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Innovation and Web 2.0 in Business Education: Student Usage, Experiences with, and Interest in Adopting Web 2.0 Tools

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Companies currently utilize Web 2.0 applications to improve and shorten supplier transactions, to generate customer interaction and connections, and to enable employees to increase their knowledge, apply their creativity, and innovate. Thus, business educators must prepare students to engage in a technological society; especially graduate students aiming for managerial or executive positions. To help students adapt and compete in the professional world, business educators have begun to integrate Web 2.0 applications into instruction; however, for efficacy, instructors should consider students' current knowledge of and use of Web 2.0 technologies, as well as their perceptions. Therefore, this study investigates associations between students' innovativeness, their familiarity and experiences with Web 2.0 technologies, and their interest in adopting Web 2.0 tools for use in education.

Keywords: Web 2.0, social networking, innovativeness, technology, business students

INTRODUCTION

Over the last decade Web 2.0 applications, ranging from wikis, blogs, and social networking sites to virtual worlds, have begun to significantly alter consumer behavior on the web (Eikelmann, Hasbani, Peterson, & Hajj, 2007). Following this trend, marketers, executives and product developers, both in small businesses and large corporations, now continuously seek effective ways to cultivate and derive value from Web 2.0 applications.

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Consequently, use of Web 2.0 tools has become increasingly prevalent in multiple high-tech business services, including media and telecommunication industries (Bughin, Chui, & Miller, 2008).

Illustrating this point, prior to its well-known "Will It Blend" social media campaign, Blendtec was a faceless manufacturer of high-end blenders. This changed in 2006 when Blendtec's Marketing Director convinced the company CEO to record and share the company's regular practice of "extreme blending" tests. With less than $100 invested, Blendtec filmed several short videos of blending very unusual items in the company's break room. Within a week of posting these videos on YouTube, Blendtec had acquired over six million views. Further, Blendtec began optimizing its YouTube tags, together with its Yahoo! and Google advertisements, in order to maximize search engine hits. As of 2011, Blendtec's YouTube channel had 178,536,276 views and 432,546 subscribers. Illustrating its successful use of Web 2.0 tools, Blendtec's annual sales (around $40 million in 2006) have increased by 700% since the advent of the "Will It Blend" campaign (Briggs, 2009).

Since the strength of Web 2.0 tools lies in building networks and sharing knowledge, the goals of educators and businesses are similar when adopting Web 2.0 technologies. Educators seek to integrate Web 2.0 tools into their curricula in an effort to empower students and to guide them into becoming more active, interactive, and self-guided (Ferdig, 2007; Yuen, Yaoyuneyong, & Yuen, 2011). Similarly, companies utilize Web 2.0 applications to improve and shorten their supplier transactions, to generate customer interaction and connections, and to enable employees to increase their knowledge and innovate (Bughin, Chui, & Miller, 2009).

Businesses in many world industries, including retail, tourism, and healthcare, are increasingly adopting Web 2.0 technologies (Au, 2010; Bughin & Chui, 2010; Chou, Hunt, Beckjord, Moser, & Hesse, 2009; Jain & Ganesh, 2007). In addition, business faculty are aware of the increasing change in the business environment caused both by Web 2.0 technologies and by companies' growing demand for Web 2.0 literate employees. Business educators have begun to integrate Web 2.0 applications into instruction, so as to better equip their students for success in the quickly evolving and competitive professional world.

Unfortunately, despite the seeming pervasiveness of the Internet, social media, and cell phones, students do not have a wide range of confidence or ability regarding use of technology, including Web 2.0 tools and applications (Robinson, 2006). Even students who are fluent in various digital media can find that their proficiency does not necessarily transfer to the application of technology for academic or professional success (Kumar, 2009; Sandars & Schroter, 2007). For these reasons, it is particularly important for educators to prepare their students for engagement in a technological society; especially so for business graduate students who wish to one day assume managerial or executive positions.

Addressing this situation, the purpose of this study is to explore business students' familiarity with, experiences with, and interest in learning about and adopting Web 2.0 technologies. Previous examinations of student and educator use of Web 2.0 tools found that the quality of innovativeness could be paired with interest in and use of new technologies (Agarwal & Prasad, 1998; Thatcher & Perrewé, 2002; Wang, Butler, Po-An Hsieh, & Sheng-Hsun, 2008). However, since the phrase "Web 2.0" began appearing in literature as early as 1999, educators may no longer perceive Web 2.0 tools as being cutting edge technologies. Ulrich (2009) found (a) that use of Web 2.0 tools is no longer considered innovative, and (b) that instructors who consider themselves innovative had already adopted Web 2.0 tools and had since moved on to integrating newer technologies. Considering these findings, the purpose of this study is to also investigate the association between students' innovativeness, their familiarity with, and their interest in learning and adopting Web 2.0 tools.

LITERATURE REVIEW

The Accreditation Standards of the Association to Advance Collegiate Schools of Business (AACSB) has been encouraging the integration of technology into business classrooms, stating: "Modern business is highly information dependent. Management scholarship, pedagogy, and learning require sufficient up-to-date technology hardware, software, assistance, and instruction" (AACSB, 2012, p. 29). The AACSB also acknowledges changes in business environments due to emerging technologies, global economic situations, and demographic shifts (AACSB, 2013). Therefore, the AACSB places emphasis on ensuring that adequate financial resources are allocated to technology support for various instructional delivery methods and classroom technologies (AACSB, 2013).

Currently, a wide variety of Web 2.0 technologies with potential in teaching and learning are available for educators and students. Through Web 2.0 applications, students can develop necessary skills for any professional-level position, including computer literacy, communication, presentation, problem solving, collaboration, and time management. In addition, Web 2.0 technologies can help students connect their theoretical knowledge with skills that will help them in their future jobs and careers. For example, Sendall, Ceccucci, and Peslak (2008) indicate that it is essential for information technology students to master using blogs, wikis, social networking sites, and other collaborative tools as they enter the workforce.

THEORETICAL FRAMEWORKS

The ultimate goal of integrating Web 2.0 technologies into curricula is to facilitate and enhance the teaching and learning experience, both in and out of the classroom. Considering this goal, scholars and educators have recommended a variety of theoretical frameworks (e.g., Connectivism, Constructionism/Constructivism, Communicative Learning, and Collaborative/Cooperative Learning) to guide instructors when integrating Web 2.0 tools into their curriculum design (Blees & Rittberger, 2009; Grant & Mims, 2009; Laurillard, 1995; McLoughlin & Oliver, 1998; Pieters, 2004; Rogers, Liddle, Isom, Chan, & Doxey, 2007; Siemens, 2005; Smith & MacGregor, 1992). Additionally, scholars across several disciplines have recently proposed and examined different ways to utilize a variety of Web 2.0 technologies in the classroom (Burke, Snyder, & Rager, 2009; Granitz & Koernig, 2011; Harris & Rea, 2009; Lowe & Laffey, 2011; Usluela & Mazmana, 2009; Yuen, 2009). As educators become more familiar with these technologies, it seems inevitable that the number of educators incorporating Web 2.0 applications into face-to-face, hybrid, and online classrooms will rise.

