

A STUDY OF SOFT SKILLS FOR IT WORKERS IN RECRUITMENT ADVERTISING

by

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Abstract

Previous research has shown that employers prefer Information Technology (IT) workers to possess soft skills. This quantitative study examined a sample population of 1,186 IT job postings at Careerbuilder.com, Hotjobs.com, Monster.com and Dice.com over a 30 day period to evaluate whether employers are stating a preference for soft skills during IT recruitment advertising. Advertisements were randomly examined and data was collected to determine if there are any relationships between company location, experience level required, education level required, job category, and if the position is management or non-management. The hypothesis was that: Employers are not stating a preference for soft skills during the recruitment phase. The hypothesis was found to be true. Relationships between management postings, education levels, and experience levels and requests for soft skills were also discovered.

Dedication

I dedicate this book to my family. But, I need to thank God. It is he who gave me everything I need to be successful in this endeavor. He gave me the best husband, Terry, and children, Mitch, Brent, and Lea, that I could ever have wished for. It is my family that keeps me grounded and going through every day. Without their sacrifices of not only our time together, but of the use of the Internet, computer, and television, the lack of vacations, the weeks in the motorhome in Minneapolis for residencies, the things they did without so I could pay tuition, the meals they cooked, the laundry they washed, the vacuuming and dusting, and all the other things I didn't have time to do, logistically, this would not have been possible. But, deeper than that, the support of their unwavering belief that I could do this; their always knowing that this day would come was immeasurable. They never doubted the outcome, though many times I did.

It may not have looked like I would even get a bachelor degree for a while, but thanks to some pretty bad jobs, I did find my way into college. When I had given up on satisfying myself, my family was my motivation; I couldn't let them down. I also wished to show them how an education could better them and their lives, and that reaching goals isn't always easy, but it can be done. My family has been with me the whole way, from the first associate degree, through the bachelors, MBA, and Ph.D.. They have been at every graduation, and they will proudly be at this one also.

I also owe my parents, Glen and Elaine Maubach, a big thanks. They taught me that I could do anything, and solve any problem if I thought about it long enough and worked hard enough on it. When we were little and fell down, Dad used to tell us, "Come here and I will pick you up". He thought he was being a wise guy, but as I reflect, there is great meaning in what he

said. He was telling us to get up and do it for ourselves, and if we absolutely couldn't, he would always be there, and he is.

To my dear departed sister: Thank you for loving me in spite of me being me. I love you, miss you, and even though I know you are with me, I wish you were here.

P.S. Snoopy, you were the best friend and counselor any kid would ever hope for.

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CHAPTER 1. INTRODUCTION

Throughout time man has found it necessary to possess skills in order to survive, during ancient times, those skills ranged from the art of war, to the art of rhetoric. In the colonial times, those skills ranged from farming, to seamanship, and the industrial revolution lessened the need for workers who were primarily self-employed and rural based, and increased the need for workers with more specialized skills for urban factory work. As a result, formal training, as opposed to apprenticeships, started to develop.

The launching of Sputnik spawned the dawn of the technology era, which brought the need for entirely new skill sets. At first, skills focused on technical ability, however, as technology became more mainstream, and technical sets became better developed and more readily available, employers shifted some of the focus to soft skills. Increasing global outsourcing has also brought about an analysis of what skills are critical to keep in-house. The results of several surveys show that the “client -facing” skills are critical in-house skills, an example of which is called client-facing skills. Soft skills are those skills which are used when one human interacts with another human. Findings indicate that IT professionals need to have a balance that demonstrates mastery of hard-skills and softer business oriented skills. Soft skills have been called interpersonal skills which are also referred to as Emotional Intelligence (EI), a term coined by Salovey and Mayer in 1990. The study of EI evolved from works by theorists such as Gardner in 1983, Goldman in 1985, and Williams and Sternburg in 1998 who used the constructs of Gardner’s intrapersonal and interpersonal components in their development of emotional intelligence (www.ei.org).

Researchers at Virginia Tech found that EI indirectly contributed to Computer Science student's success, although the student's academic success was not directly linked to EI, students with higher levels of EI had more self-efficacy (self-confidence, and knowledge that one can handle any problems or challenges effectively), and that having self-efficacy in turn enhanced their academic performance (Ho, 2005).

