that students take during their first year of law school, the course design of these types of lower-level law classes would likely require restructuring to make collaboration a more prominent aspect of the course in order for wikis to have greater value. Additionally, the current method that most law schools utilize to assess law students, one that places tremendous importance on individual grades and student ranking, would also have to be addressed. This method of student assessment rewards individual success, which promotes competition among law students, and thereby makes collaboration an unattractive pursuit. As such, wiki technology would not have much value. However, a few top-tier law schools in the United States (like Berkeley, Stanford, and Yale) are attempting to reconsider this approach to student assessment by promoting student collaboration. Furthermore, the data seems to indicate that older law faculty are less willing to embrace any technology, to include wikis. As a result, these older law faculty members, and possibly some younger law faculty members as well, will likely need to be provided with support in redesigning their courses so that the integration of technology as a pedagogical tool in legal education, to include wikis, is a less arduous task. However, it is possible that these faculty members are so entrenched in their current teaching techniques that they will be persistently unwilling to change their
approach to instruction regardless of how much support they receive. Integrating technology like wikis into higher-level law classes, where collaboration is already encouraged, appears to be a much easier undertaking because little to no changes in course design are required.

Another important factor that can impact the pedagogical value of wiki technology is the time constraints of law school. Modern law students appear to be under inordinate time limitations. As such, and because so much emphasis is placed on a law student’s single grade in a law course, students may be less willing to embrace unfamiliar technologies, like wikis, that do not hold individual effort and performance at a premium. Students appear more willing to spend their valuable time in individual pursuits rather than risking potential interruptions that can result from collaboration that is not counted towards their overall grade. In addition, student may be unwilling to expend their valuable time trying to learn to use a new or emerging technology with which they are unfamiliar. As a result of severe time constraints, law students may be so focused on their studies and their grades that they fail to see the potential value of wiki technology, or any new or unfamiliar technology, and the possible benefits of its use.

Another important factor that can impact the pedagogical value of wiki technology in legal education is training. The data indicates that when students are pressured by the demands of legal education and harsh time constraints, they are less likely to put forth the effort required in learning how to use new technologies. As such, training appears to be of critical importance. Law students and law faculty need to be provided training in the use of wikis, or any technology, for its integration to be successful and its pedagogical value to be fully realized through its demonstrated use.
Moreover, this training should ideally be provided in advance, outside of the parameters of the regular semester when there is sufficient time to devote to learning to use the technology and much less stress.

Regarding the use of wiki technology as a productivity tool for improving outcomes in group activities in a collaborative environment in legal education, the data also indicates a number of prerequisite conditions must be in place for it to be most effective. While time constraints and training are equally important, there are additional factors. The data indicates that one of these additional prerequisite conditions is buy-in. Users appear to be less likely to utilize wiki technology if everyone in the group has not embraced its use and everyone is not actively using it. Full participation appears to be concordant with a groups’ need to collaborate and coordinate. Additional barriers are created when there is not complete buy-in, which can result in decreased use of the wiki, or other technology, or no use at all.

Another important prerequisite condition is having one accepted technology. The data indicates that participants were familiar with many competing technologies, and when there is not complete buy-in, or a lack of time, or a lack of training, participants will resort to technologies with which they are more familiar and can utilize with a higher level of confidence. Furthermore, in addition to wikis, there are now a number of competing technologies that are designed to promote collaboration. As such, it appears important to identify one technology and promote its use. Such an effort should also include adequate training, which should demonstrate the technology’s value in advance of its use. Moreover, it would be beneficial to select a technology that can bridge the gap between law school and the practice of law. Courtrooms are currently being designed
with technology in mind and wikis are currently being utilized in many law firms to aid attorneys in their practice of law. The data suggests that law students recognize a value in utilizing wiki technology in the practice of law, and as such, many of the participants indicated that they would be willing to consider its use in their future practice of law.

Another important prerequisite condition is having unfettered access to law student participants. As previously discussed, finding a law faculty member who was willing to participate in this study and serve as a gatekeeper, thereby providing access to law students, proved to be a significant barrier. While the deans and faculty members from every law school in the state were contacted, only two law faculty members expressed interest in participating in the study, of which only one ultimately agreed to participate. This appears to support the findings of previous research concerning the apathetic attitudes of legal faculty regarding the use of technology in legal education. This attitude of indifference was encountered by this researcher and seemingly supports the notion that the culture and historical climate of legal education continues to be resistant regarding the use of technology, especially among older law faculty members who appear to be less willing to use technology in legal education. Furthermore, these apathetic attitudes were also encountered in most of the legal practitioners who were serving as attorney-coaches for the trial competition teams. As a consequence, future researchers should be cognizant of the dangers of these lethargic attitudes. In addition to hindering access to participants, these adverse attitudes in law faculty and legal practitioners serving as mentors can result in a negative influence on the attitudes of law student participants. In addition, it was discovered that the legal practitioners who held negative attitudes regarding the use of technology and who were serving as attorney-
coaches for the law students participating in the trial competition became a secondary gatekeeper by blocking access to the law student participants. This phenomenon had not been encountered in previous research.