WEB 2.0 TECHNOLOGIES AND STUDENTS

Familiarity, perceptions, and use of Web 2.0 technologies in the classroom. A 2011 report by the EDUCAUSE Center for Applied Research showed that college students own multiple technological devices such as laptops, iPods, smartphones, digital cameras, USB thumb drives, and webcams, which are used both personally and academically (Dahlstrom, de Boor, Grunwald, & Vockley, 2011). Additionally, as noted in 2012, tablet computing has filtered into higher education (Johnson et al., 2013). A large majority of students use tablets, not only to access media content, including videos, music, wikis, blogs, podcasts, webcasts, and email, but also to access textbooks and other course materials (Johnson et al., 2013). Students also utilize the web for social interaction through sites like Facebook, Myspace, and Linkedin, through services which offer social photo-sharing, video-sharing,

post-sharing (blogging), and link-sharing (bookmarking), through collaborative or competitive gaming platforms, and through forums, chat rooms, and webinars (Dahlstrom et al., 2011). Buzzard, Crittenden, Crittenden, & McCary (2011) found that students, more than instructors, preferred using technologies in the classroom. However, several studies found that a small majority of students prefer only a 'moderate' amount of information technology in their courses (Kvavik, 2005; Salaway, Caruso, Nelson, 2007; Smith, Salaway, Caruso, & Katz, 2009).

Additionally, researchers have explored benefits, barriers, and perceptions regarding the integration of Web 2.0 technologies into classrooms, both for students and faculty (Ajjan & Hartshorne, 2008; An & Williams, 2010; Bertolo, 2008; Buzzard et al., 2011; Crook et al., 2008, Yuen et al., 2011). Overall, studies found that most students and faculty have positive perceptions towards the use of Web 2.0 technologies in the classroom. Despite this, most tools that fall under the description of Web 2.0 tools are not used much in classrooms (Kennedy, Judd, Dalgarno, & Waycott, 2010) with the exception of social networking and instant messaging (Lenhart, Madden, MacGill, & Smith, 2007; Smith et al., 2009). Additionally, though students used other Web 2.0 tools recreationally, they were found to be quite unfamiliar with both virtual worlds and blogs (Margaryan, Littlejohn, & Vojt, 2011), which compared to other Web 2.0 technologies enabling student interaction were also found to be least utilized (Jones, Ramanau, Cross, & Heal, 2010).

Gender differences in the use of Web 2.0 technology. Regarding gender differences, studies in students' use of technology have reported varied and ambiguous results across a variety of study groups (Selwyn, 2008; Jones et al., 2010; Jones & Ramanau, 2009; Kennedy et al., 2010; Shuell & Farber, 2001). Factors such as age, university size, socio-economic status, and cultural background have also been shown to affect students' use of and experience with web technologies (Kennedy et al., 2010). For example, Jones and Ramanau (2009) and Jones et al. (2010) reported significant differences between students' use of technology at differently-sized universities, but no differences in use according to gender. Contradicting this, Smith et al. (2009) reported higher use of technology by male students, whereas Selwyn (2008) reported that females made greater use of the Internet academically than males. In a non-academic context, Kennedy et al. (2010) reported that female students utilized Web 2.0 publishing technologies (e.g., blogs) more than other web-based technologies.

Discipline differences in the use of Web 2.0 technology. According to Shuell and Farber (2001), regardless of class-level, students tended to respond very positively regarding use of technology. However, Selwyn (2008) reported differences in Internet use based on discipline, with students from social studies, business, law, and medicine using the Internet more often for academic purposes than students from other disciplines. In a survey of 3,000 medical students, Sandars and Schroter (2007) found that students reported high familiarity, but low usage of most Web 2.0 tools, with the exception of social networking applications. After conducting a focus group survey of 21 undergraduates from different classrooms and departments, including arts, sciences, communication, education, engineering, and foreign languages, Kumar (2009) found that "students from different disciplines highlighted the usefulness of certain Web 2.0 technologies for learning and simultaneously rejected others as not enhancing their learning in that discipline" (p. 312).

WEB 2.0 TECHNOLOGIES AND BUSINESS

Web 2.0 technologies in the business classroom. Modern students, often "digital native" learners, have already found and integrated many Web 2.0 tools into their daily lives; some even expect to experience Web 2.0 applications in their college classrooms (Kvavik & Handberg, 2000). However, beyond personal uses of Web 2.0 tools, not all tech-

savvy college students foresee the value of Web 2.0 applications for learning (Buzzard et al., 2011) or to gain advantages in their present or future work environments. Overall, despite some interest in using Web 2.0 technologies academically, students lacked experience in using most Web 2.0 tools in education (Kumar, 2009). Additionally, students relayed that they are less than fully confident in their ability to meet their needs, in terms of technology skills (Dahlstrom et al., 2011). Similarly, Wallace and Clariana (2005) discovered that the majority of business students do not always have the necessary skills, especially regarding computer and technology literacy, to pursue their undergraduate or graduate degrees. However, it is important to realize that students' perceptions, understanding, and interest to learn, shape their actions. D'Aloisio (2006) argues that students can be motivated to actively participate in acquiring any skills required in the classroom if they are made aware of the direct transferability of those skills to their lives and future success.

Examples of Web 2.0 use in business classrooms. Instructors have utilized Web 2.0 tools to facilitate student-instructor and student-student synchronous and asynchronous distance communication. For example, Zahay and Fredricks (2009) used podcasting to provide students with access to professorial insights outside of class. Boostrom, Kurthakoti, and Summey (2009) used a segregated social network (a social network not used for other classes or for personal use) for communication between the professor and students and among students.

Tuten (2009) elucidated a class project wherein students created marketing plans for products to be marketed in Second Life, a prominent virtual world environment. Similarly, Bal, Crittenden, Halvorson, Pitt, and Parent (2010) have discussed experiences teaching marketing cases in Second Life. Hansen (2008) offered a comprehensive comparison of knowledge transfer in online versus traditional course delivery, finding that online students produced better knowledge transfer results, measured by performance in the development of a marketing plan. Hu (2009) used an international virtual team project, involving American and Chinese student collaboration, in the development of a marketing plan in an international marketing course.

Similarly, Newman and Hermans (2008) reported on the use of virtual teams, composed of MBA students in the United Kingdom and the United States, in which the virtual teams worked with virtual clients. Although virtual teams allow for remote communication and interactions, Cronnin (2009) and Workman (2008) facilitated integrative efforts among students by the use of wikis (digital repositories via web sites) that allowed students to interact on particular marketing topics. Day and Kumar (2010) examined how management students' learning could be enhanced by using cell phone SMS text messaging to facilitate class purchasing and supply chain management simulations.

Web 2.0 in the business world. Successful companies use Web 2.0 tools for in-company collaboration and to enhance communication with both suppliers and customers (Bughin et al., 2008). Through the use of Web 2.0 tools, companies can achieve more innovative products and services (Voigt & Ernst, 2010), more effective marketing (Parise & Guinan, 2008), better access to knowledge, lower costs of doing business, and higher revenues (Bughin et al., 2009). In addition, successful companies tightly integrate Web 2.0 technologies into their employees' workflow, creating a networked company in which both customers and suppliers interact with the brand through Web 2.0 applications (Bughin et al., 2009).

