

Practitioner and Faculty Perceptions of Skills Considered Necessary in Electronic
Commerce Programs

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by

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Practitioner and Faculty Perceptions of Skills Considered Necessary in Electronic
Commerce Programs

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Abstract

The high rate of technological development has strengthened the need for interdependence between industry and educational institutions in providing a labor force that is well equipped with desired skill sets. A failure by educational institutions to provide the skills desired by industry could have broad, negative consequences, including an inability of business leaders to hire graduates with skills business leaders consider most important and greater training expenses for businesses if the skills need to be taught after the graduate is hired. This is especially true for employers that need expertise in rapidly changing fields such as electronic commerce (EC). However, although it is clear the skills desired by industry should be taught in colleges, including programs designed to provide EC skills, research reveals that these skills are not being adequately delivered. Moreover, researchers and practitioners have not adequately identified the specific skills required by employers of EC program graduates. Therefore, the purpose of this qualitative study was to determine the extent to which colleges and universities are providing the skill sets most desired by business leaders who hire graduates for positions that include a focus on EC. First, a Delphi method was used to survey business leaders who are responsible for hiring applicants for positions that contain an EC focus. Second, content analysis of AACSB-accredited college and university websites and academic catalogs was conducted to determine the availability of electronic commerce programs, type and level of each program, and the specific elements present in each program. Data analysis was used to assess the match between program elements and necessary skills required by employers. The universities included only seven of the 20 EC-specific skills (35%) rated as important or very important by the business leaders. The result could be

increased training expenditures by businesses, a decreased demand for recent graduates of EC programs, and the eventual extinction of university provided EC programs or concentrations in the United States. The only way to ensure university EC programs are meeting the needs of all stakeholders is to include input from the various groups of stakeholders when creating or modifying EC programs.

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Chapter 1: Introduction

The study assessed the extent to which colleges and universities are providing the skill sets most desired by business leaders who hire graduates for positions that include a focus on electronic commerce (EC). First, a Delphi method was used to survey business leaders who are responsible for hiring applicants for positions that contain an EC focus. Second, content analysis of AACSB-accredited college and university websites and academic catalogs was conducted to determine the availability of electronic commerce programs, type and level of each program, and the specific elements present in each program. Data analysis was used to assess the match between program elements and necessary skills required by employers. For the purpose of the study, an EC program was any degree or certificate program containing the words electronic commerce, e-commerce, e-business, or an e-business area (i.e., e-marketing) in the program title (Fusilier & Durlabhji, 2010). The study should contribute to the academic literature in an area lacking in graduate-level research.

Chapter 1 is organized to present the background of the topic, problem statement, and purpose of the study. The chapter continues with the research questions to be addressed using the data gathered during the study. The nature and significance of the study follow. Definitions of key terms and a summary conclude the chapter.

Background

Although many studies have attempted to answer questions related to EC (Decker, 2006; Kimilogly & Zarali, 2009; Sengupta, 2007; Vizard, 2000), few have included a focus on degree programs that cover the topic of EC (Abrahams & Singh, 2010; Burkey, 2002, 2007; Durlabhji & Fusilier, 2002; Fusilier & Durlabhji, 2010; Zhang, Li, & Lin,

2005). Two studies (Burkey, 2002, 2007) focused on whether programs in the United States contained elements most sought after by businesses engaged in EC and whether programs were effective in preparing students. In additional studies related to information technology (IT), researchers found employers were having difficulty hiring new graduates with the desired skill sets (Fulton et al., 2013) and there was disagreement between IT professionals and management information systems (MIS) on the importance of approximately 25% of the skills deemed critical to meet the needs of the industry (Stevens et al., 2011).

Two studies were performed in 2002 and 2007 that compared practitioner perceptions of essential skills and knowledge and the topics covered by AACSB-accredited colleges and universities in their EC degree and certificate programs (Burkey, 2002, 2007). Only 15% of the topics identified as important were included in EC business programs (Burkey, 2002). A follow-up study found the number of EC programs had declined, while little had changed with regard to the skills and knowledge learned in the programs (Burkey, 2007). Worldwide, between 2001 and 2007, 187 new master's programs in EC were launched, 123 were discontinued, 97 were revised, and two remained the same (Fusilier & Durlabhji, 2010). The skills needed for e-business success may be underrepresented in EC curricula (Fusilier & Durlabhji, 2010).

More current research related to IT skills and subsets of EC indicate a skills gap may still exist. In a study related to information security, researchers found employers had difficulty finding recent graduates with the necessary technical and social skill sets (Fulton et al., 2013). The cyber-security experts cited strong industry demand and an estimated unemployment rate of around 3% for IT security specialists while mentioning a

mismatch with regard to the skills required to be successful in information security occupations (Fulton et al., 2013).

In a study focused on the perspectives of MIS faculty and IT professionals, emails were sent to companies of all sizes within the state of Louisiana until 100 responses from IT professionals were received (Stevens et al., 2011). College and university websites were used to identify MIS faculty and all MIS faculty identified on the schools' sites were contacted (Stevens et al., 2011). The IT professionals and MIS faculty disagreed on the importance of approximately 25% of skills (Stevens et al., 2011). The researchers suggested development of a theoretical framework for the evaluation of courses that take into account conflicting stakeholder priorities and stated those who teach MIS students must review and revise their courses to meet the needs of their stakeholders (Stevens et al., 2011).

The high rate of technological development has strengthened the need for interdependence between industry and educational institutions in providing a labor force that is well equipped with desired skill sets (Tiwari & Kaushik, 2011). A skills gap is a gap in the skill set desired by employers when compared to the skills of newly graduated potential employees and may prevent new hires from contributing to the company's goals without a sufficient amount of additional training (Tiwari & Kaushi, 2011). A skills gap could have broad, negative consequences, including an inability of business leaders to hire graduates with skills business leaders consider most important, greater training expenses for businesses if the skills need to be taught after the graduate is hired, and an inability of entrepreneurial graduates to successfully implement EC solutions in a newly formed business.

Statement of the Problem

The problem that this applied study addressed is the gap between the skills students graduating from EC programs need to succeed in the field of EC and the actual skills taught by colleges and universities. Gaps found in previous studies (Burkey, 2002, 2007) were based on research conducted 5-10 years ago and may not reflect educational practice in 2014. Furthermore, more current research related to IT skills and subsets of EC indicate a skills gap may still exist (Fulton, Lawrence, & Clause, 2013; Stevens, Totaro, & Zhu, 2011; Tiwari & Kaushik, 2011). Specifically, Fulton et al. (2013) found that employers were having difficulty hiring students with the right set of technical skills and social skills necessary to succeed in information security. In addition, Stevens et al. (2011) found that MIS faculty and IT professionals disagreed about the importance of approximately 25% of skills considered critical to meet the needs of industry. Finally, Tiwari and Kaushik (2011) revealed new graduates did not have the right combination of skills and experience. The authors noted industry cannot afford to ignore the skills gap and identified the need for educational institutions to be willing to collaborate with industry (Tiwari and Kaushik, 2011).

Purpose of the Study

The purpose of this qualitative study was to determine the extent to which AACSB-accredited colleges and universities are providing the skill sets most desired by business leaders who hire graduates for positions that include a focus on EC. The target populations of the study are business leaders that hire graduates of business and technology programs for positions that include a focus on EC and AACSB-accredited colleges and universities that provide education to prepare students for these positions.

The samples included hiring managers at Fortune 500 companies that advertised positions between January and February 2014 with a focus on EC and AACSB-accredited colleges and universities as of March 2014. The intended audience for the results of the study is the course content designers and related decision makers at AACSB-accredited schools of higher education that prepare students for positions that may have a focus on EC. The interests of business are under study because those interests ultimately affect stakeholders, including students, alumni, and taxpayers.

The first phase of the study was an exploration of the most important skills practitioners want graduates to possess. The study involved the Delphi method to survey the participants. The most effective sample size was determined in part based on the fact that the summarizing process is made more difficult when a large number of respondents generate many items and ideas, combined with the fact that most Delphi studies use 15-20 respondents (Ludwig, 1997). The iteration of rounds for data collection and analysis and the anonymity provided by the collection method allows the Delphi method to offer reliable and generalizable outcomes (J. Day & Bobeva, 2005).

The second phase of the study involved content analysis of AACSB-accredited college and university websites and academic catalogs was conducted to determine the availability of electronic commerce programs, type and level of each program, and the specific elements present in each program. Business school deans and faculty at AACSB-accredited colleges and universities that provide EC degree or certificate programs to determine whether the skills identified by the practitioners are taught in each program were also surveyed. The study may prove helpful in identifying any skills gap at

the universities and may be of value to course content designers at institutions of higher education.

Research Questions

The responses to the survey questions identified the skills and knowledge preferred by the practitioners participating in the study. The extent to which colleges and universities that offer business and technology programs are providing the skill sets most desired by businesses that hire graduates of the programs was also investigated.

Q1. What skills and knowledge do practitioners desire new graduates to possess when hiring for EC related positions?

Research Question 1 were investigated during the first phase of this study.

Q2. To what extent, if any, does a gap exist between practitioners at Fortune 500 companies and academicians at the surveyed universities relating to the 10 most important skills and knowledge elements identified by the practitioners and the skills taught in the EC programs at the surveyed universities?

Q3. To what extent, if any, does a gap exist between practitioners at Fortune 500 companies and academicians at the surveyed universities relating to the EC-specific skills and knowledge elements identified by the practitioners as important or very important and the skills taught in the EC programs at the surveyed universities?

Research Questions 2 and 3 were investigated during the second phase of the study.

Nature of the Study

The first phase of the study involved the Delphi method to obtain answers to questionnaires during three rounds; the data was organized between each round to

develop each subsequent questionnaire. The Delphi method is useful when an area of research is too new to provide adequate historical data (Linstone & Turoff, 2002). The Delphi technique has proven useful in identifying key skill requirements for the purpose of developing or modifying curricula (Custer, Scarcella, & Stuart, 1969; Weaver, 1971).

The benefits of using the Delphi method to answer the research questions in this study become clear when considering the characteristics of the Delphi technique. To determine what skills hiring managers in businesses that hire for positions with a focus on EC desire in new hires, a range of experts were surveyed. As the universities surveyed in Phase 2 are located in different geographical regions of the country, the consideration of experts to include in the first phase was not limited to a small geographic area that would make face-to-face communication practical. The surveys were e-mailed to the group members, and all group communication took place remotely. The method was iterative in using multiple rounds to arrive at the desired skills without restricting the types of skills or number of skills that were listed in the first round. The lack of restriction eliminated the possibility of researcher bias with regard to the perceived importance of any of the skills. A standard, numerical Delphi was conducted using summary statistics to encourage consensus among the panel and determine the 10 skills to be considered most important.

Examining the results of the first-round questionnaires helped to determine possible skill and knowledge elements. The second and third rounds included group means to determine central tendencies and standard deviations and to encourage consensus among the focus group members. Reviewing the first round questionnaires helped to identify the skills to be included when preparing the questionnaire for the

second phase of the study. Survey responses obtained during the second phase of the study helped to determine the presence or absence of the skill and knowledge elements identified during the first phase.

Research in the second phase of the study included data collected from AACSB-accredited institutions of higher education. The data was collected through content analysis of AACSB-accredited college and university websites and academic catalogs as well as through surveys submitted to deans and faculty of the schools of business at each institution. The results are applicable to only AACSB-accredited universities as a threat to external validity would occur if inferences were to be made regarding collegiate business programs that are not accredited by AACSB. The aggregate data from the universities was used to answer the second and third research questions.

Appendices B through D show samples of each questionnaire for the Delphi rounds. The skills from the first round appeared on the second round questionnaire, and a group rating was included in the third round to encourage consensus. A Likert-type scale was used for this phase. Tables and descriptive statements were used to describe the composition of survey participants and a ranking of skill and knowledge elements determined from the first phase.

Research in the second phase of the study included data collected from AACSB-accredited college and university websites and academic catalogs and business school faculty at AACSB-accredited colleges and universities that provide EC degree or certificate programs. The data from the faculty was collected through surveys submitted to the deans and faculty at these institutions. The population of AACSB-accredited institutions listed by AACSB as having EC programs or emphases as of March 2014 was

included. The aggregate data from the universities was used to answer research questions 2 and 3.

Significance of the Study

Two studies conducted in 2002 and 2007 compared the practitioner perceptions of essential skills and knowledge and the topics covered by AACSB accredited colleges and universities (Burkey, 2002, 2007). Only 15% of the topics identified as important were included in EC business programs (Burkey, 2002). A follow-up study found the number of EC programs had declined, while little had changed with regard to the skills and knowledge learned in the programs (Burkey, 2007). More current research related to IT skills and subsets of EC indicate a skills gap may still exist (Fulton et al., 2013; Stevens et al, 2011). A skills gap could have broad, negative consequences, including an inability of business leaders to hire graduates with skills business leaders consider most important, greater training expenses for businesses if the skills need to be taught after the graduate is hired, and an inability of entrepreneurial graduates to successfully implement EC solutions in a newly formed business. The study may prove helpful in identifying any skills gap at the universities and may be of value to course content designers at institutions of higher education. The value to businesses may include reducing new hire training costs.

Definition of Key Terms

Certificate program. A certificate program is a group of courses that focus upon an area of specialized knowledge or information and administered and evaluated by the institution's faculty members or by faculty-approved professionals (Lopos, Holt, Bohlander, & Wells, 1988).

Curriculum. A curriculum is a fixed series of courses required by a college or university for certification or a degree in a field of study (Agnes, 2004).

Degree program. A degree program is a set of courses listed in catalogs or other publications, which, when completed, result in the school conferring an undergraduate or graduate degree (AACSB, 2010).

Electronic commerce. Electronic commerce occurs when electronic transmission mediums are used in the production, distribution, marketing, sale, or delivery of products and services (Kshetri, 2010).

Electronic commerce course. For the purpose of the study, an electronic commerce course is any course in a degree or certificate program designed to instruct students in EC concepts.

Electronic commerce program. For the purpose of the study, an electronic commerce program is any degree or certificate program containing the words electronic commerce, e-commerce, e-business, or an e-business area (i.e., e-marketing) in the program title (Fusilier & Durlabhji, 2010).

Practitioners. For the purpose of this study, practitioners are Fortune 500 company managers with hiring authority for positions in which skills related to EC are sought.

Skills gap. A skills gap is a gap in the skill set desired by employers when compared to the skills of newly graduated potential employees (Tiwari & Kaushik, 2011). A skills gap is considered present when a company cannot expect the new hires to contribute significantly to the company's goals without additional training (Tiwari & Kaushik, 2011).

Stakeholder theory. Stakeholder theory argues that organizations can maintain the support of constituent groups if the groups' interests are considered and balanced (Reynolds, Schultz, & Hekman, 2006). In the education setting, stakeholders can include students, alumni, academicians, practitioners within the business community, taxpayers, and donors.

Summary

Chapter 1 included the introduction of the topic and a brief review of the literature. The chapter continued with the research questions to be addressed using the data gathered during the study. The goal of the study was to determine the extent to which AACSB-accredited colleges and universities are providing the skill sets most desired by business leaders who hire graduates of the programs for positions that include a focus on EC. With higher level education the primary way to prepare the future EC employees, it is important to determine the extent to which colleges and universities instill desired skill sets (Petrova & Claxton, 2005; Tiwari & Kaushik, 2011; Vu et al., 2011).

Chapter 2: Literature Review

The problem that this study researched is the gap between the skills students graduating from AACSB-accredited business and technology programs need to succeed in the field of EC and the actual skills taught by the colleges and universities.

Researchers have shown that the skills most desired by hiring managers in the field of IT are not being taught by the colleges and universities included in the studies. The purpose of this qualitative study was to determine the extent to which AACSB-accredited colleges and universities that offer EC programs are providing the skill sets most desired by business leaders who hire graduates of the programs for positions containing a focus on EC. Identifying any current perception gap may be beneficial to course content designers at schools of higher education that have programs that include topics related to the field of EC as well as businesses that hire the graduates of those programs.

The literature review begins with a discussion of the contribution of EC to the U.S. economy since 2000, followed by a discussion of the effect of social networking. A review of graduation rates, employment rates, and employment opportunities for graduates of EC programs is then conducted. Following is a discussion on business curriculum content studies. An evaluation of previously identified perception gaps between practitioners in the field of EC and colleges and universities that provide instruction in skills related to EC follows. Finally, a description of the Delphi method, including history and applications, is discussed.

Documentation

The literature review includes a review of the foundational and contemporary literature relevant to EC, EC education and occupations, and perception gaps between business and academia. A search of available resources dealing with EC was conducted in the following databases: ProQuest, Gale Power Search, and EBSCOhost. The search process consisted of searching on the following key words and phrases: electronic commerce, skills gap, perception skills gap, Delphi, new graduate skills, cost of training new hires, training costs, professional perspective curricula, trends in electronic commerce, and electronic commerce skills.

The Internet and World Wide Web's Impact on Electronic Commerce

For the purposes of this study, EC is said to occur when electronic transmission mediums are used in the production, distribution, marketing, sale, or delivery of products and services (Kshetri, 2010). EC ranges from electronic funds transfers to mobile commerce to hundreds of other methods of conducting business using electronic transmission mediums. The focus of this brief history of EC is on the invention and development of the Internet and the World Wide Web (WWW) and the associated impact on electronic commerce.

The Internet emerged from two United States defense research projects called ARPAnet, which became operational in 1969, and TCP/IP in the mid-1970's (Weis, 2010; Funk, 2012). These projects were funded by the Defense Advanced Research Projects Agency (DARPA), and initial use of ARPAnet was limited to DARPA-funded computer science research (Weis, 2010). The purpose of designing ARPAnet was to give

the military a way to communicate through a network that would survive an attack on the United States (Collar & Girasa, 2010).

The first packet radio network, ALOHANET was developed at the University of Hawaii in 1971, and DARPA also invested significant resources throughout the 1970's and early 1980's into the development of that technology (Seymour & Shaheen, 2011). Commercialization of wide-area wireless data services occurred in the 1990's and allowed email, file transfer, and web browsing, and those services were eventually supplanted by cell phone technology (Seymour & Shaheen, 2011). CompuServe was founded the same year ARPAnet became operational, 1969, and the company allowed dial-up, rented access to its computers, but the high fees were too expensive for many (Edosomwan, Prakasan, Kouame, Watson, & Seymour, 2011).

By the early-1980's, TCP/IP was the standard protocol suite used within the ARPAnet, and broader funding from the federal government, research laboratories, and universities gave broader access to the network (Weis, 2010). The TCP/IP standard provided a working platform on which the first components of the World Wide Web, HTML and HTTP, could be introduced (Cerf, 2011). The new concepts of packet layering and protocol switching allowed new applications to be introduced without the need to alter network devices or obtain advanced authorization from a, nonexistent, centralized operator of the network (Bertola, 2010). However, while the use of delay-tolerant applications including email allowed for collaboration among researchers, it also led to a congested network that frustrated researchers interested in remote computing (Weis, 2010).

The National Science Foundation (NSF) designed the NSFnet with three levels of structure (Weis, 2010) and was introduced in the late 1980's. The NSFnet Backbone Service was fully funded by the National Science Foundation and consisted of a single high-speed network that served the NSF supercomputing centers and interconnected sites (Weis, 2010). The NSF partially funded the second level to interconnect research universities within the same geographical area and with the NSFnet backbone (Weis, 2010). The third level consisted of local-area campus networks that connected individual computers on the campus to a regional network or the NSFnet backbone.

The NSFnet Backbone Service, operating at 56KB, immediately became congested when it was released in 1986 (Weis, 2010). In 1987, Merit, Inc., IBM, and MCI were awarded a five-year, competitive bid contract to provide a new backbone service (Weis, 2010). A T1 (15MB per second) was proposed with an option to upgrade to T3 (45MB per second) by the early 1990s (Weis, 2010). The network was operational at 448KB by 1988 and at T1 by 1989 (Weis, 2010).

The three partners formed a non-profit corporation called Advanced Network & Services, Inc. (ANS) in 1990 (Weis, 2010). ANS was asked by the NSF to upgrade to T3, and ANS proposed developing a new, privately funded T3 network rather than upgrade the existing T1 backbone (Weis, 2010). This development attracted private funds and was an important step in enabling the commercial sector to use large segments of the network (Weis, 2010). NSFnet was converted to commercial use in 1995 when the government transferred Internet traffic from the NSFnet backbone to commercial networks (Lightner & Zeng, 2011; Petrie, 2012). In the summer of 1995, eBay began

auctioning items, and Amazon.com launched “Earth’s Biggest Bookstore” (Lightner & Zeng, 2011).

The WWW was developed in 1980 by British software engineer Tim Berners-Lee at CERN in Switzerland (Demerdjian, 2011; Funk, 2012; Robertshaw, 2012). It is regarded as the set of all publicly accessible sites available on the Internet (Lightner & Zeng, 2011). The WWW was not designed as part of Berners-Lee’s main research focus, but as an instrument to support the research activities of the organization (Bertola, 2010). His creation of Hypertext Markup Language (HTML) along with his design of an addressing scheme that gave each web page a unique location or Universal Resource Locator (URL) allowed documents to be linked together across the internet (Demerdjian, 2011). When Berners-Lee developed HTML and HTTP, he knew they would work to transfer information between computers as the TCP/IP protocol had become standard (Cerf, 2011; Flournoy, LeBrasseur, & Albert, 2009). Berners-Lee also created the world’s first web browser to allow users around the world to view his creation (Demerdjian, 2011). The Web was officially launched as an offshoot of the Internet in 1989 and led to the growth in Internet usage from 600,000 users in 1991 to over 40 million in 1996 (Demerdjian, 2011).

Technological developments over the past few years have resulted in new terms such as Web 2.0 and Internet of Things (IOT) that are used when referring to new ways in which the Internet is accessed and utilized (Fleisch, 2010). Web 2.0 refers to data that is both provided and consumed by users and the sites that enable that ability. Sample sites include Facebook, YouTube, Twitter, and others. The rise of Web 2.0 has forced companies to change their marketing strategies to meet customer expectations while

presenting a consistent message across various sites (Rosen & Phillips, 2011). The idea of IOT is that virtually any physical thing can become a part of the Internet by connecting through the use of a computer chip (Fleisch, 2010).