As discussed in section 2.2, this research is based on five theories of learning: constructivism, engagement theory, communities of practice, socio-cultural or social constructivism, and situated cognition. The results of this study tend to support these theories of learning as they relate to wiki technology. Regarding constructivism, many participants reported that a wiki could enhance learning and help students learn more. In addition, both the attorney-coach for the team using the wiki most and the law faculty member indicated that the wiki allowed law student to construct a better understanding of the information. Regarding engagement theory, the use of a wiki engaged law students in a digital environment and students, especially those who had used the wiki more frequently, reported that wikis promote collaboration and interaction, and that they like seeing other students interact with the material that they post online. Regarding communities of practice, the use of the wiki in the trial practice competition created a network of users who shared a common interest in a specific area of knowledge and competence, and many of the law students indicated that they would be willing to use a wiki in their future practice of law. In addition, the law faculty member and the attorney-coach who used the wiki the most both indicated that they would continue to explore uses of wiki technology. Regarding socio-cultural or social constructivism, it was possible to design the wiki in this case study in a manner that engaged law students in the process of entering the practice, values, and the ways of thinking and speaking of the field of law. This is also true of the use of a wiki in legal education. Similarly, regarding situated
cognition, the wiki in this case study was designed in a realistic context. Again, it was possible to design the wikis for the trial teams in an exact manner that a wiki would be utilized in the practice of law. Furthermore, when students utilized the wiki in this manner, they appeared to be better able to understand and utilize the legal information maintained on the wikis.

5.2 Conclusions

This section contains conclusions based on the findings from this study. Conclusions are organized by the individual research questions of the study.

Research Question 1: Do law students’ exhibit characteristics that demonstrate a preparedness and willingness to utilize technology in legal education?

The online survey results and the results from student interviews indicate that law students are prepared and willing to utilize technology in legal education. Students reported that they have been using technology for many years. The vast majority, over 95%, described their computer skills as intermediate or better, indicating a familiarity with technology. In addition, when asked to describe their tendency to adopt new or emerging technology, the majority indicated a willingness to utilize new technology. None of these law students indicated that they were slow to adopt technology. Furthermore, as many have used technology as a part of their education prior to entering law school, many expressed a desire to utilize technology as a part of their legal education, especially in advanced courses. The only area that could prove troublesome is in the area of their experience with web design tools. However, having used a wiki, most of these law students described their understanding of the technology as average or above average. Additionally, most indicated that the wiki interface and its features were easy to
understand, that browsing and editing the wiki was easy, and that compared to other discussion forums like Moodle, Blackboard, and WebCT, the wiki was easy to use. Finally, the law faculty member and the attorney-coach described law students as being eager and quick to learn new technology.

Research Question 2: What are law students’ attitudes and perceptions as these relate to the use of a wiki as a productivity tool for student collaboration?

While not all groups used the wiki to the same degree, participants tended to indicate positive attitudes and perceptions. Almost all participants, over 90%, valued the wiki’s ability to promote collaboration. In addition, the majority also valued the wiki’s ability to share files, to share knowledge, to co-create content, to comment on content, to access content anywhere, to track changes, and to give group members the ability to interact more with others. Furthermore, while not all groups utilized their wiki to its full potential, many students indicated that this was because the group’s attorney-coaches did not choose to utilize the technology. They also indicated that if other group members had used the wiki more, they too would have been inclined to use the wiki more. This might relate back to time constraints and a lack of training. Had there been adequate time, and had everyone been provided with advance training in using the wiki and through such training demonstrated the wiki’s full potential, it is possible that groups would have used their wiki more, and as such, recognize the wiki’s value and appreciate it more.

Research Question 3: Can the use of a wiki as a productivity tool for collaborative projects in legal education improve outcomes?

While no causal link can be claimed, the group that used the wiki most in this case study outperformed every other group. As mentioned above, this group placed 1st in
Defense nationally and 2nd Overall nationally, which was the best performance in the university’s history in this competition. In addition, another one of the groups using the wiki more frequently placed 3rd regionally, which was also the best performance in the university’s history in this competition. These results would tend to indicate improved outcomes. And again, while no causal link can be explicitly claimed, both the law professor facilitating the competition and the attorney-coach for the team that used the wiki most indicated that the wiki was a factor. Both indicated that the wiki allowed students to engage more with each other and with the material, which was an unseen value when monitoring the wiki’s use. As a result, it was reported that law students were better able to access the material before they met with their trial groups and better able to discuss the material while they were meeting with the trial groups.

Research Question 4: Do law students recognize a pedagogical value in using wikis as an instructional strategy in the area of legal education?

The online survey results and the results from student interviews indicate that students do recognize a pedagogical value in a wiki. Over 90% indicated that they believed a student could learn more by using a wiki and over 80% indicated a belief that a wiki could enhance learning. In addition, 3 out of 4 students felt that the wiki promotes collaboration and interaction and that they would like seeing other students’ interaction with material they posted, both of which are positive features in a learning environment. A number of students also recognized a value in the use of a wiki in advanced courses. While the results for the questions dealing with whether a wiki was worth the extra time and effort were mixed, most of the negative responses were linked to time constraints of the competition and a failure of all students to actively use it. Had there been more time
and had everyone in the group utilized the wiki more, it is possible that more students would have felt that the use of a wiki in legal education is was worth the extra time and effort.

Research Question 5: Do law faculty recognize a pedagogical value in using wikis as an instructional strategy in the area of legal education?

The results from the instructor interview indicate that law faculty do recognize a pedagogical value in wiki technology. However, there are also recognized potential limitations. First, the competitive nature of law school could prove to be an impediment. Second, while it could fit in first year courses, it would require more thought and course curriculum redesign. However, for advance law courses, practical courses, and seminars, there appears to be a conclusive recognition of a wiki’s pedagogical value. This belief was also confirmed by the results of law student and attorney-coach interviews. Furthermore, while limitations have been recognized in lower-level courses, a number of top-tier law schools are starting to incorporate wiki technology with first year students.

Research Question 6: Can the use of wikis in legal education increase the use of technology in education and/or in the future practice of law?

