

AN EXAMINATION OF SOFT SKILLS LISTED IN TEXAS ELECTRONIC JOB
POSTINGS AND UNDERGRADUATE BUSINESS
INFORMATION SYSTEMS SYLLABI

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The purpose of this study was to explore the alignment of soft skills sought by current business IS entry-level employers in electronic job postings, with the integration of soft skills in undergraduate business information systems (IS) syllabi of public four-year universities in Texas. One hundred fifty job postings were extracted from two major electronic career databases. Ten undergraduate AACSB-accredited programs in the field of business information systems (IS) were investigated, and syllabi for the 70 major courses of the business IS programs were obtained for review.

Content analysis was applied to all job postings and syllabi, exposing all soft skills related to the 9 categories used in this study adapted from the 21st Century Framework for Learning (Partnership for 21st Century Learning, 2009). Frequencies were tabulated to determine rank of soft skills in job postings and syllabi, and Jaccard's coefficient statistic of occurrence was used for cluster analysis. Soft skills within all 9 categories were found in job postings ($n = 1554$) and course syllabi ($n = 774$). Three soft skill categories were aligned between job postings and syllabi: (1) initiative and self-direction, (2) social and cross-cultural skills, and (3) flexibility and adaptability. However, because differences in the higher ranked frequencies of soft skills in job postings and syllabi were noted, the null hypothesis of this study was rejected.

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Without the grace and mercy of my Heavenly Father, none of this would be possible. I would like to dedicate my dissertation to my loving husband, Rudy, for being the epitome of what a real man should be. Your unwavering support throughout this entire process has truly confirmed that deciding to spend my life with you was the best decision that I have ever made.

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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENT	iii
LIST OF TABLES	vi
LIST OF FIGURES	vii
Chapters	
1. INTRODUCTION	1
Background	
Need for Study	
Theoretical Framework	
Purpose of Study	
Research Questions/Hypothesis	
Limitations	
Delimitations	
Summary	
2. LITERATURE REVIEW	16
Introduction	
What Employers Want	
Infusing Soft Skills Within Curriculum	
Importance of Collaboration	
Summary	
3. METHODOLOGY	24
Introduction	
Research Design	
Sampling	
Data Collection	
Data Analysis	
Summary	

4.	RESULTS	36
	Soft Skills Analysis Guide Valuation	
	Summary	
5.	SUMMARY, CONCLUSIONS, IMPLICATIONS, RECOMMENDATIONS ...	49
	Summary of Findings	
	Conclusions	
	Summary of Conclusions	
	Implications for the Field	
	Recommendations	
	APPENDIX A: TEXAS AACSB INSTITUTIONS WITH MIS/CIS PROGRAMS	58
	APPENDIX B: SOFT SKILL ANALYSIS GUIDE.....	60
	APPENDIX C: EXCEL SPREADSHEET CRITERIA	62
	APPENDIX D: LETTER OF INTRODUCTION FOR SMES	65
	APPENDIX E: INSTRUCTIONS FOR SMES	67
	APPENDIX F: SUBJECT MATTER EXPERT CREDENTIALS.....	69
	APPENDIX G: JACCARD’S COEFFICIENT RESULTS	71
	APPENDIX H: COMPARISON OF FREQUENCY PERCENTAGES OF JOB POSTINGS AND SYLLABI.....	74
	REFERENCES	76

LIST OF TABLES

	Page
1. Key Skills Lacking in New College Graduates	19
2. Soft Skill Analysis Guide Revisions Based Upon SME Validation	37
3. Soft Skill Occurrences in Electronic Job Postings.....	38
4. Number of Major Business IS Courses Organized by University	41
5. Soft Skill Occurrences in Undergraduate Business IS Syllabi	43
6. Crosstabulation of Soft Skill Frequencies in Job Postings and Syllabi	46
7. Soft Skill Category Rankings – Job Postings and Course Syllabi	47

LIST OF FIGURES

	Page
Figure 1. 21st century student outcomes and support systems.	12
Figure 2. Distribution of soft skills listed in electronic job postings.	39
Figure 3. Soft skill cluster analysis of job postings using Jaccard's coefficient.	40
Figure 4. Distribution of Soft Skills listed in Undergraduate Business IS Syllabi.	43
Figure 5. Soft Skill Cluster Analysis of Syllabi using Jaccard's Coefficient.	44

CHAPTER 1

INTRODUCTION

Background

A college degree is a large investment that can yield a highly variable return. However, over the past decade, college graduates with business degrees in the area of information systems (IS) have faced difficulties with job placement, partially due to information technology (IT) offshore outsourcing and the downward trend in the economy (Fang & Lee, 2005; Sandvig, Tyran, & Ross, 2005). Therefore, to gain employment in a competitive workforce, it is extremely important for graduates to become marketable by possessing soft skills and to become knowledgeable about employer expectations. It is equally imperative for the workforce to clearly articulate their expectations (Froeschle & Theis, 2009). While technical skills are also important, this study focuses solely on nontechnical skills that ultimately allow individuals to effectively communicate, solve problems, and interact with others in a positive manner.

Universities and colleges in the United States have typically responded well to meeting the labor needs of the country (Aldoaijy, 1999). However, many employers have claimed that universities and colleges have not done a sufficient job of educating and training undergraduates to meet the needs of the IT industry over the last few years due to “a disconnect between what the market needs and what the colleges are providing” (Selingo, 2001, p. A27). Revisions of university curricula have been requested for business information system (IS) departments to meet the changes and produce more qualified U.S. applicants, yet a skill gap still remains (Froeschle & Theis, 2009; Kim, 1998; Maier Clark, & Remington, 1998). Programs in these departments are commonly referred to as business computer information systems (BCIS), management information systems (MIS), or computer information systems (CIS). Careers

commonly obtained by graduates of these programs include positions such as database administrator, Internet specialist, Web developer, computer consultant, network administrator, systems analyst, or business analyst.

Student numbers in business IS schools at universities are dropping, and employers are facing difficulties in recruiting qualified graduates (Alexander, 2007; Lea, 2006). As businesses become highly dependent on technology, the demand for business IS professionals with soft skills will continue to increase. To satisfy this demand, the knowledge and skills possessed by graduates with business IS degrees should match the types and variety of skills needed by employers (Ayalew, Mbero, Nkgau, Motlogelwa, & Masizana-Katongo, 2011). According to Beard, Schwieger, & Surendran (2008), explicitly setting goals and objectives relating to soft skills in strategic planning, curriculum development, and pedagogy is extremely important.

The Soft Skills Gap

Reports from various professional organizations and individuals have examined the rising soft skill demands of information systems professionals (Cheney, Hale, & Kasper, 1990; Gallivan, Truex III, & Kvasny, 2004; Lee, Trauth, & Farwell, 1995; Misic, 1996; Segars & Hendrickson, 2000; Todd, McKeen, & Gallupe, 1995; Wade & Parent, 2001/2002; Wynekoop & Walz, 2000). According to the most recent National Assessment of Adult Literacy, employers reported that many new hires lack the soft skills needed for today's workforce (Froeschle & Theis, 2009). The modern professional is required to think independently, apply standard approaches in unique ways to fit uncommon situations, exercise judgment, and develop radically new solutions to complex problems (Florida, 2002). According to Froeschle and Theis (2009), teaching critical thinking skills in the classroom helps students thrive in the workforce years after they graduate from school. Thacker and Yost (2002) noted that students need to be trained to be

effective team members; employers often find that recent graduates lack good team leadership skills. The ability to work with others and communicate ideas, in both verbal and written format, is critical to the future employee. These types of soft employability skills can make the difference between an educated, skilled, and knowledgeable workplace and one that is dysfunctional, unproductive, and lacks synergy (Thacker & Yost, 2002).

The term *employability skills* encompasses the interactions between undergraduate study and the turbulent changes in labor market requirements (Johnston & Watson, 2006). Knight and Yorke (2003) have defined employability as a “set of achievements, understandings and personal attributes that make individuals more likely to gain employment and be successful in their chosen occupations” (p. 5). In the UK, employability skills are referred to as *key skills*. They are also known as generic, personal, core, or transferable (Tynjala, Valimaa, & Boulton-Lewis, 2006). All graduates should be encouraged to acquire soft employability skills regardless of their discipline or field of study. Soft skills include being able to think logically as well as laterally, independently, and rigorously; knowing how to learn; solving problems; integrating information; and communicating effectively (National Board of Employment Education and Training [NBEET], 1992). These skills are not subject matter specific; they are skills that all students, regardless of the field of study, will need in order to succeed in their future work (Teras & Teras, 2010). Higher education is only a stage in the process of a lifetime of learning. Hargreaves (2003) pointed out that if schools fail to seek to enhance these qualities in students, their graduates will be left behind. The function of higher education should, therefore, be to meet local and regional employer demands and should include the practice of and preparation for this life-long learning process (Wright, 1990).

Developing Curriculum to Meet Employer Demands

Academic institutions must stay abreast of the trends of an ever-changing workforce to ensure that they can align programs and curricula with industry needs (Ayalew et al., 2011). When developing curriculum content, consideration must be given to both current and future employer needs, and local/regional supply and demand (Finch & Crunkilton, 1999). Knowledge societies are driven by ingenuity. Course designers must ensure that curriculum content promotes high transferability to a number of occupations within a particular field (Finch & Crunkilton, 1999; Hargreaves, 2003). In the past, curricula revisions were carried out within departments based on academic perceptions of employer needs (Ayalew et al., 2011). However, this trend is no longer practical due to the gap in the perceptions of employers and academicians about the knowledge, skills, and competencies required of business IS graduates (Gallivan et al., 2004; Kennan, Cecez-Kecmanovic, Willard, & Wilson, 2009).

Various professional organizations have begun to invest in considerable research to establish the standard tasks and roles that new practitioners need to be competent in specific career fields (e.g., Topi et al., 2010; Association for the Advancement of Collegiate Schools of Business [AACSB], 2006; Froeschle & Theis, 2009). These standards are not necessarily intended to dictate postsecondary curricula; however, they are readily available for review and use (Tooley, 1999). Since curricula must be responsive to the workforce, concerns from these organizations should not be ignored (Finch & Crunkilton, 1999). Goals, objectives, and standards for student performance should be identifiable, measurable, minimally intrusive, and cost effective. Furthermore, multiple measures should be chosen to demonstrate the assurance of learning (Beard et al., 2008).

Information Systems Programs

Avison and Fitzgerald (2002) defined information systems (IS) as “the effective analysis, design, delivery and use of information for organizations and society using information technologies” (p. 174). This discipline and its body of knowledge reflect complex processes in which technical, business, and social phenomena are continuously interacting and transforming one another (Kennan et al., 2009). IS as a field of academic study arrived in the 1960s a few years after the first use of computers for transaction processing and reporting by organizations, but now exists under a variety of different names in undergraduate institutions accredited by the Association to Advance Collegiate Schools of Business (AACSB) in the United States, such as management information systems (41%), information systems (21%), or computer information systems (18%) (Topi et al., 2010). These undergraduate programs should contain a complex combination of technical and business courses, along with organizational and soft skill requirements (Beard et al., 2008).

Business IS programs are also commonly referred to as Information Technology, but are typically differentiated from computer science, engineering, or information science programs due to the fact that business IS programs are generally based in schools of business (Abraham et al., 2006; Avgerou, 2000). Professionals in business IS often work with projects entailing various forms of communicating with or organizing data for business clients and cooperative partners (Tynjala et al., 2006). Lee (2001) emphasized that the IS field “examines more than just the technological system, or just the social system, or even the two side by side; in addition, it investigates the phenomena that emerge when the two interact” (p. iii). Although business will continue to be the primary domain for IS, the expertise of those in this field is rapidly becoming critically important for several other workforce areas, including manufacturing, healthcare, and

others. (Topi et al., 2010). All aspects of the global IS field continue to face rapid and frequent change. As a result, university-level IS curricula need frequent updating to remain effective (Topi et al., 2010). The AACSB has established guidelines to help AACSB-accredited IS programs thrive in the area of effectiveness.

The Association to Advance Collegiate Schools of Business (AACSB)

The Association to Advance Collegiate Schools of Business was established in 1916 as a membership organization for business schools to network and discuss issues that affected the “business education industry” and their institutions. In 1919, the organization’s first accreditation standards were adopted, with the primary objective of improving collegiate business education. Having AACSB accreditation ensures students and parents that a business school provides a high-quality education. It should also ensure employers that AACSB-accredited business school graduates are prepared to enter the workforce. To become AACSB-accredited, a school must be a member of AACSB International and offer degree-granting programs in business or management, and then apply for AACSB accreditation. Upon approval, the school works with mentors, committees, and AACSB staff to rigorously develop a standards alignment plan. Once a school follows through with its alignment plan and meets the AACSB standards, review committees and the AACSB Board of Directors decide whether or not the school should be accredited. If accredited, information must be updated and reevaluated every 5 years (AACSB, 2006).