In the U.S., the smart grid initiative puts electronic devices on the Internet for purposes of monitoring their energy use and gathering information that can be used, in part, to educate consumers how their lifestyle decisions effect their consumption of resources (Cerf, 2011). Through the use of a chip to make the connection, the device does not become a computer but is considered a smart device (Fleisch, 2010). We see the expanded connectivity in items including phones, TVs, Blu-ray players, and even glasses.

The creation of the Internet and WWW have allowed individuals and businesses to communicate information both locally and internationally more quickly and inexpensively than was previously possible. The e-marketplace is an efficient approach that allows companies to extend their business to large markets without regional boundaries (Patel, Qi, & Wills, 2010). The growth of the web has also led to new methods of marketing products and services. As the number of sites on the web increased during the 1990's, search engines sprang up to help people find information (Seymour, Frantsvog, & Kumar, 2011). To finance their operations, search engines primarily used pay-per-click programs (Seymour et al., 2011). Search engine optimization consultants also emerged to help businesses learn about the advertising options available and develop online marketing strategies for businesses (Seymour et al., 2011).

Electronic markets originated from a technological side and economic side (Alt & Klein, 2011). On the technological side, electronic markets apply information technology

to support communication among multiple actors in one or more value chains (Alt & Klein, 2011). On the economic side, electronic markets apply IT to reduce transaction costs (Alt & Klein, 2011). IOT, with technology to automate bridging between the real world and the Internet, dissolves the transaction costs associated with real world-virtual world media breaks as no human interaction is required (Fleish, 2010). These breaks occur when information is transferred between mediums, for example, transferring bar code data to an inventory control system. A reduction in transaction costs implies an overall, reduced cost of doing business which may lead to economic growth (Li, 2011).

As technologies continue to develop, electronic commerce will continue to evolve. The development of EC represents a disruption in retail marketing that has resulted in changes in consumer behavior, resulted in the development of new businesses, and impacted the response of existing businesses (Powers, 2012). Businesses, using the power of the Internet, have the ability to transform shoppers' experiences, improve customer communications, enhance customer relationships, improve cost efficiency, and deliver customized offers to strengthen their own competitive positions (Singh, Bansal, & Kaur, 2012). The changes that are occurring as a result of EC are similar to the changes that occurred during the Industrial Revolution with regard to their impact on communication and mass consumption (Powers, 2012).

Electronic Commerce Environment Since 2000

Business to consumer electronic commerce has become a fundamental way of conducting business in the United States. The leaders of both large and small companies have been able to expand their potential markets by going online. There are 831 electronic markets listed in the directory of electronic marketplaces today (E-Market

Services, 2013). In 2011, there were approximately 2 billion people on the Internet with approximately 15% of the 5 billion mobile phones in use able to access the Internet (Cerf, 2011; Li, 2011). The number of users accessing the Internet is considered to be growing rapidly with the number of users in 2012 estimated to be approximately 2.5 billion (Singh et al., 2012).

The increase in EC activities has created an increased demand for knowledgeable workers and a corresponding increase in the demand for EC educational programs (Burkey, 2002). Electronic commerce has provided new challenges for workers and growth in the industry is increasing. Despite the dot-com bust of 2001, e-business has continued to expand (Fusilier & Durlabhji, 2010). Developing e-skills competency is seen as an important strategy in boosting productivity, increasing employability of the workforce, and responding to global competitive challenges (Singh, 2012). These skills are needed for activities ranging from purchasing good and services electronically to finding jobs listed online. Online retail transactions in the United States are expected to increase to \$329 billion by 2010 (Johnson, 2002). While a global economic recession affected consumer spending, the National Retail Federation (2008) estimated that online retail sales in the United States were approaching \$204 billion.

New technologies and social media sites have also contributed to growth in electronic commerce as social media is woven into the fabric of our culture (Case & King, 2013). Web 2.0 and IOT technologies and environments are changing the landscape in which much electronic commerce is conducted. Social media's value to business lies in brand experience and brand building (Edosomwan et al., 2011). A company that wants to promote itself as people-friendly and approachable must make

itself visible on the web (Carragher, Parnell, & Spillan, 2009). On sites such as Facebook and MySpace, consumers can learn about new products and share their experiences.

While Google still dominates the search engine market, since March 2010, Facebook has become the most visited website (Edosomwan et al., 2011; Venkatraman, 2010). Some researchers believe social media and networking are the fastest way to grow a business (Edosomwan et al., 2011).

Target Corporation successfully launched a 2007 back to school campaign on its Facebook page (Mohammed, 2010). In August 2010, Delta Airlines became the first airline to allow Facebook users to purchase airline tickets from within the site (Venkatraman, 2010). Twenty-three percent of mobile subscribers say they use their phones to access social networking sites (Boris, 2010). According to Forrester Research, Inc. (VanBoskirk, 2010), interactive marketing is expected to increase from 9% of all advertising spending in 2008 to 21% in 2014. Within that spending increase, the greatest increase is expected to come from social media and mobile applications (VanBoskirk, 2010).

Web collaboration has also led to an increase in globalization that has led to new business innovation (McCreary, 2009). According to the U.S. Bureau of Labor Statistics, computer and IT occupations that require at least a bachelor's degree at the entry-level point are projected to increase 24% from 2010 to 2020 (Bureau, 2012). This growth rate is faster than the average for all occupations (Bureau, 2012). However, many EC companies have failed as a direct result of the inability to find qualified and experienced workers (Vizard, 2000). E-commerce courses are facing increasing popularity (Abrahams & Singh, 2010).

Electronic Commerce Education, Occupations, and Employer Training Costs

The fields of business and management showed a decrease from 7% to 6% between 2004 and 2008 (U.S. Department of Education, 2012). In the field of computer science, there was an increase from 7.2% in 2003-2004 to 8% in 2007-2008 (U.S. Department of Education, 2012). The number of higher education institutions in North America offering master's level EC degree programs and concentrations remained steady from 2001 to 2007 with 92 programs existing in 2001 and 91 programs existing in 2007 (Fusilier & Durlabhji, 2010). However, 67 master's level EC programs were discontinued in North America between 2003 and 2007 (Fusilier & Durlabhji, 2010). A noticeable number of EC programs have been discontinued (Fusilier & Short, 2010).

The discontinuation of EC programs was studied to determine why EC programs were being eliminated by universities despite a steady growth in e-business and an increase in demand for EC related skills (Fusilier & Short, 2010). The implications of eliminating innovative degree programs included the potential financial loss to universities given considerable start-up costs associated with establishing a new degree program, an inability to depreciate the costs over the long life of a successful program, the potential for employers and potential employers to become suspicious of the quality of an innovative program that has been eliminated, and the potential for university alumni to question the quality of university decisions if degree programs are eliminated a relatively short time after being introduced (Fusilier & Short, 2010). The researchers searched the websites of worldwide e-business master's degree programs obtained from a list created during previous research from 2002-2003 to determine whether or not the programs were still in operation (Fusilier & Short, 2010). There were 98 discontinued

EC programs identified at 85 institutions with 13 of the institutions having discontinued two separate EC programs (Fusilier & Short, 2010).

Questionnaires were sent to members of the faculty or administrators at each institution that determine reasons for the program discontinuation (Fusilier & Short, 2010). Twenty completed questionnaires were obtained with 11 responses coming from institutions in the United States (Fusilier & Short, 2010). Low enrollment and a low number of applications were reported as the most influential factors in the decision to discontinue the EC programs (Fusilier & Short, 2010). Open-ended questionnaire answers supported low enrollment, an integration of EC subject matter into other courses, and the inability of programs to meet business needs (Fusilier & Short, 2010). Other responses indicated a lack of administrative support, and a conclusion was reached that faculty attitudes and interests appeared necessary to sustain EC programs and may explain why some persisted despite environmental threats while others were discontinued (Fusilier & Short, 2010).

In a 2009 study, the researchers examined business schools' intentions about offering EC programs using an extended theory of planned behavior (Dodor & Rana, 2009). The researchers remarked that through the supply of graduates with EC knowledge, educational institutions are in the upper stream of the skills supply chain, and a proactive approach to EC education may help business organizations more effectively absorb the underlying innovation (Dodor & Rana, 2009). EC education was considered "likely to supply the skills and the knowledge required to sustain the growth of e-commerce" (Dodor & Rana, 2009, p. 198).

A web-based survey was conducted to determine business schools' behavior intentions about EC education, behavioral readiness toward a new offering in EC education, their attitudes toward offering EC education, their subjective norms about offering EC education, and their perceived behavior control over offering EC education (Dodor & Rana, 2009). The researchers concluded "a school's readiness for an educational product innovation like EC education is directly and positively related to the school's intention to offer such an educational product innovation" (Dodor & Rana, 2009, p. 216). It was also concluded that organizations are more likely to adopt a new behavior, in this case an adoption of EC education, when other organizations have adopted a new behavior and suggested administrators may be interested in their school's attitude toward an innovational offering like EC education or in subjective norms about educational product innovation (Dodor & Rana, 2009).

A case study of an EC program that was developed in 2000 and discontinued in 2009 was conducted to examine the lessons learned from the rise and fall of the program (Lee, 2012). A test course conducted in 1999 generated 200% of the course capacity on the waitlist (Lee, 2012). From the launch of the EC marketing option to the discontinuation of the course; however, the program experienced low enrollment (Lee, 2012). Potential factors considered for the low enrollment included: bad timing with the dot-com bubble bursting in 2001 and a possible contribution to the perception of reduced career opportunities in EC, wrong price as it cost more to graduate with the option than other options in the BSBA, a lack of promotion, a benefit deficient as students could take EC courses as electives without increasing their overall course load, and lack of relative advantage compared to the regular marketing option (Lee, 2012). Individual enrollments

were strong in individual EC courses (Lee, 2012). The researcher, citing the continued interest in individual EC courses and the opinion that e-marketing practices have permeated all aspects of marketing operations, advised an integrated marketing curriculum in which EC concepts are incorporated into regular marketing courses (Lee, 2012).

Other researchers have stated EC degree programs may be more effective than concentrations as dedicated degree programs would give faculty the time and resources to specialize (Fusilier & Durlabhji, 2009). Programs should be structured to allow faculty the time and resources to learn about the application of new technologies and field-specific EC topics (Fusilier & Durlabhji, 2009). In an earlier study, researchers stated the results supported the view that EC skills would remain a moving target regardless of whether universities integrated selected EC skills and topics current courses or designed entire EC programs (Mitchell & Strauss, 2001). The researchers noted there has been low demand for curricula when it was designed with little input from industry and stated input from industry should be obtained early in the development programs as well as continuously as the industry is changing (Mitchell & Strauss, 2001).

Projections indicate management, scientific, and technical consulting services will be the fastest growing industry with an increase in employment of 83% between 2008 and 2018 (Bureau of Labor Statistics, 2009). There will be continued demand for the high-level skills needed to keep up with changes in technology, and employment opportunities in sales and cybersecurity services are expected to be especially good as individuals and organizations continue to conduct businesses electronically (Bureau of Labor Statistics, 2009). Educational institutions, government, and employers all have a

role to play in boosting the productivity and employability of the workforce (Holzer, 2012; Singh, 2012). The role formal institutes of education have to play in a knowledge-based economy to prepare graduates for mobile careers in the global marketplace is constantly being examined (de Villiers, 2010). Successful training programs should include key partners including colleges, industries or employers, workforce development agencies, and intermediary organizations with links to employers (Holzer, 2012).

Employers may be reluctant to invest in the training necessary to teach new hires the skills necessary to attain high skill positions (Holzer, 2012). Discussions about employer spending on training tend to center around two beliefs (Carliner & Bakir, 2010). The first belief is that training provides the employer a competitive advantage and as much as possible should be spent on it (Carliner & Bakir, 2010). The second is that employer provided training is typically one of the first expenses to get cut in an economic downturn, and the cuts tend to run deeper than those made to other departments within organizations (Carliner & Bakir, 2010).

There is limited data on employer expenditures on training available, and it varies widely depending on the source of the survey data (Carliner & Bakir, 2010). For example, one of the surveys most widely used by researchers concluded \$134.39 billion was spent on training in the U.S. in 2008 while another of the most widely used surveys concluded \$56.2 billion was spent on training in the U.S. in 2008 (Carliner & Bakir, 2010). The researchers showed spending in 1986 and 2008 differed by only 1.5% after completing a review of surveys conducted between the years 1986 and 2008 (Carliner & Bakir, 2010).

A lack of qualified employees is seen as a constraint in employers' abilities to create an optimal number of high-quality jobs (Holzer, 2012). Faculty should be encouraged to look at their curriculum and attempt to match industry expectations with university classroom activities (Fulton et al., 2013). Industry expects colleges and universities to prepare their students for viable careers in their respective professions and ensure the curricula reflects the current and expected needs of industry (Stevens et al., 2011). Slower job creation may occur in the future as a result of the effects of global forces and new technologies; however, the ability of markets to absorb workers with higher skill levels is expected to remain (Holzer, 2012). When the desired skills are lacking in potential new hires, employers may be reluctant to invest in the training necessary to teach the new hires the skills as the newly trained worker could decide to seek employment with another company (Holzer, 2012). The notions of a graduate-level job and a linear career path are not realistic expectations for twenty-first century graduates as graduates engage with a diversity of work including working for smaller enterprises or working on a freelance basis (Wickramasinghe & Perera, 2010). As a result, institutions of higher education need to identify different working patterns graduates may face and ensure they possess employability skills desired by potential employers (Wickramasinghe & Perera, 2010).

Employers are less willing to spend money on training transferable skills as today's graduates are seen as less loyal than their predecessors (Jackson, 2009). Transferable skills are defined as abilities employees can take from one job to another and used at any stage of an employee's career (Wickramasinghe & Perera, 2010). Employers will only pay training costs when an increase in skills will lead to a greater

increase in productivity than wages (Tremblay, 2010). Employers are less likely to spend considerable amounts on training costs if employees are not likely to be retained for a sufficient period to recoup those costs. More than 25% of workers have been with their current employer for less than a year, and more than 33% have been with their current employer for less than 2 years (Rollag, Parise, & Cross, 2005). On average, Americans change jobs 10 times between the ages of 18 and 37 (Rollag et al., 2005).

Hiring costs generally increase when hiring skilled workers and average hiring costs can range from 10 to 17 weeks of wage payments (Blatter & Muhlemann, 2012). When employers must incur considerable, additional costs training new hires, rural outsourcing may be considered as the newly trained employees will have fewer opportunities to change companies (Crumpton, 2011; Lacity, Rottman, & Kahn, 2010). Under perfect competition in the labor market, employers will not invest in training as the employees will capture the full return from their skills (Tremblay, 2010). If competition is soft, employers will invest in training if other employers do so to avoid having to pay high wages for trained workers (Gersbach & Schmutzler, 2012). Firms are willing to pay the costs of training when competing against firms in the same product market that are competing for the same pool of trained workers (Gersbach & Schmutzler, 2012). Businesses throughout the world are focusing on internal training as a way to distinguish themselves from competitors (Tajeddini, 2009).

Business Curriculum Content Studies

Business curriculum content has been the subject of several studies over the past five years. Some researchers have been concerned with business curricula in general. In a 2010 study, business school deans' perceptions of an integrated curriculum were

compared to actual implementation of such a curriculum (Athavale, Myring, David, & Truell, 2010). The results indicated the strongest motivation for an integrated curriculum was the belief that it is critical to the future success of students (Athavale et al, 2010). Despite being a key resource necessary to ensure implementation of an integrated curriculum, the perception of faculty support was not found to influence the deans' perceptions of the importance of curriculum integration (Athavale et al, 2010). Encouragement from the advisory board was seen as the only significant stakeholder variable (Athavale et al, 2010).

The failure to integrate business school curriculum was found to decrease the satisfaction of corporate recruiters with newly graduated MBA students (Teece, 2011). A challenge facing business schools is the need to produce students who have the skills to compete in a new economy defined by technology and globalization (Teece, 2011). The focus on discipline-based research over the last half century has rarely resulted in business schools being ahead of practitioners (Teece, 2011). Custom executive programs, where the curriculum is designed in conjunction with the customer, were seen as a possible response to weaknesses in current business school curricula that exhibits a balance rigor and relevance (Teece, 2011). The conventional view of business schools is that problems can be dealt with one at a time rather than assuming all problems are interconnected (Mitroff & Silvers, 2010).

Most researchers have studied curriculum content in specific business fields. One field closely related to EC that has been studied more extensively is information technology. In one study, curriculum mapping was applied to an IS baccalaureate program to determine the extent to which the curricula advanced expected program

learning outcomes in a field marked by technology-driven change (Veltri, Webb, Matveev, & Zapatero, 2011). In areas of rapid technological change, providing a coherent, integrated curriculum is a primary area of concern for faculty and administrators (Veltri et al, 2011). Guidance on curricular content within the field of IS has been developed and revised three times over the past two decades with the most recent iteration, the IS 2010 Model Curriculum Guidelines, identifying high-level capabilities and translating them into a detailed set of knowledge and skills (Topi, Valachich, Wright, Kaiser, Nunamaker, Sipior, & de Vreede, 2010).

In the United States, curriculum mapping has been used to address requirements of accreditation agencies in business (Stivers & Phillips, 2009), as a curriculum improvement process (Bloomberg, 2009; Kopera-Frye, Mahaffy, & Svare, 2008), and as a faculty development tool (Uchiyama and Radin, 2009). A basic task for educators is to design a curriculum that provides value for their students (Surendra & Denton, 2009). Curriculum maps also provide students with an outline of program structure and faculty expectations and help students see how individual courses relate to overall program outcomes (Veltri et al, 2011).

In another study focused on IT curriculum, the researchers surveyed graduates of an undergraduate information systems program to determine whether the curriculum was aligned with their career needs (Plice & Reinig, 2007). The main research question was, “Would our IS curriculum be better aligned with the needs of our graduates and their employers if we increased our emphasis on technical, rather than business, content?” (Plice & Reinig, 2007, p. 22). The researchers surveyed students who graduated with of the Bachelor of Science in Business Administration with a major in Information Systems

over the previous ten years and reached two conclusions. First, the graduates tended to move into more managerial positions over time that required both business and interpersonal communications skills (Plice & Reinig, 2007). Second, as the graduates matured in their careers, they placed a higher value on business content and felt the technical aspects of the undergraduate curriculum should not be increased at the expense of the business content (Plice & Reinig, 2007).

In a survey conducted in 2010, skills and traits for entry-level IT workers were examined, and the results were compared to a survey conducted in 2006 (Aasheim, Shropshire, Li, & Kadlec, 2012). The survey was administered to IT managers nationwide using a web-based survey (Aasheim et al., 2012). The results showed little change over time with hiring managers desiring interpersonal skills over relevant prior experience (Aasheim et al., 2012).

The highest ranked skill or trait overall was honesty/integrity followed by attitude and willingness to learn (Aasheim et al., 2012). Attitude and willingness to learn were new to the 2010 study, and knowledge of the company's industry and leadership skills increased in mean importance over the 2006 study (Aasheim et al., 2012). The implication for faculty was to focus on these important soft skills as well as the more technical skills (Aasheim et al., 2012). The implication for institutions was to offer more specialized degrees as the broad range of topics desired by business would not fit into one degree program, and more specialized degrees would allow the institutions to determine which skills and traits would be emphasized in each program (Aasheim et al., 2012).

In a study designed to provide educators with guidance about the IT skills most in demand by businesses, two online job bank websites were used to gather data from over

90,000 information technology job listings (Hite, 2012). Data was compared from searches completed in 2004 and 2011 to identify any changes in which IT skills were most in demand (Hite, 2012). Only technical skills were examined as the researcher explained the demand for technical skills changes more rapidly than soft skills (Hite, 2012). The researcher concluded IT curriculums should include instruction in programming languages (JAVA and C++), database instruction (SQL), operating systems (UNIX and/or Linus), and web design skills (HTML/DHTML) (Hite, 2012). The results of a 2007 survey done by the Graduate Management Admission Council (as cited in Fusilier & Durlabhji, 2009) showed widespread dissatisfaction among master's level students with regard to the coverage of technical subjects, and Fusilier and Durlabhji (2009) noted the technical-business interface may not be receiving adequate attention.

E-business programs in America tend to require more business courses than e-business programs in other parts of the world (Fusilier & Durlabhji, 2013). After the dot.com bust in 2002, non-technical factors were considered important for success, and e-business curricula in North America shifted to a greater focus on non-technical topics (Fusilier & Durlabhji, 2010). The results of a study conducted in 2008 (Li, Yen, & Cheng, 2008) showed 72.37% of the courses in U.S. e-business master's programs were non-technical while only 48.95% of the courses in e-business master's programs in Taiwan were non-technical. In Europe, the number of required technical programs as a percentage of the total required courses in the curricula is close to 60% (Fusilier & Durlabhji, 2013).

Perception Gaps Between Practitioners and Academia

Although many studies have been conducted to answer questions related to EC (Decker, 2006; Lord, 2000; Sengupta, 2007; Vizard, 2000) or related to the use of the Internet in education (Fountain, 2006; Gagne et al., 2005; Heyman, 2010; Orr & Bantow, 2005; Ozdemir, 2004), only a few studies had included a focus on EC degree programs (Burkey, 2002; Dunning, Vijayaraman, Krovi, & Kahai, 2001; Li et al, 2008; Zhang et al., 2005; Fusilier & Durlabhji, 2010; Fusilier & Durlabhji, 2013). Most curriculum studies have used two stakeholders. The most common stakeholders used in the research were the business community and students or faculty.

The perceptions of students and the business community regarding the required skills and knowledge necessary for entry-level business positions were studied by Raymond and McNabb (1993). Questionnaires were provided to 196 student respondents, who were almost all business students, and 87 employers of various sized manufacturing and service firms (Raymond & McNabb, 1993). Both groups were asked to rate the importance of 11 skills and abilities (Raymond & McNabb, 1993). Respondents were asked to rank various teaching methods in terms of effectiveness of training the desired skills, and employers were asked to identify the strengths and weaknesses of college graduates with business degrees (Raymond & McNabb, 1993). The two groups were found to have slightly different perceptions of regarding the most important skills and abilities with both groups ranking oral and written communication skills as very important (Raymond & McNabb, 1993). The researchers concluded teaching students to think, examine ethical issues, and be prepared in a global

marketplace were also important as students learned how to apply the skills (Raymond & McNabb, 1993).