Background of the Study

Considerable research indicates that IT professionals have traditionally lacked soft skills. A two decade old study that used the Myers-Briggs framework to classify 1,229 IT professionals, only 19% of IT professionals were classified as “feelers”, who make decisions based on personal values or feelings, whereas 81% were classified as “thinkers”, who are interested in solving problems through logical analysis and objectivity. On another axis of the Myers-Briggs instrument, 67% of the IT professionals were classified as “introverts” (Lyons, 1985, p. 37).

Since 1986, the authors of six ERIC digests and one Trends and Issues Alerts have waded through massive amounts of literature to investigate the evolving topic of employability skills. The dual challenges of competing in a world market and rapidly evolving technological advancements have necessitated a redesign of the workplace into an innovative work environment known as the high-performance workplace. This environment requires a behavior and orientation toward work that go beyond step-by-step task performance by expecting workers at all levels to solve problems, create ways to improve the methods they use and engage effectively with coworkers (Baily, 1997, Packer 1998). Knowledge workers who demonstrate this highly skilled, adaptive blend of technical and human relations ability are recognized by

employers as their primary competitive edge. Job specific technical skills in a given field are no longer sufficient as employers scramble to fill an increasing number of interdependent jobs.

A 2002 survey of 25 top executives of Canadian companies employing 100 to 500 people showed that the number one challenge cited by participants was developing management's people skills in technically-oriented people. Although many of these professionals know what needs to be done, and how to get the job done, many have difficulty communicating this to others and motivating employees to produce the best results (Leadership development survey, 2002). The second largest challenge for these top executives was how to empower technical leaders to see the big picture and to use strategic thinking. The need to foster creativity was also high on the list of challenges, with a white paper by IDC Canada Ltd. and Mashtech Quantum stating that firms are looking for personality traits (soft skills) over technical skills. Himmelsbach reports that "Client satisfaction is not derived from technical skills alone. In fact, personality traits, along with other non-technical skills, such as communication skills and business knowledge, were considered keys to satisfaction" (Himmelsbach, 1999, p. 20).

Unlike the stereotype of the IT geek who hides in a windowless room with no outside contact with the rest of the company, IT employees are frequently customer service representatives and must interact with clients to keep the systems running and to keep department ratings satisfactory. McManus adds, "The modern computer guru no longer can afford to sit in a corner hacking code and dressing like Dilbert" (McManus, 1999, p. 8).

The Workplace is Different from the Past

Workforce needs have changed dramatically over the past 100 years. During the 20th century society moved from being manufacturing based to being technology based, and during the 1900s, Ford applied technology to production. As a result, products were turned out by the

millions, and sold cheaply. In 2000, technology became central to consumption with the Internet now allowing customers to acquire and disseminate more information faster than ever before. For example, a customer can surf the Web to find the perfect pair of sunglasses among thousands of models, then buy them with a click of a button, and e-mail her knowledge to all of the people on her buddy list, showing how markets move quickly in the Internet economy. Technology-trained, communications-savvy people are needed to discover, exploit, and serve those markets, resulting in more sophisticated training is need for more people who are further down the management pyramid.

The Workplace Changes Quickly

Interpersonal skills are often cited as a much needed soft skill, which coincides with the demise of the control and demand manager. Unlike the workplace of the past, managers can no longer rely on authority and power, gained through the position they hold in the organization as all employees must now be able to get along with each other. Everyone will be expected to be part of the team.

Today's companies place enormous emphasis on interpersonal skills making the workplace very different from what it was 20 years ago; hence, "As the world has changed and the nature of work has changed, the skill set required of managers has changed" (Buhler, 2001, p. 13). Buhler goes on to explain one of the reasons why this change has taken place:

Without a doubt, for decades the business world placed a great value on traditionally masculine traits for managers. With the increase in the number of women in the workforce for the past two or three decades, more attention has been given to the traditionally feminine characteristics. This has evolved today to the recognition of placing more importance on the soft skills" (Buhler, 2001, p. 14).

Today, workers and management collaborate to improve the work environment, efficiency, and service.

In decades past, the emphasis was not on soft skills like it is today. Rebecca Ganzel writes:

In the golden days of American management, life was easy for workers who preferred dealing with facts, figures and numbers rather than with messy human relationships. Workplace rules were simple: Show up on time. Keep your head down. Get the job done. On a good day, you could accomplish all your goals without having a single conversation with another person.