According to accreditation standards of AACSB, schools that hold AACSB accreditation must “use a well-documented, systematic process” to develop, monitor, evaluate, and revise the substance and delivery of the curricula of degree programs and assess the impact of the curricula on learning. The organization further suggests that:

Curriculum management includes input from all appropriate constituencies which may include faculty, staff, administrators, students, faculty from non-business disciplines, alumni, and the business community served by the school. (AACSB, 2006)

According to AACSB Accreditation Standard 15, institutions are not required to provide specific courses addressing soft skills; however, programs must provide a variety of learning experiences that address (a) Communication abilities, (b) Ethical understanding and reasoning abilities, (c) Analytic skills, (d) Multicultural and diversity understanding, and (e) Reflective thinking skills (AACSB, 2006). There are 20 AACSB accredited institutions with MIS/CIS programs in the state of Texas (see Appendix A). The Information Systems (IS) 2010 Report is the most recent output of data to serve as a resource for curricular recommendations for these institutions with programs focused in the IS field (Topi, 2010).

Information Systems 2010 Report

The IS 2010 report (Topi, 2010) is the third and latest collaborative content recommendation effort by the Association for Computing Machinery and the Association for Information Systems. Both organizations have professional and academic members in the broad field of computing and IS. The report was first published in the 1970s and continues to promote the production of “competent and confident entry-level graduates well suited for workplace responsibilities” (p. 367). In addition to providing resource recommendations, it also suggests specific content to be taught. Since students from IS programs accept jobs in widely dispersed geographic areas, the availability of curriculum models such as this one enables local academic units to maintain academic programs that are consistent both with regional, national, and global employment needs and with the common body of knowledge of the IS field. While this report is not linked to specific degree structures, it does “provide guidance regarding the core content of the curriculum that should be presented nationwide” (Topi et al., 2010, p. 367). The IS 2010

Report denotes that the high-level capabilities demanded of IS graduates are divided into three categories of knowledge and skills: (a) IS specific, (b) foundational, and (c) domain fundamentals. Soft skills such as leadership and collaboration, communication, analytical and critical thinking, and creativity and ethical analysis are included in the foundational component (Topi et al., 2010).

Co-curricular Soft Skill Initiatives

As previously noted, AACSB Accreditation Standard 15 does not require institutions to provide specific courses addressing the acquisition of soft skills; however, programs must provide a variety of learning experiences addressing them. These co-curricular soft skill initiatives generally range from internships to student training sessions or professional development programs. Dunne, Benett, and Carre (2000) examined skill development in higher education with surveys and interviews of 2,712 teachers, students, employers and graduates in their working life. Twenty-five percent of professionals complained about the lack of practice in social skills, and 64% stated that they had gained the most important employability skills while at work. Only 14% reported that social skills were learned in a university setting. Perhaps this is why those who are immersed in the professional environment early-on through experiences, such as internships, tend to gain employment faster than those who are not. Internships generally refer to part-time or full-time professional experience in which students may or may not receive pay or course credit (Fang & Lee, 2005). Many studies have covered business college internships and reported that they have positive relationships with students' full-time job offers (Knouse, 1999). Additionally, several publications provide anecdotal evidence that internships significantly improve the job prospects of business IS graduates (Hoffman, 2008; Quittel, 2003).

Texas universities have created a variety of initiatives to help enhance the soft skills of students. For example, one Texas institution offers a semester-long Certified Leadership Series in which student leaders of organizations attend workshops to enhance their communication and networking skills (Center for Leadership Service, 2011). This institution also offers a 6-day LeaderShape Institute in which students are provided with opportunities to enhance teamwork skills and learn to lead with integrity and ethics (Center for Leadership Service, 2011). Another initiative of this form is the Professional Leadership Program, which is housed in the institution's College of Business. The program is free to students, and requires a full academic year of commitment and approximately 8 to 10 hours per month for program events. Its mission is "to prepare students for leadership by fostering qualities of integrity, objectivity, honesty, competency, loyalty and creativity" (Center for Leadership Service, 2011, p. 1). To participate, students must be juniors, seniors, or graduate students with a minimum cumulative GPA of 3.0. Although these initiatives seek to equip students with valuable skills, neither of these programs is mandatory; hence, those who are not already campus leaders or have no time or desire to participate in extracurricular activities will not benefit from these services.

Need for Study

In examining the changing demands of the workforce, several professional organizations have stressed the importance of soft skill development among business IS job seekers (Ayalew et al., 2011; Beard et al., 2008; Thacker & Yost, 2002; Tynjala et al., 2006). However, many of the skills that are now deemed as necessities have been deemed as necessities for employees over the last 3 decades. For example, Tschirgi (1972) found that employers valued soft skills above both grade point average and work experience. An often cited study by Todd et al. (1995) surveyed newspaper job advertisements spanning from 1970 to 1990 and found little change in the types

of requirements specified for IS management positions. Soft skills still rank at the top of employer lists over 40 years later, but why is the soft skill gap continuously getting wider? Are employers making their soft skill demands known by including them in their job postings? Are undergraduate business IS programs preparing their students by incorporating soft skill training throughout their core curricula?

The importance of soft skills is so commonly recognized that it is often assumed that these needs are being addressed in the secondary and postsecondary public education and training system; however, these assumptions have often led to no one being held accountable for enhancing these skills within students (Froeschle & Theis, 2009). While researchers have investigated desired employability skills (e.g., Dunne et al., 2000; Litecky, Arnett, & Prabhakar, 1998; Liu, Liu, Koong, & Lu, 2003; Majid & Mulia, 2011; Todd et al., 1995; Wright, 1990) few studies have been conducted on the actions of the academic sector to enhance these skills and characteristics among postsecondary students (Beard et al., 2008; Boyatzis, 1995).

The Bureau of Labor Statistics has reported that half of America's fastest growing career fields require a bachelor's degree or higher (Froeschle & Theis, 2009). A CEO survey conducted on behalf of Corporate Voices for Working Families reported that high school diplomas no longer guarantee that graduates will have important soft employability skills (Froeschle & Theis, 2009). Postsecondary education must seek to decrease the skills gap of those students who have not previously been exposed to the importance of enhancing their professional soft skills. According to Wright (1990), soft skill development already exists in business courses of many institutions; however, more research in this area is warranted. Because the skills demand of employers may change from time to time, studies such as the present one

should be carried out regularly so that the patterns of growth for the future can be identified (Ayalew et al., 2011).

Theoretical Framework

Specific categories of the Soft Skill Analysis Guide used in this study (see Appendix B) are based on the 21st century student outcomes and supports systems of the Framework for 21st Century Learning (Partnership for 21st Century Skills, 2009). This framework “presents a holistic view of 21st century teaching and learning that combines a discrete focus on the 21st century student with innovative support systems to help students master the multi-dimensional abilities required of them in the 21st century” (p. 1). The creator of this framework, the Partnership for 21st Century Skills (P21), is a national organization that advocates for 21st century readiness for every student. P21 provides tools and resources to help the U.S. education system excel in the global economy by fusing the core academic content with recommended 21st century skills.

This study focuses on the learning and innovation skills component of the framework (see Figure 1), which emphasizes that creativity, critical thinking, communication, and collaboration are increasingly being recognized as those skills that separate students who are prepared for a more complex life and work environments in the 21st century and those who are not. This study also focuses on the life and career skills component (see Figure 1), which entails flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility.

Although created to support the secondary education sector, this framework was chosen to support the present study because its ideas are also relevant to the needs and demands of postsecondary education. Leading corporations and K-12 districts and schools are already in

support of this framework; the postsecondary sector must take the opportunity to serve as the aligned link between to the two groups.

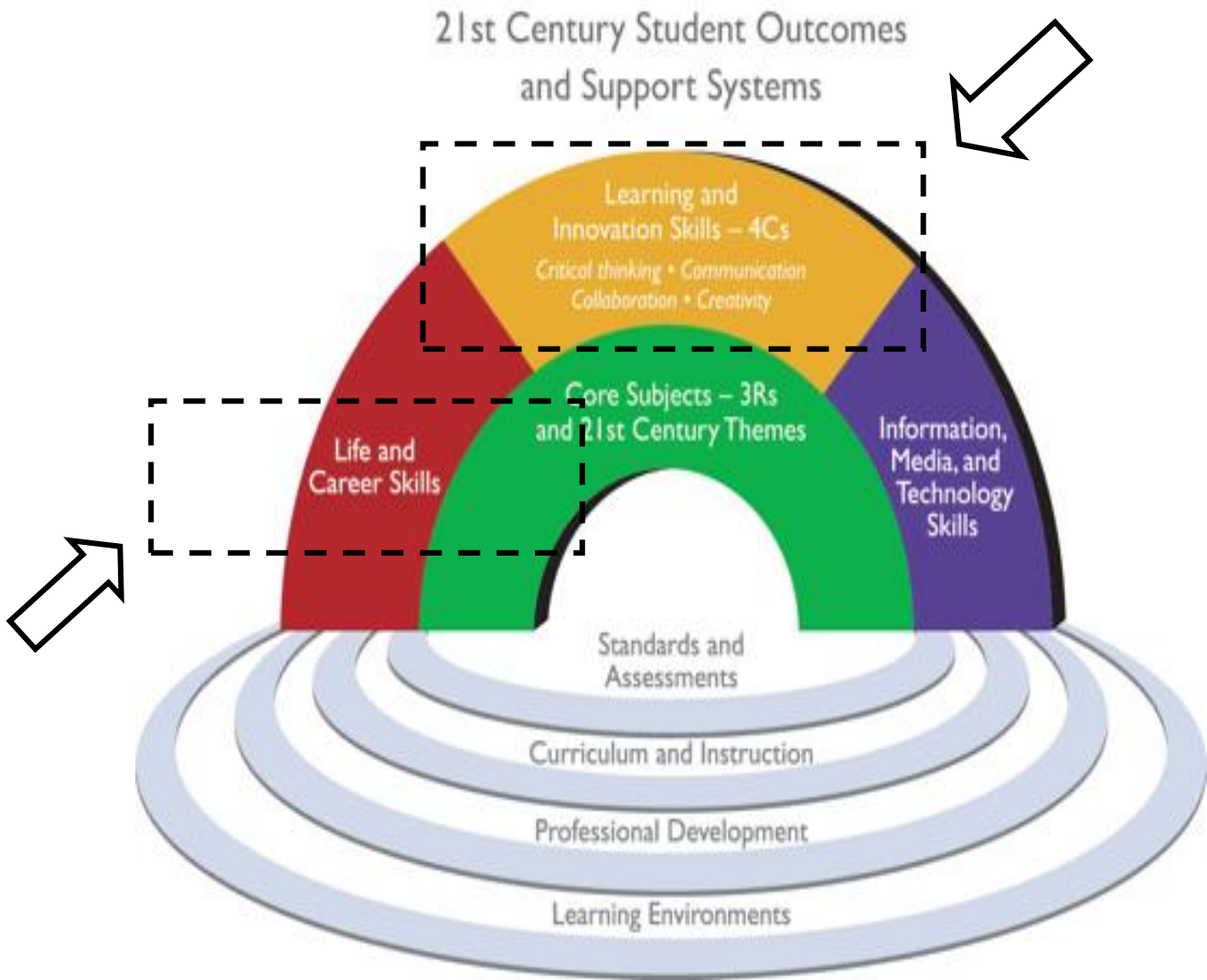


Figure 1. 21st century student outcomes and support systems (adapted from Partnership for 21st Century Skills, 2009).

Purpose of the Study

The purpose of this study is to explore the alignment of the soft skills expectations of current business IS entry-level employers in electronic job postings with the inclusion of soft skill training in undergraduate business IS syllabi of public 4-year universities in Texas.

Results may assist business educators, business school program coordinators, human resource administrators, career counselors, students, corporate trainers, information systems consultants, agency recruiters, and institutions by providing data regarding specific soft skill employer expectations specified in electronic job postings and soft skill learning experiences specified in course syllabi. These data may also assist with business curriculum development and redesign.

Research Questions

This study is guided by the following research questions and hypothesis:

- R1. What soft skills are currently expected among Texas employers, as specified in recent electronic job postings for entry-level business information systems (IS) positions (excluding those positions related to engineering or computer science)?
- R2. What soft skills are specified in course syllabi of major courses of AACSB accredited undergraduate business information systems (IS) programs in 4-year public universities in Texas?
- Ho1. There are no differences in soft skills expected by Texas employers (as specified in recent electronic job postings for entry-level business information systems (IS) positions) and soft skills taught, as specified in course syllabi of major courses of accredited undergraduate business information systems (IS) programs in 4-year public universities in Texas.

Limitations

The content of job postings is a valid representation of the current labor demands of employers, but some descriptions were more accurate and specific than others. This study is limited because advertisements varied in length and did not identify all jobs available at any point in time. However, analysis of advertisements is widely used and likely to unveil a representative list of available positions and the skills or competencies in demand.

Course syllabi also vary in length and comprehensiveness. Course syllabi constitute only a portion of what IS programs offer their students; specific course content, teaching methods, and access to technologies and influential faculty are equally valuable contributions (Fisher & Matarazzo, 1993). Course syllabi may not accurately reflect the course's content (Irwin, 2002).