Lewis and Ducharme (1990) examined the perceptions of business school faculty members and the business community when researching possible perception differences related to the general curriculum of business schools. Questionnaires were sent to personnel managers of Fortune 500 corporations and deans and undergraduate program coordinators of 500 AACSB business schools (Lewis & Ducharme, 1990). With regard to meeting the needs of business, 80% of both groups responded business schools were doing fairly or very well (Lewis & Ducharme, 1990). However, the practitioners' perception was that more in-depth preparation was needed in the areas of accounting, writing, statistics, marketing, and organizational behavior (Lewis & Ducharme, 1990).

When the two groups were asked which objectives were most important for business schools, a gap was shown to exist (Lewis & Ducharme, 1990). Seventeen percent of the practitioners ranked training for specific positions common to several industries as most important compared to none of the academics (Lewis & Ducharme, 1990). Alternatively, the development of the political and social environment of business was chosen as most important by 8% of the academics and none of the managers (Lewis & Ducharme, 1990). The development of analytical skills was chosen by 26% of the academics and 13% of the practitioners.

Almost two decades later, a literature review conducted in 2009 showed businesses still consider skills including written communication, problem solving skills, and high ethical values to be important for graduates to contribute successfully to their employers (Jackson, 2009). A lack of alignment was found between business programs

and industry requirements as business stakeholders sought higher levels of behavioral skills to complement the cognitive skills possessed by graduates (Jackson, 2009). Criticisms of business school curricula included insufficient attention to ethical behavior, communication, and people management skills (Jackson, 2009). With regard to businesses training recent graduates after hiring, employers were seen as less willing to spend money on training transferable skills as today's graduates were seen as less loyal than their predecessors (Jackson, 2009).

In a study focused on marketing graduates, similar gaps were found to exist with regard to general, transferable skills (Davis, Misra, & Van Auken, 2002). A survey was mailed to 298 alumni of a teaching-oriented, 6-year university in the Western United States, and sixty-six completed questionnaires were returned (Davis et al., 2002). The respondents felt they were underprepared in the areas of technical preparation, oral communication skills, and written communication skills (Davis et al., 2002). The respondents felt they were over prepared in areas specific to marketing including the ability to identify a marketing problem, the ability to use the language of marketing, the ability to analyze the relationship between marketing variables, and understanding marketing concepts (Davis et al., 2002). When the answers of the 22.7% of respondents not working in fields related to marketing were removed and the data reanalyzed, the areas of perceived under preparation were identical to those found in the first analysis (Davis et al., 2002).

Information systems (IS) curriculum were the focus on a study published in 2006 (Yongbeom, Hsu, & Stern, 2006). A questionnaire was emailed to 230 employees at a company in the manufacturing industry, and respondents were asked to rate the perceived

importance of 10 IS courses and one prerequisite course and list five issues perceived as critical in the field (Yongbeom et al., 2006). Seventy-one complete responses were received and showed project management was ranked third while an analysis of MIS curriculums from the AACSB database of accredited universities showed project management was required by fewer than 50% of the schools studied (Yongbeom et al., 2006). Courses rated as having the highest importance were project management; fundamentals of IS; personal productivity; analysis and logical design; electronic business; and strategy, architecture, and design (Yongbeom et al., 2006). The top three critical issues listed by the respondents were security and disaster recovery, ERP, and training (Yongbeom et al., 2006).

A greater disconnect was found during a study commissioned by Microsoft in which 20% of IT managers and 13% of corporate IT managers thought IT graduates were well equipped for the workplace (Closing the IT skills gap, 1998). Seventy-eight percent of those surveyed believed full-time education was the best way to alleviate the gap with 66% believing government had a role to play and 61% believing IT suppliers had a role to play (Closing the IT skills gap, 1998). Microsoft concluded a joint effort between education, government, and businesses would be required to solve the problem (Closing the IT skills gap, 1998).

In a study focused on entry-level programmers and analysts in Fortune 500 corporations, the researchers examined job ads on Fortune 500 websites and content analysis was used to determine the skill requirements for entry level programmers/analysts (Lee & Han, 2008). Eight hundred and thirty seven job ads were examined over a three year period from 2001 to 2003 (Lee, & Han, 2008). Of the 589

ads that specified minimum educational requirements, 96.1% specified a bachelor's degree or higher (Lee & Han, 2008). In addition to programming, the four technical skills mentioned most often were general knowledge of development, implementation of development, operation and maintenance, design, and implementation (Lee & Han, 2008). Business skills were also desired with general knowledge of business mentioned in 75.9% of the job (Lee & Han, 2008). The skills identified were matched to the IS 2002 model curriculum with mention that general business skills and social skills should be covered in business courses, and most IS programs require IS majors to take general business courses (Lee & Han, 2008). A limitation of the study was that it was restricted to Fortune 500 companies and no examination was made with regard to the skills desired by smaller companies (Lee & Han, 2008).

In 2009, researchers at Georgia Southern University compared the perceptions of faculty in academia and IT managers in industry with regard to skills considered most important for entry-level IT workers (Aasheim, Li, & Williams, 2009). The survey was administered via email and contained thirty-two skills/traits. Respondents were asked to rate the importance of each skill on a scale of 1 to 5 (Aasheim et al., 2009). Complete responses were received from 391 IT managers and 86 faculty (Aasheim et al., 2009).

The authors organized the skills into the following four categories: technical skills, organizational and managerial knowledge/skills, personal skills/traits, and interpersonal skills/traits (Aasheim et al., 2009). The surveys showed no significant difference between the faculty's and IT managers' perceived importance of the skills/traits, and both groups ranked the importance of the categories as follows: interpersonal skills/traits, personal skills/traits, technical skills, and organizational skills (Aasheim et

al., 2009). However, IT managers placed more importance on the following skills/traits: hardware concepts, operating systems, leadership skills, entrepreneurial/risk taker, high overall college GPA, packaged software, and any work experience (Aasheim et al, 2009).

The focus of another study was employers', graduates', and university lecturers' perceptions toward employability skills (Wickramasinghe & Perera, 2010). The researchers sampled 26 employers, 54 graduates, and 22 university lecturers from six universities (Wickramasinghe & Perera, 2010). The analysis of the survey results showed differences in the choices made with regard to the top five most desirable skills, the importance given by each group to each of five skills, and differences between the choices made by the male graduates and the female graduates (Wickramasinghe & Perera, 2010).

Male graduates ranked their top five choices in the following order: learning skills, problem solving, self-confidence, working as a team member, and creative and innovative thinking (Wickramasinghe & Perera, 2010). Female graduates ranked their top five choices in the following order: self-confidence, learning skills, problem solving, working as a team member, and a positive attitude toward work (Wickramasinghe & Perera, 2010). Employers ranked their top five choices in the following order: problem solving, positive attitude towards work, working as a team member, learning skills, and self-confidence (Wickramasinghe & Perera, 2010). Lecturers ranked their top five choices in the following order: working as a team member, problem solving, oral communication, self-confidence, and a positive attitude toward work (Wickramasinghe & Perera, 2010). All of the groups ranked teamwork, self-confidence, and problem solving as the most important employability skills while the priority given to learning skills was

the greatest between the four groups (Wickramasinghe & Perera, 2010). The researchers concluded these differences could increase the employers' costs of training newly hired graduates (Wickramasinghe & Perera, 2010).

Critical management competencies of EC professional managers were the focus of a 2011 study in which the competencies were determined and compared to general management competencies (Wu & Fang, 2011). A literature review was conducted to determine general managerial competence indicators used to construct an initial list of competencies of EC professional managers to include leadership skills, conceptual skills, social skills, professional skills, administration skills, abilities, and motivations (Wu & Fang, 2011). Twelve experts from industry, the government, and academia were invited to a focus group to weight the importance of each competency indicator, and the Delphi method was used to develop a framework of managerial competencies important for EC professional managers (Wu & Fang, 2011).

Professional skills were considered the most important with the most important indicators being domain knowledge, information management, and business management (Wu & Fang, 2011). Among social skills, the most important indicators were communication skills, incident management skills, and negotiation skills (Wu & Fang, 2011). The least important aspects were administrative skills and motivations (Wu & Fang, 2011). The researchers mentioned gaps analysis could be used to minimize gaps to increase managerial competence in future EC managers (Wu & Fang, 2011), but an analysis did not compare the results to academic curricula.

In a study related to information security, researchers found employers had difficulty finding recent graduates with the necessary technical and social skill sets

(Fulton et al., 2013). The cyber-security experts cited strong industry demand and an estimated unemployment rate of around 3% for IT security specialists while mentioning a mismatch with regard to the skills required to be successful in information security occupations (Fulton et al., 2013). They went on to suggest faculty look beyond general undergraduate and graduate degree programs to develop executive education certificate programs (Fulton et al., 2013). A broad-based business education combined with technical skills was recommended as an ideal background for entry to the profession (Fulton et al., 2013). These conclusions were reached after receiving comments from the IT security community (Fulton et al., 2013).

In a study focused on the perspectives of MIS faculty and IT professionals, emails were sent to companies of all sizes within the state of Louisiana until 100 responses from IT professionals were received (Stevens et al., 2011). College and university websites were used to identify MIS faculty and all MIS faculty identified on the schools' sites were contacted (Stevens et al., 2011). Between both groups, 148 completed responses were received (Stevens et al., 2011). Skills or knowledge areas viewed as more important by IT professionals included security issues, ethics, network hardware, and OS knowledge (Stevens et al., 2011). Faculty viewed globalization issues, statistical packages, spreadsheet proficiency, and simulation tools as more important (Stevens et al., 2011). The IT professionals and MIS faculty disagreed on the importance of approximately 25% of skills (Stevens et al., 2011). Both groups ranked personal attributes such as critical thinking, oral and written communication, problem solving, and team skills as the most important (Stevens et al., 2011). This result matches the results obtained from a study conducted in 2009 in which the skills considered necessary for

entry-level IT workers were compared by surveying IT managers and IT faculty (Aasheim et al., 2009). The researchers suggested development of a theoretical framework for the evaluation of courses that takes into account conflicting stakeholder priorities and stated those who teach MIS students must review and revise their courses to meet the needs of their stakeholders (Stevens et al., 2011).

Companies believe the quality of employees at the entry level assures the quality of employees in subsequent stages (Vijayakumar & Ramalingam, 2012). The gap between what employees expect and what candidates for employment show with regard to employable competencies has been a persistent problem that makes it difficult for employers to find the right kind of employees (Wickramasinghe & Perera, 2010; Vijayakumar & Ramalingam, 2012). Data was collected from 270 recent engineering graduates and 75 human resources recruiters to identify the factors assumed as competency expectations by employers and new graduates and identify any gap between employers' assumptions and the graduates' assumptions with regard to required competencies (Vijayakumar & Ramalingam, 2012).

The results showed both the recruiters and new graduates considered oral communication to be the most important competency (Vijayakumar & Ramalingam, 2012). Written communication was considered one of the five most important competencies by the recruiters while students ranked it lower in importance (Vijayakumar & Ramalingam, 2012). Problem solving, decision making, and teamwork were also top five competencies as ranked by both the recruiters and the new graduates (Vijayakumar & Ramalingam, 2012). The high ranking of soft skills is found repeatedly in studies that focus on skills desired by businesses of recent college graduates (Aasheim

et al., 2009; Wickramasinghe & Perera, 2010; Wu & Fang, 2011). Numerous other researchers (Day & Glick, 2000; Gambill & Jackson, 1992; Hammond & Hartman, 1996; Lundstrom & White, 1997) have compared the perceptions of academicians and the business community in relation to business program curricula, but only one researcher (Burkey, 2002, 2007) has compared the perceptions in relation to EC programs.

Perception Gaps Between Electronic Commerce Practitioners and Academia

Two studies were performed in 2002 and 2007 that compared the practitioner perceptions of essential skills and knowledge and the topics covered by AACSB accredited colleges and universities (Burkey, 2002, 2007). Only 15% of the topics identified as important were included in EC business programs (Burkey, 2002). The method used—examining course catalog descriptions to determine the presence or absence of the skills—could have been a limitation. A follow-up study found the number of EC programs had declined, while little had changed with regard to the skills and knowledge learned in the programs (Burkey, 2007).

In another study, the market demand and status of EC programs in China was examined in relation to the overall educational system (Zhang et al., 2005). Despite an expected increase in the number of EC positions from 100,000 to over 2,000,000 (Zhang et al., 2005), only 15.4% of colleges and universities in China had programs related to EC in 2002. Mitchell and Strauss (2001) surveyed practitioner experts to determine which EC skills should be included in marketing programs, but no examination was made into stand-alone EC programs.

Some of Burkey's 2001 data received an update in 2005 (Burkey, 2007).

However, the study that contained the 2005 data did not have the depth of the previous

study (Burkey, 2002), and Burkey (2007) noted that “electronic commerce programs are in their infancy” (p. 281). The environment of EC has continued to evolve, including the expansion of mobile EC made possible by the emergence of mobile networks (Hu, Yang, Yeh, & Hu, 2008).

The Delphi Technique

The Delphi technique was developed by the Rand Corporation in the 1950's in an attempt to gain the consensus of a group of military experts working on a U.S. Air Force sponsored defense study called Project Delphi (Clark, 2006; Dalkey & Helmer, 1963). The name Delphi was given in reference to the Greek oracle at Delphi known for giving prophecies (Yousuf, 2007). The Delphi technique is useful when an area of research is too new to provide adequate historical data (Linstone & Turoff, 2002).

Delphi has been the chosen methodology for a vast amount of business research (Von der Gracht, 2008). The Delphi technique has proven useful in identifying key skill requirements for the purpose of developing or modifying curricula (Custer, Scarella, & Stuart, 1969; Weaver, 1971). Since 2000, researchers have continued to use the technique for that purpose (Burke & Steinberg, 2006; Burkey, 2002; Duke, 2009; Holmes & Scaffa, 2009; Howze & Dalrymple, 2004; Kim & Choi, 2002; Larson & Wissman, 2000). Landeta (2006) stated the use of the Delphi method has not fallen over the last 30 years, and, over the last 5 years, there has been a greater proliferation of articles using the technique. The Delphi technique is fully accepted by the scientific community (Landeta, 2006).

The Delphi technique is characterized by the use of a group format (Amos & Pearce, 2008; Dalkey & Helmer, 1963). Confidentiality is maintained as the identities of

the panel members are not shared with the other participants. The technique can be used as a form of remote group communication or face-to-face communication, uses an iterative research process, and involves the development of consensus (Amos & Pearce, 2008).

In a Delphi study, experts are encouraged to review and revise earlier answers based on an anonymous summary of the experts' survey results from the previous round of questions (Rowe & Wright, 1999). The expertise of the panelists is a major criterion in any Delphi study (Murry & Hammons, 1995). There is no minimum amount of participants required for the Delphi panel (Turoff, 1975). Smaller groups of experts can come to a better consensus than larger groups of participants simply taking a survey (Delbecq, Van de Ven, & Gustafson, 1975).

A Delphi design involves an attempt to refine points of view through the iterative process of question rounds (Skulmoski, Hartman, & Krahn, 2007; Yousuf, 2007). It is an acceptable and common modification of the process to use a structured questionnaire in the first round that is based on an extensive literature review (Hsu & Sandford, 2007). Subsequent questionnaires usually require the panel to rank or rate the responses of the group until a consensus is reached. During the process, the range of the answers may decrease, and the group may converge toward the correct answer (Rowe & Wright, 1999). The primary objective of the Delphi method is to obtain a consensus of opinion (Wicklein, 1993). As the Delphi method requires multiple rounds of questionnaires, the process can be laborious for both the researcher and participants (Hsu & Sandford, 2007). The use of electronic surveys can help to facilitate the process and encourage participants to continue until a consensus is reached (Hsu & Sandford, 2007).

The Delphi is a method for structuring group communication to allow a group of individuals to deal with a complex problem (Linstone & Turoff, 2002). As noted by Rowe and Wright (1999), “Findings suggest that Delphi groups outperform statistical groups” (p. 353). As the Delphi method uses a group of 15-20 respondents, it has some similarities to a focus group, but the threats differ. In a focus group, a dominant individual may result in invalid results (Zikmund, 2003). Direct confrontation between participants in focus groups has been found to encourage the hasty formation of preconceived notions, encourage participants to close their minds to new ideas, and encourage participants to defend their stances (Dalkey & Helmer, 1963). The Delphi method has been found to be more reliable than face-to-face focus groups, in part, as a result of the freedom from dominant influence by other individuals provided by the anonymity and isolation of the participants (Van de Ven & Delbecq, 1974).

Summary

Business to consumer EC has become a fundamental way of doing business in the United States. The invention and commercialization of the Internet and the invention of the World Wide Web have led to spectacular changes in EC. The leaders of both large and small companies have been able to expand their potential markets by going online. New technologies and social networking sites have also contributed to growth in EC. On sites such as Facebook and MySpace, consumers can learn about new products and share their experiences. Social networking sites have contributed to an increase in interactive marketing that is expected to account for over 20% of advertising spending by 2014 (Beal, 2010). Interactive marketing is expected to increase from 9% of all advertising

spending in 2008 to 21% in 2014 with the greatest increase expected to come from social media and mobile applications (VanBoskirk, 2010).

Web collaboration has also led to an increase in globalization that has led to new business innovation (McCreary, 2009). The increase in EC activities has created an increased demand for knowledgeable workers and a corresponding increase in the demand for EC educational programs (Burkey, 2002). Continued demand is expected for the high-level skills needed to keep up with changes in technology (Bureau of Labor Statistics, 2009). However, many EC companies have failed as a direct result of the inability to find qualified, experienced workers (Vizard, 2000).

There is limited data on employer expenditures on training available, and it varies widely depending on the source of the survey data (Carliner & Bakir, 2010). For example, one of the most widely used surveys concluded \$134.39 billion was spent on training in the U.S. in 2008 while another of the most widely used surveys concluded \$56.2 billion was spent on training in the U.S. in 2008 (Carliner & Bakir, 2010). After completing a review of surveys conducted between the years 1986 and 2008, the researchers showed spending in 1986 and 2008 differed by only 1.5% (Carliner & Bakir, 2010).

A lack of qualified employees is seen as a constraint in employers' abilities to create an optimal number of high-quality jobs (Holzer, 2012). When the desired skills are lacking in potential new hires, employers may be reluctant to invest in the training necessary to teach the new hires the skills as the newly trained worker could decide to seek employment with another company (Holzer, 2012). Employers are less willing to spend money on training transferable skills as today's graduates are seen as less loyal

than their predecessors (Jackson, 2009). Employers will only pay training costs when an increase in skills will lead to a greater increase in productivity than wages (Tremblay, 2010). Employers are less likely to spend considerable amounts on training costs if employees are not likely to be retained for a sufficient period to recoup those costs. More than 25% of workers have been with their current employer for less than a year, and more than 33% have been with their current employer for less than 2 years (Rollag et al., 2005). On average, Americans change jobs 10 times between the ages of 18 and 37 (Rollag et al., 2005). The role formal institutes of education have to play in a knowledge-based economy to prepare graduates for highly mobile careers in the global marketplace is constantly being examined (de Villiers, 2010). Successful training programs should include key partners including colleges, industries or employers, workforce development agencies, and intermediary organizations with links to employers (Holzer, 2012).

Hiring costs generally increase when hiring skilled workers and average hiring costs can range from 10 to 17 weeks of wage payments (Blatter & Muhlemann, 2012). Under perfect competition in the labor market, employers will not invest in training as the employees will capture the full return from their skills (Tremblay, 2010). Firms are willing to pay the costs of training when competing against firms in the same product market that are competing for the same pool of trained workers (Gersbach & Schmutzler, 2012). Businesses throughout the world are focusing on internal training as a way to distinguish themselves from competitors (Tajeddini, 2009).

Most curriculum studies have used two stakeholders. The most common stakeholders used in the research were the business community and students or faculty. The perceptions of students and the business community regarding the required skills and

knowledge necessary for entry-level business positions were studied by Raymond and McNabb (1993). A group of 196 business students and a group of 87 employers were asked to rate the importance of 11 skills and abilities (Raymond & McNabb, 1993). The two groups were found to have slightly different perceptions of regarding the most important skills and abilities with both groups ranking oral and written communication skills as very important (Raymond & McNabb, 1993).

Lewis and Ducharme (1990) examined the perceptions of business school faculty members and the business community when researching possible perception differences related to the general curriculum of business schools. Questionnaires were sent to personnel managers of Fortune 500 corporations and deans and undergraduate program coordinators of 500 AACSB business schools (Lewis & Ducharme, 1990). When the two groups were asked which objectives were most important for business schools, a gap was shown to exist (Lewis & Ducharme, 1990). The development of analytical skills was chosen by 26% of the academics and 13% of the practitioners (Lewis & Ducharme, 1990).

Almost two decades later, a literature review conducted in 2009 showed businesses still consider skills including written communication, problem solving skills, and high ethical values to be important for graduates to contribute successfully to their employers (Jackson, 2009). A lack of alignment was found between business programs and industry requirements as business stakeholders sought higher levels of behavioral skills to complement the cognitive skills possessed by graduates (Jackson, 2009). Criticisms of business school curricula included insufficient attention to ethical behavior, communication, and people management skills (Jackson, 2009). With regard to business

training recent graduates after hiring, employers were seen as less willing to spend money on training transferable skills as today's graduates were seen as less loyal than their predecessors (Jackson, 2009).

In a study focused on marketing graduates, similar gaps were found to exist with regard to general, transferable skills (Davis et al., 2002). A survey was mailed to 298 alumni of a teaching-oriented, university in the Western United States, and the responses showed the respondents felt they were underprepared in the areas of technical preparation, oral communication skills, and written communication skills (Davis et al., 2002).

Information systems (IS) curriculum were the focus on a study published in 2006 (Yongbeom et al., 2006). Employees at a company in the manufacturing industry were asked to rate the perceived importance of ten IS courses and one prerequisite course (Yongbeom et al., 2006). The responses showed project management was ranked third while an analysis of MIS curriculums from the AACSB database of accredited universities showed project management was required by fewer than 50% of the schools studied (Yongbeom et al., 2006).