Then came the bad stuff. Stuff like empowerment, team building transparency, accountability and return on investment. At first slowly, then with gathering speed, all the buffers that protected you from the outside world – secretaries, front-line workers, even your own office walls – melted away into nothingness, leaving you exposed to the scrutiny of people who didn't understand the first thing about your job. Worse yet, you were expected to regularly justify your existence to bosses and colleagues who might otherwise choose not to fund your most important projects.

The analytical skills you had been hired for were glanced over like so much garage-sale rubbish; the data you'd counted on turning to throughout your career was no longer a safe haven. Modern management was turning you into the thing you most despised: A salesperson. (Ganzel, 2001, p. 57)

Ganzel shows the paradox of the emerging workplace, and the irreverence to which some employees embrace having to use soft skills, especially when Ganzel refers to being

turned into a “despised salesperson”.

Therese Jacobs-Stewart, a licensed psychologist from Minneapolis who works with emotional intelligence training, agrees by saying, “The world has changed under their feet. In the past, the engineers and scientists could do their jobs in isolation, but today you can’t succeed without collaboration. No longer do we have companies with departments doing just one thing. It is an interdependent world” (Ganzel, 2001, p. 60). The concept of an interdependent world is key as the pressure is on employees not only to have soft skills to meet customer satisfaction within a familiar culture, it has now become necessary to appear socially acceptable across several diverse cultures.

Employers Recruit Selectively for Soft Skills

While being able to interact well with others has provided individuals with the ability to obtain and be successful in a position, soft skills had not necessarily been singled out as a recruitment goal. Buhler, explains; “For decades the focus of management was on the so-called ‘hard’ skills. That is, the emphasis centered on the technical skills necessary to effectively perform within the organization. These skills tended to be more job-specific or more closely related to the actual task being performed” (Buhler, 2001, p. 13). Because soft skills can have such a profound impact on the bottom line, it makes sense that companies would be willing to help employees develop the competencies that contribute to emotional quotient (EQ).

The future looks to hold even more emphasis on soft skills, as the IEEE (2006) foretold of the emerging preference for soft skills, “IT hiring and salaries are expected to increase in 2006, but to thrive in the IT workplace, employees will need to demonstrate an expertise in more than just a programming language. Soft skills can be key differentiators. Increasingly, companies are looking for people with skills that interface business and technology.” Clearly, the need for

soft skills will not disappear soon as InfoWorld noted, “In today’s job market, IT managers are looking for skills that transcend the technical requirements of the position. To keep up with the new roles that are created as companies evolve, people in technical programs must often be well versed in the so-called ‘soft skills’ ” (Isaacs, 1998, p. 104). Greg Rich, an IT recruiting manager at Cargill, agrees, “Identifying soft skills will be absolutely critical in the future” (Isaacs, 1998, p. 104).

As Kantrowitz (2005) notes that despite growing interest in studying the dimension and prediction of task and contextual performance, little empirical attention has been given to studying the nature of soft skills performance. Soft skills (i.e., intrapersonal and interpersonal work skills that facilitate the application of technical skills and knowledge), such as interpersonal skills (e.g., developing rapport) and communication skills (e.g., adjusting your message to the target audience) are highly sought by organizations (Zedeck and Goldstien, 2000, p. 213).

Statement of the problem

With national unemployment levels low, January 2007 was at 4.2% (www.bls.gov), one might think that getting a job should be easy, however, in reality, getting a job is not always easy. Employers have become increasingly selective about whom they employ. While it has long been understood that poor hiring decisions can be enormously costly to an organization, hard costs surrounding a bad hire have been calculated at 50-200% of the first year salary, dependent on the employee level (www.Alpern.com). Soft costs, while difficult to assess with a dollar figure, can be even more significant when a loss of confidence in management's decision-making prowess, potential destabilization of the workforce, and morale problems may have far reaching

negative impact on the organization following a bad hire experience. A key position filled by a bad hire can knock an organization back by years, in terms of competitive advantage. The costs surrounding a bad hire can have significant impact on bottom-line results, and become especially so as bad hire outcomes are far more common than most have realized.