Regarding the future use of wiki technology, the results of online surveys and interviews are mixed. Regarding the future use of wiki technology in legal education, a large percentage of students indicated that they would not like law classes that use wikis and they would not recommend classes that use wikis to other students. Only 33.3% of students indicated that they would like wikis in other law classes. However, a number of these students indicated that they could not see how this could be done and most of these
students are also close to graduation. Nevertheless, about 47% of students indicated that
they would recommend classes that use wikis. Furthermore, the faculty member
indicated a definite desire to utilize wiki technology in a number of areas. These include
his future trial preparation courses, his future skill courses in appellate practice, with his
negotiations and arbitration groups, and while it may take some course redesign, with his
mediation students. Regarding the future use of wiki technology in the students’ future
practice of law, a large majority, 71.4%, indicated that they would consider it. In
addition, one student indicated that the use of wiki technology in the practice of law
would be especially useful for large, complex cases with many participants.

Research Question 7: Is age associated with a perceived pedagogical value of
technology in legal education?

The results of online surveys, as well as student and faculty interviews indicate
that age does appear to be associated with a perceived pedagogical value of technology in
legal education. The study indicated that law students were open to using wikis and other
technology as a part of their legal education. However, as suggested in previous
research, law students and the law faculty member both indicated that law faculty have
been less likely to utilize technology, especially older law faculty. A number of possible
reasons for this apparent phenomenon were indicated. These include older law faculty
being entrenched in a traditional approach to legal education, an unwillingness or
inability of older law faculty to redesign their curriculum, and a lack of understanding in
older law faculty in exactly how technology can be utilized as a pedagogical tool.

Research Question 8: Are there possible barriers to the use of technology and
wikis in the area of legal education and the practice of law?
The data indicates that there are contextual factors associated with law school to include a failure to look beyond the Socratic Method of teaching law, as well as the competitive nature of legal education in which students are rewarded for individual success rather than for collaboration. Another demonstrated barrier is the need for users to be proved with prior training in the use of wiki technology and to have such training demonstrate the wiki’s value in advance of its use. Over 85% of the participants indicated that they would be more inclined to use the technology if its value was demonstrated in advance. In addition, 71.4% of the participants indicated that training would help them better understand the wiki. An additional demonstrated barrier is the severe time constraints and high stress levels associated with legal education. As law students do not have sufficient time to devote to learning new technologies during the stressful demands of the regular semester, prior training would also be beneficial to addressing this barrier. Another demonstrated barrier is the need for obtaining buy-in from all participants. The data indicates that users are more willing to utilize new and unfamiliar technology when there is a high level of buy-in. A final demonstrated barrier are competing technologies in that users tend to resort to the use of more familiar technology when confronted with learning how to use new technology, especially in a situation where time is limited. However, prior training that adequately demonstrates the value a new technology could likewise address this issue.

5.3 Recommendations for Practice

Based on the results of this study, the following recommendations are proposed to support the use of wiki technology in legal education, and in the practice of law:

1. Law schools should actively promote the use of not only collaborative technology
like wikis in legal education, but an increased use of technology in general among all law faculty members by increasing the dialogue among all stakeholders, to include law students, law faculty, law administration, legal practitioners, and the courts regarding valued and useful technology.

2. While the Socratic method continues to be a powerful technique for developing critical thinking skills in law students, law schools and law faculty should explore alternative yet equally powerful authentic teaching techniques that promote the development of these critical skills through the use of technology, especially technology like wikis that can provide a connection between the use of the technology in legal education and the use of the technology in the practice of law.

3. As some top-tier law schools are beginning to do, law schools should consider alternative techniques for assessing law students in lower-level law courses, especially techniques that promote greater collaboration among students in legal education.

4. As some top-tier law schools are beginning to do, law schools should consider ways for redesigning and restructuring lower-level courses to better assist law faculty in effectively integrating technology and collaborative tools like wikis. Such changes might not be necessary when integrating such technology in upper-level courses, practical courses, and seminars.

5. To promote buy-in, law schools should develop a shared vision for the use of technology, to include wikis, among all stakeholders, to include law students, law faculty, support staff, and law school administration, as well as legal practitioners, the courts, and the law community at large.
6. Law schools should develop a systematic plan aligned with the shared vision for implementation of such technology in legal education. This systematic plan should include policies and initiatives that support the technology’s implementation.

7. Law schools should provide ongoing training for law students and law faculty that clearly demonstrates the capabilities and benefits of wiki technology, as well as its potential use in legal education. Such training should be provided outside of the parameters of the regular semester when demands are not so numerous and time is not so limited to both reduce stress and provide law student and law faculty adequate time to learn how to use the technology.

8. Law schools should provide consistent and reliable technical support to law students and law faculty in the use of the technology to address potential problems, and to law faculty to assist with designing, implementing, maintaining, and evaluating all technology learning resources like wikis in legal education.

9. Law schools should develop and maintain a resource page that is easily accessible over the law school’s local area network with demonstrated best practices and recommendations regarding the use of wikis and other technologies that would be applicable and appropriate for use in legal education.

5.4 Implications for Future Research

This study assisted in identify attitudes and perceptions of law students and law faculty about the perceived pedagogical value of wiki technology in legal education, as well as attitudes and perceptions of law students, law faculty, and legal practitioners regarding the effectiveness of using wikis as a productivity tool for improving outcomes.
in group activities in a collaborative environment in legal education and in the practice of law.

While the results of this study were informative, there are limitations. This case study was conducted at only one law school with a limited number of law students and law faculty. As a result, future researchers could attempt to include multiple law schools, and a greater number of law students and law faculty members. This was not possible in this study because, while attempted, there still appears to be considerable reluctance on the part of law schools and law faculty to avail themselves and their students to such studies. As such, future researchers should prepare for this actuality and attempt to develop some approach that might induce greater and more enthusiastic participation. In addition, future researchers should be cautious of and prepared to deal with participants who possess apathetic attitudes towards the use of technology and as such, could potentially function as an impediment to the research. Furthermore, as a result of the numerous demands and severe time constraints of modern legal education, not to mention the high level of stress, some law students also exhibit a reluctance to fully participate in such studies. As such, future researchers might obtain greater participation from law schools, law faculty, and law students if future research was conducted outside of the parameters of the regular semester. In doing so, both law students and law faculty might be more willing to fully participate because of fewer demands and fewer time constraints.