Delimitations

This study is delimited to entry-level jobs in Texas for recent business IS graduates, and data should not be generalized to include other fields of study. Research findings indicate that varying knowledge and skills are valued in higher level positions more than in lower positions (Zwieg et al., 2006); therefore, job advertisement postings with positions that are not entry-level were not included in this study. Entry-level positions include jobs appropriate for recent college graduates with bachelor's degrees and require no more than 3 years of professional experience. The state of Texas was chosen for this study because it is predicted by the Bureau of Labor Statistics to be ranked second for having the most job openings in the business IS field over the next 7 years (www.careerinfonet.org). Although California is currently ranked first in business IS jobs, another factor playing a role in the choice of delimiting this study to Texas included the passing of House Bill 2504, which requires all public universities in the state of Texas to make syllabi accessible to the public.

Summary

Chapter 1 discussed background information regarding the current soft skill gap concerning graduates of business information systems (IS) undergraduate programs, employer demands, reports and recommendations from professional organizations, and co-curricular soft skill initiatives. The purpose, research questions/hypothesis, limitations, and delimitations were also discussed. The following chapter presents an outline summarizing current research literature.

CHAPTER 2

LITERATURE REVIEW

Introduction

This chapter provides a comprehensive review of studies addressing what employers want from entry-level employees, the significance of infusing soft skills within curriculum, and the importance of collaboration. More specifically, this chapter answers the following questions: What are soft skills, and why are they in demand? Regarding curriculum, what are ideal characteristics of collaboration and alignment? What have other researchers revealed when studying soft skills or employer expectations? Although acknowledging that all employer demands and expectations are imperative, this study does not discuss technical skills.

What Employers Want

In survey after survey, employers convey the importance of soft skills. More specifically, employers are reporting that these skills are extremely important for those in the business information systems (IS) field (Beard et al., 2008). Whether called “employability skills,” “workplace fundamentals,” “foundation skills,” “workplace readiness skills,” or “workplace basics,” according to Froeschle and Theis (2009), these skills are “critical for employers to build a competitive, productive, creative, synergistic and disciplined workforce that drives innovation and productivity” (p. 1). Even in 1988, a study conducted by the American Society for Training and Development (ASTD) focused on workplace basics: skills that employers want their workers to have. It was indicated then that soft skills would be needed for the workforce of the 21st century (Carnevale, Gainer, & Meltzer, 1998).

It is important for industry to have a well-rounded, adaptable, and flexible workforce; one that is capable of acquiring whatever skills may be relevant to the changing times and

environment (Wright, 1990). Texas Workforce Commission chairman, Tom Pauken, wrote in the Fall 2008 edition of *Texas Business Today* that skills such as “critical thinking, teamwork, and effective communication are essential to the preparation for today’s workforce” (Froeschle & Theis, 2009, p. 6).

A group of researchers in Australia surveyed over 350 employers from a wide range of industries about the most important selection criteria they used when recruiting graduates (in addition to relevant qualifications). Employers were given a list of 10 common skills and attributes and were asked to rank their top three. Nearly three-quarters of employers indicated that interpersonal and communication skills were their most important selection criteria (Graduate Careers Australia, 2010). Also in Australia, the National Board of Employment Education and Training (NBEET) of the Higher Education Council produced a detailed list describing desirable “characteristics of quality” in graduates as a blend of soft skills, a body of knowledge, and professional/technical or other job-related skills (NBEET, 1992).

Zwieg et al. (2006) conducted an interview-based investigation and found that employers identified “communication skills” and indicated that new entrants with good “communications skills” were of high value to them (p. 104). Gabric and McFadden (2001) surveyed 193 Chicago-area employers and found that verbal communication, problem solving, and listening skills were ranked as the top three general skills valued by employers for entry-level positions. They concentrated on regional firms that usually seek to hire their own local graduates and concluded that general soft skills are significantly more important to Chicago-area employers than technical abilities. Employers responding to the Corporate Voices for Working Families survey ranked communication, professionalism, critical thinking, and teamwork at the top of their list of important workforce skills (Froeschle & Theis, 2009). In Curtis Miles’s book, *The*

Mindful Worker, competencies were compared across eight workplace studies, and the researcher discovered that the most cited characteristics were (a) ability to learn, (b) problem solving, (c) dealing with others, (d) and teamwork (Froeschle & Theis, 2009).

A number of studies in the United States have tracked the business IS job market over time to identify the direction of change and current employer requirements (Lee, 2005; Litecky et al., 1998). The Todd et al. (1995) study surveyed newspaper job advertisements spanning from 1970 to 1990 and found little change in the types of requirements specified for IS positions. Gallivan et al. (2004) reviewed newspaper job ads from 1988 to 2003 and found ongoing evidence of a recruitment gap between employers' articulation of a desire for business knowledge and soft skills and job ads concentrating on hard skills; they also identified the six most common non-technical skills mentioned in employment advertisements as (a) communication, (b) interpersonal, (c) leadership, (d) organization, (e) self-motivation, and (f) creativity. Koong, Liu, & Liu (2002) found that out of 300 IS job ads, most focused on hard skills rather than soft skills, despite what other literature has shown about employer demands; however, communication was the only the soft skill investigated.

In a study conducted by Kennan et al. (2009), the researchers found that personal characteristics and communication skills were ranked second and third among all skills, and were mentioned in nearly 75% of all entry-level IS job advertisements. After reviewing 110 job postings worldwide, Majid and Mulia (2011) also found that almost all job advertisements put more emphasis on soft skills than other competencies. Litecky et al. (1998) studied advertisements in localized newspapers, while Markey, Liu, and Koong (2000) researched job listings from only Fortune 500 company Web sites and suggested that current IS students in the

field prepare for the job market by taking courses that require them to master a diversity of job skills and tools.

The Job Outlook 2008 Survey of 276 employers (Koncz & Collins, 2006) examined the qualities that employers look for in prospective employees. Respondents overwhelmingly responded that the key skills lacking in new college graduate candidates were verbal and written communication skills. Data collected using a 5-point scale indicated the following:

Table 1

Key Skills Lacking in New College Graduates

Skill	Value
Communication skills (verbal and written)	4.6
Strong work ethic	4.6
Team work skills	4.5
Initiative	4.4
Interpersonal skills	4.4
Problem-solving skills	4.4
Analytical skills	4.3
Flexibility/adaptability	4.2
Computer skills	4.1
Technical skills	4.1
Detail orientation	4.0
Organizational skills	4.0

Source: www.naceweb.org

The acquisition of soft skills should be routinely assessed and systematically evaluated, with analyzed results of the findings distributed to faculty to assist them with ongoing revisions to course curricula. Thus, while faculty at institutions seeking accreditation from the Association for the Advancement of Collegiate Schools of Business (AACSB) prepare their course objectives to adequately cover discipline-specific technical skills, they must also incorporate material addressing the increased demand of non-technical skills (Beard et al., 2008). To truly align instructional practices in the classroom, educators must first establish what students are expected to learn and then determine the best activity to teach it (Carter, 2007).

Infusing Soft Skills within Curricula

Department-related co-curricular soft skill initiatives were discussed in Chapter 1. However, research suggests that students develop the soft skills and abilities on which their educators place a high value and show little change in areas that are not valued by their educators (Tooley, 1999). Advantaged and disadvantaged students both can learn well. However, they will learn only what that they are taught (Carter, 2007). For example, recent management information systems (MIS) graduates of Southeast Missouri State University (which utilizes an array of tools to assess soft skill development) identified the demonstration of soft skills as important goals and objectives for MIS programs (Beard et al., 2008). Boyatzis's (1995) study of students and faculty at the Weatherhead School of Management at Case Western Reserve University in the United States showed that teaching staff placed greatest value on conceptual, analytical, and planning skills when designing and conducting their classes. They placed the least value on abilities concerned with managing people, interpersonal relationships, and self-awareness. Upon graduation, these students were found to have made the greatest gains in conceptual and analytical skills, which were valued by their instructors. Little or no change was

shown in their leadership, self-awareness and interpersonal abilities. Similar findings were reflected in widespread criticisms of U.S. MBA programs for producing graduates who were overly analytical, but lacked interpersonal, teamwork, and communication skills. Boyatzis's study showed the powerful effect of course goals on student learning. In postsecondary education, course goals such as these are generally listed in course syllabi. Various studies have evaluated syllabi for purposes such as determining the effectiveness of teaching (Albers, 2003), evaluating faculty teaching (Seldin, 1998), or tracking of the spread of certain topics in university teaching (e.g., Kerr, Patti & Chien, 2004; Stapleton & Leite, 2005).

Syllabi are documents representative of specific courses, and they express faculty expectations of students and how and what instructors plan to teach (Imasuen, 1999). Bers, Davis, and Taylor (1996) stated that syllabi “are the most complete description of classes that are made available publicly” (p. 2). Imasuen (1999) also stated that “course syllabi and the impact they have in the classroom can provide indicators of what students are expected to do in class. . . . They are the most detailed descriptions of courses offered, and they help to ensure that instructors cover required course content” (p. 8). Davidson and Ambrose (1994) noted that “students learn more effectively when they understand the faculty members’ intentions and expectations about a course” (p. 31). Slattery and Carlson (2005) stated that “syllabi can be useful in engaging students and creating an effective classroom atmosphere” (p. 159). Ison (2010) analyzed 32 syllabi to examine whether or not they included items considered in the literature to be essential and found that 62.5% of the syllabi provided a course description and 87.5% of syllabi outlined learning objectives. Davis and Schrader (2009) found that 93% of faculty and 76% of students deemed course objectives as being very important to include in

syllabi. Hence, if soft skills are being taught in undergraduate courses, they should be specifically included in the objectives of course syllabi.

Importance of Collaboration

Although research suggests the value of syllabi, few studies have utilized both online syllabi and job advertisement postings to explore how undergraduate program instruction is aligned with the existing job requirements or have investigated academic and corporate collaboration (Kousha & Abdoli, 2008). According to Carter (2007), learning is an incremental process that requires everyone working together to construct a strong, well-connected learning ladder for students to climb. To create successful community-based education, it is important for the academic community to foster relationships and develop open lines of communication with both students and the business community (Graf, 1997). Therefore, those preparing students for professional practice often need to take account of strong opinions from professional bodies on what content should be included in academic programs of study (Tooley, 1999).

Harvey and Knight (1996) observed that there is little disagreement between academics and employers on the desirability of developing soft skills (Tooley, 1999). However, industry cannot expect higher education to do all of the work itself. Because both sides have the potential to gain from a closer relationship, there must be a partnership (Wright, 1990). The Corporate Voices for Working Families Study suggests that employers should consistently communicate the soft skills students need to succeed in the workplace (Froeschle & Theis, 2009). For example, The Department of Operations Management and Information Systems at Northern Illinois University created an Executive Advisory Board to improve communications with the business community and to help provide a direction for future program development and student career preparation (Gabric & McFadden, 2001).

After conducting a content analysis of 200 job advertisements and 30 course syllabi, Kousha and Abdoli (2008) found that 70% of subjects in syllabi matched those in job advertisements; however, there was still a remarkable gap between required job requirements and course content for topic areas related to soft skills. Employers cannot assume that higher education will teach personal skills that can satisfy their needs if they do not contribute to the development of standards that are acceptable to all partners. There must be a shared body of knowledge that is integrated into educational courses and on which industry and the students' life experiences can build (Wright, 1990). Even in 1999, McFadden, Jansen, and Towell suggested that increased interaction between the business community and the academic community would be a major trend in the new millennium.

Summary

Overwhelming evidence of the significance of soft skills in the business community is available (Froeschle & Theis, 2009). This chapter provided a summary of the research literature identifying the relationship between what employers want from employees, as well as the importance of infusing soft skills within curricula and collaboration. Chapter 3 describes the research methodology, population of interest, sampling technique, the data collection process, and data analysis procedures.

CHAPTER 3
METHODOLOGY

Introduction

The purpose of this study is to explore the alignment of soft skills sought by current business IS entry-level employers in electronic job postings, with the integration of soft skills in undergraduate business information systems (IS) syllabi of public 4-year universities in Texas. This chapter describes the research methodology, the sampling technique, data collection, data processing, and analysis procedures. The following research questions and hypothesis were investigated:

- R1. What soft skills are currently expected among Texas employers, as specified in recent electronic job postings for entry-level business information systems (IS) positions (excluding those positions related to engineering or computer science)?
- R2. What soft skills are specified in course syllabi of major courses of AACSB-accredited undergraduate business information systems (IS) programs in 4-year public universities in Texas?
- Ho1. There are no differences in soft skills expected by Texas employers (as specified in recent electronic job postings for entry-level business information systems (IS) positions) and soft skills taught, as specified in course syllabi of major courses of accredited undergraduate business information systems (IS) programs in 4-year public universities in Texas.