Business perceptions of Web 2.0 technologies. According to the 2007 McKinsey Global Survey, initial use of Web 2.0 technologies was widespread; yet perceptions were very cautious (Bughin & Manyika, 2007). However, instead of utilizing well-known Web 2.0 tools such as blogs, companies placed greater emphasis on automation and networking technologies. The perceived most valued investment, being used or considered by 80% of

respondents, was web services, followed by peer-to-peer networking (47%). Of those 'very satisfied' with their investments were early adopters at 46% and fast followers at 44% (Bughin & Manyika, 2007). In the 2008 McKinsey survey results, web services remained as the most frequently cited Web 2.0 investment. Companies of all regions in the world perceived wikis and blogs as fairly important and increased in use of both tools compared to the prior year. However, the most notable difference was in the greater number of North American respondents rating social networks as important compared to other regions. This was not too surprising given that North America was the birthplace of popular social networking sites such as Facebook and Myspace (Bughin et al., 2008).

Fast-forward to the 2010 McKinsey quarterly survey that gathered responses from 3,249 executives across various regions, industries, and functional areas; the large majority reported receiving measurable business benefits resulting from Web 2.0 technologies (Bughin & Chui, 2010). The study revealed significant increases in the use of social networking and blogs over the past year—40% and 38% respectively. "Nearly two-thirds of respondents of companies using Web 2.0 say they will increase future investments in these technologies, compared to just over half in 2009. The healthy spending plans during both of these difficult years underscore the value companies expect to gain" (Bughin & Chui, 2010, p. 3). Twenty-seven percent of the companies in the study reported having achieved both increased market share and profit margins against competitors. Respondents that reported the lowest levels of adoption and usage also reported the lowest levels of benefits (Bughin & Chui, 2010).

INNOVATIVENESS

The characteristic of innovativeness is used variously to describe openness to experiences, creativeness, risk-taking, and opinion leading (Celik, 2013). Previous research (Uray & Ayla, 1997; Venkatramen, 1991) suggests that individuals who are highly innovative are more likely to pursue experiences that are new and mentally or sensually stimulating. Additionally, individuals who are more likely to take risks are more likely to engage in innovative activities and behaviors (Agarwal & Prasad, 1998; Bommer & Jalajas, 1999; Yi, Fiedler, & Park, 2006). Finally, individuals who are innovative are better able to deal with uncertainty (Rogers, 2003) and exhibit higher levels of self-confidence when entering new situations or performing new tasks (Kegerreis, Engel, & Blackwell, 1970).

Innovativeness and technology. Innovativeness can also refer to individuals' willingness to change (Hurt, Joseph, & Cook, 1977) and the relative speed at which individuals or organizations adopt new ideas (Nail, 1994; Rogers, 2003). In relation to Web 2.0 tools, the degree to which students are innovative reflects positive attitudes, enthusiasm, and confidence in using or adopting new technologies (Agarwal & Prasad, 1998; Yi et al., 2006). Students with lower innovativeness will tend to exhibit less risk tolerance or acceptance of new technology tools, in or out of the classroom, as well as report general computer anxiety (Harris, 1999; Thatcher & Perrewé, 2002). Innovative students are more likely to embrace new Web technologies and appreciate their usefulness, both for study and for personal use, than students who are less innovative (Wang et al., 2008). All of these findings suggest that student innovativeness will be a strong predictor of students' familiarity with, interest in, and attitudes towards learning and adopting Web 2.0 tools within the classroom.

Innovativeness in the business world. A key component of success lies in organizations' ability to innovate through the introduction of new ideas, processes, products, and services (Hult, Hurley, & Knight, 2004). In fact, an organization's ability to innovate has been shown to be one of the most important factors affecting overall business performance (Burns & Stalker, 1961; Hurley & Hult, 1998; Porter, 1990; Schumpeter,

1934). Currently, as Web 2.0 technologies continue to proliferate, evolve, and increasingly enmesh themselves in the lives of individuals and the business models of corporations (Yuen, Yaoyuneyong, & Johnson, 2013), it is clear that a significant component of innovation within organizations involves employees being open to taking risks and trying new things, especially in regards to online tools technologies, and services. The current generation of business students will need to, not just be familiar with, but be able to confidently and creatively find and utilize new Web 2.0 tools as they emerge, both to stand out during the hiring process, and to help lead businesses to success.

STUDENTS, INNOVATIVENESS, AND TECHNOLOGY

In the annual survey conducted by Ball State University, 73% of college students reported using smartphones, as opposed to only 27% reported in 2009 (Ransford, 2013). However, while students use their smartphones to send texts and email, access social media websites, and download and listen to music (Ransford, 2013), students still lack knowledge of, confidence regarding, or skill using other technologies, including Web 2.0 tools (Robinson, 2006). Additionally, students who are fluent in online tools and digital media are not prepared or able to apply their skills to academic or professional projects (Kumar, 2009; Sandars & Schroter, 2007). With this in mind, the purpose of this study was to gauge current business students' understanding of and familiarity with Web 2.0 applications, to discover business student's interest in faculty integrating Web 2.0 tools into business classrooms, and to explore the association between students' innovativeness and their understanding, familiarity, and interest in Web 2.0 tools.

RESEARCH QUESTIONS

The following specific research questions were used to guide this study:

1. (a) What Web 2.0 tools do business students use? (b) What are business students' experiences using Web 2.0 tools? (c) What Web 2.0 tools do business students want their instructors to incorporate?
2. Is there an association between business students' innovativeness, familiarity with, and positive experiences using Web 2.0 tools?
3. For each category of Web 2.0 tools, do students whose preference was for, or against, adopting the tools within their classes differ significantly in regard to innovativeness?
4. Does student class level (lower, upper, and graduate) predict innovativeness?
5. For business students, does gender predict familiarity with Web 2.0 tools or desire to adopt Web 2.0 tools in business classes?
6. Are there differences regarding familiarity with Web 2.0 tools and desire for business classes to use Web 2.0 tools among the eight disciplines surveyed (accounting, finance, marketing, tourism, fashion merchandising, management, MBA, and MPA)?

METHOD

PARTICIPANTS AND PROCEDURES

The researchers received permission to administer the *Web 2.0 in College Classroom Applications Survey* from the Institutional Review Board. The printed questionnaire was distributed to students in several classes in the College of Business, including eight majors and all levels of students, at a university in the Southeast United States. A cover letter

describing the aims of the study was attached in the front page of the questionnaire. In addition, researchers explained to the respondents that participation was voluntary and that no identifying personal information was collected.

Table 1. Study group demographic variables

	Frequency (n = 385)	Percentage
Age Groups		
18-20	112	29.1%
21-24	192	49.9%
25-30	57	14.8%
31-34	13	3.4%
35-39	4	1.0%
40 and above	7	1.8%
Gender		
Female	187	51.0%
Male	180	49.0%
Academic Major		
Accounting	61	17.0%
Finance	42	11.7%
Marketing	31	8.6%
Tourism	18	5.0%
Fashion Merchandising	29	8.1%
Management	98	27.3%
Master of Business Administration (MBA)	59	16.4%
Master of Professional Accounting (MPA)	21	5.8%
Class Level		
Under Class Level (100 – 200 levels)	112	29.5%
Upper Class Level (300 – 400 levels)	192	50.5%
Graduate Class Level	76	20.0%
24/7 Internet Access		
Yes	343	89.1%
No	42	10.9%
Informative and Communication Technologies		
Makes my life easier	344	90.1%
Makes my life more complicated	18	4.7%
Makes no difference	20	5.2%
Preferences in College Courses		
Use no instructional technologies	25	6.6%
Use limited instructional technologies	84	22.0%
Use moderate instructional technologies	218	57.2%
Use extensive instructional technologies	39	10.2%
Use exclusively (online) instructional technologies	15	3.9%

The sample (as shown in Table 1) consisted of 385 participants (49.0% male, 51.0% female), majoring in six undergraduate programs (77.8%) and two graduate programs (22.2%). While participants ranged in age from 18 to 40 years, the majority of respondents were from the 20-24 (49.9%) and 18-20 (21.1%) age groups. Eighty-nine

percent of participants reported having 24/7 access to the Internet. The majority of participants reported that information and communication technologies—such as cell phones, netbooks, iPods, and computers—made their everyday lives easier (90.1%). However, regarding college course preferences, over half of respondents (57.2%) favored classes that utilized technology moderately.