A greater disconnect was found during a study commissioned by Microsoft in which 20% of IT managers and 13% of corporate IT managers thought IT graduates were well equipped for the workplace (Closing the IT skills gap, 1998). Seventy-eight percent of those surveyed believed full-time education was the best way to alleviate the gap with 66% believing government had a role to play and 61% believing IT suppliers had a role to play (Closing the IT skills gap, 1998). In another study, researchers at Georgia Southern University found faculty and IT managers ranked the importance of skills

categories the same; however, IT managers placed more importance on the following skills/traits: hardware concepts, operating systems, leadership skills, entrepreneurial/risk taker, high overall college GPA, packaged software, and any work experience (Aasheim et al., 2009). In a study comparing the perspectives of MIS faculty and IT professionals in Louisiana, both groups ranked personal attributes such as critical thinking, oral and written communication, problem solving, and team skills as the most important (Stevens et al., 2011). The groups disagreed on the importance of approximately 25% of the skills included in the surveys (Stevens et al., 2011).

The discontinuation of EC programs was studied to determine why EC programs were being eliminated by universities despite a steady growth in e-business and an increase in demand for EC related skills (Fusilier & Short, 2010). The implications of eliminating innovative degree programs included the potential financial loss to universities given considerable start-up costs associated with establishing a new degree program, an inability to depreciate the costs over the long life of a successful program, the potential for employers and potential employers to become suspicious of the quality of an innovative program that has been eliminated, and the potential for university alumni to question the quality of university decisions if degree programs are eliminated a relatively short time after being introduced (Fusilier & Short, 2010). The researchers determined there were 98 discontinued EC programs identified at 85 institutions with 13 of the institutions having discontinued two separate EC programs (Fusilier & Short, 2010).

Low enrollment and a low number of applications were reported as the most influential factors in the decision to discontinue the EC programs (Fusilier & Short,

2010). Open-ended questionnaire answers supported low enrollment, an integration of EC subject matter into other courses, and the inability of programs to meet business needs (Fusilier & Short, 2010). Other responses indicated a lack of administrative support, and a conclusion was reached that faculty attitudes and interests appeared necessary to sustain EC programs and may explain why some persisted despite environmental threats while others were discontinued (Fusilier & Short, 2010).

In a 2009 study, the researchers examined business schools' intentions about offering EC programs using an extended theory of planned behavior (Dodor & Rana, 2009). A web-based survey was conducted to determine business schools' behavior intentions about EC education, behavioral readiness toward a new offering in EC education, their attitudes toward offering EC education, their subjective norms about offering EC education, and their perceived behavior control over offering EC education (Dodor & Rana, 2009). The researchers concluded "a school's readiness for an educational product innovation like EC education is directly and positively related to the school's intention to offer such an educational product innovation" (Dodor & Rana, 2009, p. 216). It was also concluded that organizations are more likely to adopt a new behavior, in this case the adoption of EC education, when other organizations have adopted a new behavior and suggested administrators may be interested in their school's attitude toward an innovational offering like EC education or in subjective norms about educational product innovation (Dodor & Rana, 2009).

A case study of an EC program that was developed in 2000 and discontinued in 2009 was conducted to examine the lessons learned from the rise and fall of the program (Lee, 2012). A test course conducted in 1999 generated 200% of the course capacity on

the waitlist (Lee, 2012). From the launch of the EC marketing option to the discontinuation of the course, however, the program experienced low enrollment (Lee, 2012). Individual enrollments were strong in individual EC courses (Lee, 2012). The researcher advised an integrated marketing curriculum in which EC concepts are incorporated into regular marketing courses after citing the continued interest in individual and EC courses and the opinion that e-marketing practices have permeated all aspects of marketing operations (Lee, 2012).

Other researchers have stated EC degree programs may be more effective than concentrations as dedicated degree programs would give faculty the time and resources to specialize (Fusilier & Durlabhji, 2009). In an earlier study, researchers stated the results supported the view that EC skills would remain a moving target regardless of whether universities integrated selected EC skills and topics current courses or designed entire EC programs (Mitchell & Strauss, 2001). The researchers noted there has been low demand for curricula when it was designed with little input from industry and stated input from industry should be obtained early in the development programs as well as continuously as the industry is changing (Mitchell & Strauss, 2001).

Two studies were performed in 2002 and 2007 that compared the practitioner perceptions of essential skills and knowledge of recent EC program graduates and the topics covered by AACSB accredited colleges and universities (Burkey, 2002, 2007). Only 15% of the topics identified as important were included in EC business programs (Burkey, 2002). The method used—examining course catalog descriptions to determine the presence or absence of the skills—could have been a limitation.

Some of Burkey's 2001 data received an update in 2005 (Burkey, 2007).

However, the study that contained the 2005 data did not have the depth of the previous study (Burkey, 2002), and Burkey (2007) noted that “electronic commerce programs are in their infancy” (p. 281). The environment of EC has continued to evolve, including the expansion of mobile EC made possible by the emergence of mobile networks (Hu et al., 2008). With the convergence of mobile technologies, Web 2.0, and IOT, changes in how EC is conducted continue to grow at a rapid pace, and it is important to understand the degree to which EC programs at institutions of higher education are meeting the needs of hiring managers.

Chapter 3: Research Method

The problem that this study researched is the gap between the skills students graduating from business and technology programs need to succeed in the field of EC and the actual skills taught by colleges and universities. The purpose of this qualitative study was to determine the extent to which AACSB-accredited programs are providing the skill sets most desired by business leaders who hire applicants for positions that include a focus on EC.

The responses to the survey questions identified the skills and knowledge preferred by the practitioners participating in the study. The extent to which colleges and universities that offer AACSB-accredited business and technology programs are providing the skill sets most desired by businesses that hire graduates of the programs was also investigated.

Q1. What skills and knowledge do practitioners desire new graduates to possess when hiring for EC related positions?

Research Question 1 was investigated during the first phase of this study.

Q2. To what extent, if any, does a gap exist between practitioners at Fortune 500 companies and academicians at the surveyed universities relating to the 10 most important skills and knowledge elements identified by the practitioners and the skills taught in the EC programs at the surveyed universities?

Q3. To what extent, if any, does a gap exist between practitioners at Fortune 500 companies and academicians at the surveyed universities relating to the EC-specific skills and knowledge elements identified by the practitioners as

important or very important and the skills taught in the EC programs at the surveyed universities?

Research Questions 2 and 3 were investigated during the second phase of the study.

Chapter 3 includes an elaboration on the qualitative research method and Delphi design introduced in Chapter 1. The chapter contains an expanded description of the population, sampling method, and data collection procedures. The chapter concludes with limitations, delimitations, and ethical assurances.

Research Methods and Design(s)

A qualitative method was chosen for this study as it allowed a determination to be made with regard to whether a perception gap exists between skills and knowledge sought by practitioners in EC and EC skills taught in schools. The first phase of the study was an exploration of the most important skills practitioners want graduates to possess. The study involved the Delphi method to survey the participants.

The second phase of the study involved content analysis of AACSB-accredited college and university websites and academic catalogs and surveying business school deans and faculty at AACSB-accredited colleges and universities that provide EC degree or certificate programs to determine whether the skills identified by the practitioners are taught in each program. In prior studies related to EC, content analysis of websites was conducted (Burkey, 2002, 2007; Fusilier & Durlahbji, 2010; Moshkovich, Mechitov, & Olson, 2005). Prior studies suggest university websites are a valid data source on EC education programs (Burkey, 2002, 2007; Fusilier & Durlahbji, 2010; Moshkovich et al., 2005). However, limitations mentioned included the potential for underreporting EC

concepts if EC concepts are being included in business courses with traditional business titles or are not listed in the course description (Fusilier & Durlahbji, 2010; Moshkovich et al., 2005) and the potential for some of the course descriptions and titles to not have been updated recently enough to reflect the current course objectives (Jong-Sung, 2008). An attempt was made to address these limitations by surveying the deans and faculty of the schools of business at the included institutions to obtain detailed information on the presence or absence of the desired skills. The study may prove helpful in identifying any skills gap and may be of value to course content designers at institutions of higher education. The value to businesses may include reducing new hire training costs.

The first phase of the study involved the Delphi method to obtain answers to questionnaires during three rounds; the data was organized between each round to develop each subsequent questionnaire. Few studies have been conducted to determine the whether a perception gap existed between skills and knowledge sought by practitioners in EC and EC skills taught in schools of higher education (Burkey, 2002, 2007). The Delphi method is useful when an area of research is too new to provide adequate historical data (Linstone & Turoff, 2002). The Delphi technique is “particularly suited to research questions that deal with uncertainty in a domain of imperfect knowledge” (Cegielski, 2008, p. 34). The Delphi technique has proven useful in identifying key skill requirements for the purpose of developing or modifying curricula (Custer et al., 1969; Weaver, 1971).

Since 2000, researchers have continued to use the technique for that purpose (Burke & Steinberg, 2006; Burkey, 2002; Duke, 2009; Holmes & Scaffa, 2009; Howze & Dalrymple, 2004; Kim & Choi, 2002; Larson & Wissman, 2000). The Delphi method is

well accepted in the scientific community. As noted by Rowe and Wright (1999), “Findings suggest that Delphi groups outperform statistical groups” (p. 353). The Delphi method has been found to be more reliable than face-to-face focus groups, in part, as a result of the freedom from dominant influence by other individuals provided by the anonymity and isolation of the participants (Van de Ven & Delbecq, 1974).

The Delphi technique is characterized by the use of a group format (Amos & Pearce, 2008). The technique can be used as a form of remote group communication or face-to-face communication, uses an iterative research process, and involves the development of consensus (Amos & Pearce, 2008). The benefits of using the Delphi method to answer the research questions in this study become clear when considering the characteristics of the Delphi technique.

To determine what skills hiring managers in businesses that utilize EC desire in new hires, a range of experts were surveyed. As universities throughout the country were included in Phase 2, the consideration of experts to include in the first phase was not limited to a small geographic area that would make face-to-face communication practical. The surveys were e-mailed to the group members, and all group communication took place remotely. The method was iterative in using multiple rounds to arrive at the desired skills without restricting the types of skills or number of skills that could be listed in the first round. The lack of restriction eliminated the possibility of researcher bias with regard to the perceived importance of any of the skills. A standard, numerical Delphi was conducted using summary statistics to encourage consensus among the panel and determine the 10 skills to be considered most important.

Examining the results of the first-round questionnaires helped determine possible skill and knowledge elements. The second and third rounds included group means to determine central tendencies and standard deviations and to encourage consensus among the focus group members. Reviewing the first round questionnaires helped to identify the skills to be included when conducting the second phase of the study. The content analysis data obtained during the second phase of the study helped to determine the presence or absence of the skill and knowledge elements identified during the first phase.

Research in the second phase of the study involved conducting content analysis of AACSB-accredited college and university websites and academic catalogs to determine the availability of electronic commerce programs, type and level of each program, and the specific elements present in each program. Business school deans and faculty members at AACSB-accredited colleges and universities that provide EC degree or certificate programs were also surveyed. The results are applicable only to universities with AACSB accreditation as a threat to external validity would occur if inferences had been made regarding collegiate business programs that are not accredited by AACSB. The single-case study is justifiable when the case serves a revelatory or longitudinal purpose (Yin, 2009). This case was revelatory in nature because only one researcher has examined whether a perception gap exists between skills and knowledge sought by practitioners in EC and EC skills taught in schools. It was longitudinal in seeking data to show whether the skills gap that was previously identified exists today. Although inferences were not made regarding a larger population of universities than those analyzed, the aggregate data from the universities was used to answer the research questions.

Population

The population for the first phase of the study consisted of all managers with hiring authority for positions in which skills related to EC are sought. The size could not be accurately predicted as managers that fit this description are employed across a wide variety of organizations operating across a wide variety of industries. There is, however, some data that hints at the size of the population. The changes that are occurring as a result of EC are similar to the changes that occurred during the Industrial Revolution with regard to their impact on communication and mass consumption (Powers, 2012). There are 831 electronic markets listed in the directory of electronic marketplaces today (E-Market Services, 2013). The number of users accessing the Internet is considering to grow rapidly with the number of users in 2012 estimated to be approximately 2.5 billion (Singh et al., 2012), and EC is not limited to online commerce. Electronic commerce occurs when electronic transmission mediums are used in the production, distribution, marketing, sale, or delivery of products and services (Kshetri, 2010). The sample was chosen from this population using convenience sampling of managers employed at companies listed in the top 75 companies listed in the 2013 Fortune 500 list reproduced as Appendix A.

The population for the second phase of the study consisted of all AACSB-accredited member institutions in the United States as of March, 2014. At that time, a search of AACSB's Data Direct database showed 335 institutions with AACSB-accredited programs in the United States (AACSB, 2014).

Sample

For the first phase of the study, a convenience sample of 25 individuals who have hiring authority for positions involving EC activities was chosen. The Delphi participants were chosen from a sample of the top 75 companies listed in the 2013 Fortune 500 list reproduced as Appendix A. These companies were chosen as they represent a wide range of industries, were expected to have human resource departments or company job boards that could be utilized to obtain contact information for potential participants, and are large enough to actively engage in hiring. The specific companies to be included were determined by conducting an internet search on March 5, 2014 to identify those companies with job postings containing the words electronic commerce, ecommerce, e-commerce, or e-business in either the job title or job. Searches were conducted at each company's website. Only positions within the United States were included. Companies meeting the above criteria are indicated in Appendix A in bold.

There is no minimum amount of participants required for the Delphi panel (Turoff, 1975). Smaller groups of experts can come to a better consensus than larger groups of participants simply taking a survey (Delbecq et al., 1975). The most effective sample size was determined, in part, based on the fact that the few new ideas are generated when Delphi panels include more than 30 respondents (Delbecq et al., 1975) combined with the fact that most Delphi studies use 15-20 respondents (Ludwig, 1997). As the Delphi method requires multiple rounds of questionnaires, the process can be laborious for both the researcher and participants (Hsu & Sandford, 2007). The study began with 25 respondents to allow room for attrition.

For the second phase of the study, content analysis of AACSB-accredited college and university websites and academic catalogs was conducted to determine the availability of electronic commerce programs, type and level of each program, and the specific elements present in each program. Deans and faculty of at the AACSB-accredited educational institutions were also surveyed. The universities chosen comprise the entire population of universities in the United States with AACSB-accredited programs or concentrations in EC as of April 2014 as determined by search results obtained from AACSB's Data Direct database. No consideration was given to graduation rates, cost, or location when determining which universities to include in the qualitative study. All of the institutions also held regional accreditation, considered an additional indicator of the quality of education.

Materials/Instruments

The instruments used in the Phase 1, Delphi portion of the study are listed in Appendixes B-D. These questionnaires were distributed over three rounds and used to collect data needed to answer the research questions. The first round questionnaire is a modified version of a questionnaire used in a previous study (Burkey, 2002). Both reliability and validity had been previously established for the identified instruments by Burkey (2002). These questionnaires were used previously with documented results (Burkey, 2002).

Data Collection, Processing, and Analysis

The first phase of the study involved the Delphi method to obtain answers to questionnaires during three rounds; the data was organized between each round to develop each subsequent questionnaire. Few studies have been conducted to determine

the whether a perception gap existed between skills and knowledge sought by practitioners in EC and EC skills taught in schools of higher education (Burkey, 2002, 2007). The Delphi method is useful when an area of research is too new to provide adequate historical data (Linstone & Turoff, 2002).

To determine what skills hiring managers in businesses that utilize EC desire in new hires, a range of experts was surveyed. As the use of online delivery allows students from throughout the country to attend the universities to be surveyed in Phase 2, the consideration of experts to include in the first phase was not limited to a small geographic area that would make face-to-face communication practical. The Delphi panel began with 25 participants. The surveys were e-mailed to the group members, and all group communication took place remotely. The method was iterative in using multiple rounds to arrive at the desired skills without restricting the types of skills or number of skills that could be listed in the first round. The lack of restriction eliminated the possibility of researcher bias with regard to the perceived importance of any of the skills. A standard, numerical Delphi was conducted using summary statistics to encourage consensus among the panel and determine the 10 skills considered most important.

Examining the results of the first-round questionnaires helped to determine possible skill and knowledge elements. The second and third rounds included group means to determine central tendencies and standard deviations and to encourage consensus among the focus group members. Any preferences related to the level and type of degree program were also determined during the second and third rounds. Reviewing the third round questionnaires helped to identify the skills to be included when preparing the faculty surveys for the second phase of the study. Content analysis

used during the second phase of the study helped determine the presence or absence of the skill and knowledge elements identified during the first phase.

The research questions that were answered are as follows:

Q1. What skills and knowledge do practitioners desire new graduates to possess when hiring for EC related positions?

Research Question 1 was investigated during the first phase of this study.

Q2. To what extent, if any, does a gap exist between practitioners at Fortune 500 companies and academicians at the surveyed universities relating to the 10 most important skills and knowledge elements identified by the practitioners and the skills taught in the EC programs at the surveyed universities?

Q3. To what extent, if any, does a gap exist between practitioners at Fortune 500 companies and academicians at the surveyed universities relating to the EC-specific skills and knowledge elements identified by the practitioners as important or very important and the skills taught in the EC programs at the surveyed universities?

Research Questions 2 and 3 were investigated during the second phase of the study.

Research in the second phase of the study included data collected from content analysis of AACSB-accredited college and university websites and academic catalogs and survey results from business school deans and faculty at AACSB-accredited colleges and universities that provide EC degree or certificate programs. The population of universities with AACSB-accredited EC programs or concentrations in the United States as of April 2014 as determined by search results obtained from AACSB's Data Direct database was included. The results are applicable to only AACSB-accredited universities

as a threat to external validity would occur if inferences were to be made regarding collegiate business programs that are not accredited by AACSB. The aggregate data from the universities was used to answer research questions 2 and 3.

Assumptions

There are several assumptions related to the use of the Delphi technique in the first phase of this study. In a Delphi study, experts are encouraged to review and revise earlier answers based on an anonymous summary of the experts' survey results from the previous round of questions (Rowe & Wright, 1999). Experts from a diverse range of industries were chosen to encourage diversity on the Delphi panel; however, the backgrounds and experiences of the participants and the amount of time spent answering each questionnaire, while limited, could not be controlled to ensure consistency among all participants. Smaller groups of experts can come to a better consensus than larger groups of participants simply taking a survey (Delbecq et al., 1975).

The panel was made up of 20 participants. Invitations were sent by email to potential participants until 25 participants agreed to participate in this study. This number allowed for some attrition. As the Delphi method requires multiple rounds of questionnaires, the process can be laborious for both the researcher and participants (Hsu & Sandford, 2007). The use of electronic surveys can help to facilitate the process and encourage participants to continue until a consensus is reached (Hsu & Sandford, 2007). An assumption was made that at least 60% of participants would continue to participate through all three rounds. There is no minimum amount of participants required for the Delphi panel (Turoff, 1975).

Limitations

The first phase of the study was limited to surveying hiring managers at Fortune 500 corporations. The focus of the first phase of the study was the skills believed to be essential in EC educational programs. External validity threats arise when a researcher draws incorrect inferences through generalization (Creswell, 2003). As the first phase was limited to a Delphi study, the ability to infer the applicability of the data to a larger population of practitioners was a limitation. Only managers with hiring authority were asked to participate in the study.

The second phase of the study was limited to AACSB-accredited institutions. The focus of the second phase of the study was the skills taught in each EC program. A limitation existed in that the sample was chosen based only on AACSB-accreditation and other factors such as graduation rates, cost, or location were not considered. Universities accredited by other bodies were only included if they also held AACSB-accreditation. The results of this qualitative study are not generalizable to the overall population of universities offering undergraduate and graduate business and technology degrees. These limitations are not expected to have a significant effect on the results of this study.

Delimitations

The first phase of the study was limited to surveying managers at Fortune 500 corporations. The focus of the first phase of the study was the skills believed to be essential in electronic commerce educational programs. Only managers with hiring authority were asked to participate in the study. The managers were selected from a variety of industries to insure diversity on the panel.

The second phase of the study was limited to educational institutions in the United States that were AACSB-accredited as of March 2014. The focus of the second phase of the study was the presence or absence of the skills in the university courses as reported by the deans and faculty of the schools of business at each institution. The population of universities with AACSB-accredited programs or concentrations in the United States as of April 2014 as determined by search results obtained from AACSB's Data Direct database was included in the second phase to provide sufficient data to reach saturation.

Ethical Assurances

IRB approval was obtained prior to any data collection activities. All participants were apprised of the intent of this study. Informed consent forms, shown in Appendixes F & H, were obtained, and the participants were notified of their right to privacy. Respondents are not identified by personal name, company name, or university name in the study. Questionnaires used in the first phase of the study were used to gain consensus, but any information that could be used to identify any of the participants was excluded from any communication with other participants in the study. Participants were assigned pseudonyms and only demographic information was retained.

Prospective participants were informed of their ability to not participate in the study or to withdraw from the study at any time without reprisal. All survey data was kept on the researcher's password protected and encrypted internal hard drive during the study. Any identifying information was deleted, when possible, as the study progressed.

Potential bias could have occurred as the researcher is a student at an ACBSP-accredited university and is a graduate and current faculty member at another ACBSP-

accredited university. Neither university was included in the study. Only AACSB-accredited universities were chosen when designing the methodology and determining the universities to be included in this study. The researcher is not in a position at any of the universities included in the study to influence curriculum design and derived no benefit from the study other than any benefit associated with fulfilling the requirements of a doctoral degree from an accredited institution of higher education.

Summary

Two studies conducted by Burkey (2002, 2007) showed a gap between academicians and practitioners with regard to the skills considered most important in business programs on EC as well as the levels and types of programs considered most desirable. The purpose of this qualitative study was to determine the extent to which colleges and universities that offer business and technology degree programs are providing the skill sets most desired by business leaders who hire graduates of the programs when seeking new hires for positions that emphasize skills valuable in the field of EC. During the first phase of the study, the Delphi method was used to obtain answers to questionnaires during three rounds. During the second phase of the study, content analysis of AACSB-accredited college and university websites and academic catalogs was conducted to determine the availability of electronic commerce programs, type and level of each program, and the specific elements present in each program. Business school deans and faculty at the AACSB-accredited colleges and universities were also surveyed to determine the presence or absence of the skill and knowledge elements identified during the first phase. The study may prove helpful in identifying any gap

between practitioner desire and faculty perception at these universities and may be of value to course content designers at these institutions of higher education.