In addition, future researchers might also benefit by having greater participation from and greater access to student participants. A number of previous research studies dealing with wiki technology indicated that student participation was encouraged by making participation a major factor in grading. This was not possible in this study and
may not be possible in future studies involving law students. Furthermore, making participation a factor in grading could prove to be a double-edged sword. While it could possibly promote greater participation, it could also possibly negatively influence students’ attitudes, which could be especially true in legal education where law students typically receive only one grade in a course. In similar future investigations, researchers should also be cognizant of the actuality that participants who possess apathetic attitudes towards technology could serve as secondary gatekeepers, thus further limiting access to participants. In addition, while the support of the law faculty member in this case study was greatly appreciated, future researcher might benefit from having greater access to the student participants. For example, while training was recognized as a critical factor at the onset of this research and had been planned, such critical training could not be conducted because of limited access to the participants in this study. All of the students and attorney-coaches participating in this study never met as an entire group. As such, future researchers would benefit by being allowed to meet with the entire group. Correspondingly, if participants meet in smaller groups, as they did in this study, researchers would benefit by being able to meet with these smaller groups. In either event, future researchers should preferably have reliable access to student participants and be able to meet with them on a regular basis. Furthermore, as discussed above, future research would benefit by providing critical training in advance of the technology’s use, and again preferably outside of the parameters of the regular semester when law students are not impacted by the educational demands or time constraints of legal education. Such training is also important for demonstrating the advantages of the technology in advance of its use, which this and previous research has recognized as a
critical factor for obtaining buy-in from participants. In addition, training is important for illustrating the use of the wiki and key features of the technology that were underutilized in this study because of a lack of training.

Another implication for future research is ensuring that there will be adequate time to utilize the wiki. In addition to the time constraints of law students and law faculty participating in this study as a result of the study being conducted during the regular semester, there were additional time constraints in this study resulting from the deadlines of the trial competition for which the wiki was being used. While the use of the wiki in this study was unique in that the wiki was employed as both a teaching tool and in a manner that connected the wiki with its potential use in the practice of law, the trial competition’s limited time frame resulted in an even greater impediment than would have been brought about by using the wiki during the entire length of a regular semester. In addition to the time demands of law students during the regular semester, there were additional time demands resulting from the trial competition’s brief schedule. Future research would benefit by ensuring that there is adequate time to utilize the wiki technology with no additional demands or deadlines.
REFERENCES


Survey Questions

Please respond to each of the questions presented below. Feel free to provide additional information for any question in the space provided. Your answers to this survey will help in identifying demographic information, as well as important information regarding the learning and pedagogical value of a wiki, its motivational value, its potential in promoting collaboration and interaction, technology information, and information related to wiki training and resources. Your participation is greatly appreciated!

ALL INFORMATION PROVIDED IS STRICTLY CONFIDENTIAL!

1. **Name?**

2. **Gender?**
   - [ ] Male  [ ] Female

3. **Age?**

4. **Years of previous work experience?**

5. **Years of experience working with computers?**

6. **How would you classify your computer skills and experience working with technology?**
   - [ ] Beginner  [ ] Intermediate  [ ] Advanced

7. **How would you classify your tendency to adopt new or emerging technology?**
   - [ ] One of the first to try new technology
   - [ ] Not the first, but ahead of most
   - [ ] Will try once it becomes popular
   - [ ] Slow to adopt new technology
   - [ ] One of the last to adopt new technology

8. **How would you classify your experience with webpage design tools (webpage creation, blogs, wikis, etc.)?**
   - [ ] Beginner  [ ] Intermediate  [ ] Advanced
   - [ ] Other (Please Specify):

9. **On a scale of 1-5 (with 1 being the least and 5 being the most), how would you rate your UNDERSTANDING of wikis?**
   - [ ] 1  [ ] 2  [ ] 3  [ ] 4  [ ] 5
   - [ ] Other (Please Specify):
10. On a scale of 1-5 (with 1 being the least and 5 being the most), how would you rate your use of your group's wiki?
   - [ ] 1
   - [ ] 2
   - [ ] 3
   - [ ] 4
   - [ ] 5
   - Other (Please Specify):

11. Would you use a wiki more if its benefits were clearly demonstrated in advance?
   - [ ] Yes
   - [ ] No
   - Other (Please Specify):

12. The feature(s) of a wiki that I like included the ability to (select all that apply):
   - [ ] Share files
   - [ ] Collaborate with users
   - [ ] Comment on content
   - [ ] Track changes
   - [ ] Share knowledge
   - [ ] Co-create content
   - [ ] Communicate with users
   - [ ] Access content anytime
   - [ ] Interact with users
   - [ ] Edit user content
   - [ ] Track project development
   - [ ] Other (Please Specify):

13. Through the use of a wiki, I believe a group could (select all that apply):
   - [ ] Come to a consensus faster
   - [ ] Participate more on a project
   - [ ] Easily achieve a project's objectives
   - [ ] Interact more with other users
   - [ ] Stay on task more
   - [ ] Other (Please Specify):

14. Could the use of a wiki enhance a user's interest in a project?
   - [ ] Yes
   - [ ] No
   - [ ] Not sure
   - Other (Please Specify):

15. Could a user learn more because of information posted by other students on a wiki?
   - [ ] Yes
   - [ ] No
   - [ ] Not sure
   - Other (Please Specify):