INSTRUMENTS AND MEASUREMENTS

The instrument used in this study, the *Web 2.0 in College Classroom Applications Survey*, is comprised of 31 items, divided into three sections. Part A (7 items) collects demographic information including age, gender, years in school, major, and general preferences regarding technology use in the classroom. Part B, adopted from Hurt et al. (1977), examines student innovativeness with 20 Likert items (5 = *strong agreement*, 1 = *strong disagreement*). The Cronbach's alpha for Part B was .86, indicating good internal consistency and reliability. Of the 20 items measuring student innovativeness (see Appendix), 12 items (1, 2, 3, 5, 8, 9, 11, 12, 14, 16, 18, and 19) are positive, while eight items (4, 6, 7, 10, 13, 15, 17, and 20) are negative. Following the methodology demonstrated by McCroskey (2006) and Celik (2013), students' innovativeness was calculated by subtracting the sum of negative items from the sum of positive items and adding 42 points. Using this method, the lowest possible innovativeness score is 14 while the highest possible innovativeness score is 94 (Celik, 2013). In the current study, the lowest student innovativeness score was 27 while the highest score was 94 (M = 71.39, SD = 9.812). In general, people who score below 64 are considered low in innovativeness, while people who score above 69 are considered highly innovative (McCroskey, 2006).

Part C of the instrument, adopted from Yuen et al. (2011), consisted of 31 questions investigating students' level of comfort, familiarity with, and experiences using Web 2.0 applications in the classroom. Ten multiple-choice items examined students' familiarity with ten categories of Web 2.0 applications, including: blogs, collaborative writing tools, podcasting tools, social bookmarking/tagging tools, social photo tools, social networking sites, social video tools, thinking/mind mapping tools, virtual world applications, and wikis. Responses varied from high familiarity (*use it for my own recreation, work, and school*) to low familiarity (*never heard of it*) with three intermediate values (*use it for my own recreation and work*, *use it for my own recreation only*, and *know it but never use it personally*).

Another ten 5-point Likert items investigated students' overall experiences with the same ten categories of Web 2.0 applications, with responses varying from 5 (*very positive*) to 1 (*very negative*) with three intermediate values and the option, for those who had no experience using Web 2.0 applications, to respond *N/A*.

Ten final items investigated students' preferences for classroom implementation of the ten categories of Web 2.0 applications, with three possible responses, positive (*yes*), negative (no), and neutral (*I don't know*). A last open-ended question asked students to report their notable positive or negative experiences utilizing Web 2.0 applications in the classroom.

A pilot study was conducted. Participants (n = 38) were members of the Fashion Merchandising (FM) program at a Southeastern U.S. university. Respondents were enrolled in four different classes ranging from freshmen to senior level. A majority of students were more familiar with social interaction Web 2.0 tools, as opposed to tools, which enhanced critical thinking or writing skill. At times, students did not recognize that some applications they used extensively, such as Wikipedia, are actually Web 2.0 tools (Yaoyuneyong & Burgess, 2010).

DATA ANALYSIS AND RESULTS

For simplicity, data analysis methods and results will be reported and discussed separately for each Research Question (RQ).

RQ 1A: WHAT WEB 2.0 TOOLS DO BUSINESS STUDENTS USE?

Descriptive statistics were used to analyze students' familiarity with Web 2.0 applications (see Table 2). Of the technologies examined, social networking sites (88.3%) and social video tools (87.6%) were most commonly used overall. High usage of social networking sites was not surprising given the popularity of Facebook and Twitter at the time of this research. Similarly, high usage of social video tools can be explained by the popularity of YouTube. Therefore, both social networking sites and social video tools are likely highly ranked due to familiarity and wide acceptance. These results support previous academic and business findings (Bughin & Chui, 2010; Bughin et al., 2008; Dahlstorm et al., 2011; Lenhart et al., 2007; Smith et al., 2009).

In the middle of the scale, 56.4% of student reported using podcasts, 54.4% reported using social photo tools, and 42.2% of students reported using collaborative writing tools for recreation, work, and/or school. The popularity of podcasts may relate to the existence of many popular culture podcasts, from and about celebrities, music, movies, TV shows, and sports, as well as the fact that many teachers make their lecture notes or other supplemental materials available through podcasts. The popularity of social photo tools may be related to the integral role photo-hosting and sharing services play in social networking sites, letting users who overcome the slight yet still existent learning barrier then share photos through their social networking sites of choice. Finally, due to the group work commonly required in MBA programs, the business graduate population among respondents may have led to the relatively high reported use of collaborative writing tools.

Concerning other Web 2.0 technologies, students reported low to very low usage, with only 12.0% using thinking tools, 12.1% using virtual worlds, 25.6% using blogs, 26.5% using social bookmarking/tagging tools, and 29.0% using wikis. These findings, regarding least frequently used Web 2.0 technologies, are similar to finding reported by Jones et al. (2010) and Kennedy et al. (2010). It is worthwhile to note that students may not realize that Wikipedia and any number of music lyric websites are in fact wikis. Additionally, 63.5% of students reported that they knew about blogs, but did not use them. A possible explanation is that students, who actually "use" blogs daily or weekly, by reading them, report that they "do not use" blogs because they do not themselves write or contribute in one.

Lack of awareness and learning barriers may explain students' low adoption of collaborative thinking tools. While many powerful tools exist allowing for online mind-mapping and brainstorming, unless they were introduced in previous classes or assignments, these tools may be completely unknown to students. A majority of students (60.2%) reported that they had "never heard of" online thinking tools. Additionally, use of Web 2.0 thinking tools often requires a substantial initial investment of time from users before they can learn to utilize the available features and functions. Finally, students may be unaware of the collaborative capacities of online thinking tools. All of these factors may combine to deter or prevent individuals from adopting Web 2.0 collaborative thinking tools.

Additionally, despite the financial success of various virtual worlds in recent years, the low use frequency here reported may relate to the status of virtual worlds as niche market targeted primarily at gamers. Just as with online thinking tools, a majority of students (51.5%) reported that they had "never heard of" virtual world applications. It may be that

the technology is overlooked or not taken seriously as a platform by non-gamers. Also, for faculty or educational institutions to set up a virtual environment through Second Life, arguably the best-known non-gaming virtual world, there is a hefty set up fee and large monthly subscription fees, both of which mean fewer and fewer colleges are even attempting to use Second Life. Even when an institution is trying to utilize a virtual world for education, steep learning curves, frustration over buggy software, and the difficulty in creating useful educational content in a virtual environment may all contribute to students' low usage of virtual reality platforms.