Chapter 3 included an elaboration on the qualitative research method and Delphi design introduced in Chapter 1. The chapter contained an expanded description of the population, sampling method, and data collection procedures. The chapter concluded with limitations, delimitations, and ethical assurances.

Chapter 4: Findings

This chapter includes findings from the present study. The purpose of this qualitative, case study was to determine the extent to which colleges and universities are providing the skill sets most desired by business leaders who hire graduates for positions that include a focus on EC. This study consisted of two phases. In Phase 1, a panel of experts was surveyed in a three round, Delphi study to determine what skills hiring managers in businesses that utilize EC desired in new hires. Twenty-five experts agreed to participate in the study, and 24 completed the first questionnaire shown in Appendix B. Twenty-one of the experts also completed the second round questionnaire shown in Appendix C. The other three experts did not respond. Twenty of the experts completed the third questionnaire. The remaining expert did not respond.

Tables 1 through 3 provide a summary of the Delphi panel's demographic information. These participants were chosen from companies in the top 75 of Fortune 500 companies for 2013 that had one or more positions advertised on March 5, 2014 that included the terms electronic commerce, e-commerce, ecommerce, or e-business in either the job title or job description. These companies are listed in bold in Appendix A.

Demographic data was collected to demonstrate the diversity of the participant pool. The following demographic information was requested on the first questionnaire: gender, region where employed, highest degree earned and major, job title, years in current position, years working for current employer, and primary industry of the organization. Fourteen males and six females made up the panel.

A requirement for this study is the participants had to be hiring managers at their respective companies. Table 1 provides the distribution of the participants' job titles.

Participant job titles were grouped in a larger, general category when their job titles could potentially be used to identify them (ex: Director, Widget Product E-Commerce Group would be counted as Director, E-Commerce).

Table 1

Distribution of Participants' Job Titles

Job Title	<i>n</i>
Director, E-Commerce	7
Director, Mobile Strategy	1
Manager, E-Commerce	7
Section Manager	1
Sr. Director, E-Commerce	1
Sr. Manager, Internet Marketing	1
Sr. Online Marketing Specialist	1
SVP, E-Commerce	1

All panel members possessed college degrees. Five percent possessed an associate degree, 35% possessed bachelor degrees, 55% possessed master degrees, and 5% possessed a doctorate. Of these degrees, 65% were business degrees and 35% were non-business degrees. Forty percent reported two or fewer years in their current position; 50% reported three to five years in their current position, and 10% reported six or more years in their current position. Fifteen percent reported one to five years with their employer, 40% reported six to ten years with their employer, and 45% reported eleven or more years with their employer. Ten percent reported one to five years of experience in

the field of EC, 55% reported six to ten years of experience in the field of EC, and 35% reported 11 or more years of experience in the field of EC.

The consideration of experts to include in the first phase was not limited to a small geographic area as universities throughout the country were included in Phase 2 of the study. Table 2 depicts a frequency distribution of the regions in which the participants were employed.

Table 2

Regions Where Delphi Participants Were Employed

Region	<i>n</i>
East	2
Midwest	6
Northeast	3
Northwest	1
South	2
Southeast	2
West	4

Table 3 depicts a frequency distribution of the primary industries in which the participants were employed. I chose a higher level primary industry when a questionnaire was returned with a sub-group of that industry listed.

Table 3

Delphi Participants' Employers' Primary Industries

Primary Industry	<i>n</i>
Consumer Goods	2

Financial Services	1
Healthcare	3
Insurance	1
Manufacturing	1
Retail	7
Technology	3
Telecommunications	2

As noted in Table 4, an April 2014 search conducted on the AACSB-Data Direct database returned results indicating 29 AACSB-accredited universities in the United States had some type of EC program or emphasis. I obtained information regarding the level and types of EC programs at the universities from data posted to the universities' official websites. I was unable to locate any EC programs at 11 of the universities. The University of Akron's official website stated no new applicants were being accepted to their EC program. Active programs were located for the 17 remaining universities.

Table 4

AACSB-Accredited Universities with EC Programs

University	E-business or E-commerce Program(s)
California State Polytechnic University, Pomona	Bachelors – International Business & Marketing – Electronic Commerce Career Track; Bachelors – E-Business Option
California State University, Fullerton	None Located
California State University, San Bernardino	B.S. Information Systems & Technology Concentration with e-Business Specialty
DePaul University	MBA – MIS – E-business concentration
Eastern Michigan University	Graduate Certificate in E-business

Iona College	Graduate Level E-Commerce Certificate
Marquette University	None Located
Missouri University	Graduate Certificate in Electronic and Social Commerce
Old Dominion University	Information Systems & Technology Major with E-Business/E-Commerce Track
Pace University	Advanced Graduate Program – Marketing eBusiness Advanced Certificate Program – Internet Technology for e-Commerce
Rider University	None Located
Rutgers, State University of New Jersey	Management Information Systems and Ecommerce Minor
Seattle Pacific University	None Located
Seattle University	None Located
Southeastern Louisiana University	BA – Marketing with Concentration in E-Commerce
Southern University	None Located
State University of New York at Buffalo	None Located
Texas Christian University	None Located
Towson University	BA & BS in e-Business
University of Akron	Graduate Level E-Business Certificate (No longer accepting new applications)
University of Maryland	MBA – E-commerce Concentration
University of Michigan	None Located
University of North Florida	Graduate Certificate in e-Business
University of Rochester	MBA – Electronic Commerce
University of Scranton	BS – Electronic Commerce
University of Texas at Austin	None Located
University of Wisconsin - Oshkosh	BBA – Interactive Web Management; emphases in Web & Mobile Development and Web Presence
Wayne State University	None Located
Western Michigan University	Bachelors – e-Business Marketing (Marketing track & IS Track) Minor in e-Business Design

Note. Programs listed in April 2014 on AACSB-Data Direct using the following search criteria: Country = United States; Program Type = Any degree, E-Bus/E-com, Any Format; or Major/Sub Emphasis contains “E-Business” or “E-commerce”

Results

In Phase 1 of the study, the first round questionnaire (see Appendix B) was emailed to 25 experts. The primary purpose of the questionnaire was to obtain a list of

skills and knowledge elements the experts desired to see in EC programs in the United States. Obtaining the list was necessary as there was no current academic literature indicating the skill and knowledge elements most desired by practitioners hiring for positions related to EC.

Twenty-four experts (96%) completed and returned the first questionnaire. The responses from the first questionnaire were used to create the second round questionnaire (see Appendix C). The skills were added in random order to the questionnaire as each round-one questionnaire was received.

The second-round questionnaire was emailed to the remaining participants and asked the participants to rate each skill or knowledge element using a five-point Likert-type scale to indicate the level of importance. Twenty-one (88%) of the participants completed and returned the second survey. The group ratings (means) and level of group agreement (based on the standard deviation) for each item included in the second-round questionnaire were determined and used to create the final, third-round questionnaire shown in Appendix D.

The third questionnaire was emailed to the remaining 21 participants with a request to rate the items again, taking into consideration the group means and level of group agreement indicated on the questionnaire. Twenty (95%) of the remaining 21 participants completed and returned the third-round questionnaire.

Means and standard deviations were determined from the completed third-round questionnaires. The skill and knowledge elements were then ranked based on the means. Five levels of ranking were possible with the group mean determining the level of importance. The five possible levels consisted of “Extremely Appropriate” ($4.5 \leq M \leq$

5), “Appropriate” ($3.5 \leq M \leq 4.5$), “Somewhat Appropriate” ($2.5 \leq M \leq 3.5$), “Inappropriate” ($1.5 \leq M \leq 2.5$), and “Extremely Inappropriate” ($M < 1.5$). Eight of the desired skill or knowledge elements were in the “Extremely Appropriate” category. “HOST/Protocol” and “Endeca experience” were in the “Inappropriate” category. No skill or knowledge elements were in the “Extremely Inappropriate” category. The level of agreement was high, as indicated by a standard deviation of ≤ 0.75 , for the top 10 skills as shown in Table 5.

Table 5

Top 10 Desired Skills as Indicated by Delphi Panel

Skill/Knowledge Elements	Mean	SD
Combined fluency with tech and business (being able to bridge the gap with communication)	4.850	0.3663
Oral communication	4.700	0.5712
Teamwork skills	4.700	0.4702
Written communication	4.650	0.4894
Trends in web and mobile	4.600	0.5026
Problem solving skills	4.600	0.5026
Troubleshooting skills	4.600	0.5026
Understanding e-consumers	4.550	0.5104
Financial analysis (ROI)	4.400	0.5982
Understanding of social media (FB, Twitter, Instagram, YouTube, etc.)	4.400	0.5982

Three of the top 10 skills are communication related. During the first round of questionnaires, one participant commented he or she constantly sees people who are

either all tech or all business, and being able to bridge the two areas and communicate effectively is a highly prized skill set. The panel came to a high level of agreement with regard to all of the skills in the top 10, but the level of agreement was highest with regard to the importance of that ability ($SD=0.3663$). Communication skills were also the most commented on by the Delphi Panel. Examples include the following:

- *Applicants are so used to texting that they cannot write a decent memo or email.*
- *Many applicants are missing in-person skills.*
- *Both verbal and written communication skills are a must.*
- *Being able to present without relying on PowerPoint is important.*

The research question that was answered was as follows:

Q1. What skills and knowledge do practitioners desire new graduates to possess when hiring for EC related positions?

Skill and knowledge elements that participants identified as “Important” are shown in Appendix J. Of the 40 elements in this category, there was a high level of group agreement on 36 items and a moderate level of group agreement on four items. Skill and knowledge elements that participants identified as “Somewhat Important” are shown in Appendix K. Of the 16 elements in this category, there was a high level of group agreement on 11 of the items and a moderate level of group agreement on five items. The Delphi panel reached a moderate or higher level of group agreement on all items considered at least “Somewhat Important”.

Research in the second phase of the study included data collected from AACSB-accredited college and university websites and academic catalogs and business school faculty at AACSB-accredited colleges and universities that provide EC degree or

certificate programs. The data from the faculty was collected through surveys submitted to the deans and faculty at these institutions. The population of AACSB-accredited institutions listed by AACSB as having EC programs or emphases as of March 2014 was included. The aggregate data from the universities was used to answer research questions 2 and 3.

Thirty-two invitational emails were sent to faculty and deans at the universities listed in Table 4. Four responses with usable, exploratory data were received; three of those contained incomplete data. One respondent ranked each skill or knowledge element with regard to the respondent's opinion about the importance of each in EC programs, but the respondent stated a lack of familiarity with enough of the courses in the university's program to provide data on the presence or absence of the elements. Another respondent stated there are only a handful of students left in the program, and the courses had been moved out of the business school, so the respondent would be unable to provide meaningful data. The third respondent stated the program was not in the respondent's department, and the respondent thought it was "one designed to be killed".

The completed questionnaire received from the fourth respondent was compared to the content analysis of the course descriptions to determine the degree of similarity. One hundred percent of the top 10 skill or knowledge elements indicated by the respondent as being present or absent at the respondent's university matched the results of the content analysis conducted by the researcher. Eighty-five percent of the top 20 EC-specific skill or knowledge elements indicated by the responded as present or absent matched the results from the content analysis conducted by the researcher. Of the three

that did not match, two were marked as present from the content analysis but were indicated as absent by the respondent.

The opinions as to the desirability of the skill and knowledge elements was compared between the two questionnaires received that included complete information ranking the items as to their importance in EC educational programs. The level of agreement with regard to the desirability of the top 10 skills indicated by the practitioners was high ($SD < 0.75$) for all 10 skills. The level of agreement with regard to the 20 EC-specific skills rated as important or very important by the practitioners was high ($SD < 0.75$) for 17 skills and moderate for “trends in web and mobile” ($SD = 0.78$), “content management systems” ($SD = 0.78$), and “basic HTML” ($SD = 0.85$). The faculty mean was lower for “trends in web and mobile” ($M = 3.50$ vs. $M = 4.60$) and higher for “content management systems” ($M = 5.00$ vs. $M = 3.90$) and “basic HTML” ($M = 4.50$ vs. $M = 3.30$).

No demographic data was collected from the questionnaires emailed to the university participants. Biographical data available about the respondents, obtained from the universities’ websites, indicated each participant was an active faculty member at his or her university at the time of response. The emails were also sent using the contact information available from the universities’ websites.

Content analysis of AACSB-accredited college and university websites and academic catalogs was conducted to determine the availability of electronic commerce programs, type and level of each program, and the specific elements present in each program. Course descriptions were obtained for all required courses in the EC programs being offered by the universities. The course descriptions served as the source for obtaining the skill and knowledge elements present in each program. Data analysis was

used to assess the match between program elements and necessary skills required by employers.

Table 6

Presence or Absence of Top 10 Practitioner Skills

Skill	% of Universities	
Combined fluency with tech and business	Present	59%
Oral communication	Present	53%
Teamwork skills	Present	53%
Written communication	Present	100%
Trends in web and mobile	Present	65%
Understanding e-consumers	Present	76%
Troubleshooting skills	Absent	47%
Problem solving skills	Present	82%
Financial analysis (ROI)	Present	65%
Understanding of social media (Twitter, FB, etc.)	Absent	29%

The universities included eight of the 10 skills (80%) in their EC programs as shown in Table 6. A skill was considered present in the university's EC program(s) when at least one of the required courses in the program(s) contained the skill. A simple majority of universities ($n > 50\%$) was used to determine presence or absence of a skill for purposes of answering the research question. The research question that was answered is as follows:

Q2. To what extent, if any, does a gap exist between practitioners at Fortune 500 companies and academicians at the surveyed universities relating to the 10 most important skills and knowledge elements identified by the practitioners and the skills taught in the EC programs at the surveyed universities?

Table 7

Presence or Absence of the 20 EC-Specific Skills Rated as Important or Very Important by Practitioners

Skill	% of Universities	
Combined fluency with tech and business (being able to bridge the gap with communication)	Present	59%
Trends in web and mobile	Present	65%
Understanding e-consumers	Present	76%
Understanding of social media (FB, Twitter, Instagram, YouTube, etc.)	Absent	29%
General familiarity with analytics (CoreMetrics, Google Analytics, or Adobe Webtrends)	Absent	18%
Understand how to capture what users need vs. what they just say they need	Absent	18%
Basic tech skills (familiarity w/ lingo and process)	Present	71%
Search engine optimization	Absent	18%
Experience with Front End Optimization techniques	Absent	24%
Content management systems	Absent	18%
Checkout and order management systems	Absent	6%
Basic understanding of programming skills	Present	53%
Basic elements of design	Present	53%
Experience with ecommerce platforms (ex: ATG Commerce)	Absent	18%
Knowledge of online security protocols	Present	53%
Basic HTML	Absent	41%
Payment systems	Absent	18%
Writing test scripts	Absent	24%
PHP, Ruby, or another web language	Absent	41%
Java	Absent	12%

The universities included seven of the 20 skills (35%) in their EC programs as shown in Table 7. A skill was considered present in the university's EC program(s) when at least one of the required courses in the program(s) contained the skill. A simple majority of universities ($n > 50\%$) was used to determine presence or absence of a skill for purposes of answering the research question. The research question that was answered is as follows:

Q3. To what extent, if any, does a gap exist between practitioners at Fortune 500 companies and academicians at the surveyed universities relating to the EC-specific skills and knowledge elements identified by the practitioners as important or very important and the skills taught in the EC programs at the surveyed universities?

Evaluation of Findings

An analysis of the findings of the study is presented in this section. The intent of the study was to determine the extent to which colleges and universities are providing the skill sets most desired by business leaders who hire graduates for positions that include a focus on EC. This study consisted of two phases.

In Phase 1, a panel of experts was surveyed in a three round, Delphi study to determine what skills hiring managers in businesses that utilize EC desired in new hires. The data was used to answer the first research question by providing the necessary data to determine the skills and knowledge elements practitioners desire new graduates to possess when hiring for EC related positions. The Delphi panel reached a high level of consensus (indicated by $SD < 0.75$) on all of the top 10 skills. The comments made by the participants also supported the importance given to some of the top 10 skills.

The Delphi panel reached a high level of consensus (indicated by $SD < 0.75$) on 18 of the 20 EC-specific skills considered most important. The panel came to a moderate consensus on “basic HTML” ($SD = 0.80$) and “PHP, Ruby, or another language” ($SD = 0.91$). The moderate consensus may indicate a difference in the level of technical skills necessary to succeed in the EC-related positions of which the panel members have influence over at their respective companies as both of the skills are programming languages.

In phase 2, content analysis of AACSB-accredited college and university websites and academic catalogs was conducted to determine the availability of electronic commerce programs, type and level of each program, and the specific elements present in each program. Data analysis was used to assess the match between program elements and necessary skills required by employers. No programs could be located at 11 of the universities. The lack of program information may indicate a continued, recent decline in the number of AACSB-accredited business schools offering EC programs, concentrations, or certificates.

In terms of the second research question, the universities included eight of the 10 skills (80%) in their EC programs. The top three skills were present at more than 50% but less than 60% of the universities. Course catalog descriptions may not contain every skill or knowledge element taught in the course, so the percentages given should be considered the minimum percentages present (Mitchell & Strauss, 2001). Six of the 10 skills were not considered EC-specific, and those skills could be present in almost any business degree program. In this study, the presence of “combined fluency with tech and business” was assumed when the EC program was part of a business degree program that included both business administration core courses and technical skills in the EC concentration courses. “Financial analysis” was considered present when the program also included a required core course in accounting or finance. As a result, the presence of those skills may not boost demand for EC programs as students may see a lack of relative advantage to EC programs over less specialized business concentrations (Lee, 2012).

In terms of the third research question, the universities included seven of the 20 skills (35%) in their EC programs. The percentage may indicate a disconnect between

the skills and knowledge elements hiring managers want EC graduates to possess and the skills and knowledge elements being taught at the universities with EC degree programs, concentrations, and certificate programs. If the majority of EC-specific skills desired by hiring managers in the field of EC are not being offered by the majority of universities offering these programs, there is little reason for employers to recruit or hire graduates of these programs over non-EC programs. A skills gap could have broad, negative consequences including an inability of business leaders to hire graduates with skills business leaders consider most important, greater training expenses for businesses if the skills need to be taught after the graduate is hired, and an inability of entrepreneurial graduates to successfully implement EC solutions in a newly formed business. The results of this study may be of value to course content designers, university decision makers, and businesses seeking to reduce new hire training costs. Faculty should be encouraged to look at their curriculum and attempt to match industry expectations with university classroom activities (Fulton et al., 2013).

Summary

The purpose of this qualitative study was to determine the extent to which colleges and universities are providing the skill sets most desired by business leaders who hire graduates for positions that include a focus on EC. This study consisted of two phases. In Phase 1, a panel of experts was surveyed in a three round, Delphi study to determine what skills hiring managers in businesses that utilize EC desired in new hires. The Delphi panel consisted of 20 hiring managers at Fortune 500 companies. These participants were chosen from companies in the top 75 of Fortune 500 companies.

Research in the second phase of the study included data collected from AACSB-accredited college and university websites and academic catalogs and business school faculty at AACSB-accredited colleges and universities that provide EC degree or certificate programs. Course descriptions were obtained for all required courses in the EC programs being offered by the universities. The course descriptions served as the source for obtaining the skill and knowledge elements present in each program. Data analysis was used to assess the match between program elements and necessary skills required by employers.

The data from Phase 1 was used to answer the first research question by providing the necessary data to determine the skills and knowledge elements practitioners desire new graduates to possess when hiring for EC related positions. The Delphi panel reached a high level of consensus (indicated by $SD < 0.75$) on all of the top 10 skills. In phase 2, content analysis of AACSB-accredited college and university websites and academic catalogs was conducted to determine the availability of electronic commerce programs, type and level of each program, and the specific elements present in each program. The universities included eight of the 10 skills (80%) in their EC programs. The Delphi panel reached a high level of consensus (indicated by $SD < 0.75$) on 18 of the 20 EC-specific skills considered most important. The universities included seven of the 20 skills (35%) in their EC programs.

In terms of the third research question, the universities included seven of the 20 skills (35%) in their EC programs. The percentage may indicate a disconnect between the skills and knowledge elements hiring managers want EC graduates to possess and the skills and knowledge elements being taught at the universities with EC degree programs,

concentrations, and certificate programs. Faculty should be encouraged to look at their curriculum and attempt to match industry expectations with university classroom activities (Fulton et al., 2013).

Chapter 5: Implications, Recommendations, and Conclusions

The purpose of this chapter is to present a brief review of the problem statement, purpose, method, limitations, and ethical dimensions. The second part of this chapter is to describe the implications of the study in relation to the problem statement, the recommendations, and conclusions. Chapter 5 concludes with a summary of the key points discussed in the chapter.

The problem that this study addressed is the gap between the skills students graduating from AACSB-accredited business and technology EC programs need to succeed in the field of EC and the actual skills taught by the colleges and universities. Researchers have shown that the skills most desired by hiring managers in the field of IT are not being taught by the colleges and universities included in the studies. Specifically, Fulton et al. (2013) found that employers were having difficulty hiring students with the right set of technical skills and social skills necessary to succeed in information security. In addition, Stevens et al. (2011) found that MIS faculty and IT professionals disagreed about the importance of approximately 25% of skills considered critical to meet the needs of industry. Finally, Tiwari and Kaushik (2011) revealed new graduates did not have the right combination of skills and experience. The authors noted industry cannot afford to ignore the skills gap and identified the need for educational institutions to be willing to collaborate with industry (Tiwari and Kaushik, 2011).

The purpose of this qualitative study was to determine the extent to which AACSB-accredited colleges and universities that offer EC programs are providing the skill sets most desired by business leaders who hire graduates of the programs for positions containing a focus on EC. The target populations of the study are business

leaders that hire graduates of business and technology programs for positions that include a focus on EC and AACSB-accredited colleges and universities that provide education to prepare students for these positions. Identifying any current perception gap may be beneficial to course content designers at schools of higher education that have programs that include topics related to the field of EC as well as businesses that hire the graduates of those programs.

A qualitative method was chosen for this study as it allowed a determination to be made with regard to whether a perception gap exists between skills and knowledge sought by practitioners in EC and EC skills taught in schools. The first phase of the study was an exploration of the most important skills practitioners want graduates to possess. The study involved the Delphi method to survey the participants.