Research Design

The design of this study is a mixed-method content analysis based upon methodologies used by Koong et al. (2002) and Kennan et al. (2009), which comprise systematic random sampling procedures used for gathering data from Internet job databases. This sampling method allows researchers to employ a system to randomly select subjects or items under review (Castillo, 2009). Content analysis of job postings is considered a reliable, unobtrusive method for determining the demands of the job market in a systematic manner (Majid & Mulia, 2011). This descriptive technique begins with predefined categories developed from previous refereed literature which are organized and refined through analysis involving counting how often words, phrases, or themes appear individually or in combinations. Results are then organized systematically for quantitative analysis of the text's content (Ezzy, 2002; Neuman, 2006). Several studies have utilized this method for analyzing job postings and indicated that it has helped identify skills currently in demand (e.g., Litecky, Aken, Ahmed, & Nelson, 2010; Todd et al., 1995). Liu et al. (2003) found that online databases are good sources for finding IS-related job information. According to Kennan et al. (2009), job advertisement postings are the most easily available indicators of the short- to mid-term direction of the workplace demands for specific skills and competencies, by providing information regarding what employers perceive they need for their organizations to continue to thrive. The content of business IS program descriptions and objectives in course syllabi of public universities was also analyzed in the same manner as job postings. According to MacPherson (2008), an analysis of information in course syllabi underscores the knowledge, skills, and competencies considered valuable to students by the degree-granting programs.

Sampling

The targeted population of job postings for this study was considered infinite due to the fact that the number of jobs listed can change multiple times each day. Based upon the sample size and power analysis conducted by Koong et al. (2002), a sample of 150 job advertisements (posted between January and October 2011) was collected. To be eligible for this study, all job postings had to represent entry-level positions located in the state of Texas and require a bachelor's degree in the business field related to information systems, information technology, or computer/management information systems. Information systems advertisements with high emphasis on engineering or computer science were discarded due to study delimitations to business IS. For the purposes of this study, entry-level positions included jobs appropriate for recent college graduates with bachelor's degrees and require no more than 3 years of experience.

According to the University of Warwick Institute for Employment Research (2007), a large number of new graduates enter employment in the vicinity of the university from which they graduate. Hence, it is imperative to review the level of alignment between the skills demanded by major employers and the skills addressed in the syllabi of undergraduate business IS programs within the same geographic area. Therefore, the degree programs reviewed for alignment purposes in this study include 10 of the 20 total AACSB-accredited business IS programs of public universities in the state of Texas:

1. Lamar University
2. Prairie View A&M University
3. Sam Houston State University
4. Stephen F. Austin State University
5. Texas A&M University

6. Texas State University - San Marcos
7. Texas Tech University
8. University of Houston
9. University of North Texas
10. University of Texas at Austin

These 10 institutions were collected through the researcher's search for AACSB accredited undergraduate business programs via the AACSB-powered Web site, www.bestbizschools.com. The following program detail criteria were used: "undergraduate," "CIS/MIS," "full-time," "United States," and "Texas." The term *full-time* was not selected to exclude part-time programs. Only one program format option could be selected; therefore, it was selected as a filter to ensure inclusion of institutions that offer students the option of being full-time students. After a data search using this specific criterion, it was determined that a total of 20 institutions currently have AACSB-accredited IS programs in the state of Texas. Private institutions, satellite campuses, and subsidiaries of major public universities were eliminated from the sample, which resulted in a total of 10 remaining.

Data Collection

Data collection for this study was organized according to each research question and hypothesis.

- R1. What soft skills are currently expected among Texas employers, as specified in recent electronic job postings for entry-level business information systems (IS) positions (excluding those positions related to engineering or computer science)?

A systematic random sampling procedure was used to gather data. Two Internet job databases, Dice.com and Careerbuilder.com, were selected as the data-gathering sources for this

study. Dice was selected because it prides itself on being “the leading career Web site for technology professionals” (www.dice.com). CareerBuilder was chosen because it is considered the “global leader in human capital solutions” (www.careerbuilder.com). It also has a filter that allows searchers to specify “entry-level” positions. Another important component of CareerBuilder is its subsidiary Web site division designated specifically for jobs related to information systems, www.SoloGig.com. The 150 job postings were collected via 15 observations from each database over a 3-week period (5 days per week; 10 ads per observation; 5 per database). Duplicate job advertisement postings were excluded from results, and all data were extracted from the online databases from September 19, 2011, to October 22, 2011. All soft skill data collected were coded and organized by the researcher-created Soft Skills Analysis Guide and input into an Excel spreadsheet denoting the date collected, job title, company, location of position, database of retrieval, and soft skills specified (see Appendix C).

To gather job postings from the Dice database, the following procedure was employed:

1. Go to www.dice.com
2. Click “Advance Job Search”
3. In the Keyword box, type “business information systems”
4. In the Exclude box, type “engineer”
5. In the Location Options section, select “By Country” and choose United States and the state of Texas
6. Click “Show Additional Search Options” and select “Full-time”
7. Click “Find Jobs”

Because there is no “entry-level” filter in the Dice database, the researcher only utilized postings requiring less than 3 years of professional experience. After Week 1 of data collection,

the aforementioned search method was producing multiple duplicates; therefore, the researcher revised Step 3 and replaced the term *business information systems* with well-known titles of business IS careers, including database administrator, Internet specialist, business analyst, Web developer, and systems analyst. These titles were selected because they were denoted as possible MIS/CIS careers within the program information of multiple business IS programs examined in this study. One career title was used per observation for Week 2; this method was also duplicated for Week 3 of data collection. Each job ad retrieved from Dice was assigned a record number from 100 to 174.

To gather job postings in the CareerBuilder database, the researcher employed the following procedure:

1. Go to www.careerbuilder.com
2. Click “Advanced Search”
3. In the Keywords box, type “business information systems”
4. In the Locations box, type “Texas”
5. In the Job Categories box, choose “Entry-level”
6. In the Degree box, choose “4-year degree” and uncheck “include all lower degrees”
7. Under Employment Type, deselect every choice except “Full time”
8. In the Exclude Keywords box, type “engineer”
9. Click “Find Jobs”

Upon collection, each posting was reviewed to ensure that all desired criteria was met (e.g., entry-level, in Texas, bachelor’s degree, etc.). Data were input into an Excel spreadsheet (see Appendix C). After Week 1 of data collection, this search method was also producing

multiple duplicates, unrelated positions, and random certification opportunities; therefore, the researcher revised Step 3 and replaced the term *business information systems* with well-known titles of business IS careers, including database administrator, Internet specialist, business analyst, Web developer, and systems analyst. As previously stated, these terms were selected because they were denoted as possible MIS/CIS careers within the program information of multiple business IS programs examined in this study. One career title was used per observation for Week 2; this method was also duplicated for Week 3 of data collection. Each job ad retrieved from Career Builder was assigned a record number from 200 to 274.

R2. What soft skills are specified in course syllabi of major courses of AACSB-accredited undergraduate business information systems (IS) programs in 4-year public universities in Texas?

Course catalogs from the 10 undergraduate business IS programs were obtained for this study from CollegeSource Online and reviewed to determine major courses. CollegeSource Online is an online database featuring college catalogs in complete cover-to-cover format (<http://library.unt.edu>). Aside from using its free trial membership, this database is accessible only through membership. To access information, the researcher went to <http://www.library.unt.edu> and used the search term *College Source*. Upon reaching the site, the researcher clicked on “connect to online resource” and then employed the search feature using each university’s name as the keyword. Only required courses of each program were reviewed. Non-mandatory electives were excluded from results, leaving a total of 70 courses to be included in the sample of this study. Thereafter, the researcher used the list of major courses from each program to determine which syllabi to collect. The majority of syllabi were collected by going directly to each institution’s Web site and typing “HB 2504” in the search bar. This recent

legislation requires all public institutions in the state of Texas to make faculty curriculum vitae and syllabi public information by posting them on the Web. All syllabi were retrieved in this manner with the exception of those for five courses. To obtain the syllabi from the five courses not posted on the Web, a message of request was emailed directly to the undergraduate program coordinators. Responses with all requested syllabi attachments were received within 3 days.

All soft skill data collected were organized by the researcher-created Soft Skills Analysis Guide (SSAG) and input into an Excel spreadsheet denoting the date collected, course title, university, location of university, database of retrieval, and soft skills specified (see Appendix C).

Ho1. There are no differences in soft skills expected by Texas employers (as specified in recent electronic job postings for entry-level business information systems (IS) positions) and soft skills taught, as specified in course syllabi of major courses of accredited undergraduate business information systems (IS) programs in 4-year public universities in Texas.

After data were collected from 150 job postings (R1) and 70 undergraduate course syllabi (R2), all information was exported from Excel into Simstat/Wordstat software to help the researcher organize and tabulate frequencies of soft skill occurrences. Simstat is a program that provides a wide range of statistics, including summary statistics; crosstabulation; interrater agreement statistics; frequency and breakdown analysis; n-way analysis of variance and covariance; paired and independent ttests; linear, nonlinear, and multiple regression analysis; time-series analysis; and many nonparametric analyses (Provalis Research, 2005). Wordstat is a word-counting module of Simstat statistical software which enables the production of a hierarchical dictionary developed from the terms describing the desired knowledge, skills, and

competencies specified in advertisements (Provalis Research, 2005). The creation of a researcher-defined dictionary to group related words into meaningful categories was a critical step in successfully utilizing the software for this study.

Data Analysis

Organized by research questions and hypothesis, this section discusses how data were analyzed.

- R1. What soft skills are currently expected among Texas employers, as specified in recent electronic job postings for entry-level business information systems (IS) positions (excluding those positions related to engineering or computer science)?

A conceptual content analysis (Bauer, 2000) of Internet-based entry-level job postings was conducted, and explicit key words were coded to identify the soft skill needs prevalent in the business IS field. Most employers have placed U.S. job postings online since 2006 (Online Help-Wanted Outstripping Print [OHOP], 2006; Oneal, 2007). Unlike online ad databases, printed ads often have large space constraints, which could possibly limit the comprehensiveness of skill listings; therefore, they were not used in this study.

Carmines and Zeller (1979) defined content validity as the extent to which an empirical measurement reflects a specific domain of content, while construct validity concerns the degree to which it measures the construct it was designed to measure. In this study, content and construct validity of the Soft Skills Analysis Guide were established by developing a table of synonymous soft skills based upon refereed literature and requesting a panel of 9 subject matter experts to evaluate its composition. The table was divided into 9 categories: (a) critical thinking, (b) communication, (c) collaboration, (d) creativity, (e) flexibility and adaptability, (f) initiative and self-direction, (g) social and cross-cultural skills, (h) productivity and accountability, and (i)

leadership and responsibility. These categories, which were developed based upon components of the framework for 21st century learning (Partnership for 21st Century Learning, 2009), were used to classify the various soft skills for IS positions in an organized manner. Definitions of skills were confirmed and categorized by using the U.S.'s most credible occupational career classification system, the O*NET database, as a resource (Froeschle & Theis, 2009). Prior to validation of the coding schema, a letter of introduction (see Appendix D) was prepared in advance and emailed to each of the nine subject matter experts (SMEs) (see Appendix F).

The SMEs used to validate the SSAG were chosen due to their extensive expertise in the field. However, they were not observed during their participation nor shown the predetermined schema prior to expressing their opinion of classification to avoid possible occurrences of bias. Instead, the SMEs were given nine envelopes labeled with each main category and a plastic sandwich bag filled with individual strips of paper that listed all of the specific soft skills depicted in this study. In addition to the envelopes and plastic sandwich bags, SMEs were given instructions (see Appendix E) to assign each soft skill to a category by placing each soft skill strip in the labeled envelope deemed most appropriate. Upon completion, the SMEs sealed each envelope and returned them in the manila envelope in which they were originally delivered. Upon receipt, the SME category designations were compared to the predetermined Soft Skills Analysis Guide. If at least five of the SME panel members unanimously placed a specific soft skill into a category other than its initial one, it was moved.

After the Soft Skill dictionary (based upon the SSAG) was constructed in Simstat/Wordstat, the next stage of the data analysis process involved quantifying the soft skills listed in the job ads. Dictionary categories were ranked according to frequencies of soft skill occurrences in job postings. The software also permitted the researcher to look for relationships

or categories which were found together within job ads and categories which never or rarely occur together using Jaccard's coefficient and cluster analysis. This statistical measure is based on the occurrences of categories in the ads but does not take into account their frequency. It also has the effect of compensating for large differences in counts for commonly occurring terms (Kennan et al., 2009).

R2. What soft skills are specified in course syllabi of major courses of AACSB-accredited undergraduate business information systems (IS) programs in 4-year public universities in Texas?

A conceptual content analysis (Bauer, 2000) of the most recent Internet-based program information and course syllabi was conducted, and explicit key words were coded to identify the soft skill needs and learning opportunities prevalent in the business IS field. Markey (2004) discovered in her content analysis of library science course descriptions that programs tend to maintain their curricular adherence to "traditional coursework that seeks greater understanding of users and their information-seeking behavior" (Markey, 2004, p. 338). Irwin (2002) also performed a content analysis of undergraduate course descriptions and titles in order to discern the educational priorities of programs. Irwin's (2002) method of analysis, however, assumes that course titles and descriptions accurately reflect course content and that identifiable boundaries exist between all of the subject areas.