A couple of people have put the idea of hiring right into understandable context, "The cost of not hiring the right people is the cost of mediocrity and failure. How much is that worth to you?" - Charlie Wonderlic, president, Wonderlic, Inc., and "But coachability, emotional intelligence, motivation, and temperament are much more predictive of a new hires' success or failure. Do technical skills really matter if the employee isn't open to improving, alienates their co-workers, lacks drive, and has the wrong personality for the job?" - Mark Murphy, CEO Leadership IQ. Murphy was speaking about a recently published, three-year study of new hire success rates demonstrated that it happens frequently. Conducted by Leadership IQ, a Washington-based research firm, this study surveyed more than 5,000 hiring managers from 312 organizations involved in more than 20,000 new hire events. Some 46% of those 20,000 new hires failed within the first 18 months. Root cause analysis revealed that a mere 11% of those failures were due to a lack of technical or professional competence. The lion's share of failed hires were linked to softer issues, such as a lack of coachability (26%), low levels of emotional intelligence (23%), motivation problems (15%), and temperament issues (17%). Almost one half of new hires fall short of expectations, predominantly because of fit issues, rather than technical competence (Grigoryev, 2006, p. 17). With success rates not far better than a coin flip, there are clearly areas of competency that have not been successfully investigated through the interview process (Grigoryev, 2006, p. 18). It is easy to see why employers need to invest salary dollars in the most suitable perspective employee.

According to Graduate Prospects, the trading subsidiary of the charity HECSU, “Nearly two-thirds (64%) of vacancies on offer are open to graduates from any discipline. This reflects the fact that employers are looking for vital soft skills in graduates which are obtained during study and periods of work experience, rather than degree-specific knowledge (Raybould & Sheedy, 2005, p. 260).

Purpose of the Study

The purpose of this study is to identify if employers are in fact, specifically stating a preference for soft skills as a required or desired skill in IT job postings, given the employers stated preference to recruit IT workers who possess soft skills. Fifty-two percent (Gallivan, Truex, & Kvasny, 2004, p. 72) of technical recruiters indicated they place preference on soft skills, with higher emphasis placed on IT firms than on non-IT firms. The IT firms placed significantly more preference on project management than other firms.

A study conducted by ITTA in 2004, which examined classified advertising from 1998 to 2003, concluded that a gap exists between what employers say they want, i.e. soft skills, and what they advertise for, i.e. technical skills (Gallivan, Truex, & Kvasny, 2004). A similar survey conducted by ACM SIGCPR resulted in the same general conclusion; that non-technical skills were equally or more important as technical skills for IT professionals (Nakayama & Sutcliffe, 2001). This is further supported by Lewis (2006) who writes, “Employers are equally or even more concerned about what has been termed the ‘soft skills’ such as teamwork, critical thinking and communication” (p. 6). A survey conducted by Kim Yongbeom, Jeffrey Hsu, and Mel Stern of AACSB accredited business schools in the northeastern U.S. showed that project management is not being addressed in curricula, but is in high demand by employers (Youngbeom, Hsu, &

Sterm, 2006).

The IT industry has long recognized the need to satisfy end-user expectations, and soft skills are needed to facilitate collaboration and cooperation. Individuals who succeeded in their careers had both excellent technical skills and “soft-skills” (Wellington, 2005).

Rationale

Hiring managers are well aware that talent management is the key resource necessary for achieving and sustaining a competitive edge, but yet, finding the right person to fit the right job is a difficult business. Few hiring managers can claim to have never experienced the fallout surrounding a bad hire decision. The costs are enormous and the lessons painfully learned (Grigoryev, 2006). Current changes in the work environment, including technology changes, suggest that EI will be of increasing importance to managers in the future. Individual will need interpersonal competencies such as, the ability to recognize and respond to the emotions and feelings of others, as well as the skill to help others manage their emotions in a rapidly technologically and socially changing world. For example, in today’s information technology driven environment, teams, as opposed to individuals, are often the primary work unit. Research by William and Sternberg (1998), found that high group performance for creativity and practicality of ideas was enhanced when groups did not contain any member who was totally out of touch with socially appropriate behavior. In other words, successful groups have higher “group intelligence”, or members with socially appropriate behavioral norms and high self-awareness.

This suggests that emotionally intelligent individuals who work well with others, and thus elevate the group’s collective emotional intelligence, will be the most valued and sought

after employees (www.usc.edu). The assertion of EI as being an important factor to work success challenges traditional views that focus solely on one's Intelligence Quotient (IQ).