The second phase of the study involved content analysis of AACSB-accredited college and university websites and academic catalogs and surveying business school deans and faculty at AACSB-accredited colleges and universities that provide EC degree or certificate programs to determine whether the skills identified by the practitioners are taught in each program. Prior studies suggest university websites are a valid data source on EC education programs (Burkey, 2002, 2007; Fusilier & Durlahbji, 2010; Moshkovich et al., 2005). However, limitations mentioned included the potential for EC concepts to be underreported if EC concepts are being included in business courses with traditional business titles or are not listed in the course description (Fusilier & Durlahbji, 2010; Moshkovich et al., 2005) and the potential for some of the course descriptions and titles to not have been updated recently enough to reflect the current course objectives (Jong-Sung, 2008).

The first phase of the study was limited to surveying hiring managers at Fortune 500 corporations. The focus of the first phase of the study was the skills believed to be essential in EC educational programs. External validity threats arise when a researcher draws incorrect inferences through generalization (Creswell, 2003). As the first phase was limited to a Delphi study, the ability to infer the applicability of the data to a larger population of practitioners was a limitation. Only managers with hiring authority were asked to participate in the study.

The second phase of the study was limited to AACSB-accredited institutions. The focus of the second phase of the study was the skills taught in each EC program. A limitation existed in that the sample was chosen based only on AACSB-accreditation and other factors such as graduation rates, cost, or location were not considered. Universities accredited by other bodies were only included if they also held AACSB-accreditation. The results of this qualitative study are not generalizable to the overall population of universities offering undergraduate and graduate business and technology degrees.

IRB approval was obtained prior to any data collection activities. All participants were apprised of the intent of this study. Informed consent forms, shown in Appendixes F & H, were obtained, and the participants were notified of their right to privacy. Respondents are not identified by personal name, company name, or university name in the study. Questionnaires used in the first phase of the study were used to gain consensus, but any information that could be used to identify any of the participants was excluded from any communication with other participants in the study. Participants were assigned pseudonyms and only demographic information was retained. Prospective participants were informed of their ability to not participate in the study or to withdraw

from the study at any time without reprisal. All survey data was kept on the researcher's password protected and encrypted internal hard drive during the study. Any identifying information was deleted, when possible, as the study progressed.

The implications of the study in relation to the study's problem, the study's purpose, and the significance of the study are discussed in the next sections of this chapter. Practical recommendations and recommendations for future research are also presented. The chapter concludes with a summary that highlights the key points discussed in this chapter.

Implications

E-business has continued to expand despite the dot-com bust of 2001 (Fusilier & Durlabhji, 2010). Developing e-skills competency is seen as an important strategy in boosting productivity, increasing employability of the workforce, and responding to global competitive challenges (Singh, 2012). New technologies and social media sites have contributed to growth in EC as social media is woven into the fabric of our culture (Case & King, 2013), and some researchers believe social media and networking are the fastest way to grow a business (Edosomwan et al., 2011). Despite the continuously growing role EC plays in worldwide commerce, over 100 EC programs that were introduced in the first decade of this century have been discontinued.

No programs could be located at 11 of the universities. The lack of program information at 11 of the universities may indicate a continued, recent decline in the number of AACSB-accredited business schools offering EC programs, concentrations, or certificates. One of the deans mentioned the program was "designed to be killed", and responses from deans at three other schools who declined to participate as their schools

no longer have EC programs lends support to the conclusion that EC programs are still being discontinued. In a 2010 study, comments from two faculty members indicated EC was considered an outdated word to use, and all commerce is essentially EC, so they couldn't think of a lot that would be useful to put into courses under that designation (Fusilier & Short, 2010). Others stated the program leader did not want the effort of keeping the program going, the dean and associate dean were not the right people to support the program, and it proved expensive to retain faculty relative to low demand for the program by students (Fusilier & Short, 2010).

The results from this study contradict some of those statements while other statements are supported by the results. With regard to the comment that EC was considered an outdated word to use, the number of job listings at Fortune 500 companies that mention EC in the job descriptions, the number of Delphi participants with job titles that included EC in the title, and a comment from one of the members of the Delphi panel contradict the statement. Fifty-one of the top 75 Fortune 500 companies (68%) listed in Appendix A had job openings listed on their company websites that included the terms electronic commerce, e-commerce, ecommerce, or e-business in either the job title or job description. Those positions were located on the companies' sites on March 5, 2014. Seven of the 20 Delphi panel members had the title of "Director, E-Commerce" while another seven had the title of "Manager, E-Commerce", and two others, a senior vice president and a senior director had the titles of "SVP, E-Commerce" and "Sr. Director, E-Commerce". One panel member stated:

- *I would be interested in seeing the final results as we are in the process of building our eCommerce team here and this study has some very good ideas in it.*

The implication that lack of administrative support could be contributing to the decline of EC programs is supported by the following comment received in a response to this study:

- *I don't know much about our e-business program although I formally administer it. Our MIS graduate programs are in shambles. We, a diminishing group of MIS faculty...are dominated by the accountants [after] the bubble burst in 2000 [and] enrollment in accounting programs skyrocketed. Consequently, all resources were directed into accounting and all MIS positions we lost by attrition were filled by accounting faculty.*

Concentrations and specializations are one way for recent college graduates to differentiate themselves from other applicants applying for open positions at businesses in the United States. They also provide a means by which universities can focus on the specific skills desired by those businesses. This study's findings indicate the majority of AACSB-accredited universities in the United States with EC programs or concentrations are not providing the majority of skills desired by business leaders at the largest Fortune 500 companies.

The perception gap shown by the results of this study with regard to the skills that are most essential to inclusion in EC programs indicates a need for change if the remaining EC programs are to successfully meet the needs of their stakeholders. When EC degree programs and concentrations were rapidly introduced in 2001, researchers discussed perception gaps between employers, students, and university staff and warned of the importance in gathering industry data both early on and continuously to prevent a low demand for graduates (Mitchell & Strauss, 2001). A lack of business involvement

and the inability of EC programs to meet business needs were stated as contributing problems in a study nine years later that sought the reasons behind the failure of many EC programs (Fusilier & Short, 2010).

The formation of innovative programs provides unique challenges. Given the unique nature of the programs, historical data may not be available to guide decision makers. Few studies have been conducted to determine why over 100 EC programs that were introduced in the first decade of this century have been discontinued despite the continued, rapid growth of EC. The results of this study support the conclusion that EC skills and knowledge elements in demand by the business community are not being offered by many of the programs. Unless and until the skills desired by hiring managers of EC program graduates are taught by universities, businesses will need to invest in training the recent graduates of the programs in those skills or seek out experienced workers that have been trained by previous employers. The result could be increased training expenditures by businesses, a decreased demand for recent graduates of EC programs, and the extinction of university provided EC programs or concentrations in the United States.

Recommendations

A lack of qualified employees is seen as a constraint in employers' abilities to create an optimal number of high-quality jobs (Holzer, 2012). Faculty should be encouraged to look at their curriculum and attempt to match industry expectations with university classroom activities (Fulton et al., 2013). Industry expects colleges and universities to prepare their students for viable careers in their respective professions and ensure the curricula reflects the current and expected needs of industry (Stevens et al.,

2011). When the desired skills are lacking in potential new hires, employers may be reluctant to invest in the training necessary to teach the new hires the skills as the newly trained worker could decide to seek employment with another company (Holzer, 2012). The notions of a graduate-level job and a linear career path are not realistic expectations for twenty-first century graduates as graduates engage with a diversity of work including working for smaller enterprises or working on a freelance basis (Wickramasinghe & Perera, 2010). As a result, institutions of higher education need to identify different working patterns graduates may face and ensure they possess employability skills desired by potential employers (Wickramasinghe & Perera, 2010).

Future research might investigate the degree to which educational institutions are integrating EC-specific skills or knowledge elements in more generalized degree programs and any preference among employers about program types preferred, minimum degree, or certification required of job applicants. Some EC skills may be most appropriately taught in technical schools and community colleges rather than at the university level; however, identification of any preference among employers with regard to program levels was beyond the scope of this study. It is possible that small and medium businesses may have a need for employees with the lower ranked skills considered “Somewhat Important” by the Delphi panel in this study or with skills not listed by the Delphi panel as essential to EC programs. Research that includes experts from smaller businesses than were included in this study or an analysis of want ads listed by smaller businesses that include EC specific skills is needed to determine the needs of those businesses.

This study included only two stakeholders of university programs--hiring managers and the universities. Input from other stakeholders including current students, alumni, and the taxpaying public may prove beneficial in future studies. The only way to ensure university EC programs are meeting the needs of all stakeholders is to include input from the various groups of stakeholders when creating or modifying EC programs.

Conclusions

This chapter began with a review of the problem statement, purpose statement, method, limitations of the study, and any ethical dimensions of the study. The chapter progressed with the re-introduction of some of the earlier concepts presented in Chapter 2 and included a discussion of the implications of the study in relation to the problem statement. The chapter continued with recommendations for this study and recommendations for further research.

The purpose of this qualitative study was to determine the extent to which AACSB-accredited colleges and universities that offer EC programs are providing the skill sets most desired by business leaders who hire graduates of the programs for positions containing a focus on EC. The target populations of the study are business leaders that hire graduates of business and technology programs for positions that include a focus on EC and AACSB-accredited colleges and universities that provide education to prepare students for these positions. A qualitative method was chosen for this study as it allowed a determination to be made with regard to whether a perception gap exists between skills and knowledge sought by practitioners in EC and EC skills taught in schools. The first phase of the study was an exploration of the most important skills practitioners want graduates to possess. The study involved the Delphi method to survey

the participants. The second phase of the study involved content analysis of AACSB-accredited college and university websites and academic catalogs and surveying business school deans and faculty at AACSB-accredited colleges and universities that provide EC degree or certificate programs to determine whether the skills identified by the practitioners are taught in each program.

E-business has continued to expand despite the dot-com bust of 2001 (Fusilier & Durlabhji, 2010). Developing e-skills competency is seen as an important strategy in boosting productivity, increasing employability of the workforce, and responding to global competitive challenges (Singh, 2012). Despite the continuously growing role EC plays in worldwide commerce, over 100 EC programs that were introduced in the first decade of this century have been discontinued.

Concentrations and specializations are one way for recent college graduates to differentiate themselves from other applicants applying for open positions at businesses in the United States. They also provide a means by which universities can focus on the specific skills desired by those businesses. This study's findings indicate the majority of AACSB-accredited universities in the United States with EC programs or concentrations are not providing the majority of skills desired by business leaders at the largest Fortune 500 companies. The perception gap shown by the results of this study with regard to the skills that are most essential to inclusion in EC programs indicates a need for change if the remaining EC programs are to successfully meet the needs of their stakeholders.

Unless and until the skills desired by hiring managers of EC program graduates are taught by universities, businesses will need to invest in training the recent graduates of the programs in those skills or seek out experienced workers that have been trained by

previous employers. The result could be increased training expenditures by businesses, a decreased demand for recent graduates of EC programs, and the extinction of university provided EC programs or concentrations in the United States.

Faculty should be encouraged to look at their curriculum and attempt to match industry expectations with university classroom activities (Fulton et al., 2013).

Institutions of higher education need to identify different working patterns graduates may face and ensure they possess employability skills desired by potential employers (Wickramasinghe & Perera, 2010).

Future research might investigate the degree to which educational institutions are integrating EC-specific skills or knowledge elements in more generalized degree programs and any preference among employers with regard to program types preferred, minimum degree, or certification required of job applicants. Input from all stakeholders including practitioners, hiring managers, current students, alumni, and the taxpaying public may prove beneficial in future studies. The only way to ensure university EC programs are meeting the needs of all stakeholders is to include input from the various groups of stakeholders when creating or modifying EC programs.

References

- Aasheim, C., Shropshire, J., Li, L., & Kadlec, C. (2012). Knowledge and skill requirements for entry-level IT workers: A longitudinal study. *Journal of Information Systems Education*, 23(2), 193-204. Retrieved from <http://jise.org/>
- Aasheim, C., Li, L., & Williams, S. (2009). Information technology workforce skills: Does size matter? *Journal of Information Systems Education*, 20, 349-356. Retrieved from <http://jise.org/>
- Abrahams, A. & Singh, T. (2010). An active, reflective learning cycle for e-commerce classes: Learning about e-commerce by doing and teaching. *Journal of Information Systems Education*, 21(4), 383-390. Retrieved from <http://jise.org/>
- Agnes, M. (Ed.) (2004). *Webster's new world college dictionary*. Cleveland, OH: Wiley.
- Alt, R., & Klein, S. (2011). Twenty years of electronics markets research—looking backwards towards the future. *Electronic Markets*, 21(1), 41-51. doi: 10.1007/s12525-011-0057-z.
- Amos, T., & Pearce, M. (2008). Pragmatic research design: An illustration of the use of the Delphi technique. *Electronic Journal of Business Research Methods*, 6(2), 95-102. Retrieved from <http://ejbrm.com/main.html>
- Association to Advance Collegiate Schools of Business. (2010). *Glossary*. Retrieved from <http://www.aacsb.edu/accreditation/glossary.asp>
- Athavale, M., Myring, M., David, R., & Truell, A. (2010). Factors influencing success in integrating the four-year business school curriculum: Implications for business educators. *Delta Pi Epsilon Journal*, 52(1), 4-15.
- Bertola, V. (2010). Power and the internet. *Journal of Information, Communication & Ethics in Society*, 8(4), 323-337. doi: 10.1108/14779961011093336
- Blatter, M., Mühlemann, S., & Schenker, S. (2012). The costs of hiring skilled workers. *European Economic Review*, 56(1), 20-35. doi: 10.1016/j.eurocorev.2011.08.001
- Bloomberg, P. (2009). Maximizing learning through course alignment and experience with different types of knowledge. *Innovative Higher Education*, 34(2), 93-103. doi: 10.1007/s10755-009-9095-2
- Boris, C. (2010). *Mobile apps and browser use continue to rise*. Retrieved from <http://www.marketingpilgrim.com/2010/11/mobile-apps-and-browser-use-continue-to-rise.html>

- Bureau of Labor Statistics. (2009). *Career guide to industries: 2010-11 edition*. Retrieved from <http://www.bls.gov/oco/cg/cgs037.htm>
- Bureau of Labor Statistics. (2012). *Occupational Outlook Handbook, 2012-13 Edition - Computer and Information Technology*. Retrieved from <http://www.bls.gov/ooh/computer-and-informationtechnology/home.htm>
- Burke, P., & Steinberg, S. (2006). Integrating practice issues in managed care into the curriculum: A Delphi survey. *Journal of the American Academy of Nurse Practitioners, 18*(12), 582-590. doi: 10.1111/j.1745-7599.2006.00181.x
- Burkey, J. (2002). Electronic commerce education: An analysis of practitioner and academic perceptions of essential skills and knowledge. *Dissertation Abstracts International, 63* (02), 471A.
- Burkey, J. (2007). The evolution of electronic commerce education. *Journal of Education for Business, 82*(5), 276-281. doi: 10.3200/JOEB.82.5.276-281
- Caldwell, C., Truong, D., Linh, P., & Tuan, A. (2011). Strategic human resource management as ethical stewardship. *Journal of Business Ethics, 98*, 171-182. doi: 10.1007/s10551-010-0541-y
- California State Polytechnic University, Pomona. (2014). *Homepage*. Retrieved from <http://www.csupomona.edu/>
- California State University, Fullerton. (2014). *Homepage*. Retrieved from <http://fullerton.edu/>
- California State University, San Bernardino. (2014). *Homepage*. Retrieved from <http://www.csusb.edu/>
- Carliner, S., & Bakir, I. (2010). Trends in spending on training: An analysis of the 1982 through 2008 training annual industry reports. *Performance Improvement Quarterly, 23*(3), 77. doi: 10.1002/piq.20093
- Carraher, S., Parnell, J. A., & Spillan, J. E. (2009). Customer service-orientation of small retail business owners in Austria, the Czech Republic, Hungary, Latvia, Slovakia, and Slovenia. *Baltic Journal of Management, 4*(3), 251-268. doi: 10.1108/17465260910990975
- Case, C. & King, D. (2013). Web 2.0 implementation: An analysis of AACSB accredited schools of business from an international perspective. *Academy of Educational Leadership Journal, 17*(3), 73-82. Retrieved from <http://www.alliedacademies.org/Public/Journals/JournalDetails.aspx?jid=5>

- Cegielski, C. (2008). Toward the development of an interdisciplinary information assurance curriculum: Knowledge domains and skill sets required of information assurance professions. *Decision Sciences Journal of Innovative Education*, 6(1), 29-49. doi: 10.1111/j.1540-4609.2007.00156
- Cerf, V. G. (2011). The future of the internet: Implications for managers an interview with Vinton G. Cerf. *Research Technology Management*, 54(3), 15-21. Retrieved from <http://www.iriweb.org/rtm>
- Chen, L., & Holsapple, C. W. (2013). E-business adoption research: State of the art. *Journal of Electronic Commerce Research*, 14(3), 261-286. Retrieved from <http://www.jecr.org/>
- Chen, Y., Wang, W., & Chu, Y. (2011). A case study on the business performance management of Hilton Hotels Corp. *International Business Research*, 4, 213-218. doi: 10.5539/ibr.v4n2p213
- Clark, K. (2006). Practices for use of technology in high schools: A Delphi study. *Journal of Technology and Teacher Education*, 14(3), 481.
- Closing the IT skills gap. (1998). *Education & Training*, 40(2), 121. Retrieved from <http://www.emeraldinsight.com/products/journals/journals.htm?id=et>
- Collar, E., & Girasa, R. J. (2010). Who governs the internet? International legal aspects of IT governance. *The Business Review, Cambridge*, 16(2), 1-15. Retrieved from <http://www.jaabc.com/brc.html>
- Cozby, P. (2009). *Methods in behavioral research* (10th ed.). New York, NY: McGraw-Hill.
- Creswell, J. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: Sage.
- Creswell, J., & Clark, V. (2007). *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage.
- Crumpton, M. (2011). Making the case for in-house training. *The Bottom Line*, 24(3), 167-172. doi: 10.1108/08880451111186008
- Custer, R., Scarcella, J., & Stewart, B. (1969). The modified Delphi technique—A rotational modification. *Journal of Vocational and Technical Education*, 15(2). Retrieved from <http://scholar.lib.vt.edu/ejournals/JVTE/>

- Dalkey, N. & Helmer, O. (1963). An experimental application of the Delphi method to the use of experts. *Management Science*, 9(3), 458-467. doi: 10.1287/mnsc.9.3.458
- Day, J., & Bobeva, M. (2005). A generic toolkit for the successful management of Delphi studies. *The Electronic Journal of Business Research Methods*, 3, 102-116. Retrieved from <http://ejbrm.com/main.html>
- Day, M., & Glick, B. (2000). Teaching diversity: A study of organizational needs and diversity curriculum in higher education. *Journal of Management Education*, 24, 338-352. doi: 10.1177/105256290002400305
- de Villiers, R. (2010). The incorporation of soft skills into accounting curricula: Preparing accounting graduates for their unpredictable futures. *Meditari Accountancy Research*, 18(2), 1-22. doi: 10.1108/10222529201000007
- Decker, T. (2006). *Exploring e-customers and the relational effects of satisfaction, trust and commitment* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3240855)
- Delbecq, A., Van de Ven, D., & Gustafson, D. (1975). *Group techniques for program planning: A guide to nominal group and Delphi processes*. Glenview, IL: Scott, Foresman, and Company.
- Demirdjian, Z. S. (2011). The world wide web: The stepchild of the internet. *The Business Review, Cambridge*, 17(1), I-II. Retrieved from <http://www.jaabc.com/brc.html>
- DePaul University. (2014). *Homepage*. Retrieved from <http://www.depaul.edu/Pages/default.aspx>
- Dodor, J. & Rana, D. (2009). Investigating business schools' intentions about offering e-commerce education using an extended theory of planned behavior. *Decision Sciences Journal of Innovative Education*, 7(1), 195-220. Doi: 10.1111/j.1540-4609.2008.00213.xU
- Duke, S. (2009). Educating public relations students to enter the blogosphere: Results of a Delphi study. *Journalism & Mass Communication Educator*, 63, 317-332. doi: 10.1177/1077695806300404
- Dunning, K., Vijayaraman, B., Krovi, R., & Kahai, P. (2001). Graduate e-business program design and evaluation. *The Journal of Computer Information Systems*, 42, 58-64. Retrieved from <http://www.allbusiness.com/journal-computer-information-systems/41610-1.html>

- Durlabhji, S., & Fusilier, M. (2002). Ferment in business education: E-commerce master's programs. *Journal of Business Education*, 77, 169-176. doi: 10.1080/08832320209599067
- Eastern Michigan University. (2014). *Homepage*. Retrieved from <https://www.emich.edu/>
- Edosomwan, S., Prakasan, S. K., Kouame, D., Watson, J., & Seymour, T. (2011). The history of social media and its impact on business. *Journal of Applied Management and Entrepreneurship*, 16(3), 79-91. Retrieved from <http://www.huizenga.nova.edu/JAME/>
- E-Market Services (2013). Directory of electronic marketplaces. Retrieved from <http://www.emarketservices.com/start/eMarket-Directory/index.html> [accessed 03.16.2013].
- Fleisch, E. (2010). What is the internet of things? An economic perspective. *Economics, Management and Financial Markets*, 5(2), 125-157. Retrieved from <http://addletonacademicpublishers.com/economics-management-and-financial-markets/journals/emfm/about-the-journal.html>
- Flournoy, D., LeBrasseur, R., & Albert, S. (2009). The case for open access networks. *International Journal of Technology and Human Interaction*, 5(1), 1-12. Retrieved from <http://www.igi-global.com/journal/international-journal>
- Fountain, S. (2006). *An investigation into quality assurance in Internet-based education as defined by higher education organizations* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3244344)
- Fulton, E., Lawrence, C., & Clouse, S. (2013). White hats chasing black hats: Careers in IT and the skills required to get there. *Journal of Information Systems Education*, 24(1), 75-80. Retrieved from <http://www.jise.org>
- Fusilier, M. & Durlabhji, S. (2010). E-business education worldwide: On the right track? *International Journal of Management Education*, 8(2), 23-30. doi: 10.3794/ijme.82.253
- Fusilier, M. & Durlabhji, S. (2013). Technical and non-technical aspects of world e-business education. *International Proceedings of Economic Development and Research*, 60(2), 5-8. doi: 10.7763/IPEDR.2013.V60.2
- Fusilier, M. & Short, L. (2010). Academic program elimination: An autopsy of discontinued e-business master's degrees. *International Handbook of Academic Research and Teaching*, 10, 203-211. Retrieved from <http://www.intellectbase.org/journals.php>