The analysis guide, validation process, and statistical software and dictionary utilized for R2 were identical to the information previously described for R1. After soft skills in course syllabi were quantified, Simstat/Wordstat permitted the researcher to look for relationships or categories which are found together within course syllabi and categories which never or rarely

occur together using Jaccard's coefficient similarity measure and cluster analysis. Dictionary categories were also ranked according to frequencies of soft skill occurrences in course syllabi.

Ho1. There are no differences in soft skills expected by Texas employers (as specified in recent electronic job postings for entry-level business information systems (IS) positions) and soft skills taught, as specified in course syllabi of major courses of accredited undergraduate business information systems (IS) programs in 4-year public universities in Texas.

Based upon the qualitative data transferred into Simstat/Wordstat from R1 and R2, calculation of frequency percentages and cluster analysis using Jaccard's coefficient were executed to determine whether or not there were differences or similarities between ranking levels of each of the nine categories of soft skill expectations among Texas employers and the nine categories of soft skill inclusion in Texas undergraduate business IS programs. The cluster analysis was based on the pattern similarity of the nine categories in the dictionary and is represented in Chapter 4 in a dendrogram, which is a graphical display of the clustering. Crosstabulation percentages of previously ranked dictionary categories for job ads and course descriptions were also compared. Using a variety of methods to analyze data depicts a more complete picture of the underlying structure (Kennan et al., 2009).

Summary

This section explained the research design, population of interest, sample, sampling technique, data collection process, and data analysis procedures. Chapter 4 includes a discussion of the results and data findings.

CHAPTER 4

RESULTS

The overall purpose of this study was to explore the alignment of soft skills sought by current business IS entry-level employers in electronic job postings, with the integration of soft skills in undergraduate business information systems (IS) syllabi of public four-year universities in Texas. Analyses yielded data permitting the development of responses to the research questions and hypotheses developed for this study. This chapter is organized into three main sections. The first section discusses validity of the Soft Skill Analysis Guide (SSAG), answers R1 and provides an overview of the soft skills identified in recent electronic job postings. The second section answers R2 and provides an overview of the soft skills identified in undergraduate business IS syllabi of public four-year universities in Texas. The third section answers Ho1 and compares the soft skills identified in both electronic job postings and syllabi.

Soft Skill Analysis Guide Validation

After Soft Skill Analysis Guide validations were submitted, a total of 18 terms were relocated based upon rater feedback, while 127 terms remained in the same categories. For this study, interrater reliability was established by a consensus of a minimum of 5 members of the 9 members (approximately 56%) of the SME panel. The revisions made are listed in Table 2:

Table 2

Soft Skill Analysis Guide Revisions Based Upon SME Validation

Soft Skill term in SSAG Categorical Dictionary	SSAG Category initially located	SSAG Category relocated to after SME validation
Fluency of ideas	Critical Thinking	Creativity
Interact	Collaboration	Communication
Community	Social and Cross-cultural Skills	Collaboration
Can do attitude	Initiative and Self-direction	Flexibility and Adaptability
Independent	Leadership and Responsibility	Initiative and Self-direction
Persistence	Productivity and Accountability	Initiative and Self-direction
Work individually	Productivity and Accountability	Initiative and Self-direction
Think independently	Leadership and Responsibility	Initiative and Self-direction
Effort	Productivity and Accountability	Initiative and Self-direction
Proactive	Leadership and Responsibility	Initiative and Self-direction
Relationships	Collaboration	Social and Cross-cultural
Implement	Initiative and Self-direction	Productivity and Accountability
Compliant	Flexibility and Adaptability	Productivity and Accountability
Organize	Critical Thinking	Productivity and Accountability
Integrity	Productivity and Accountability	Leadership and Responsibility
Trustworthy	Productivity and Accountability	Leadership and Responsibility
Decision making	Initiative and Self-direction	Leadership and Responsibility
Foresight	Initiative and Self-direction	Leadership and Responsibility

To ensure accuracy, an updated copy of the revised Soft Skills Analysis Guide was sent to all SME panel members for final approval.

- R1. What soft skills are currently expected among Texas employers, as specified in recent electronic job postings for entry-level business information systems (IS) positions (excluding those positions related to engineering or computer science)?

One hundred fifty job postings were retrieved from databases and analyzed (75 from Dice; 75 from CareerBuilder). However, 20% ($n = 30$) of the original collection of job postings were rejected from the study and replaced due to duplication (2 from Dice, 6 from CareerBuilder), or failure to satisfy all analysis criteria by requiring only high school diplomas, computer science degrees, engineering degrees, or over 5 years of professional experience (5 from Dice, 17 from CareerBuilder). One thousand five hundred fifty four soft skills representative of all of the 9 soft skill categories examined were found throughout all job postings collected. Findings for the categorical data analysis of electronic job postings for entry-level business IS positions are reported in Table 3.

Table 3

Soft Skill Occurrences in Electronic Job Postings - Rank Order of Frequency

Soft Skill Category	Frequencies in Job Postings	% of Frequency in Job Postings
Leadership and Responsibility	309	19.9%
Communication	253	16.3%
Critical Thinking	211	13.6%
Collaboration	199	12.8%
Productivity and Accountability	176	11.3%
Initiative and Self-direction	161	10.4%
Creativity	160	10.3%
Social and Cross-cultural skills	44	2.8%
Flexibility and Adaptability	41	2.6%
TOTAL	1554	100%

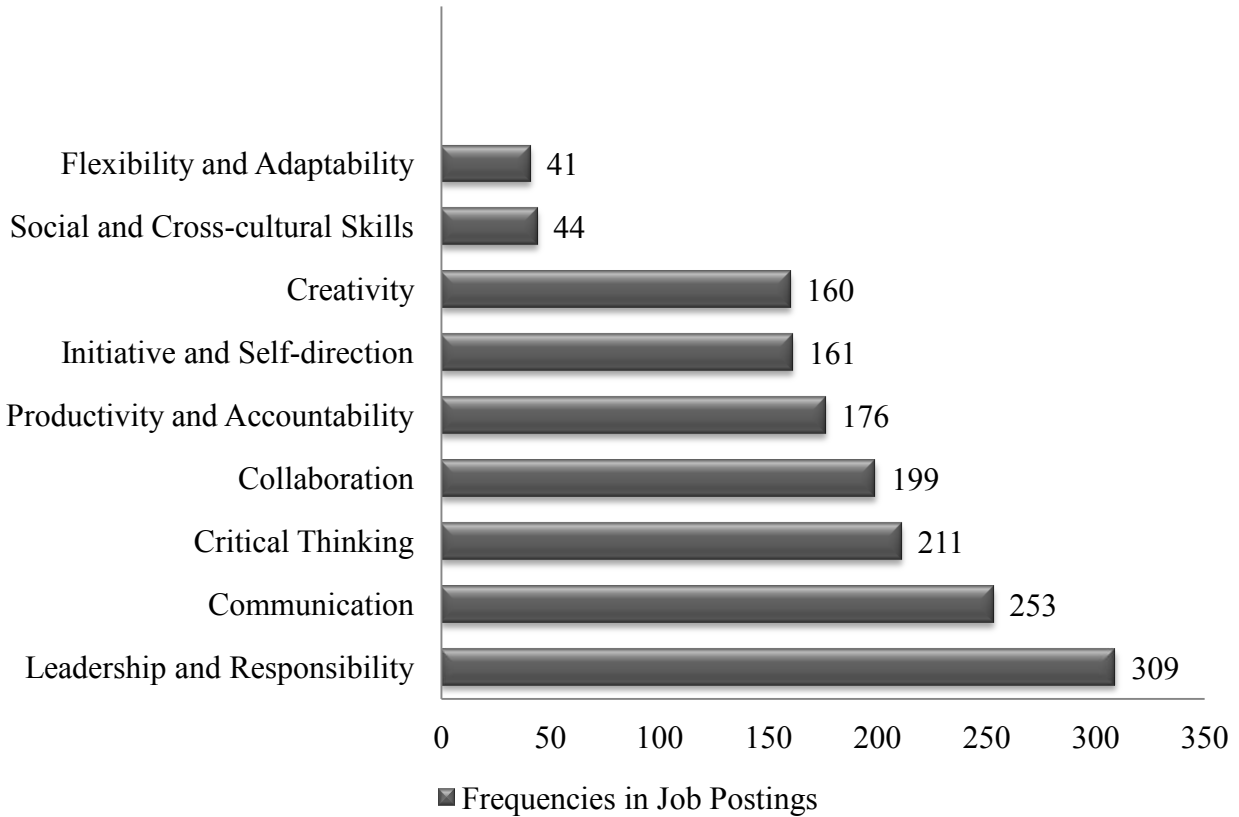


Figure 2. Distribution of soft skills listed in electronic job postings.

As noted in Table 3 and Figure 2, soft skills related to leadership and responsibility (19.9%) were found most frequently throughout job postings, while soft skills related to flexibility and adaptability (2.6%) were found least frequently.

When cluster analysis using Jaccard's coefficient was applied to data within Wordstat, it was revealed that soft skills of certain categories were often mentioned together throughout the electronic job postings. The dendrogram in Figure 3 provides a visual description of this categorical cluster analysis.

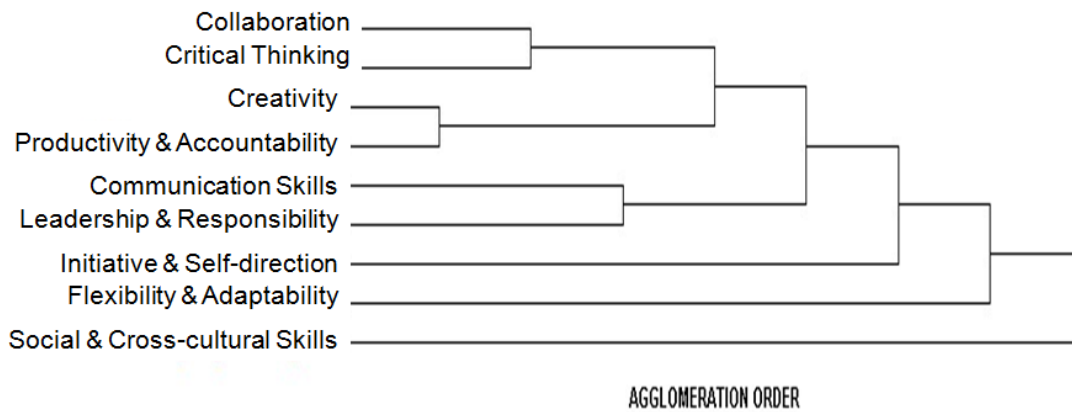


Figure 3. Soft skill cluster analysis of job postings using Jaccard's coefficient.

The more similar job postings were in term of distribution of soft skills, the closer the connection due to a higher Jaccard's coefficient (J). As noted by the unbroken links in Figure 3, soft skills of every category are associated with one another at some point throughout the data. However, due to the close connection of terms, it is evident that the dominant cluster consists of the creativity category and the productivity and accountability category ($J = 0.49$); meaning that soft skills of these two categories had the strongest association and were most often found together within job postings. The next obviously strong associations of soft skills were those of the collaboration category and the critical thinking category ($J = 0.36$). The third cluster of associations of soft skills were those of the communication skills category and the leadership and responsibility category ($J = 0.33$). Soft skills of the collaboration category were also often associated with soft skills of the creativity category ($J = 0.36$) and productivity and accountability category ($J = 0.34$); hence, the evident linkage between the top two clusters. Although Jaccard's coefficient is calculated by occurrence, it is assumed that the communication skills category and leadership and responsibility category cluster of occurrence is largely due to the fact that these categories had the highest ranked frequencies of soft skills.

R2. What soft skills are specified in course syllabi of major courses of AACSB accredited undergraduate business information systems (IS) programs in four-year public universities in Texas?

Business information systems (IS) program information for each of the AACSB-accredited universities examined in this study (n = 10) was collected from CollegeSource online, and analyzed to determine major courses. After reviewing the undergraduate program major course offerings, a total of 70 courses were denoted. The number of major courses organized by university is available in Table 4.

Table 4

Number of Major Business IS Courses Organized by University

AACSB-accredited University	# of Major Course Syllabi Analyzed
1. Texas Tech University	12
2. Stephen F. Austin State University	9
3. University of North Texas	7
4. Lamar University	7
5. Prairie View A&M University	6
6. Sam Houston State University	6
7. Texas State University - San Marcos	6
8. University of Houston	6
9. University of Texas at Austin	6
10. Texas A&M University	5
TOTAL SYLLABI	70

As shown in Table 4, a total of 70 syllabi were retrieved and analyzed in this study. Although some universities had multiple syllabi available for each course, only one syllabus was analyzed per course. This designation was determined by selecting the syllabus for the first numerical course section listed. For example, if a course had three sections listed as “01”, “02”, and “03”, only the syllabi for the “01” course section was selected and added to the sample of this study. 774 soft skills representative of all of the nine (9) soft skill categories examined were found throughout all syllabi collected. Findings for the categorical data analysis of undergraduate business IS syllabi are reported in Table 5.