Regarding social bookmarking/tagging tools, 26.5% of students reported that they "used it for recreation, work," and/or school, while 38.9% reported that they "never heard of it," and 34.8% reported that "they knew of the tools but never used them." Multiple factors may explain these numbers. First, the built-in bookmarking function of Web browsers is an easily accessed and learned tool, causing students to feel no motivation to learn about possibly more useful, but harder to find or learn social bookmarking/tagging tools. Secondly, students may not realize the benefits of universal access to bookmarks maintained through Web 2.0 tools in comparison to bookmarks available only on their own personal devices. Lastly, without exposure to social bookmarking/tagging tools, students will not have first hand knowledge regarding the benefits of the social sharing or other expanded abilities of the applications.

Table 2. Business students' familiarity with and use of specific Web 2.0 tools

Web 2.0 Tools	*n*	*M*	*SD*	Never heard of it	Know it but do not use it	Use it for recreation	Use it for recreation and work	Use it for recreation, work, and school
Blogs	382	2.38	1.05	10.8%	63.5%	11.6%	5.0%	9.0%
Collab Wrtg	381	2.82	1.45	17.0%	40.8%	8.8%	9.5%	23.9%
Podcasts	376	2.98	1.17	3.5%	40.1%	31.7%	6.2%	18.5%
SB	372	2.07	1.17	38.9%	34.8%	15.2%	3.8%	7.3%
Social Photo	377	2.79	1.10	8.3%	37.3%	34.3%	8.8%	11.3%
SNS	380	3.81	1.13	1.6%	10.1%	35.1%	12.8%	40.4%
Social Video	373	3.64	1.10	1.6%	10.8%	43.4%	10.6%	33.6%
Thinking	378	1.60	0.95	60.2%	27.8%	6.1%	2.7%	3.2%
Virtual Worlds	377	1.69	0.93	51.5%	36.5%	7.0%	1.6%	3.5%
Wikis	380	2.25	1.38	37.2%	33.8%	10.6%	3.2%	15.2%

Note. Collab Wrtg = Collaborative writing, SB = Social bookmarking/tagging, and SNS = Social networking sites.

RQ 1B: WHAT ARE BUSINESS STUDENTS' EXPERIENCES USING WEB 2.0 TOOLS?

Descriptive statistics were utilized to analyze business students' experiences with Web 2.0 applications (see Table 3). Students' most positive Web 2.0 experiences ("positive" and "very positive") were reported with social networking sites (71.1%) and social video tools (70.9%). Unsurprisingly, these two Web 2.0 tools are the same tools that students reported as most familiar. One possible explanation is that students' familiarity with specific Web 2.0 tools is likely to influence their experience.

In the middle, students' experiences with podcasts, social photo tools, and collaborative writing tools were divided. Around half of students reporting "positive" or "very positive" experiences with podcasts (52.8%) and social photo tools (45.5%), while around a third of students reported "positive" or "very positive" experiences with

collaborative writing tools (35.1%). However, an equivalent portion of students reported "neutral" or "NA" regarding their experiences with podcasts (41.5%) and social photo tools (50.1%), while nearly two thirds of students reported "neutral" or "NA" regarding their experiences with collaborative writing tools (59.9%). At the bottom of the scale, for the same Web 2.0 tools which most students had "never heard of", reported experiences were predominantly "neutral" or "N/A" (virtual world applications 84.0%, thinking tools 82.7%, blogs 73.6%, social bookmarking/tagging tools 71.5%, and wikis 70.6%).

Overall, experiences with Web 2.0 tools and services among business students have been mostly positive with minimum negative experiences; reported negative experiences with specific categories of Web 2.0 tools ranged from 2.4% to 8.8%. A possible explanation is that business students in this study have limited familiarity with many Web 2.0 tools. Therefore, it is unsurprising that reported negative experiences are quite low. Of the listed Web 2.0 technologies, the top three reported negative experiences were virtual worlds at 8.8%, blogs at 8%, and wikis at 6.9%. Overall, the minimal negative experiences with Web 2.0 tools are an encouraging result that correlates with the growing success of Web 2.0 in scholastic and corporate environments.

Table 3. Business students' experience with specific Web 2.0 tools and services

Web 2.0 Tools	*n*	*M*	*SD*	N/A	Very Negative	Negative	Neutral	Positive	Very Positive
Blogs	375	2.62	1.75	33.1%	2.9%	5.1%	40.5%	13.6%	4.8%
Collab Wrtg	374	3.13	1.67	26.7%	1.6%	3.5%	33.2%	23.5%	11.6%
Podcasts	377	2.06	1.80	17.5%	1.6%	4.0%	24.0%	32.9%	19.9%
SB	375	2.91	1.68	39.1%	2.4%	3.8%	32.4%	14.2%	8.0%
Social Photo	377	3.82	1.29	21.0%	1.3%	3.0%	29.1%	32.6%	12.9%
SNS	374	3.82	1.25	5.6%	1.3%	4.0%	18.0%	37.3%	33.8%
Social Video	378	1.68	1.68	5.9%	0.8%	1.6%	20.8%	39.5%	31.4%
Thinking	379	1.58	1.61	47.1%	1.9%	4.8%	35.6%	6.7%	4.0%
Virtual World	379	2.15	1.72	47.5%	3.5%	5.3%	36.5%	4.3%	2.9%
Wikis	370	2.01	0.82	34.9%	2.4%	4.5%	35.7%	17.1%	5.3%

Note. Collab Wrtg = Collaborative writing, SB = Social bookmarking/tagging, and SNS = Social networking sites.

RQ 1C: WHAT WEB 2.0 TOOLS DO BUSINESS STUDENTS WANT THEIR INSTRUCTORS TO INCORPORATE?

Descriptive statistics were used to analyze business students' interest in instructors incorporating specific Web 2.0 applications into their instruction (see Table 4). The Web 2.0 technologies that students were most interested in using as learning tools were social video tools (yes 66.5%, no 22.9%), social networking sites (yes 58.6%, no 31.8%), podcasts (yes 53.3%, no 32.0%), and collaborative writing tools (yes 46.0%, no 31.5%).

Just as with frequency of use results, the technologies students reported least interest in learning were virtual worlds (yes 16.9%, no 46.0%), blogs (yes 28.9%, no 45.5%), social bookmarking/tagging tools (yes 24.3%, no 42.3%), thinking tools (yes 20.2%, no 42.3%), and wikis (yes 27.3%, no 37.3%). As previously mentioned, one possible explanation for students' lack of interest in these Web 2.0 technologies may relate to students' unfamiliarity with the technologies and their benefits, and students' concerns regarding possibly steep learning curves. Additionally, while 54.4% % of students reported that they were familiar with or used social photo tools, students were divided regarding the addition of social photo tools to their learning (yes 39.1%, no 41.5%). It may be that many but not all students who already used social photo tools were supportive of their inclusion in education, while students who were unfamiliar with photo sharing services perceived no potential benefits from their inclusion.