16. Could using a wiki promote collaboration and interaction?
   - [ ] Yes
   - [ ] No
   - [ ] Not sure
   - Other (Please Specify):

17. Would you like seeing other students' interaction with material you posted on a wiki?
   - [ ] Yes
   - [ ] No
   - Other (Please Specify):
18. Are the benefits of using a wiki worth the extra effort and time required to learn how to use it?
   ☐ Yes ☐ No
   ☐ Other (Please Specify):

19. Would you prefer classes that use wiki technology over classes that do not use wikis?
   ☐ Yes ☐ No
   ☐ Other (Please Specify):

20. Would you like to use wikis in other law courses?
   ☐ Yes ☐ No
   ☐ Other (Please Specify):

21. Would you recommend classes that use wikis to other students?
   ☐ Yes ☐ No
   ☐ Other (Please Specify):

22. Will you explore the use of wiki technology in your legal career?
   ☐ Yes ☐ No
   ☐ Other (Please Specify):

23. The wiki interface and features were overall easy to understand?
   ☐ Yes ☐ No
   ☐ Other (Please Specify):

24. Benefits of using the wiki outweighed any technical challenges of its use?
   ☐ Yes ☐ No
   ☐ Other (Please Specify):

25. Browsing and editing content and information on the wiki was easy?
   ☐ Yes ☐ No
   ☐ Other (Please Specify):

26. Compared to other discussion forums (like Moodle, Blackboard, WebCT), the wiki was easy to use?
   ☐ Yes ☐ No ☐ I've never used discussion forums
   ☐ Other (Please Specify):
27. Technical features of a wiki could help enhance learning?
   ☐ Yes  ☐ No  ☐ Other (Please Specify):

28. Would wiki training help you better understand how to use the wiki?
   ☐ Yes  ☐ No  ☐ Other (Please Specify):

29. Did the tutorial provided on the wiki help you better understand how to use the wiki?
   ☐ Yes  ☐ No  ☐ I did not use the tutorial  ☐ Other (Please Specify):

30. Did the video provided on the wiki help you better understand how to use the wiki?
   ☐ Yes  ☐ No  ☐ I did not watch the video  ☐ Other (Please Specify):
APPENDIX B: INSTRUCTOR INTERVIEW PROTOCOL

Instructor Interview Protocol

1. What is your experience regarding the use of technology in legal education? Do you feel that legal educators have been accepting of and/or have appropriately utilized currently existing or new technologies, especially as such technologies support legal education?

2. Based upon your observations of the collaboration between your students using the wiki, how has wiki technology contributed to student interaction and collaboration as an instructional tool? How has wiki technology contributed to the ease of completing student assignments?

3. How has or might wiki technology contribute to legal instruction? Do you feel that such technology has a place in legal education? Why or why not?

4. Would you provide a brief overview of the quality of your students’ collaboration in past semesters? Based upon your experience with wiki technology this semester, did this technology support student interaction and collaboration? If so, please provide an example(s).

5. In your opinion does wiki technology promote collaboration and interaction between students? Why or why not?

6. How was the quality of collaboration and interaction affected by wiki technology?

7. In your opinion was wiki technology useful within this specific legal course? Why or why not?

8. What are your thoughts about how this or other technologies might benefit legal education in other areas?

9. Based upon this experience, do you feel inclined to continue to use wiki technology in the future? Do you have any ideas for using such technology in future instruction?

10. Is there anything that you would like to add?
APPENDIX C: STUDENT INTERVIEW PROTOCOL

Student Interview Protocol

1. What is your past experience regarding the use of technology? What is your past experience regarding the use of technology as it relates to your education? Do you feel that legal educators have been accepting of and/or have appropriately utilized currently existing or new technologies; especially as such technologies support your legal education and/or prepare you for the use of technology in your future practice of law?

2. Based upon your past experience regarding working with other students in collaborative groups, what significance has wiki technology had as an instructional tool in promoting collaboration? How has wiki technology contributed to the ease of completing your assignment?

3. How has or might wiki technology contribute to your legal education and/or prepare you for the use of technology in the practice of law? Do you feel that such technology has a place in legal education? Why or why not?

4. Would you provide a brief overview of the quality of student collaboration while working in student groups in past semesters? Based upon your student group experience with wiki technology this semester, did this technology support student interaction and collaboration? If so, please provide an example(s).

5. In your opinion does wiki technology promote collaboration and interaction between students? Why or why not?

6. How was the quality of collaboration and interaction affected by wiki technology?

7. In your opinion was wiki technology useful within this specific legal course? Why or why not?

8. What are your thoughts about how this or other technologies might benefit legal education in other areas?

9. Based upon this experience, do you feel inclined to continue to use wiki technology in the future? Do you have any ideas for using such technology in the practice of law?

10. Is there anything that you would like to add?
APPENDIX D: STUDY CONSENT FORM

Consent Form

Study Title: An Analysis of Web 2.0 Technology in Higher Education: Effects of Using a Wiki on Learning Outcomes and Attitudes in Legal Education

Performance Site: Louisiana State University

Investigator: The following investigator is available for questions pertaining to this study: Patrick A. Smith, 333 Peabody Hall, College of Education, (225) 366-2286, e-mail: patrickallan@msn.com

Purpose of the Study: The primary purpose of this study is to investigate the overall pedagogical value of wiki technology in legal education. The study will analyze students’ perceptions and attitudes regarding outcomes related to learning, achievement, motivation, and the amount and quality of group interaction and collaboration of law students utilizing wiki technology. The study will also investigate the perceptions and attitudes of a legal educator regarding the use of wiki technology as an instructional technology in legal education and the planned future use of such technology in legal education.