Table 5

Soft Skill Occurrences in Undergraduate Business IS Syllabi - Rank Order of Frequency

Soft Skill Category	Frequencies in Syllabi	% of Frequency in Syllabi
Critical Thinking	176	22.7%
Leadership and Responsibility	159	20.5%
Creativity	113	14.6%
Productivity and Accountability	88	11.4%
Communication	82	10.6%
Initiative and Self-direction	62	8.0%
Collaboration	61	7.9%
Social and Cross-cultural skills	30	3.9%
Flexibility and Adaptability	3	0.4%
TOTAL	774	100%

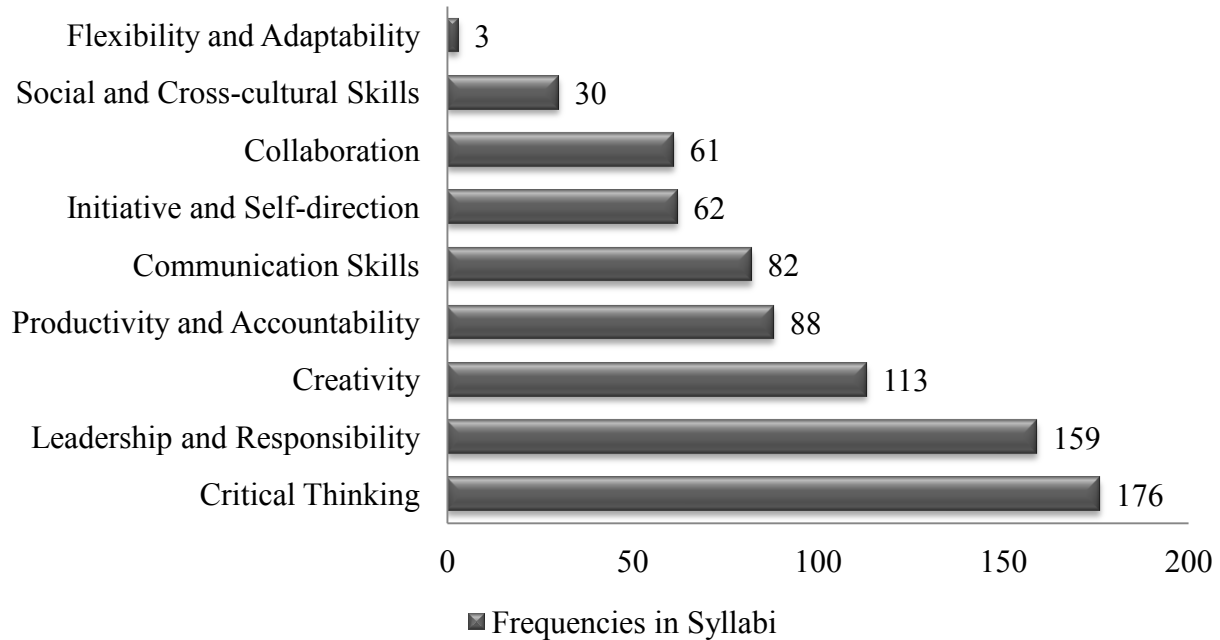


Figure 4. Distribution of Soft Skills listed in Undergraduate Business IS Syllabi

As noted in Table 5 and Figure 4, soft skills related to Critical Thinking (22.7%) were found most frequently throughout syllabi, while soft skills related to Flexibility and Adaptability (0.4%) were found least frequently—once within 3 different courses of 3 different universities.

When cluster analysis using Jaccard’s coefficient was applied to data, it was revealed that soft skills of certain categories were often mentioned together throughout undergraduate business IS syllabi. The dendrogram in Figure 5 provides a visual description of this categorical cluster analysis.

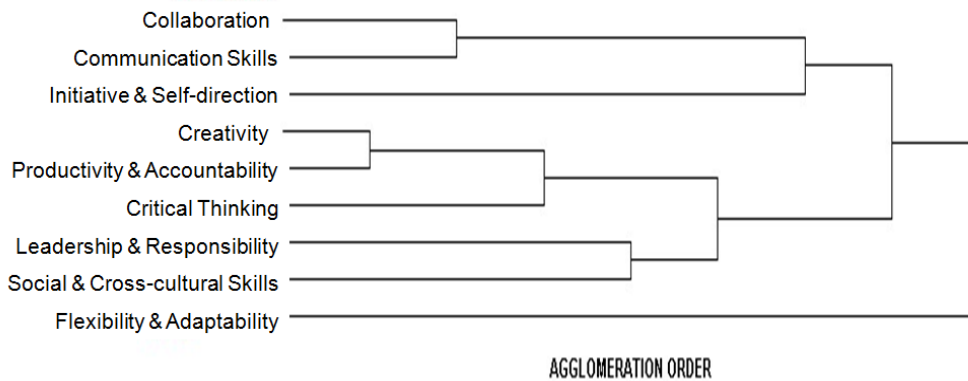


Figure 5. Soft Skill Cluster Analysis of Syllabi using Jaccard’s Coefficient

The more similar syllabi were in term of distribution of soft skills, the closer the connection due to a higher Jaccard’s coefficient (J). As noted by the unbroken links in Figure 5, soft skills of every category were associated with one another at some point throughout the data. However, it is evident that the dominant cluster consists of soft skills of the Creativity category and Productivity and Accountability category ($J = 0.66$). The next obviously strong associations of

soft skills were those of the Collaboration category and the Communication Skills category ($J = 0.47$) and the Initiative and Self-direction category ($J = 0.36$). Another cluster of associations of soft skills were those of the Social and Cross-cultural Skills category and the Leadership and Responsibility category ($J = 0.39$). Soft skills of the Creativity category were also often associated with soft skills of the Critical Thinking category ($J = 0.44$) and Leadership and Responsibility category ($J = 0.39$); hence, the evident linkage in the core of the cluster.

Ho1. There are no differences in soft skills expected by Texas employers (as specified in recent electronic job postings for entry-level business information systems (IS) positions), and soft skills taught, as specified in course syllabi of major courses of accredited undergraduate business information systems (IS) programs in four-year public universities in Texas.

Table 6 compares soft skill findings of all job postings and undergraduate business IS course syllabi analyzed in this study. The first column denotes the soft skill category. The second and fourth columns denote the number of soft skill occurrences, while the third and fifth columns denote the percentages of soft skill occurrences. The sixth column displays the proportional differences of soft skill occurrences between job postings and course syllabi.

Table 6

Crosstabulation of Soft Skill Frequencies in Job Postings and Syllabi

Soft Skill Category	Frequencies in Job Postings	%	Frequencies in Syllabi	%	Difference Between % of Frequency in Job Postings and Syllabi
Critical Thinking	211	13.6	176	22.7	-9.1
Communication Skills	253	16.3	82	10.6	6.3
Collaboration	199	12.8	61	7.9	4.9
Creativity	160	10.3	113	14.6	-4.3
Initiative and Self-direction	161	10.4	62	8.0	2.4
Flexibility and Adaptability	41	2.6	3	0.4	2.2
Social and Cross-cultural Skills	44	2.8	30	3.9	-1.1
Productivity and Accountability	176	11.3	88	11.4	-0.1
Leadership and Responsibility	309	19.9	159	20.5	-0.6
TOTAL	1554	100.0	774	100.0	

*Bold numbers indicate that syllabi had a higher frequency percentage in denoted category

Since the total number of job postings and syllabi analyzed differ, it is imperative to review the percentages of soft skill occurrences denoted for each. Table 6 displays the number of occurrences and percentages of soft skills in each of the nine categories that were found in both job postings and syllabi. A graphical comparison of frequency percentages may also be viewed in Appendix H. It is evident that a higher percentage of soft skills in the Critical Thinking category (22.7%) and Creativity category (14.6%) were found in course syllabi than in job postings, while higher percentages in the Communication category (16.3%) and Collaboration category (12.8%) were found in job postings than course syllabi.

After comparing the dendrograms of Jaccard's coefficient results (Job Posting $J = 0.49$; Syllabi $J = 0.66$), it may be noted that soft skills of the Creativity category and the Productivity and Accountability category had the strongest association and were often found listed together within data entries for both job postings and course syllabi (see Appendix G). However, the other categorical clusters identified and denoted in the results of R1 and R2 varied. Because differences in the frequencies and cluster occurrences of soft skills in job postings and syllabi were noted, the null hypothesis of this study was rejected. Soft skill categories for both job postings and course syllabi may be viewed by rank in Table 7.

Table 7

Soft Skill Category Rankings – Job Postings and Course Syllabi

Ranked Order	Job Postings	Course Syllabi
1	Leadership and Responsibility	Critical Thinking
2	Communication Skills	Leadership and Responsibility
3	Critical Thinking	Creativity
4	Collaboration	Productivity and Accountability
5	Productivity and Accountability	Communication Skills
6	Initiative and Self-direction	Initiative and Self-direction
7	Creativity	Collaboration
8	Social and Cross-cultural Skills	Social and Cross-Cultural Skills
9	Flexibility and Adaptability	Flexibility and Adaptability

* Bold categories share the same ranked levels for both job postings and syllabi

When organized by rank, three categories of data are aligned: (1) Initiative and Self-direction, (2) Social and Cross-Cultural Skills, and (3) Flexibility and Adaptability. However, an obvious gap in priority of the Communication Skills category, Collaboration category, and the Creativity

category may be suggested. Although not visually recognizable by rank, the largest gap in soft skill occurrence was in the area of Critical Thinking (-9.1%), which may be observed in Table 6.

Summary

This section provided a discussion of the results and data findings. Chapter 5 summarizes the research study and discusses the findings regarding the results. The implications of the findings and recommendations for future research in the field are also discussed.

CHAPTER 5

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

Summary of Findings

The purpose of this study was to explore the alignment of soft skills sought by current business IS entry-level employers in electronic job postings, with the integration of soft skills in undergraduate business information systems (IS) syllabi of public four-year universities in Texas. One hundred fifty job postings were extracted from two major electronic career databases: Dice.com and Careerbuilder.com. Ten undergraduate AACSB-accredited programs in the field of business information systems (IS) were investigated, and syllabi for the 70 major courses of the business IS programs were obtained for review.

Content analysis was applied to all job postings and syllabi, exposing all soft skills related to the 9 categories used in this study: (1) creativity, (2) critical thinking, (3) communication skills, (4) collaboration, (5) flexibility and adaptability, (6) initiative and self-direction, (7) social and cross-cultural skills, (8) productivity and accountability, and (9) leadership and responsibility. The 9 categories used in this study were adapted from the 21st Century Framework for Learning (Partnership for 21st Century Learning, 2009), and used to create the Soft Skills Analysis Guide (SSAG) which was validated by 9 subject matter experts. All data was input into Excel, and then exported to Simstat/Wordstat statistical software. Data analysis showed that soft skills of all nine categories depicted in the theoretical framework of this study were included in job postings and course syllabi. Frequencies were tabulated to determine rank of soft skills in job postings and syllabi, and Jaccard's coefficient statistic of occurrence was used for cluster analysis. Soft skills within all 9 categories were found in job postings ($n = 1554$) and course syllabi ($n = 774$). Three soft skill categories were aligned

between job postings and syllabi: (1) initiative and self-direction, (2) social and cross-cultural skills, and (3) flexibility and adaptability. However, because differences in the higher ranked frequencies of soft skills in job postings and syllabi were noted, the null hypothesis of this study was rejected.

Conclusions

Conclusions are discussed by research question and hypothesis below:

R1. What soft skills are currently expected among Texas employers, as specified in recent electronic job postings for entry-level business information systems (IS) positions (excluding those positions related to engineering or computer science)?

Data revealed that soft skills in all nine categories examined were identified throughout this study's sample of 150 electronic job postings; and, therefore, supports the theoretical framework utilized as the foundation of the Soft Skill Analysis Guide for content analysis. These categories include (1) creativity, (2) critical thinking, (3) communication, (4) collaboration, (5) flexibility and adaptability, (6) initiative and self-direction, (7) social and cross-cultural skills, (8) productivity and accountability, and (9) leadership and responsibility. However, the four highest ranked categories included leadership and responsibility (19.9%), communication (16.3%), critical thinking (13.6%), and collaboration (12.8%). These results support research conducted by Graduate Careers of Australia (2010) regarding the high demand for communication skills, and claims of Texas Workforce Commission Chairman, Tom Pauken, who suggested that critical thinking, teamwork, and effective communication are essential skills to possess in preparation for today's workforce (Froeschle & Theis, 2009). Zweig (2006) and Gabric & McFadden (2001) also found that communication and critical thinking were top soft skill choices of employers. These findings lead to the idea that potential employers are in search

of leaders and responsible individuals with good communication and critical thinking skills that possess the ability to successfully work in a team environment.