Table 4. Business students' interest in classes integrating specific Web 2.0 tools

Web 2.0 Tools	*n*	*M*	*SD*	Yes	No	I Don't Know
Blogs	373	1.62	0.73	28.9%	45.5%	25.6%
Collabor Wrtg	373	2.08	0.76	46.0%	31.5%	22.5%
Podcasts	373	1.79	0.74	53.3%	32.0%	14.8%
SB	372	1.53	0.68	24.3%	42.3%	33.3%
Social Photo	374	1.46	0.70	39.1%	41.5%	19.4%
SNS	373	2.18	0.76	58.6%	31.8%	9.6%
Social Video	374	2.18	0.72	66.5%	22.9%	10.6%
Thinking	372	2.09	0.79	20.2%	39.9%	39.9%
Virtual World	102	2.12	0.62	16.9%	46.0%	37.1%
Wikis	102	2.06	0.74	27.7%	37.3%	35.1%

Note. Collab Wrtg = Collaborative writing, SB = Social bookmarking/tagging, and SNS = Social networking sites.

RQ 2: IS THERE AN ASSOCIATION BETWEEN BUSINESS STUDENTS' INNOVATIVENESS, FAMILIARITY WITH, AND EXPERIENCE USING WEB 2.0 TOOLS?

A Pearson correlation coefficient was computed to assess the relationship between business students' innovativeness, familiarity with, and experience using the ten specific Web 2.0 tools investigated (see Table 5). Results indicate that students' innovativeness has a positive relationship with familiarity for seven Web 2.0 tools (blogs, collaborative writing tools, podcasts, social bookmarking/tagging tools, social video tools, and wikis). A positive relationship was also found between students' innovativeness and their experience using seven Web 2.0 tools (blogs, collaborative writing tools, podcasts, social photo tools, social networks, virtual worlds, and wikis). This suggests that more innovative students were more likely to be familiar with Web 2.0 tools and similarly more likely to have positive experiences with those tools. However, it must be noted that the correlations are small, indicating small effect size (Cohen, 1988). These findings are not particularly surprising. Rogers (2003) suggested that higher levels of innovation indicate willingness and ability to cope with uncertainty. This characteristic may lead students to explore new ways of using technologies, and adjusting their standard routines. As a result, students who are more innovative may be more likely to adopt new Web 2.0 technologies to enhance their task performance for scholastics, personal activities, and work (Wang et al., 2008).

Regarding the correlation between students' familiarity with and experience using Web 2.0 tools, the strongest positive correlation, showing a large effect size, was between familiarity with collaborative writing tools and positive experiences using blogs, r (290) =

.64, $p < .001$). This indicates that students who are more familiar with collaborative writing tools were more likely to have positive experiences using blogs. A possible explanation for this is that experience using the various interfaces and tools within a collaborative writing platform, especially since other users would be present to facilitate learning, allows students to be more comfortable and able to use the similar interfaces and tools available within blogs.

Additionally, four other variable pairs indicated positive correlations with large effect size: (a) familiarity with social bookmaking/tagging tools and positive experiences using podcasts (r (290) = .62, $p < .001$), (b) familiarity with wikis and positive experiences using virtual worlds (r (290) = .59, $p < .001$), (c) familiarity with social photo tools and positive experiences using social bookmaking/tagging tools (r (290) = .51, $p < .001$), and (d) familiarity with thinking tools and positive experiences using social video tools (r (290) = .51, $p < .001$).

Finally, and surprisingly, experience using wikis was negatively correlated, with a small-to-medium effect size, with familiarity with seven Web 2.0 tools: blogs (r = -.31), collaborative writing tools (r = -.22), social bookmarking/tagging tools (r = -.24), social photo tools (r = -.18), thinking tools (r = -.17), virtual worlds (r = -.18), and wikis (r = -.15). In other words, familiarity with the listed Web 2.0 tools (including wikis) tended to predict more negative experiences using wikis; or, conversely, more positive experiences using wikis tended to predict lower familiarity with the listed Web 2.0 tools (again, including wikis).

Table 5. Intercorrelations between students' innovativeness, familiarity with, and experience using Web 2.0 tools

	1.	3. Experience Using									
Variables	Innov	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	3.10
1. Innov	1.00	.16*	.12*	.17*	.08	.12*	.26**	.05	.05	.17*	-.14*
2. Familiarity											
2.1 Blogs	.15*	.28**	.11*	.29**	.16*	.09	.06	.23**	.17*	.12*	-.31**
2.2 Collab Wrtg	.12*	.64**	.11*	.25**	.15*	.06	.13*	.20**	.17*	.23**	-.22**
2.3 Podcasts	.15*	.19**	.47**	.18**	.21**	.06	.14*	.21**	.23**	.14*	-.09
2.4 SB	.16*	.31**	.06	.62**	.13*	.08	.07	.32**	.30**	.25**	-.24**
2.5 Social Photo	.14*	.22**	.20**	.23**	.51**	.14*	.14*	.16*	.14*	.11	-.18**
2.6 SNS	.11	.20**	.07	.12*	.12*	.42**	.24**	.03	.07	.03	-.10
2.7 Social Video	.17*	.18*	.18*	.10	.14*	.19**	.30**	.06	.12	.12*	-.11
2.8 Thinking	-.05	.21**	.05	.26**	.19*	-.03	-.02	.51**	.37**	.23**	-.17*
2.9 Virtual World	.04	.18*	.11	.25**	.08	-.02	-.00	.37**	.45**	.25**	-.18*
2.10 Wikis	.14*	.16*	.07	.23**	.09	.03	.13*	.17*	.22**	.59**	-.15*

Note. N = 292. Innov = Innovativeness, Collab Wrtg = Collaborative writing, SB = Social bookmarking/tagging, and SNS = Social networking sites. *$p < .05$. **$p < .001$.

A possible explanation for this involves the nature of collaboration within wikis themselves. When people contribute to wikis it involves research and effort "donated" to the public good. What people post in wikis they feel strongly about, even when, as students, their participation in the wikis may not have been voluntary. Because wikis involve multiple authors who in fact may not actually know each other or be deliberately collaborating, each contributor's writing may be unexpectedly altered or even deleted it by other contributors. This can lead to negative emotional reactions to the experience of using wikis, in direct contrast to the frequently more positive interactions within other Web 2.0 collaborative tools.

RQ 3: FOR EACH CATEGORY OF WEB 2.0 TOOLS, DO STUDENTS WHOSE PREFERENCE WAS FOR, OR AGAINST, ADOPTING THE TOOLS WITHIN THEIR CLASSES DIFFER SIGNIFICANTLY IN REGARD TO INNOVATIVENESS?