Participant Inclusion: Law school students enrolled in and professor teaching a trial advocacy course.

Study Procedures: This study will entail one 30-60 minute, recorded interview of selected participants. A brief follow-up interview may be scheduled if additional information or clarification is needed.

Benefits: This study will reveal valuable information about the experiences, outcomes, perceptions and attitudes of participants related to the impact of using a wiki. Subjects will not receive any monetary benefits from this study.

Risks: This study does not present any risks for participants. The only possible risk is the inadvertent release of the participant’s identity. However, every effort will be made to maintain the confidentiality of the participant’s identity. A pseudonym will be utilized in all written reports. All data will be kept in secure files in which only the investigator has access.

Right to Refuse: Participation is voluntary and the participant has the right to withdraw from the study at any time without penalty.

Privacy: Results of the study may be published, but no names or identifying information will be included in the publication. Participant’s identity will remain confidential unless disclosure is required by law.

Signatures: The study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigator. If I have questions about participants’ rights or other concerns, I can contact Robert C. Mathews, Chairman, LSU Institutional Review Board, (225) 578-8692. I agree to participate in the study described above and acknowledge the researcher’s obligation to provide me with a copy of this consent form if signed by me.

__________________________  __________________________
Signature                      Date
**APPENDIX E: INSTITUTIONAL REVIEW BOARD APPROVAL**

**Application for Exemption from Institutional Oversight**

Unless qualified as meeting the specific criteria for exemption from Institutional Review Board (IRB) oversight, ALL LSU research projects using human or animal subjects, or animals, or data obtained from human or animal sources, must be approved in advance by the LSU IRB. This form helps the PI determine if a project may be exempted, and is used to request an exemption.

- Applicant, Please fill out the application in its entirety and include the completed application as well as parts A-F, listed below, when submitting to the IRB. Once the application is completed, please submit two copies of the completed application to the IRB Office or to a member of the Human Subjects and Research Committee. Members of this committee can be found at [http://research.fsu.edu/CompliancePolicy/Policies/Procedures/InstitutionalReviewBoard/IRB%20Package%20for%20Exempt%20Projects.html](http://research.fsu.edu/CompliancePolicy/Policies/Procedures/InstitutionalReviewBoard/IRB%20Package%20for%20Exempt%20Projects.html)

- A Complete Application Includes All of the Following:
  1. Two copies of this completed form and two copies of parts B thru F.
  2. A brief project description (adequate to evaluate risks to subjects and to explain your responses to parts A & E).
  3. Copies of all instruments to be used.
  4. If this proposal is part of a grant proposal, include a copy of the proposal and all recruitment materials.
  5. The consent form that you will use in the study (see part 3 for more information).
  6. Certificate of Completion of Human Subjects Protection Training for all personnel involved in the project, including students who are involved with testing or handling data, unless already on file with the IRB training link: [http://www.phs21sttraining.com/user/login.php](http://www.phs21sttraining.com/user/login.php)

<table>
<thead>
<tr>
<th>1</th>
<th>Principal Investigator: Patrick A. Smith</th>
<th>Rank: Graduate Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dept.</td>
<td>EREC</td>
<td>Ph: 2253 366-2286</td>
</tr>
<tr>
<td>E-mail</td>
<td><a href="mailto:patrick.allmand@msu.com">patrick.allmand@msu.com</a></td>
<td></td>
</tr>
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</table>

**2 Co-Investigator(s): Please include department, rank, phone, and e-mail for each. If student, please identify and name supervising professor in this space.**

None

**3 Project Title:**

AN ANALYSIS OF WEB 2.0 TECHNOLOGY IN HIGHER EDUCATION: EFFECTS OF USING A WIKI ON LEARNING OUTCOMES AND ATTITUDES IN LEGAL EDUCATION

**4 Proposal? (yes or no) No**

- If Yes, LSU Proposal Number

- Also, if YES, either
  - This application completely matches the scope of work in the grant
  - More IRB Applications will be filed later

**5 Subject pool (e.g. Psychology students) Law School Students and Law Professor**

*Circle any "vulnerable populations" to be used: Children < 18, the mentally impaired, pregnant women, the elderly, other. Projects with incarcerated persons cannot be exempted.*

**6 PI Signature**

[Signature]

Date: 12/28/2012

(no per signatures)

**I certify my responses are accurate and complete. If the project scope or design is later changed, I will resubmit for review. I will obtain written approval from the Authorized Representative of all non-LSU institutions in which the study is conducted. I also understand that it is my responsibility to maintain copies of all consent forms at LSU for three years after completion of the study. If I leave LSU before that time, these consent forms should be preserved in the Institutional Office.**

<table>
<thead>
<tr>
<th>Screening Committee Action: Exempted</th>
<th>Category/Paragraph 2</th>
</tr>
</thead>
</table>

**Signed Consent Waived: Yes**

**Reviewer: Mathews**

**Signature: Ruth Mathews**

Date: 18/13

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Study Title: An Analysis of Web 2.0 Technology in Higher Education: Effects of Using a Wiki on Learning Outcomes and Attitudes in Legal Education

Performance Site: Louisiana State University

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Signatures: The study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigator. If I have questions about participants' rights or other concerns, I can contact Robert C. Mathews, Chairman, LSU Institutional Review Board, 1501 Louisiana State University

Signature: __________________________ Date: __________________________
APPENDIX F: WIKI TUTORIAL

Tutorial: How to Make a Wiki

Patrick Smith

Louisiana State University

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How to Create a Wiki:

1. Navigate to http://pbworks.com, select “Get started with a free version of PBworks now!” and in the pop-up window select “K-12 Education” Then click on the “Select” button under FREE in the Basic category.
2. You will be taken to the “Sign Up” page.