- Gagne, R., Wager, W., Golas, K., & Keller, J. (2005). *Principles of instructional design*. Belmont, CA: Wadsworth/Thomson Learning.
- Gambill, S., & Jackson, W. (1992). Applicability of MIS curriculums to the business environment: An examination of business criticism and an academic response. *Journal of Computer Information Systems*, 4, 13-17. Retrieved from <http://www.allbusiness.com/journal-computer-information-systems/41610-1.html>
- Gersbach, H., & Schmutzler, A. (2012). Product markets and industry-specific training. *The Rand Journal of Economics*, 43(3), 475-491. doi: 10.1111/j.1756-2171.2012.00182.x
- Hammond, D., & Hartman, S. (1996). The match between undergraduate academic instruction and actual field practices in production/operations management. *Journal of Education for Business*, 71, 263-266. doi: 10.1080/08832323.1996.10116798
- Heyman, E. (2010). *Overcoming student retention issues in higher education online programs: A Delphi study* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3417611)
- Hite, N. (2012). The status of IT skills in business during recessionary times: Implications for educators. *Delta Pi Epsilon Journal*, 54(2), 16-28. Retrieved from <http://dpe.org>
- Holmes, W., & Scaffa, M. (2009). An exploratory study of competencies for emerging practice in occupational therapy. *Journal of Allied Health*, 38(2), 81-90. Retrieved from http://www.asahp.org/journal_ah.htm
- Holzer, H. (2012). Better skills for better jobs. *Issues in Science and Technology*, 28(2), 31-40. Retrieved from <http://www.issues.org>
- Howze, P., & Dalrymple, C. (2004). Consensus without all the meetings: Using the Delphi method to determine course content for library instruction. *Reference Services Review*, 32, 174-184. doi: 10.1108/00907320410537694
- Hsu, C. & Sandford, B. (2007). The Delphi technique: Making sense of consensus. *Practical Assessment, Research & Evaluation*, 12(10), 1-8.
- Hu, W., Yang, C., Yeh, J., & Hu, W. (2008). Mobile and electronic commerce systems and technologies. *Journal of Electronic Commerce in Organizations*, 6(3), 54-73. doi: 10.4018/jeco.2008070104
- Iona College. (2014). *Homepage*. Retrieved from <http://www.iona.edu/Home.aspx>

- Jackson, D. (2009). Undergraduate management education: Its place, purpose and efforts to bridge the skills gap. *Journal of Management and Organization*, 15(2), 206-223. doi: 10.5172/jmo.837.15.2.206
- Johnson, L. (2002). Becoming the Internet generation company. *Sloan Management Review*, 43(3), 12-13. Retrieved from <http://sloanreview.mit.edu/>
- Kim, S., & Choi, M. (2002). Educational requirement analysis for information security professionals in Korea. *Journal of Information Systems Education*, 13, 237-248. Retrieved from <http://jise.org/>
- Kim, Y., Hsu, J., & Stern, M. (2006). An update on the IS/IT skills gap. *Journal of Information Systems Education*, 17(4), 395-402. Retrieved from <http://jise.org/>
- Kimilogly, H., & Zarali, H. (2009). What signifies success in e-CRM? *Marketing Intelligence & Planning*, 27, 246-267. doi: 10.1108/02634500910945011
- Kopera-Frye, K., Mahaffy, J., and Svare, G. (2008). The map to curriculum alignment and improvement. In: Wright, A., Murray, S., & Wilson, M. (Eds). *CELT: Collected essays on learning and teaching*, vol 1, Windsor, ON: STLHE, 8-14.
- Kshetri, N. (2010). Normative and cognitive institutions affecting a firm's e-commerce adoption. *Journal of Electronic Commerce Research*, 11(2), 157-174. Retrieved from <http://www.csulb.edu/journals/jecr/>
- Lacity, M., Rottman, J., and Khan, S. (2010). Field of dreams: Building IT capabilities in rural America. *Strategic Outsourcing: An International Journal*, 3(3), 169-191. doi: 10.1108/17538291011093785
- Lajoie, S. (2000, August 22). One degree of separation. *Forbes*, 166, 103-105. Retrieved from <http://www.forbes.com/>
- Landeta, J. (2006). Current validity of the Delphi method in social sciences. *Technological Forecasting & Social Change*, 73, 467-482. doi: 10.1016/j.techfore.2005.09.002
- Larson, E., & Wissman, J. (2000). Critical academic skills for Kansas community college graduates: A Delphi study. *Community College Review*, 28, 43-56. doi: 10.1177/009155210002800203
- Lee, C. (2012). The rise, fall, and return of E-marketing curriculum: A call for integration. *Business Education Innovation Journal*, 4(1), 28-36. Retrieved from <http://busedinnovation.com/>

- Lee, C., & Han, H. (2008). Analysis of skills requirement for entry-level programmer/analysts in Fortune 500 corporations. *Journal of Information Systems Education, 19*(1), 17-27. Retrieved from <http://www.jise.org/>
- Lee, J. (2008). Status of business process courses in AACSB-accredited undergraduate programs of business. *The Journal of Computer Information Systems, 49*(1), 10-16. Retrieved from <http://iacis.org/jcis/jcis.php>
- Lewis, D., & Ducharme, R. (1990). The education of business undergraduates: A gap in academic/practitioner expectations? *Journal of Education for Business, 66*, 116-120. Retrieved from <http://www.tandfonline.com/toc/vjeb20/66/2>
- Li, R. Y. M. (2011). Internet boost the economic growth of mainland China? Discovering knowledge from our world wide web. *Global Business and Management Research, 3*(3), 345-355. Retrieved from <http://www.gbmr.ioksp.com/>
- Li, E. Y., Yen, H. J. R., & Cheng, C. Y. J. (2008). A fit-gap analysis of e-business curricula and job demand in Taiwan and the US. *Computers & Education, 51*, 967-987. doi: 10.1016/j.compedu.2007.09.013
- Lightner, N., & Zeng, L. (2011). What is still wrong with the world-wide web? An update after a decade. *Journal of Intelligent Manufacturing, 22*(1), 3-15. doi: [10.1007/s10845-009-0275-9](https://doi.org/10.1007/s10845-009-0275-9)
- Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.
- Linstone, H. A., & Turoff, M. (2002). *The Delphi method: Techniques and applications*. Retrieved from <http://is.njit.edu/pubs/delphibook/>
- Lopos, G. J., Holt, M. E., Bohlander, R. E., & Wells, J. H. (Eds.). (1988). *Peterson's guide to certificate programs in colleges and universities*. Princeton, NJ: Peterson's Guides.
- Lord, M. (2000, April 10). Suddenly, e-commerce is the hot new specialty. *U.S. News & World Report, 62-64*. Retrieved from <http://www.usnews.com/>
- Ludwig, B. (1997). Predicting the future: Have you considered using the Delphi methodology? *Journal of Extension, 35*(5), 1-4. Retrieved from <http://www.joe.org/>
- Lundstrom, W., & White, D. (1997). A gap analysis of professional and academic perceptions of the importance of international marketing curriculum content and research areas. *Journal of Marketing Education, 19*, 16-25. doi: 10.1177/027347539701900203

- Lunkenheimer, G. (2002). Identifying e-commerce competencies for marketing education: A national Delphi study. Ph.D. dissertation, University of Missouri - Columbia, United States -- Missouri. (Publication No. AAT 3052196).
- Marquette University. (2014). *Homepage*. Retrieved from <http://www.marquette.edu/>
- McCreary, B. (2009). Web collaboration: How it is impacting business. *American Journal of Business*, 24(2), 7-9. Retrieved from <http://www.emeraldinsight.com/products/journals/journals.htm?id=ajb>
- Missouri University of Science and Technology. (2014). *Homepage*. Retrieved from <http://www.mst.edu/>
- Mitchell, T., & Strauss, J. (2001). Practitioner and academic recommendations for Internet marketing and e-commerce curricula. *Journal of Marketing Education*, 23, 91-102. doi: 10.1177/0273475301232003
- Mitroff, I. & Silvers, A. (2010). The problem is that it's a much bigger problem. *Financial Times*. Retrieved from <http://www.ft.com>
- Mohammed, D. (2010). Ecommerce: Ongoing challenges. *Journal of Internet Banking and Commerce*, 15(2), 1-4. Retrieved from <http://www.arraydev.com/commerce/JIBC/>
- Murry, J. & Hammons, J. (1995). Delphi: A versatile methodology for conducting qualitative research. *Review of Higher Education*, 18(4), 423-36.
- National Retail Federation. (2008). *Online sales to climb despite struggling economy*. Retrieved from <http://www.nrf.com/modules.php?name=News&op=viewlive&spid=499>
- Old Dominion University. (2014). *Homepage*. Retrieved from <http://www.odu.edu/#prospective>
- Onwuegbuzie, A., & Leech, N. (2007). Validity and qualitative research: An oxymoron? *Quality & Quantity: International Journal of Methodology*, 41, 233-249. doi: 10.1007/s11135-006-9000-3
- Orr, S., & Bantow, R. (2005). E-commerce and graduate education: Is educational quality taking a nose dive? *The International Journal of Educational Management*, 19, 579-586. doi: 10.1108/09513540510625617
- Ozdemir, Z. (2004). *Essays on electronic commerce in higher-education and expert opinion sectors* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3154709)

- Pace University. (2014). *Homepage*. Retrieved from <http://www.pace.edu/>
- Patel, A., Qi, W., & Wills, C. (2010). A review and future research directions of secure and trustworthy mobile agent-based e-marketplace systems. *Information Management & Computer Security*, 18(3), 144-161. doi: 10.1108/09685221011064681
- Petrie, C. (2012). Changing the world. *IEEE Internet Computing*, 16(1), 87-89. doi: 10.1109/MIC.2012.3
- Petrova, K., & Claxton, G. (2005). Building student skills and capabilities in information technology and ebusiness: A moving target. *Journal of Information Systems Education*, 16, 27-41. Retrieved from <http://jise.org/>
- Plice, R., & Reinig, B. (2007). Aligning the information systems curriculum with the needs of industry and graduates. *Journal of Computer Information Systems*, 48(1), 22-30. Retrieved from <http://iacis.org/jcis/jcis.php>
- Powers, T. L. (2012). Early schools of marketing thought and marketplace evolution. *Journal of Historical Research in Marketing*, 4(1), 190-206. doi: 10.1108/17557501211195127
- Rainey, K., Turner, R. & Dayton, D. (2005). Do curricula correspond to managerial expectations? Core competencies for technical communicators. *Technical Communication*, 52(3). Retrieved from <http://techcomm.stc.org/>
- Raymond, M., & McNabb, D. (1993). Preparing graduates for the workforce: The role of business education. *Journal of Business Education*, 68, 202-206. doi: 10.1080/08832323.1993.10117613
- Regents of the University of Michigan. (2014). *Homepage*. Retrieved from <http://umich.edu/>
- Reynolds, S., Schultz, F., & Hekman, D. (2006). Stakeholder theory and managerial decision-making: Constraints and implications of balancing stakeholder interests. *Journal of Business Ethics*, 64, 285-301. doi: 10.1007/s10551-005-5493-2
- Ricardo, H. (2010). Developing a competitive edge through employee value: How all international companies should conduct business. *The Business Review, Cambridge*, 16, 11-17. Retrieved from <http://www.jaabc.com/brc.html>
- Rider University. (2014). *Homepage*. Retrieved from <http://www.rider.edu/>

- Robertshaw, G. S. (2012). Online price comparisons sites: How technology has destabilised and transformed the UK insurance market. *Journal of Revenue and Pricing Management*, 11(2), 137-145. doi: 10.1057/rpm.2011.5
- Rollag, K., Parise, S., & Cross, R. (2012). Getting new hires up to speed quickly. *MIT Sloan Management Review*, 6(2). Retrieved from <http://sloanreview.mit.edu/article/getting-new-hires-up-to-speed-quickly/>
- Rosen, P., & Phillips, M. (2011). Marketing and the rise of web 2.0: Expanding opportunity, increasing challenge. *The Review of Business Information Systems*, 15(3), 35-42. Retrieved from <http://journals.cluteonline.com>
- Rowe, G., & Wright, G. (1999). The Delphi technique as a forecasting tool: Issues and analysis. *International Journal of Forecasting*, 15, 353-357. doi: 10.1016/S0169-2070(99)00018-7
- Rutgers, The State University of New Jersey. (2014). *Homepage*. Retrieved from <http://www.rutgers.edu/>
- Seattle Pacific University. (2014). *Homepage*. Retrieved from <http://www.spu.edu/>
- Seattle University. (2014). *Homepage*. Retrieved from <http://www.seattleu.edu/>
- Sengupta, A. (2007). *Essays in economics of electronic commerce* (Doctoral dissertation). Available from Dissertations and Theses database. (UMI No. 3281151)
- Seymour, T., & Shaheen, A. (2011). History of wireless communication. *The Review of Business Information Systems*, 15(2), 37-42. Retrieved from <http://journals.cluteonline.com>
- Seymour, T., Frantsvog, D., & Kumar, S. (2011). History of search engines. *International Journal of Management and Information Systems*, 15(4), 47-58. Retrieved from <http://journals.cluteonline.com/index.php/IJMIS>
- Singh, N., Alhorr, H., & Bartikowski, B. (2010). Global e-commerce: A portal bridging the world markets. *Journal of Electronic Commerce Research*, 11(1), 1-5. Retrieved from <http://www.jecr.org>
- Singh, S. (2012). Developing e-skills for competitiveness, growth and employment in the 21st century. *International Journal of Development Issues*, 11(1), 37-59. doi: 10.1108/14468951211213859
- Singh, D., Bansal, M., & Kaur, N. (2012). Internet retailing- new era of marketing. *International Journal of Marketing and Technology*, 2(3), 154-169.

- Skulmoski, G. J., Hartman, F. T., & Krahn, J. (2007). The Delphi method for graduate research. *Journal of Information Technology Education*, 6(2), 1-20. Retrieved from <http://www.informingscience.us/icarus/journals/jiterresearch>
- Southeastern Louisiana University. (2014). *Homepage*. Retrieved from <http://www.southeastern.edu/>
- Southern University. (2014). *Homepage*. Retrieved from <http://www.subr.edu/>
- Stevens, D., Totaro, M., & Zhu, Z. (2011). Assessing IT critical skills and revising the MIS curriculum. *The Journal of Computer Information Systems*, 51(3), 85-95. Retrieved from <http://www.jcis-online.org/jcis/index.htm>
- Stivers, B., & Phillips, J. (2009). Assessment of student learning: A fast track experience. *Journal of Education for Business*, 84(5), 258-262. doi: 10.3200/JOEB.84.5.258-262
- Surendra, N., & Denton, J. (2009). Designing IS curricula for practical relevance: Applying baseball's "moneyball" theory. *Journal of Information Systems Education*, 20(1), 77-85. Retrieved from <http://jise.org/>
- Tajeddini, K. (2009). Perceptions of learning among Swiss watch managers. *Journal of Workplace Learning*, 21(7), 525-537. doi: 10.1108/13665620910985522
- Teece, D. (2011). Achieving integration of the business school curriculum using the dynamic capabilities framework. *The Journal of Management Development*, 30(5), 499-518. doi: 10.1108/02621711111133019
- Texas Christian University. (2014). *Homepage*. Retrieved from <http://www.tcu.edu/>
- Tiwari, D., & Kaushik, P. (2011). Aligning industry needs with skill development at educational institutions. *The Business Review, Cambridge*, 17, 237-242. Retrieved from <http://www.jaabc.com/brc.html>
- Topi, H., Valachich, J., Wright, R., Kaiser, K., Nunamaker, J., Jr., Sipior, J., & de Vreede, G. (2010). IS 2010 curriculum guidelines for undergraduate degree programs in information systems. Retrieved from <http://www.acm.org/education/curricula/IS%202010%20ACM%20final.pdf>
- Towson University. (2014). *Homepage*. Retrieved from <http://towson.edu/>
- Tremblay, J. (2010). Taxation and skills investment in frictional labor markets. *International Tax and Public Finance*, 17(1), 52-66. doi: 10.1007/s10797-008-9102-z

- Trochim, W., & Donnelly, J. (2008). *The research methods knowledge base* (3rd ed.). Mason, OH: Cengage Learning.
- Turoff, M. (1975). *The policy Delphi*. In H. Linstone, & M. Turoff, *The Delphi Method: Techniques and Applications*. Reading, PA: Addison-Wesley.
- Uchiyama, K. & Radin, J. (2009). Curriculum mapping in higher education: A vehicle for collaboration. *Innovative Higher Education*, 33, 271-280. doi: 10.1007/s10755-008-9078-8
- U.S. Department of Education. (2012). The condition of education: Postsecondary education. Retrieved from <http://nces.ed.gov/programs/coe/tables/table-dhe-1.asp>
- University of Akron. (2014). *Homepage*. Retrieved from <http://www.uakron.edu/>
- University of Buffalo. (2014). *Homepage*. Retrieved from <http://www.buffalo.edu/>
- University of Maryland. (2014). *Homepage*. Retrieved from <http://www.umd.edu/>
- University of North Florida. (2014). *Homepage*. Retrieved from <http://www.unf.edu/>
- University of Rochester. (2014). *Homepage*. Retrieved from <http://www.rochester.edu/>
- University of Scranton. (2014). *Homepage*. Retrieved from <http://www.scranton.edu/>
- University of Texas at Austin. (2014). *Homepage*. Retrieved from <http://www.utexas.edu/>
- UW Board of Regents. (2014). *Homepage*. Retrieved from <http://www.uwosh.edu/>
- Van de Ven, A., & Delbecq, A. (1974). The effectiveness of nominal, Delphi, and interacting group decision making processes. *Academy of Management Journal*, 17(4), 605-621. doi: 10.2307/255641
- VanBoskirk, S. (2010). *US interactive marketing forecast, 2009 to 2014*. Retrieved from http://www.forrester.com/rb/Research/us_interactive_marketing_forecast,_2009_to_2014/q/id/47730/t/2
- Veltri, N., Webb, H., Matveev, A., & Zapatero, E. (2011). Curriculum mapping as a tool for continuous improvement of IS curriculum. *Journal of Information Systems Education*, 22(1), 31-42. Retrieved from <http://jise.org/>
- Venkatraman, S. (2010). Social networking technology as a business tool. *Proceedings of the Academy of Information and Management Sciences*, 14(2), 1-3. Retrieved from <http://www.alliedacademies.org/public/>

- Vijayakumar, M., & Ramalingam, S. (2012). A study on competency needs analysis and quality factors for fresh recruits. *International Journal of Management*, 3(2), 299-308.
- Vizard, M. (2000). Too much experience is no better than too little in the job market today. *InfoWorld*, 22, 87. Retrieved from <http://www.infoworld.com/>
- Von der Gracht, H. (2008). *The future of logistics: Scenarios for 2025*. Frankfurt, GE: Gabler-Verlag Publishing.
- Vu, T., Rigby, B., & Wood, L. (2011). Graduate skills in business learning. *Asian Social Science*, 7(4), 2-11. doi: 10.5539/ass.v7n4p2
- Wayne State University. (2014). *Homepage*. Retrieved from <http://wayne.edu/>
- Weaver, W. (1971). The Delphi forecasting method. *Phi Delta Kappan*, 52, 267-272. Retrieved from <http://www.kappanmagazine.org/>
- Weis, A. H. (2010). Commercialization of the internet. *Internet Research*, 20(4), 420-435. doi: 10.1108/10662241011059453
- Western Michigan University. (2014). *Homepage*. Retrieved from <http://wmich.edu/>
- Wicklein, R. (1993). Identifying critical issues and problems in technology education using a modified-Delphi technique. *Journal of Technology Education*, 5(1). Retrieved from scholar.lib.vt.edu/ejournals/JTE/v5n1/bigwick3.html
- Wickramasinghe, V., & Perera, L. (2010). Graduates', university lecturers' and employers' perceptions towards employability skills. *Education and Training*, 52(3), 226-244. doi: 10.1108/00400911011037355
- Wu, C., & Fang, W. (2011). Combining the fuzzy analytic hierarchy process and the fuzzy Delphi method for developing critical competencies of electronic commerce professional managers. *Quality and Quantity*, 45(4), 751-768. doi: 10.1007/s11135-010-9425-6
- Yin, R. (2009). *Case study research: Design and methods* (4th ed.). Thousand Oaks, CA: Sage.
- Yongbeom, K., Hsu, J., & Stern, M. (2006). An update on the IS/IT skills gap. *Journal of Information Systems Education*, 17(4), 395-402. Retrieved from <http://jise.org/>
- Yousuf, M. (2007). Using experts' opinions through Delphi technique. *Practical Assessment Research & Evaluation*, 12(4). Retrieved from <http://pareonline.net/getvn.asp?v=12&n=4>

Zhang, X., Li, Q., & Lin, Z. (2005). E-commerce education in China: Driving forces, status, and strategies. *Journal of Electronic Commerce in Organizations*, 3(3), 1-17. doi: 10.4018/jeco.2005070101

Zikmund, W. (2003). *Business research methods* (7th ed.). Mason, OH: South-Western.

Appendixes

Appendix A: Top 75 Fortune 500 Companies

The list below is of the top 75, ranked by revenue, Fortune 500 companies for 2013 (Cable News Network, 2013). Companies identified as advertising one or more positions that included the terms electronic commerce, e-commerce, ecommerce, or e-business in either the job title or job description on March 5, 2014 are indicated in bold.