Table 6. Web 2.0 tools adoption peferences and business student innovativeness

Adoption Preferences	M	SD	t	df	p
Blogs					
Yes (n = 183)	73.02	9.52	3.63	287	.000
No (n = 106)	68.75	9.77			
Collab Wrtg					
Yes (n = 86)	73.17	9.42	2.29	223	.023
No (n = 139)	70.07	10.12			
Podcasts					
Yes (n =132)	72.58	9.99	1.58	268	.115
No (n =138)	70.68	9.72			
SB					
Yes (n = 196)	72.18	9.64	2.19	296	.030
No (n = 105)	69.64	9.55			
Social Photo					
Yes (n = 227)	72.26	9.62	2.72	299	.007
No (n = 71)	68.68	9.90			
SNS					
Yes (n = 68)	73.06	10.08	2.23	201	.027
No (n = 135)	69.74	9.97			
Social Video					
Yes (n = 61)	74.70	9.31	3.67	211	.000
No (n = 152)	69.31	9.84			
Thinking					
Yes (n = 90)	75.59	9.26	5.51	214	.000
No (n = 126)	68.29	9.81			
Virtual World					
Yes (n = 13)	76.62	12.60	1.92	68	.060
No (n = 57)	70.23	10.43			
Wikis					
Yes (n = 22)	72.86	11.73	0.37	64	.711
No (n = 44)	71.84	9.87			

Note. Collab Wrtg = Collaborative writing, SB = *Social bookmarking/tagging, and SNS = Social networking sites.*

An independent *t*-test was performed to examine differences in the innovativeness scores (dependent variable) of students who preferred adopting specific Web 2.0 tools

within their classrooms ("YES") and students who opposed the adoption of the given tools ("NO") (independent variable). Results (Table 6) show that, for seven of the Web 2.0 technologies, students who voted "YES" to adopting the specific Web 2.0 tools within their classrooms were significantly different in their innovativeness from those who voted "NO": blogs (t (287) = 3.63, $p < 0.01$, d = .44), collaborative writing tools (t (223) = 2.29, p = .02, d = .32), social bookmarks/tagging tools (t (299) = 2.186, p = .03, d = 0.26), social photo tools (t (296) = 2.72, $p < 0.01$, d = .37), social networking sites (t (201) = 2.23, p = .02, d = .33), social video tools (t (211) = 3.67, $p < 0.01$, d = .56), and thinking tools (t (214) = 5.51, $p < 0.01$, d =.76). This suggests that innovativeness may influence student interest in learning and adopting new technologies. These findings follow in line with numerous earlier studies which suggest that higher levels of innovativeness will predict increased likelihood of trying, appreciating, and adopting new Web technologies (Agarwal & Prasad, 1998; Harris, 1999; Thatcher & Perrewé, 2002; Wang et al., 2008; Yi et al., 2006). However, effect sizes (d) suggest that these differences are small-to-medium, except for thinking tools where the effect size is medium-to-large.

RQ 4: DOES STUDENT CLASS LEVEL (LOWER, UPPER, AND GRADUATE) PREDICT INNOVATIVENESS?

A one-way ANOVA revealed statistically significant differences in students' reported innovativeness (dependent variable) when considering class level (lower, upper, and graduate) (independent variable): F (2, 374) = 4.83, p = .008. Results revealed a mean innovativeness value of 68.92 for lower level students, 69.48 for upper level students, and 73.63 for graduate students (Table 7). This suggests that learning experience may influence level of innovativeness. Tukey post-hoc comparisons of the three groups indicated that graduate students differed significantly in their innovativeness from both lower level students ($p < .05$) and upper level students ($p < .05$). However, the effect sizes of these differences were smaller-than-typical ($\eta^2 = .025$).

Table 7. Business student class level and innovativeness

		Innovativeness	
Student Level	*n*	*M*	*SD*
Lower	113	68.92	10.84
Upper	188	69.48	11.62
Graduate	76	73.63	9.75
Total	377	70.15	11.15

RQ 5: FOR BUSINESS STUDENTS, DOES GENDER PREDICT FAMILIARITY WITH WEB 2.0 TOOLS OR DESIRE TO ADOPT WEB 2.0 TOOLS IN BUSINESS CLASSES?

Table 8. Gender, familiarity with, and interest in adopting Web 2.0 tools in business classrooms

Variable	M	SD	t	df	p
Familiarity			1.51	358	.132
Males	2.55	.68			
Females	2.67	.65			
Interest			.99	365	.324
Males	3.12	2.53			
Females	3.37	2.36			

Note. N = 175 males and 185 females; $p < .05$.

An independent *t*-test was performed to examine differences in familiarity with Web 2.0 tools (dependent variable) and desire to adopt Web 2.0 tools within classes (dependent variable) among male and female business students (independent variable). Table 8 reveals that gender was not a significant predictor of familiarity with Web 2.0 tools (p = .13) or interest in adopting Web 2.0 tools within business classes (p = .32). This implies that gender is not a factor influencing familiarity with or adoption preferences for Web 2.0 tools among business students. This result is unsurprising; overall, studies regarding the influence of gender on technology use are equivocal (Selwyn, 2008; Jones et al., 2010; Jones & Ramanau, 2009; Kennedy et al., 2010; Shuell & Farber, 2001).

RQ 6: ARE THERE DIFFERENCES REGARDING FAMILIARITY WITH WEB 2.0 TOOLS AND DESIRE FOR BUSINESS CLASSES TO USE WEB 2.0 TOOLS AMONG THE EIGHT DISCIPLINES SURVEYED (ACCOUNTING, FINANCE, MARKETING, TOURISM, FASHION MERCHANDISING, MANAGEMENT, MBA, AND MPA)?

A one-way ANOVA was used to determine whether or not student major (independent variable) had a statistically significant impact in regards to familiarity with Web 2.0 tools (dependent variable) and interest in Web 2.0 tools being adopted in business classes (dependent variable). Student major was found to significantly impact business students' familiarity with Web 2.0 tools, F (9, 313) = 2.46, p = .01, but not in their interest in those tools being adopted in business classes, F (9, 320) = .64, p = .76 (Table 9). This suggests that student major may influence level of familiarity with Web 2.0 tools. Post-hoc Tukey tests showed that graduate accounting (MPA) students had significantly higher levels of familiarity with Web 2.0 tools than both undergraduate accounting students (p = .02) and undergraduate management students (p = .02). Likewise, graduate management students (MBA) had significantly higher levels of familiarity with Web 2.0 tools than undergraduate accounting students (p = .02). However, the effect sizes of these differences were smaller-than-typical (η^2 = .07).

Table 9. Student Major, Familiarity with, and Interest in Adopting Web 2.0 Tools in Business Classrooms

	df	SS	*MS*	*F*	*p*
Familiarity					
Between groups	9	8.89	.99	2.46	.01*
Within groups	313	125.82	.40		
Total	322	134.70			
Interest					
Between groups	9	34.60	3.84	.64	.76
Within groups	320	1911.21	5.97		
Total	329	1945.81			

*p < .05

CONCLUSIONS AND IMPLICATIONS FOR FUTURE STUDIES

Overall, the current study found that business students were most familiar with social networking sites (e.g. Facebook and Twitter) and social video tools (e.g. YouTube). Similarly, most business students reported positive to very positive experiences with both social networking sites and social video tools. In the middle, around half of business students reported using podcasts, social photo tools, and collaborative writing tools. Again, following the above pattern, around half of students reported positive to very positive

experiences with podcasts, and social photo tools, with collaborative writing tools being rated somewhat lower. On the bottom of the scale, business students reported low awareness and usage of collaborative thinking tools, virtual worlds, blogs, social bookmarking/tagging tools, and wikis; consequently, students reported experiences with these technologies were predominantly neutral or N/A. All of these findings are supported by numerous previously mentioned studies.

One unique aspect of this research consisted of the investigation of business students' preferences regarding the integration of specific Web 2.0 technologies into their classes. Perhaps unsurprisingly, business students were most supportive of the adoption of the technologies they were most familiar with, and least supportive of the technologies they had little experience using.