The lowest ranked soft skill categories for electronic job postings included flexibility and adaptability (2.6%), social and cross-cultural skills (2.8%), creativity (10.3%), and initiative and self-direction (10.4%). Gallivan et al (2004) found some of the most common non-technical skills mentioned in employment advertisements to be in the areas of communication, leadership, self-motivation, and creativity. Although the results of this study support their findings of communication and leadership, it also refutes the commonness of self-motivation and creativity due to the fact that the initiative and self-direction category and creativity category were ranked lowly in terms of priority when compared to the other soft skill categories.

R2. What soft skills are specified in course syllabi of major courses of AACSB accredited undergraduate business information systems (IS) programs in four-year public universities in Texas?

Data revealed that soft skills in all nine categories examined were identified throughout this study's sample of 70 undergraduate business IS course syllabi; and, therefore, supports the theoretical framework (Partnership for 21st Century Skills, 2009) utilized as the foundation of the Soft Skill Analysis Guide for content analysis. These categories include (1) creativity, (2) critical thinking, (3) communication, (4) collaboration, (5) flexibility and adaptability, (6) initiative and self-direction, (7) social and cross-cultural skills, (8) productivity and accountability, and (9) leadership and responsibility. However, the four highest ranked categories included critical thinking (22.7%), leadership and responsibility (20.5%), creativity (14.6%), and productivity and accountability (11.4%). These findings lead to the conclusion that business IS programs in Texas are currently teaching future employees to be responsible

leaders, with the ability to think critically and be creative, productive, and accountable for their actions. These specific soft skills are definitely important for prospective employees to possess. Furthermore, these results support the ideas of Gallivan et al (2004) who found that employers desire employees who possess creativity; however, the top results of soft skills in the course syllabi fail to include the most commonly noted soft skill listed in most related literature—communication skills. The communication skills category (10.6%) was included within the four lowest ranked soft skill categories for undergraduate business IS course syllabi along with social and cross-cultural skills (3.9%), collaboration (7.9%), and initiative and self-direction (8.0%). Although these results could insinuate that academia does not consider the soft skills of these four categories as important as the others, it is more likely that these results imply that these skills are simply not deemed necessary to be included as objectives in course syllabi—especially since many of the syllabi collected from a few of the programs were nearly duplicates of others and not very specific in content. Communication strategies can be taught through use of a variety of strategies and techniques; however, the important matter is that instructors of every section of a particular course provide all students with opportunities to be exposed to the same learning experiences and goals. Hence, clearly written objectives and expectations are imperative.

Ho1. There are no differences in soft skills expected by Texas employers (as specified in recent electronic job postings for entry-level business information systems (IS) positions), and soft skills taught, as specified in course syllabi of major courses of accredited undergraduate business information systems (IS) programs in four-year public universities in Texas.

Because each of the nine soft skill categories were addressed in electronic job postings and undergraduate business IS course syllabi, it is evident that both sectors agree on the importance of soft skills. Therefore, the results of this study support the work of Harvey & Knight (1996) who also observed that there is little disagreement between academics and employers on the desirability of developing soft skills. However, the varying levels of some categorical rankings provide data that the priorities of both sectors are misaligned. The ranked results suggest that both the academic and corporate sectors in Texas agree that soft skills in the categories of leadership and responsibility and critical thinking are highly important; soft skills in the productivity and accountability category are somewhat important; and soft skills in the initiative and self-direction category, social and cross-cultural skills category, and flexibility and adaptability category are also important (although, low in rank). However, there are obvious gaps in alignment and priority of the following three categories: (1) communication skills, (2) collaboration, and (3) creativity.

The largest percentage gap of occurrence was denoted within the critical thinking category (-9.1%). However, this large occurrence gap should not diminish the importance of these skills due to the fact that critical thinking is still ranked highly in both sets of data for job postings (ranked #3) and course syllabi (ranked #1). Based upon data entries, the gap in occurrence is due to vast frequency of the term ‘analysis’ which was immediately recognized throughout business IS course syllabi by the researcher—especially courses specifically related to systems analysis and design. This finding supports Boyatzis’ (1995) study which found that educators tended to place great value on analytical skills when designing their courses.

Overall, job postings were more aligned with results of previous research studies (Gabric & McFadden, 2001; Zweig, 2006; Froeschle & Theis, 2009) to a higher degree than the course

syllabi. The communication skills category was ranked #2 in electronic job postings, but #5 in course syllabi with an occurrence gap of 6.3%. This finding suggests that business IS programs must seek to incorporate more activities to nurture the communication skills of students, in lieu of the traditional lecture course format found in many business schools. The collaboration category was ranked #4 in electronic job postings, but #7 in course syllabi with an occurrence gap of 4.9%. This finding suggests that more opportunities for team work and collaborative thinking must begin to occur in business IS courses. Although many professors and undergraduate students are leery of team projects, the arrival of Web 2.0, open source tools available for instructional use has provided many viable options for online collaboration. The creativity category was ranked #7 in electronic job postings, but #3 in course syllabi with an occurrence gap of -4.3%. This finding suggests that while fostering creativity in students is a top priority for undergraduate business IS programs in Texas, business IS employers may think otherwise. Because many organizations have a distinct culture with precise employee role assignments, perhaps creativity is not always a desirable trait for some positions in the business IS field. As global and diverse as most organizations have now become, it was unanticipated that the social and cross-cultural category (#8) and the flexibility and adaptability category (#9) would rank lowest for both job postings and course syllabi. To enhance both employee and student relations, increasing the acknowledgement of the importance of diversity awareness is an area of discussion which should definitely be addressed more frequently.

Summary of Conclusions

Results of this study possess the ability to assist business educators, business school program coordinators, human resource administrators, career counselors, students, corporate trainers, information systems consultants, agency recruiters, and institutions, by providing data

regarding soft skill employer expectations specified in job postings and soft skill learning experiences specified in course syllabi. Universities must increase collaboration with employers to ensure that they are adequately preparing students by closing soft skill gaps. It is evident that prospective employees must be equipped with soft skills to remain competitive. As Hargreaves (2003) noted, if schools do not seek to enhance these qualities within students, their graduates will be left behind. Employers are publicly stating their demands; it is now imperative for postsecondary education to acknowledge them when developing course content and objectives.

Implications for the Field

Prior studies have shown evidence of the great demand for soft skills in the workplace and among business IS employers (e.g., Koncz & Collins, 2006; Beard et al, 2008; Kennan et al, 2009), and the analysis of data in this study fits well with such research findings. However, it is imperative for employers to devote the necessary time and attention to develop informative job postings reflective of their actual desires. Replicating job posting criteria among various positions should not be a common practice of professional organizations. Each position is unique and deserves a unique description with detailed desirable characteristics. Creating more specific job postings will not only assist in helping recruiters locate the ideal employee for open positions, but it will also decrease the number of ineligible applications received per position. Many ill-prepared entry-level job seekers become intimidated by detailed job postings; this, in turn, makes room for more qualified candidates to apply. Employers must also take the initiative to personally reach out to business IS program coordinators to build partnerships with open lines of communication to make their demands known and/or offer internship opportunities for students.

It is further imperative for those in academia to refine and clarify their understanding of employers' needs and expectations of business IS graduates in order to obtain accurate implications to assist in the design of undergraduate programs. While both sectors should be commended for avidly insinuating the importance of leadership skills and responsibility among future employees, other vital skill sets must also begin to be discussed and addressed. For example, the strong critical thinking skills currently being taught in Texas undergraduate business IS programs are definitely assets to anyone with hopes of having a successful career; however, peer-to-peer collaboration must also return as a classroom priority despite the negative connotation sometimes associated with it. The inclusion of soft skills in the Social and Cross-cultural category, such as various forms of diversity training, must also be acknowledged and incorporated in pursuit of creating well-rounded graduates. Many students fail to encounter individuals who do not look or think like them until they enter college; therefore, academia must prepare students for today's global workforce by seeking to increase ethnic, gender, and sexual connotation tolerance and levels of respect among students.

Recommendations

Business IS is a rapidly changing field; thus, it is necessary to continually gather information about employer expectations. The findings of this study introduce more divergent areas of inquiry that future researchers should explore regarding the demand and instruction of soft skills. A limitation of the study was the subjective issue of content analysis, primarily because data was limited to what was explicitly listed in Texas job postings and course syllabi. However, by performing an empirical assessment of job postings and course syllabi, this study contributes to a more holistic understanding of the current employment landscape, the needs of Texas employers and students, and the educational offerings of Texas business IS programs.

Although several researchers have already interviewed or surveyed employers (i.e., Zweig, 2006; Gabric & McFadden, 2001), it is suggested that future researchers seek to obtain additional qualitative data from the educational sector for publication in a variety of related research outlets. Because there is no way to accurately determine the full quality of teaching methods administered during business IS instruction by only reviewing syllabi, the following recommendations are suggested for future research (rank order):

1. Obtain specific qualitative data from students and faculty through interviews and questionnaires regarding perceptions and experiences of soft skills taught in undergraduate business IS courses. Perhaps a related quantitative survey may also assist in collecting additional valuable data.
2. Interview business IS department program coordinators, chairs, and deans to determine what (if any) methods of collaboration with the corporate sector are utilized to increase alignment of employer demands, and adequately prepare future employees.
3. Physically observe business IS courses over a period of 1 to 2 semesters to identify strategies used to integrate soft skills within curricula and determine whether or not the soft skill objectives listed on syllabi are actually being integrated. The opportunity may also present itself to denote soft skills being integrated without even being listed in course objectives or activities on the syllabus.
4. Expand the sample size to business IS job postings and syllabi from other states to compare findings with Texas results; hence, increasing the generalizability of results.
5. Further examine categorical clusters, and/or monitor changes in core clusters over time.

APPENDIX A
LIST OF AACSB-ACCREDITED INSTITUTIONS WITH
MIS/CIS UNDERGRADUATE PROGRAMS IN TEXAS

1. University of Houston, C. T. Bauer College of Business
2. University of Houston – Downtown, College of Business
3. University of Houston – Clear Lake, School of Business
4. Lamar University, College of Business
5. University of North Texas, College of Business
6. Prairie View A&M University, College of Business
7. Sam Houston State University, College of Business Administration
8. Stephen F. Austin State University, Nelson Rusche College of Business
9. Texas A&M International University, College of Business Administration
10. Texas A&M University, Mays Business School
11. Texas A&M University – Corpus Christi, College of Business
12. University of Texas at Arlington, College of Business Administration
13. University of Texas at Austin, McCombs School of Business
14. Texas State University – San Marcos, Emmett and Miriam McCoy College of Business Administration
15. Texas Tech University, Jerry S. Rawls College of Business Administration
16. University of Texas Pan-American, College of Business Administration
17. University of Texas at San Antonio, College of Business
18. University of Texas at El Paso, College of Business Administration
19. University of Texas at Dallas, School of Management
20. Midwestern State University, Dillard College of Business Administration

APPENDIX B

SOFT SKILL ANALYSIS GUIDE (RESEARCHER CREATED)

Based upon concepts from the Framework for 21st Century Learning (p21.org)

Category	Related Soft Skills
Creativity	Creative, original, imaginative, artistic, ingenious, innovative, design, develop, out-of-the-box, fluency of ideas, creativity, create
Critical Thinking	Analytical, logical, investigative, critical, methodical, reasoning skills, problem solving, analyze, evaluate, categorize, process information, problem resolution, attention to detail, resolve, solve problems, strategic
Communication	Communication skills, public speaking, presentation skills, verbal, non-verbal, active listening, oral, discuss, negotiation, articulate, interpersonal skills, interact, communicate, customer service
Collaboration	Collaborate, collaboration, teamwork, group, cooperation, partnership, collective, support, team player, community, work in team, work with
Flexibility and Adaptability	Flexible, adaptable, adjusts, accommodate, quick learner, change oriented, flexibility, can do attitude, multi-task, adapts to change, patient, adapt
Initiative and Self-Direction	Initiative, self-directed, plan, coordinate, determination, ambitious, desire to learn, eager to learn, energetic, self motivated, independent, work individually, think independently, proactive, persistence, effort, enthusiasm, autonomous, motivated, planning, driven, drive, goal oriented, prepare
Social and Cross-cultural Skills	Diversity, multicultural, tolerance, cross-cultural, social, relationships, diverse, positive attitude, etiquette, culture, cultural
Productivity and Accountability	Productive, accountable, efficient, ethical, dependable, time management, implement, compliant, organize, organization, manages time, reliable, maintain, committed, timely manner, accountability, commitment, meet deadlines, adhere, execute
Leadership and Responsibility	Leader, responsible, management, character, conscientious, determine project scope, needs, or limitations, attention to detail, prioritize work, relationship builder, integrity, trustworthy, decision making, make decisions, foresight, professional, professionalism, business acumen, detail oriented, direct, monitor, administrate, facilitate

APPENDIX C
EXCEL SPREADSHEET CRITERIA

Job Posting Excel Spreadsheet Criteria Example
(The information below was recreated in spreadsheet format)

Record # _____

Date Collected _____

Job Title _____

Company _____

Location of Position _____

Database of Retrieval: Dice (10_*) CareerBuilder (20_*)