3. You will then be prompted to check your e-mail. PBworks will send you an e-mail with a link that will take you to your wiki.
4. Within the email, click on the link Activate your PBworks account now.
5. You will then be prompted to choose your wiki’s security settings.

6. You will be taken to the “FrontPage” of your wiki which will serve as your home page.

How to Edit a Wiki Page:

1. To edit any page on your wiki, click the “Edit” tab at the top left of your screen, or hit the “Control” and “E” key on your keyboard.

   - **Note:** The title of your wiki will appear here.

   - To edit, click the “Edit” tab.
2. You will be taken to the **Edit Mode**.

3. To edit any page in your wiki, you would follow the same steps.
4. If you try to leave the Edit Mode without saving your work, you will be prompted to save your work.

---

**How to Create Folders:**

1. To manage your pages and files, it is helpful to create folders. The following steps outline the easy process of adding a new folder.
2. Scroll down the right panel and click the **Put this page in a folder** link.
3. A dropdown menu will appear with a list of all of your current folders.

   - Select “Create a new folder” and name the folder.

4. You can also click on the “Pages & Files” tab in the upper left hand section of your wiki.

5. In the Pages & Files section, click the “New” button and choose “Create a folder...”.

   - Select the “New” button.
   - Select “Create a folder” from the drop down menu.

6. You will then be prompted to name your new folder.

   - A textbox will appear in which you can give your folder a name.
   - The press the “Enter” key.
   - You can simply drag and drop pages into your new folder.

   - Then select the Wiki tab to return to your FrontPage.
7. The new folder will now appear in the **Navigator section** in the right panel of your FrontPage.

---

**How to Add a Wiki Page:**

1. To add a page to your wiki, from any page select **“Create a new Page”** link.

   - Click the **“Create a page”** link.

2. You will be prompted to give your new page a name.

   - Give your new page a name.
   - Select the type of page you desire.

   - Using the dropdown menu, put your new page in a folder.
   - Then click the **“Create page”** button.
3. You will then be taken to the **Edit Mode** to edit your new page.

4. You will then be taken back to the **View Mode** for this new page.

---

**How to Put a Page in a Folder:**

1. To put a page in a folder, go to the page in question and click “Put this page in a folder”.

2. Then choose the folder that you would like this page to reside in.
3. You can also click on the “Pages & Files” tab on your wiki.

4. Then click the “All Pages” link, which will display all of the pages in your wiki.

5. Then simply drag and drop the wiki page into a folder.
6. If the move was successful, you should get a success message.

How to Upload Images or Files:

1. Click on the “Upload files” link in the upper right corner of your wiki page.
2. In the Pages and Files section of your wiki, click the “Upload files” button.

3. Using the dialog window that opens, navigate to the file or files you would like to upload.
4. If you would like to upload more than one file, use the shift key (for adjacent files) or the control (for nonadjacent files) to select files or a range of files to be uploaded.
5. Click the “Select” button to upload the files into your wiki.
6. Once the files are uploaded, the file name should appear in the All Files section.

7. If you would like to rename the file, select “Rename” and change the name.
8. If you hold the cursor over the pictures name, you will see a preview of the picture.

How to Add Images or Files to Wiki Pages:

1. Select “Edit” to enter the Edit Mode.
2. Then select the “Images and Files” tab on the right panel of your screen.
3. Pictures that you have already uploaded should appear in the preview window.
4. You can also click “Browse” to find another file or image on your computer.
5. Again, when you locate the file and select it, then click “Upload”.
6. After uploading, the file will appear in your All Files list.
7. Click on the text of the file name to insert it into your wiki.
8. Select a file and it will appear on your page.

![Image of a chalkboard with the text AaBbCc and a mathematical equation: \( \frac{2}{3} + \frac{2}{4} \)]

- To edit your picture, use the resizing boxes that appear on the corners and in the middle of your picture.
- Once you are done, click the “Save” button.

9. You will be returned to the View Mode and your picture will appear on your page.

---

**How to Add a Table:**

1. Select the “Edit” tab to enter the Edit Mode.
2. Click the “Table” button in the editing toolbar.

3. From the dropdown menu, highlight the number of cells you desire for your table.
4. You can also select “Insert Table” at the bottom of the dropdown menu.

- In the “Create Table” dialog box, decide how you want your table to look.
- Select the number of columns and rows, alignment, width, color, etc.
- Make sure to select “Allow Sorting”.
- Once finish, click “Save Changes”.

5. Your table will be shown in the Edit Mode.
6. Simply click in each of the cells to enter your data.

How to Add Rows or Columns to My Table:

1. Right click in the area of the table where you wish to add a row or column.
2. From the dropdown menu, choose “Row” or “Column”.

- Select where you would like your row or column to appear.
How to Change the Width or Height of Rows or Columns:

1. While in the Edit Mode, right click on a cell that is in the row or column that you wish to adjust. A dropdown menu will appear.
2. Then choose “Cell”, and from the dropdown menu, select “Table cell properties”, and an Edit Cell dialog box will appear that allows you to set the cell width or height.
3. Changing the width or height of a cell changes the width of a column and the height of a row.

How to Change the Background Color of Cells in a Table:

1. Highlight and left-click on a table cell or cells to select it.
2. Then right-click and select “Cell”, then “Table cell properties”.
3. The **Edit Cell** dialog box will again appear that allows you to edit the cell.

![Edit Cell dialog box](image)

- Now choose one of the **Background Color Select** button to change the background color or the border color.

4. A **Select Color Picker Box** will appear.

![Select Color Picker Box](image)

- Choose the color you want the background to be.
- Use lighter colors so that you can still see text on top of it.
- Then Click “OK”.