A second unique aspect of this research was the investigation of interactions between students' innovativeness and their usage of, experiences with, and desire to adopt specific Web 2.0 technologies in their classes. Innovativeness was found to have a positive relationship with all three variables; students with higher levels of innovativeness were more likely to have used Web 2.0 technologies, more likely to have had better experiences with them, and more likely to support their integration into business classes. However, while these results were statistically significant, their effect sizes were small.

As globalization continues, the framework of the business world is stretching out, in terms of both locations and times. In other words, business graduates must be prepared to work and collaborate with others over long distances, both synchronously and asynchronously, since work partners may in fact be in other time zones, countries, or even on the other side of the planet. The capacity for innovation has been shown to be a key factor leading to organizations' success (Burns & Stalker, 1961; Hult, Hurley, & Knight, 2004; Hurley & Hult, 1998; Porter, 1990; Schumpeter, 1934). Hiring panels are growing ever more aware of the need for employees to possess both skill with collaborative technologies and the confidence and capacity to innovate. In fact, many organizations, when seeking to fill a position, not only examine potential candidates' social media profiles, they seek out new candidates by searching through social networks and offering positions to those whose profiles and accomplishments impress (Fallon, 2014).

As economies fluctuate around the world many companies collapse under the pressure. The companies that succeed are those that harness the potentials of Web 2.0 tools and seek out new ways to benefit from the powerful applications now available. In this light, it is critically important for business students, not just to be exposed to Web 2.0 technologies and not just to be aware of collaborative media outlets as consumers, but also to become confident content creators who stand above and apart from others.

In closing, a potential limitation of this study should be considered. The population examined in this study consists only of business students from one university in the Southeast United States. These particular students may not be representative of students at other educational institutions. Further research should expand the scope of this investigation to include students from other regions, and possibly, from other countries. Additional research might focus on ways to increase students' innovativeness, as well as their usage and positive experiences with a more diverse array of Web 2.0 tools, particularly those of notable importance to businesses, such as collaborative writing tools and collaborative thinking tools, both of which can boost an individual's ability to work constructively, quickly, and effectively with others. Further investigations might also consider video conferencing tools and screen-sharing tools, as well as virtual box tools, both of which can also be potent tools for collaborative work.

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APPENDIX

Web 2.0 in College Classroom Applications

1. Age Group

   a. 18- 20
   b. 20-24
   c. 25-30
   d. 31-34
   e. 35-39
   f. 40 and above

2. Gender

   a. Female
   b. Male

3. Do you have 24/7 access to the Internet?

   a. Yes
   b. No

4. Information and communication technologies (such as cell phones, netbooks, iPods, and computers) in general:

   a. Make my life EASIER
   b. Make my life more COMPLICATED
   c. Make no difference

5. You are:

   a. An Accounting major
   b. A Finance major
   c. A Marketing major
   d. A Tourism major
   e. A Fashion Merchandising major
   f. A Healthcare Marketing major
   g. A Management major
   h. A International Business major
   i. A MIS major
   j. A MBA student
   k. A MPA student
   l. Other, please indicate
      _____

6. You are:
   a. A Senior student
   b. A Junior student
   c. A Sophomore student
   d. A Freshmen student
   e. A Graduate student

8. 7. Which best describes your preferences in taking college courses?

   a. I prefer taking courses that use NO instructional technologies.
   b. I prefer taking courses that use LIMITED instructional technologies.
   c. I prefer taking courses that use a MODERATE LEVEL of instructional technologies.
   d. I prefer taking courses that use instructional technologies EXTENSIVELY.
   e. I prefer taking courses that use instructional technologies EXCLUSIVELY (online only).

8. Please read the statement below carefully and rate your opinion of each statement.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. My peers often ask me for advice or information.					
2. I enjoy trying new ideas.					
3. I seek out new ways to do things.					
4. I am generally cautious about accepting new ideas.					
5. I frequently improvise methods for solving a problem when an answer is not apparent.					
6. I am suspicious of new inventions and new ways of thinking.					
7. I rarely trust new ideas until I can see whether the vast majority of people around me accept them.					
8. I feel that I am an influential member of my peer group.					
9. I consider myself to be creative and original in my thinking and behavior.					
10. I am aware that I am usually one of the last people in my group to accept something new.					
11. I am an inventive kind of person.					
12. I enjoy taking part in the leadership responsibilities of the group I belong to.					
13. I am reluctant about adopting new ways of doing things until I see them working for people around me.					
14. I find it stimulating to be original in my thinking and behavior.					
15. I tend to feel that the old way of living and doing things is the best way.					
16. I am challenged by ambiguities and unsolved problems.					
17. I must see other people using new innovations before I will consider them.					
18. I am receptive to new ideas.					
19. I am challenged by unanswered questions.					
20. I often find myself skeptical of new ideas.					

9. How familiar are you with the following Web 2.0 tools:

	Never heard of it	Know it but never use it personally	Use it for my own recreation only	Use it for my own recreation and work	Use it for my own recreation, work, and school
Blogs for publishing to the Web (e.g., Blogger, Wordpress. Livejournal)					
Collaborative writing tools (e.g., Google Docs, Zoho)					
Podcasts (e.g., iTunes)					
Social bookmarking/tagging tools (e.g., del.icio.us)					
Social photo tools (e.g., Flickr, Photobucket)					
Social networking sites (e.g., Facebook, Myspace, Ning)					
Social video tools (e.g., YouTube, TeacherTube)					
Thinking tools (e.g., Bubbl.us, Gliffy, Zoho, Dabbleboard)					
Virtual World (e.g., Second Life)					
Wikis (e.g., pbwiki, Wetpaint, Wikispaces)					

10. Describe your overall experience using the following Web 2.0 tools (for school, work, or recreation)?

	Very Negative	Negative	Neutral	Positive	Very Positive	N/A
Blogs for publishing to the Web (e.g., Blogger, Wordpress. Livejournal)						
Collaborative writing tools (e.g., Google Docs, Zoho)						
Podcasts (e.g., iTunes)						
Social bookmarking/tagging tools (e.g., del.icio.us)						
Social photo tools (e.g., Flickr, Photobucket)						
Social networking sites (e.g., Facebook, Myspace, Ning)						
Social video tools (e.g., YouTube, TeacherTube)						
Thinking tools (e.g., Bubbl.us, Gliffy, Zoho, Dabbleboard)						
Virtual World (e.g., Second Life)						
Wikis (e.g., pbwiki, Wetpaint, Wikispaces)						

11. I would like my classes to use the following Web 2.0 tools.

	Yes	No	I Don't Know
Blogs for publishing to the Web (e.g., Blogger, Wordpress, Livejournal)			
Collaborative writing tools (e.g., Google Docs, Zoho)			
Podcasts (e.g., iTunes)			
Social bookmarking/tagging tools (e.g., del.icio.us)			
Social photo tools (e.g., Flickr, Photobucket)			
Social networking sites (e.g., Facebook, Myspace, Ning)			
Social video tools (e.g., YouTube, TeacherTube)			
Thinking tools (e.g., Bubbl.us, Gliffy, Zoho, Dabbleboard)			
Virtual World (e.g., Second Life)			
Wikis (e.g., pbwiki, Wetpaint, Wikispaces)			

12. Please provide comments of either positive or negative experience you have with using any Web 2.0 application in your classroom.