Soft Skills Specified (Circle or Highlight below):

Category	Related Soft Skills
Creativity	Creative, original, imaginative, artistic, ingenious, innovative, design, develop, out-of-the-box, fluency of ideas, creativity, create
Critical Thinking	Analytical, logical, investigative, critical, methodical, reasoning skills, problem solving, analyze, evaluate, categorize, process information, problem resolution, attention to detail, resolve, solve problems
Communication	Communication skills, public speaking, presentation skills, verbal, non-verbal, active listening, oral, discuss, negotiation, articulate, interpersonal skills, interact, communicate, customer service, strategic
Collaboration	Collaborate, collaboration, teamwork, group, cooperation, partnership, collective, support, team player, community, work in team, work with
Flexibility and Adaptability	Flexible, adaptable, adjusts, accommodate, quick learner, change oriented, flexibility, can do attitude, multi-task, adapts to change, patient, adapt
Initiative and Self-Direction	Initiative, self-directed, plan, coordinate, determination, ambitious, desire to learn, eager to learn, energetic, self motivated, independent, work individually, think independently, proactive, persistence, effort, enthusiasm, autonomous, motivated, planning, driven, drive, goal oriented, prepare
Social and Cross-cultural Skills	Diversity, multicultural, tolerance, cross-cultural, social, relationships, diverse, positive attitude, etiquette, culture, cultural
Productivity and Accountability	Productive, accountable, efficient, ethical, dependable, time management, implement, compliant, organize, organization, manages time, reliable, maintain, committed, timely manner, accountability, commitment, meet deadlines, adhere, execute
Leadership and Responsibility	Leader, responsible, management, character, conscientious, determine project scope, needs, or limitations, attention to detail, prioritize work, relationship builder, integrity, trustworthy, decision making, make decisions, foresight, professional, professionalism, business acumen, detail oriented, direct, monitor, administrate, facilitate

Course Syllabus Excel Spreadsheet Criteria Example

(The information below was recreated in spreadsheet format)

Record # 3 ___

Date Collected _____

Course Title _____

University _____

Location of Institution _____

Database of Retrieval: College Source Online University Website

Soft Skills Specified (Circle or Highlight below):

Category	Related Soft Skills
Creativity	Creative, original, imaginative, artistic, ingenious, innovative, design, develop, out-of-the-box, fluency of ideas, creativity, create
Critical Thinking	Analytical, logical, investigative, critical, methodical, reasoning skills, problem solving, analyze, evaluate, categorize, process information, problem resolution, attention to detail, resolve, solve problems, strategic
Communication	Communication skills, public speaking, presentation skills, verbal, non-verbal, active listening, oral, discuss, negotiation, articulate, interpersonal skills, interact, communicate, customer service
Collaboration	Collaborate, collaboration, teamwork, group, cooperation, partnership, collective, support, team player, community, work in team, work with
Flexibility and Adaptability	Flexible, adaptable, adjusts, accommodate, quick learner, change oriented, flexibility, can do attitude, multi-task, adapts to change, patient, adapt
Initiative and Self-Direction	Initiative, self-directed, plan, coordinate, determination, ambitious, desire to learn, eager to learn, energetic, self motivated, independent, work individually, think independently, proactive, persistence, effort, enthusiasm, autonomous, motivated, planning, driven, drive, goal oriented, prepare
Social and Cross-cultural Skills	Diversity, multicultural, tolerance, cross-cultural, social, relationships, diverse, positive attitude, etiquette, culture, cultural
Productivity and Accountability	Productive, accountable, efficient, ethical, dependable, time management, implement, compliant, organize, organization, manages time, reliable, maintain, committed, timely manner, accountability, commitment, meet deadlines, adhere, execute
Leadership and Responsibility	Leader, responsible, management, character, conscientious, determine project scope, needs, or limitations, attention to detail, prioritize work, relationship builder, integrity, trustworthy, decision making, make decisions, foresight, professional, professionalism, business acumen, detail oriented, direct, monitor, administrate, facilitate

APPENDIX D

LETTER OF INTRODUCTION FOR SMEs

Dear Subject Matter Experts,

Thank you so much for agreeing to assist me with my dissertation research. I will be contacting each of you within the next two days to determine when and where I should deliver the Soft Skill Analysis Guide Validation Packet to you. Completion of the validation process should only take approximately 30 - 45 minutes of your invaluable time. Instructions will be included in the packet. If you have any questions, please feel free to contact me at

_____ or Pamela.Bracey@unt.edu.

Thanks again,

Pam

APPENDIX E
INSTRUCTIONS FOR SMEs

Greetings _____:

Thanks for agreeing to assist me with my dissertation project entitled: *An Examination Of Soft Skills Listed In Texas Job Postings and Undergraduate Business Information Systems Syllabi*. Please follow the instructions below within two days and contact me upon completion. Your expertise is greatly appreciated.

Your Soft Skills Analysis Guide Packet should have the following materials:

- 1) 9 white envelopes individually labeled with the following major soft skill categories:
 - Creativity
 - Critical Thinking
 - Communication
 - Collaboration
 - Flexibility and Adaptability
 - Initiative and Self-direction
 - Social and Cross-cultural Skills
 - Productivity and Accountability
 - Leadership and Responsibility

- 2) A plastic sandwich bag filled with strips of paper with individual soft skills on them

Instructions:

- 1) Ensure that all materials listed above are included in your packet
- 2) Open the plastic sandwich bag and review the words enclosed
- 3) Using your professional expertise, categorize all soft skills by placing each word in the envelope deemed most appropriate
- 4) After placing each word in a corresponding envelope, check for accuracy
- 5) Seal each envelope and put them back into the manila Soft Skill Analysis Guide Validation Packet folder
- 6) Call or email Pam to confirm completion and determine a pick-up time/location

Thanks again for your assistance,

Pamela Scott-Bracey
Email: Pamela.Bracey@unt.edu

APPENDIX F
SUBJECT MATTER EXPERT CREDENTIALS

Subject Matter Expert Credentials

	Professional Title	Educational Level	Years of Professional Experience	Other Related Areas of Expertise
SME 1	Sr. Software Engineer	BS (Computer Engineering)	14	Hiring Manager for Business IS positions of a world-renowned aerospace equipment company
SME 2	Speech Therapist	BS (Speech Pathology and Audiology)	10	Independent Business Etiquette Consultant
SME 3	College of Business Academic Advisor	BS (Business Administration) MBA (Organizational Behavior) PHD (in progress)	30	Certified Business Educator Former Account Manager for a Fortune 500 Company Training Specialist
SME 4	Business Analyst	BS (Management Information Systems) MS (Information Systems)	8	Successfully earned credentials form two IS programs
SME 5	Regents Professor	BS MA (Industrial Technology) PHD (Vocational-Technical Education)	38	Career and Technical Education Program Coordinator, Research, Trainer, and Author
SME 6	Human Resource Generalist	BS (Business Administration) MS (Applied Technology & Performance Improvement) PHD (in progress)	5	Former facilitator of workshops regarding soft skill development Coordinator for a human resource mentorship program Earned several leadership awards
SME 7	Entrepreneur	BBA (Accounting) MS (Student Ministry)	15	Interviews and Manages over 100 individuals Contracts a variety of business support services to corporations Serves as a youth pastor for 300 students
SME 8	Senior Manager of Business Operations	BS (Health Administration) MPH (Health Policy) MBA (General Business)	11	Hiring Manager for a Fortune 500 retail corporation Corporate Leadership Development Program Evaluator
SME 9	MIS Project Manager	BS (Management Information Systems) MBA (Database Administration)	6	Former Database Administrator Manager of multiple MIS projects simultaneously

APPENDIX G
JACCARD'S COEFFICIENT RESULTS

JOB POSTINGS – Cluster Analysis Results Using Jaccard's Coefficient

	Collaboration	Communication Skills	Creativity	Critical Thinking	Flexibility And Adaptability	Initiative And Self-Direction	Leadership And Responsibility	Productivity And Accountability	Social And Cultural Skills
Collaboration	1.00	0.36	0.36	0.36	0.22	0.27	0.29	0.34	0.13
Communication Skills	0.36	1.00	0.25	0.30	0.27	0.31	0.33	0.27	0.21
Creativity	0.36	0.25	1.00	0.31	0.19	0.34	0.31	0.49	0.14
Critical Thinking	0.36	0.30	0.31	1.00	0.17	0.23	0.30	0.33	0.17
Flexibility And Adaptability	0.22	0.27	0.19	0.17	1.00	0.22	0.28	0.26	0.07
Initiative And Self-Direction	0.27	0.31	0.34	0.23	0.22	1.00	0.29	0.31	0.22
Leadership And Responsibility	0.29	0.33	0.31	0.30	0.28	0.29	1.00	0.36	0.29
Productivity And Accountability	0.34	0.27	0.49	0.33	0.26	0.31	0.36	1.00	0.13
Social And Cultural Skills	0.13	0.21	0.14	0.17	0.07	0.22	0.29	0.13	1.00

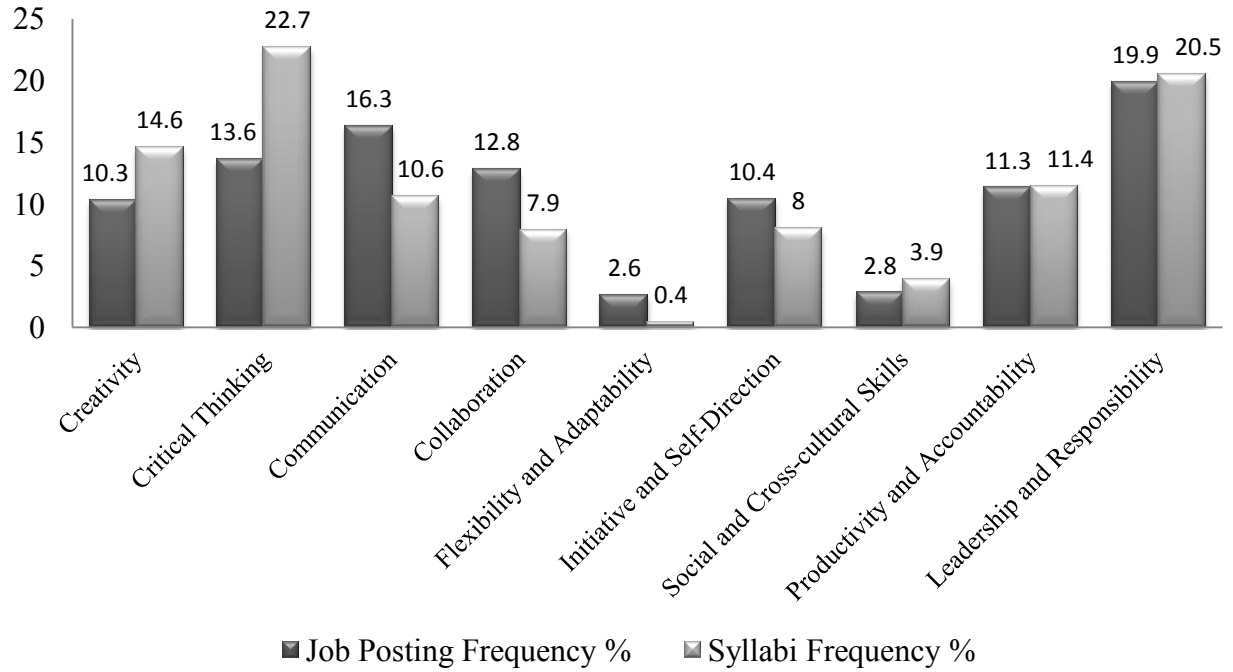
SYLLABI – Cluster Analysis Results Using Jaccard's Coefficient

	Collaboration	Communication Skills	Creativity	Critical Thinking	Flexibility And Adaptability	Initiative And Self-Direction	Leadership And Responsibility	Productivity And Accountability	Social And Cultural Skills
Collaboration	1.00	0.47	0.28	0.32	0.05	0.36	0.20	0.35	0.18
Communication Skills	0.47	1.00	0.16	0.23	0.04	0.14	0.31	0.19	0.26
Creativity	0.28	0.16	1.00	0.44	0.10	0.21	0.28	0.66	0.24
Critical Thinking	0.32	0.23	0.44	1.00	0.17	0.24	0.39	0.44	0.18
Flexibility And Adaptability	0.05	0.04	0.10	0.17	1.00	0.13	0.19	0.12	0.26
Initiative And Self-Direction	0.36	0.14	0.21	0.24	0.13	1.00	0.22	0.25	0.26
Leadership And Responsibility	0.20	0.31	0.28	0.39	0.19	0.22	1.00	0.33	0.39
Productivity And Accountability	0.35	0.19	0.66	0.44	0.12	0.25	0.33	1.00	0.27
Social And Cultural Skills	0.18	0.26	0.24	0.18	0.26	0.26	0.39	0.27	1.00

APPENDIX H

COMPARISON OF FREQUENCY PERCENTAGES OF JOB POSTINGS AND SYLLABI

Comparison of Frequency Percentages of Job Postings and Syllabi



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