5. Here is another example of a table:

![Table example](image)
How to Make A Table Sortable:

1. In the **Edit mode**, right click anywhere on your table and select “**Table Properties**” from the dropdown menu. The **Edit Table** dialog box will appear.
2. Check the check box labeled “**Allow Sorting**” to enable this feature. Then click “**Save Changes**”.
3. Then select “**Save**” to confirm these changes and return to the **View Mode**.

![Edit Table dialog box](image)

**Note:** Table sorting is case sensitive. The table will alphabetize capitalized words first, then lowercase.

4. In the **View Mode**, clicking each of the header cells causes the table rows to sort based on the selected column. Clicking again will toggle between ascending and descending order.

![Example table](image)

- Clicking on any header cell causes the content in that column to sort.
How to Invite People to My Wiki with Email:

1. To invite more people to your wiki using email, from any page select “Invite more people” in the top right section of your wiki.

2. The Add Users dialog box will appear.

3. Each of these individuals will receive an email inviting them to your wiki.
How to Invite People to My Wiki without Email:

1. To invite more people to your wiki without using email, from any page select “Invite more people” in the top right section of your wiki.

2. The Add Users dialog box will appear.

3. You will be taken to the Classroom Accounts section under the Settings tab.
4. This tool allows you to automatically generate usernames and passwords for users who don't have email addresses.
5. Simply follow the four steps, which include creating classroom accounts, setting account details, confirming account details, and printing the accounts to distribute to new users.

Note: You will need a printer to print out these new account details.
• To share access as a writer:

To share access as a writer, scroll down to the bottom of your right panel and enter the user’s e-mail address into the “Sharing” tool bar.

• To add other access levels:

You can also utilize the “Users” tab to add different access levels.

1. Click the “Add more users” button in the top right corner. The Add Users dialog box will appear.

   • Again, insert the users’ email addresses in this text box.
   • Using the dropdown menu, set the desire permission level.
   • Then click the “Add users” button.

   • To learn about other access levels, select the “Learn more” link.
   • A list of access levels will appear.

2. The different access levels include:
   
   - **Page-level only** can only access pages you explicitly give them access to.
   - **Readers** can view pages, but not edit.
   - **Writers** can view and edit pages.
   - **Editors** can view, edit, move and delete pages and folders.
   - **Administrators** always can do anything on pages and folders.
How to Remove a User from a Wiki:

1. Select the “Users” tab.
2. In this section of your wiki, you will find a list of all the users of your wiki.
3. Find the user you want to remove from the wiki.
4. Click on the red X to remove that user.

• Click on the red X to remove that user from your wiki.
• That user will be removed.

How to Find Earlier Versions/Revisions of Pages:

Method 1

1. Log in as a Reader or higher.
2. Navigate to the page your interested in.
3. Click on “Page History”.

Method 2

1. Log in as a Reader or higher.
2. Click on the “Pages & Files” tab at the top right of your wiki.
3. Look for the “Revs” column to see the number of revisions made for each wiki page.
4. The number showing the revisions for each page is a link. Click on the number.
5. You can compare previous revisions to help you decide which version to revert back to by clicking on that number, selecting the dates to compare, and clicking the “Compare” button.

![Calendar and Revisions]

- Clicking on each date will show a list of the revisions made on that date.

How to Change (Revert) a Page Back to an Earlier Version:

1. Log in as Administrator.
2. Click on the “Pages & Files” link at the top right of the wiki.
3. Find the page you are interested in, and under “Revs”, click on the number.
4. Click the link with the date and time to which you want to revert.
5. You will be allowed to view that revision, and will see a button to commit to reverting. If it is the revision you want, click the button. If not, go back and choose another.

![FrontPage]

How to Insert Hyperlinks:

1. From the page where you want the hyperlink to be, select the “Edit” tab to enter the Edit Mode.
2. Then select the “Insert a link to a new page” link on the right panel of your screen.

3. The “Insert Link” dialog box will appear.

- Note: To turn text into a link, highlight the text, then enter the page name, web address, or file to which you would like to link.

- Enter the page name, web address, or file to which you would like to link.
- Then press the “Enter” key.

- Clicking this link will open a more detailed “Insert Link” dialog box.
4. Using this dialog box, you can select the link type, which can include a web page opening in a new window or an Email address.

![Insert Link dialog box](image)

5. Insert the type of link desired.

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**How to Insert an Embedded Video:**

1. Navigate to the page on which you would like the video to appear.
2. Select the “Edit” tab to enter the **Edit mode**.
3. From the **Main Menu**, select the **Insert** button to access the dropdown menu.

- Select “Video”.
- Then select “**You Tube**”.
- From the video you want on YouTube, copy the **Embed code** or **URL** and paste it in the dialog box that appears.
- Then select “**Next**” and “**Insert Plugin**”.
- Select “**Save**” to save your page.
VITA

Patrick A. Smith was awarded a Bachelor of Arts degree in psychology with a minor in English from Nicholls State University in Thibodaux, Louisiana in 1985. After serving as a commissioned officer in the United States Navy and being honorably discharged, he was awarded a Juris Doctorate in Civil Law from Loyola School of Law in New Orleans, Louisiana in 1991. While practicing law, he developed an intense interest in technology. He decided to continue his education and was awarded a Masters of Arts in Education with an option in New Media Design and Production, and a Masters of Arts in Education with an option in Computer Education and Technology Leadership, both awarded from California State University at Los Angeles in 2006 and 2007, respectively. In addition to possessing a Computer Applications in Schools Certificate, he also earned a California Professional Clear Education Specialist Instruction Credential, both awarded from California State University at Los Angeles. Through his participation in Cal State LA’s Student Scholar Training Program, he was awarded numerous technology certificates and has more than fifteen years of experience teaching computer technology skills.