1. **Wal-Mart**
2. **Exxon Mobil**
3. Chevron
4. Phillips 66
5. Berkshire Hathaway
6. **Apple**
7. **General Motors**
8. **General Electric**
9. Valero Energy
10. **Ford Motor**
11. **AT&T**
12. Fannie Mae
13. **CVS Caremark**
14. **McKesson**
15. **Hewlett-Packard**
16. **Verizon Communications**
17. **UnitedHealth Group**
18. **J.P. Morgan Chase & Co.**
19. **Cardinal Health**
20. **International Business Machines**
21. **Bank of America, Corp.**
22. **Costco Wholesale**
23. **Kroger**
24. Express Scripts Holding
25. **Wells Fargo**
26. **Citigroup**
27. Archer Daniels Midland
28. Procter & Gamble
29. Prudential Financial
30. **Boeing**
31. Freddie Mac
32. **AmerisourceBergen**
33. Marathon Petroleum
34. **Home Depot**
35. **Microsoft**
36. **Target**
37. **Walgreens**
38. **American International Group**
42. INTL FCStone
40. **MetLife**
41. **Johnson & Johnson**
42. Caterpillar
43. **PepsiCo**
44. State Farm Insurance Cos.
45. ConocoPhillips
46. **Comcast**
47. **WellPoint**
48. **Pfizer**
49. **Amazon**
50. United Technologies
51. **Dell**
52. Dow Chemical
53. United Parcel Service
54. **Intel**
55. **Google**
56. **Lowe's**
57. **Coca-Cola**
58. Merck
59. Lockheed Martin
60. Cisco Systems
61. **Best Buy**
62. **Safeway**
63. **FedEx**
64. Enterprise Products Partners
65. **Sysco**
66. **Walt Disney**
67. **Johnson Controls**
68. Goldman Sachs Group
69. **CHS**
70. **Abbott Laboratories**
71. **Sears Holdings**
72. DuPont
73. **Humana**
74. **World Fuel Services**
75. **Hess**

Appendix B: Sample of Delphi Round One Questionnaire

Electronic Commerce Survey Questionnaire One

The availability of electronic commerce educational programs has decreased over the past decade. For the purpose of this study, an electronic commerce educational program is any undergraduate or graduate level program that leads to a certificate or degree and contains the words electronic commerce, e-commerce, or e-business in the program title. It is important to insure the remaining programs meet the needs of the business community by providing graduates the skills desired by hiring managers.

The purpose of this questionnaire is to obtain opinions from you as to essential skills that should be included in electronic commerce educational programs. The results of this questionnaire will be used to develop a list of possible skills and knowledge components. Later questionnaires will ask you to rate these items.

Please respond to the following questions and return your response by email within five days.

Demographic Information

Gender (M/F)	
Region where employed (ex: NE, West, SW)	
What is your highest degree earned and major? (ex: M.A. – Economics)	
Job Title	
Years in Current Position	
Years Working for Current Employer	
Years Working in E-Commerce	
What is the primary industry of your organization?	

Essential Skills or Knowledge

Please list the skills you believe to be important in electronic commerce educational programs in the space provided below. It is not important to list the elements in order of importance.

Ex: Java, written communication, database management, PowerPoint...

Appendix C: Sample of Delphi Round Two Questionnaire

Electronic Commerce Survey Questionnaire Two

Using the following scale, please rank the items below as to their importance in electronic commerce educational programs and return your response by email.

5 – Extremely Appropriate/Very Important

4 – Appropriate/Important

3 – Somewhat Appropriate/Important

2 – Inappropriate/Unimportant

1 – Extremely Inappropriate/Unimportant

How appropriate would each of the following skills be in electronic commerce educational programs?

<u>Skills</u>	<u>Rating</u>
SQL	
Written communication	
Social communication	
Editing skills	
Knowledge of online security protocols	
Troubleshooting skills	
Writing test scripts	
Basic HTML	
Problem solving skills	
Oral communication	

Leadership skills	
Process flow charting	
Negotiation/debate skills	
Database management	
MS Office	
Ethics training	
JAVA	
Business Law	
Project management (Agile &/or Waterfall)	
Adobe Photoshop	
Retail basics	
Search engine optimization	
Understanding of social media (FB, Twitter, Instagram, YouTube, etc.)	
Virtual management skills (i.e., teleconference or video conference)	
Experience with ecommerce platforms (ex: ATG Commerce)	
Financial analysis (ROI)	
Teamwork skills	
Google AdWords certification	
Google Analytics certification	
Understanding direct to consumer sales	
Marketing (general)	
PHP, Ruby, or another web language	
HOST/Protocol	

Basic tech skills (familiarity w/ lingo and process)	
Understanding e-consumers	
Content management systems	
Basic understanding of programming skills	
Checkout and order management systems	
Supply chain and fulfillment	
International marketing	
Understand how to capture what users need vs. what they just say they need	
Ability to analyze a large amount of data	
Trends in web and mobile	
Endeca experience	
Strong mathematics/statistics skills	
Visio skills	
Basic business skills	
Strategy (forecasting 3+ years out)	
Understanding brand building	
Payment systems	
Combined fluency with tech and business (being able to bridge the gap with communication)	
General familiarity with analytics (CoreMetrics, Google Analytics, or Adobe Webtrends)	
Business analysis skills	
Customer service/relations skills	
Basic elements of design	

Budgeting	
New product development basics including competitive analysis & stage gate process	
Experience with Front End Optimization techniques	

Appendix D: Sample of Round Three Delphi Questionnaire

Electronic Commerce Survey Questionnaire Three

Using the following scale, please rank the items below as to their importance in electronic commerce educational programs and return your response by email.

5 – Extremely Appropriate/Very Important

4 – Appropriate/Important

3 – Somewhat Appropriate/Somewhat Important

2 – Inappropriate/Unimportant

1 – Extremely Inappropriate/Unimportant

How appropriate would each of the following skills be in electronic commerce educational programs?

<u>Skills</u>	<u>Final Rating</u>	<u>Group Rating</u>	<u>Level of Agreement</u>
Combined fluency with tech and business (being able to bridge the gap with communication)		4.70	High
Oral communication		4.70	High
Written communication		4.65	High
Teamwork skills		4.55	High
Problem solving skills		4.50	High
Trends in web and mobile		4.45	High
Social communication		4.35	High
Troubleshooting skills		4.30	High

Understanding e-consumers		4.30	High
MS Office		4.25	High
Project management (Agile &/or Waterfall)		4.25	High
Understanding of social media (FB, Twitter, Instagram, YouTube, etc.)		4.25	High
Ability to analyze a large amount of data		4.15	Moderate
Business analysis skills		4.15	High
Marketing (general)		4.15	High
Basic business skills		4.10	High
Leadership skills		4.10	High
Understanding direct to consumer sales		4.05	Moderate
Understand how to capture what users need vs. what they just say they need		4.05	High
General familiarity with analytics (CoreMetrics, Google Analytics, or Adobe Webtrends)		4.00	High
Basic tech skills (familiarity w/ lingo and process)		3.95	High
Search engine optimization		3.95	High
Financial analysis (ROI)		3.90	High
Content management systems		3.85	Moderate
Experience with Front End Optimization techniques		3.80	Moderate
Customer service/relations skills		3.70	High
Editing skills		3.70	High
Process flow charting		3.70	High

Budgeting		3.65	Moderate
Negotiation/debate skills		3.65	High
Strong mathematics/statistics skills		3.65	Moderate
Virtual management skills (i.e., teleconference or video conference)		3.65	High
Basic understanding of programming skills		3.60	Moderate
Supply chain and fulfillment		3.60	High
Database management		3.55	High
Ethics training		3.55	Moderate
Experience with ecommerce platforms (ex: ATG Commerce)		3.55	High
SQL		3.55	Moderate
Understanding brand building		3.55	High
Checkout and order management systems		3.50	High
Strategy (forecasting 3+ years out)		3.50	Moderate
Basic elements of design		3.45	High
Knowledge of online security protocols		3.45	High
Basic HTML		3.40	High
New product development basics including competitive analysis & stage gate process		3.35	High
Payment systems		3.30	High
Writing test scripts		3.25	High
JAVA		3.20	Moderate
PHP, Ruby, or another web language		3.15	High

Retail basics		3.15	Moderate
Visio skills		3.05	Low
International marketing		3.05	High
Google Analytics certification		2.80	Moderate
Business Law		2.75	High
Google AdWords certification		2.75	Moderate
Adobe Photoshop		2.70	High
HOST/Protocol		2.60	High
Endeca experience		2.40	Moderate

Appendix E: Invitational E-mail (Practitioner)

Dear Participant (replaced with title of person receiving invitation):

You are invited to participate in a research study being conducted for a dissertation at Northcentral University in Prescott, Arizona. The purpose of this study is to determine the extent to which AACSB-accredited colleges and universities with electronic commerce programs are providing the skill sets most desired by business leaders who hire graduates of the schools for positions with a focus on electronic commerce. We are interested in your opinions and experiences related to skills desired of new hires.

If you agree to participate, you will be asked to answer three, consecutive email questionnaires regarding skills you believe to be essential in business and technology educational programs. The second and third questionnaires will ask you to rank the skills obtained from all participant answers received from the first questionnaire. Upon receipt of each questionnaire, you, the participant, will have 10 days to respond.

This study does not involve any risks or costs for you and you may withdraw from the study at any time. You may also choose not to answer any question that you feel uncomfortable in answering.

There are no direct benefits to you of participating in this research. No incentives are offered. The results will have scientific interest that may eventually have benefits for course designers and businesses hiring recent college graduates.

The data collected in this study are confidential. All data are coded such that your name is not associated with them. In addition, the coded data are made available only to the researchers associated with this project.

If you have any questions, please do not hesitate to contact me at (richwea@gmail.com).

Sincerely,

Richard Weatherly, MBA, MAEd
Primary Investigator
Doctoral Student
School of Business and Technology Management
Northcentral University
Prescott Valley, AZ 86314

Appendix F: Delphi Participant Consent Form

Practitioner and Faculty Perceptions of Skills Considered Necessary in Electronic Commerce Programs

Purpose. You are invited to participate in a research study being conducted for a dissertation at Northcentral University in Prescott, Arizona. The purpose of this study is to determine the extent to which AACSB-accredited colleges and universities with electronic commerce programs are providing the skill sets most desired by business leaders who hire graduates of the schools for positions with a focus on electronic commerce. There is no deception in this study. We are interested in your opinions and experiences related to skills desired of new hires.

Participation requirements. You will be asked to answer three, consecutive email questionnaires regarding skills you believe to be essential in electronic commerce educational programs. The second and third questionnaires will ask you to rank the skills obtained from all participant answers received from the first questionnaire. Upon receipt of each questionnaire, you, the participant, will have 10 days to respond.

Research Personnel. The following people are involved in this research project and may be contacted at any time: Principle Investigator: Richard Weatherly: richwea@gmail.com, Northcentral University Dissertation Chairperson: Dr. Thomas Pucci: tpucci@ncu.edu, and the Institutional Review Board: irb@ncu.edu

Potential Risk/ Discomfort. There are no known risks of this study. However, you may withdraw at any time and you may choose not to answer any question that you feel uncomfortable in answering.

Potential Benefit. There are no direct benefits to you of participating in this research. No incentives are offered. The results will have scientific interest that may eventually have benefits for course designers and businesses hiring recent college graduates.

Anonymity/ Confidentiality. The data collected in this study are confidential. All data are coded such that your name is not associated with them. In addition, the coded data are made available only to the researchers associated with this project.

Right to Withdraw. You have the right to withdraw from the study at any time without penalty. You may omit questions if you do not want to answer them.

We would be happy to answer any question that may arise about the study. Please direct your questions or comments to: Richard Weatherly: richwea@gmail.com, Northcentral University Dissertation Chairperson: Dr. Thomas Pucci: tpucci@ncu.edu, or the Institutional Review Board: irb@ncu.edu.

Signatures

I have read the above description of the Practitioner and Faculty Perceptions of Skills Considered Necessary in Electronic Commerce Programs study and understand the conditions of participation. Your electronic response indicates your willingness to participate in the research study.

Appendix G: Invitational E-mail (Faculty)

Dear Participant (replaced with title of person receiving invitation):

You are invited to participate in a research study being conducted for a dissertation at Northcentral University in Prescott, Arizona. The purpose of this study is to determine the extent to which colleges and universities that have electronic commerce education are providing the skill sets most desired by business leaders who hire graduates of the programs. There is no deception in this study. We are interested in your opinions and experiences related to skills that may be taught in your university's e-business or e-commerce program(s).

If you agree to participate, a questionnaire will be emailed that presents a list of skills and asks you to rank the skills and indicate which skills are taught in your university's e-business or e-commerce program(s). If you wish to participate in this study, please complete the questionnaire within five days. The questionnaire should be returned by email.

This study does not involve any risks or costs for you and you may withdraw from the study at any time. You may also choose not to answer any question that you feel uncomfortable in answering.

There are no direct benefits to you of participating in this research. No incentives are offered. The results will have scientific interest that may eventually have benefits for course designers and businesses hiring recent college graduates.

The data collected in this study are confidential. All data are coded such that your name is not associated with them. In addition, the coded data are made available only to the researchers associated with this project.

If you have any questions, please do not hesitate to contact me at (richwea@gmail.com).

Sincerely,

Richard Weatherly, MBA, MAEd
Primary Investigator
Doctoral Student
School of Business and Technology Management
Northcentral University
Prescott Valley, AZ 86314

Appendix H: Faculty Consent Form

Practitioner and Faculty Perceptions of Skills Considered Necessary in Electronic Commerce Programs

Purpose. You are invited to participate in a research study being conducted for a dissertation at Northcentral University in Prescott, Arizona. The purpose of this study is to determine the extent to which colleges and universities that have electronic commerce education are providing the skill sets most desired by business leaders who hire graduates of the programs. There is no deception in this study. We are interested in your opinions and experiences related to skills that may be taught in your university's e-business or e-commerce program(s).

Participation requirements. A questionnaire will be emailed that presents a list of skills and asks you to rank the skills and indicate which skills are taught in your university's e-business or e-commerce program(s). If you wish to participate in this study, please complete the questionnaire within five days. The questionnaire should be returned by email.

Research Personnel. The following people are involved in this research project and may be contacted at any time: Richard Weatherly: richwea@gmail.com (ph: 971-226-7699), Northcentral University Dissertation Chairperson: Dr. Thomas Pucci: tpucci@my.ncu.edu (ph: 724-366-3249), or the Institutional Review Board: irb@ncu.edu (ph: 1-888-327-2877 ex 8014).

Potential Risk/ Discomfort. There are no known risks of this study. However, you may withdraw at any time and you may choose not to answer any question that you feel uncomfortable in answering.

Potential Benefit. There are no direct benefits to you of participating in this research. No incentives are offered. The results will have scientific interest that may eventually have benefits for course designers, university decision makers, and businesses hiring recent college graduates.

Anonymity/ Confidentiality. The data collected in this study are confidential. All data are coded such that your name is not associated with them. In addition, the coded data are made available only to the researchers associated with this project.

Right to Withdraw. You have the right to withdraw from the study at any time without penalty. You may omit questions if you do not want to answer them.

We would be happy to answer any question that may arise about the study. Please direct your questions or comments to: Richard Weatherly: richwea@gmail.com (ph: 971-226-7699), Northcentral University Dissertation Chairperson: Dr. Thomas Pucci: tpucci@my.ncu.edu (ph: 724-366-3249), or the Institutional Review Board: irb@ncu.edu (ph: 1-888-327-2877 ex 8014).

What if I have questions about my rights as a research participant or complaints?

If you have questions about your rights as a research participant, any complaints about your participation in the research study, or any problems that occurred in the study, please contact the researchers identified in the consent form. Alternatively, if you prefer to talk to someone outside the study team, you can contact Northcentral University's Institutional Review Board at irb@ncu.edu or 1-888-327-2877 ex 8014.

Signatures

I have read the above description of the Practitioner and Faculty Perceptions of Skills Considered Necessary in Electronic Commerce Programs study and understand the conditions of participation. Your electronic response indicates your willingness to participate in the research study.

Appendix I: Sample of Faculty Questionnaire

Electronic Commerce Survey Questionnaire

Using the following scale, please rank the items below as to their importance in electronic commerce educational programs and return your response by email.

5 – Extremely Appropriate/Very Important

4 – Appropriate/Important

3 – Somewhat Appropriate/Important

2 – Inappropriate/Unimportant

1 – Extremely Inappropriate/Unimportant

Also, please indicate the presence or absence of each skill in the e-commerce programs at your school using the following scale:

1—Taught in a required course

2—Taught in an elective course

3—Not taught in our program(s)

<u>Skills</u>	<u>Rating</u>	<u>Present</u> <u>or</u> <u>Absent</u>
SQL		
Written communication		
Social communication		
Editing skills		
Knowledge of online security protocols		

Troubleshooting skills		
Writing test scripts		
Basic HTML		
Problem solving skills		
Oral communication		
Leadership skills		
Process flow charting		
Negotiation/debate skills		
Database management		
MS Office		
Ethics training		
JAVA		
Business Law		
Project management (Agile &/or Waterfall)		
Adobe Photoshop		
Retail basics		
Search engine optimization		
Understanding of social media (FB, Twitter, Instagram, YouTube, etc.)		
Virtual management skills (i.e., teleconference or video conference)		
Experience with ecommerce platforms (ex: ATG Commerce)		
Financial analysis (ROI)		
Teamwork skills		
Google AdWords certification		

Google Analytics certification		
Understanding direct to consumer sales		
Marketing (general)		
PHP, Ruby, or another web language		
HOST/Protocol		
Basic tech skills (familiarity w/ lingo and process)		
Understanding e-consumers		
Content management systems		
Basic understanding of programming skills		
Checkout and order management systems		
Supply chain and fulfillment		
International marketing		
Understand how to capture what users need vs. what they just say they need		
Ability to analyze a large amount of data		
Trends in web and mobile		
Endeca experience		
Strong mathematics/statistics skills		
Visio skills		
Basic business skills		
Strategy (forecasting 3+ years out)		
Understanding brand building		
Payment systems		

Combined fluency with tech and business (being able to bridge the gap with communication)		
General familiarity with analytics (CoreMetrics, Google Analytics, or Adobe Webtrends)		
Business analysis skills		
Customer service/relations skills		
Basic elements of design		
Budgeting		
New product development basics including competitive analysis & stage gate process		
Experience with Front End Optimization techniques		

Additional Comments:

Appendix J: Ranking of Practitioner “Important” Skill and Knowledge Elements

<u>Ranking and Skill/Knowledge Elements</u>	<u>Mean</u>	<u>SD</u>
Ranking 1:		
Combined fluency with tech and business (being able to bridge the gap with communication)	4.850	0.3663
Ranking 2:		
Oral communication	4.700	0.5712
Teamwork skills	4.700	0.4702
Ranking 3:		
Written communication	4.650	0.4894
Ranking 4:		
Trends in web and mobile	4.600	0.5026
Problem solving skills	4.600	0.5026
Troubleshooting skills	4.600	0.5026
Ranking 5:		
Understanding e-consumers	4.550	0.5104
Ranking 6:		
Financial analysis (ROI)	4.400	0.5982
Understanding of social media (FB, Twitter, Instagram, YouTube, etc.)	4.400	0.5982
Ranking 7:		
General familiarity with analytics (CoreMetrics, Google Analytics, or Adobe Webtrends)	4.350	0.6708
MS Office	4.350	0.6708
Basic business skills	4.350	0.6708

<u>Ranking and Skill/Knowledge Elements</u>	<u>Mean</u>	<u>SD</u>
Ranking 7 (Cont.):		
Social communication	4.350	0.5871
Ranking 8:		
Project management (Agile &/or Waterfall)	4.300	0.5712
Ranking 9:		
Understand how to capture what users need vs. what they just say they need	4.250	0.6387
Basic tech skills (familiarity w/ lingo & process)	4.250	0.7164
Business analysis skills	4.250	0.4443
Ranking 10:		
Search engine optimization	4.200	0.6156
Understanding direct to consumer sales	4.200	0.6959
Ranking 11:		
Ethics training	4.150	0.6708
Ranking 12:		
Marketing (general)	4.100	0.6407
Experience with Front End Optimization techniques	4.100	0.6407
Ranking 13:		
Ability to analyze a large amount of data	4.050	0.8256
Leadership skills	4.050	0.6048
Ranking 14:		
Customer service/relations skills	3.900	0.7182

<u>Ranking and Skill/Knowledge Elements</u>	<u>Mean</u>	<u>SD</u>
Ranking 14 (Cont.):		
Content management systems	3.900	0.5525
Ranking 15:		
Strategy (forecasting 3+ years out)	3.800	0.4104
Ranking 16:		
Strong mathematics/statistics skills	3.750	0.7864
Understanding brand building	3.750	0.6387
Negotiation/debate skills	3.750	0.5501
Virtual management skills (i.e., teleconference or video conference)	3.750	0.7164
Ranking 17:		
Budgeting	3.700	0.8013
Ranking 18:		
Checkout and order management systems	3.650	0.5871
Ranking 19:		
Process flow charting	3.600	0.5026
Basic understanding of programming skills	3.600	0.6806
Ranking 20:		
Database management	3.550	0.8256
Basic elements of design	3.550	0.6048
New product development basics incl. competitive analysis	3.550	0.6863
Ranking 21:		
Editing skills	3.500	0.6070

Appendix K: Ranking of Practitioner “Somewhat Important” Skill and Knowledge Elements

<u>Ranking and Skill/Knowledge Elements</u>	<u>Mean</u>	<u>SD</u>
Ranking 1:		
Supply chain and fulfillment	3.450	0.592
Ranking 2:		
SQL	3.400	0.9403
Ranking 3:		
Experience with ecommerce platforms (ex: ATG Commerce)	3.350	0.6708
Ranking 4:		
Knowledge of online security protocols	3.300	0.7327
Basic HTML	3.300	0.8013
Payment systems	3.300	0.7327
Ranking 5:		
Writing test scripts	3.250	0.5501
Retail basics	3.250	0.7164
Ranking 6:		
PHP, Ruby, or another language	3.100	0.9119
International marketing	3.100	0.4472
Ranking 7:		
JAVA	2.900	0.7182
Ranking 8:		
Business Law	2.850	0.5871

<u>Ranking and Skill/Knowledge Elements</u>	<u>Mean</u>	<u>SD</u>
Ranking 9:		
Visio skills	2.750	0.6387
Ranking 10:		
Google Analytics certification	2.700	0.9787
Google AdWords certification	2.700	0.9234
Ranking 11:		
Adobe Photoshop	2.550	0.8256