Research Question

Does the job title reference a stated need for soft skills?

Significance of the Study

Employers today are facing a shortage of IT workers; however, employers are not willing to hire potential employees who do not meet their recruiting criteria. Employers are looking for the candidate with the proper skills, including soft skills. The Labor Department's Bureau of Labor Statistics forecasts the IT jobs will more than double, from 1.8 million in 1998 to 4 million in 2008 for an astounding growth rate of 117% (www.dol.gov). One employer responded to the shortage with; "Get me a worker who knows how to come to work on time, knows how to work well with others, who is going to be a team player, who has a good attitude, I'll train them" (Buhler, 2001, p. 14). Similarly, employers seeking less-educated entry-level workers report a growing importance of soft skills (Moss & Tilly, 2001). Labor economists have noted a widespread change in work organization toward increased employee involvement and teamwork (Lindbeck & Snower, 2000). Again, Goldman argues persuasively that, relative to academic ability, emotional intelligence, a constellation of social skills including leadership, is an increasingly important factor in workplace success. These statements clearly show that employers are willing to pass by job candidates who have high technical skills and low soft skills to opt for the candidates who exhibit a developed command of soft skills, but who may be weaker in the technical skills. At the same time, it is recognized that it takes a blend of skills to

succeed as an IT professional.

Not Having Soft Skills is Expensive to Companies

Today's companies face economic and market challenges which leave little margin for inefficiency, as a result, employers expect employees to be up to speed in job skills from the day they first walk into the workplace. Unlike the 1950s, when technology was first appearing in business computer scientists and high-level managers got high-level training to design, operate, and plan the use of computers provided by the company.

Companies are not only looking for new employees who have good soft skills, they are increasingly offering programs to current employees to develop soft skills, perhaps that is because sometimes the stakes are just too high not to. One example of soft skill neglect shows high how the stakes can be. On September 11, 1991, a Continental Express EMB-120 Brasilia crashed at Eagle Lake, Texas, killing all 14 aboard. Dave Benoff (2003) tells the story:

The aircraft lost control when the top of the horizontal leading edge separated in flight due to the fact that 47 screw fasteners were missing. In its investigation, The National Transportation Safety Board (NTSB) discovered that all except one of the inspectors, managers and supervisors had more than two years experience in their current position. In addition, the second-shift supervisor who had removed but neglected to replace the screws had received two verbal reprimands for failing to complete tasks. But since the company did not have a written policy for discipline, no further action was taken.

On review of the events, safety officials said that the accident might have been prevented if programs involving soft skills had been implemented in the workplace, since communication, leadership, organization, teamwork and situational awareness all played

a role in the tragedy of errors. The NTSB agreed, concluding that, ‘the accident was a direct result of the failure of maintenance personnel to adhere to proper procedures. (p. 48)

The skill set that may be most lacking is one that includes “soft skills” (Sumner, Bock, & Giamartino, 2006, p. 43).

To support the case for soft skills contributing to the company’s bottom line, and leading to success and increased job performance leading to increased job satisfaction, the following examples are being presented.

First, the US Air Force used the EQ-I to select recruiters (the Air Force’s front-line HR personnel) and found that the most successful recruiters scored significantly higher in the emotional intelligence competencies of assertiveness, empathy, happiness, and emotional self awareness. The Air Force also found that by using emotional intelligence to select recruiters, they increased their ability to predict successful recruiters by nearly three-fold. The immediate gain was a saving of \$3 million annually. These gains resulted in the Government Accounting Office submitting a report to Congress, which led to a request that the Secretary of Defense order all branches of the armed forces to adopt this procedure in recruitment and selection. (The GAO report is titled, "Military Recruiting: The Department of Defense Could Improve Its Recruiter Selection and Incentive Systems," and it was submitted to Congress January 30, 1998. Richard Handley and Reuven Bar-On provided this information) (Ho, 2005).

Second, experienced partners in a multinational consulting firm were assessed on the EI competencies plus three others. Partners who scored above the median on 9 or more of the 20 competencies delivered \$1.2 million more profit from their accounts than did other partners – a 139% incremental gain (Boyatzis, 1999). Next, in jobs of medium complexity (sales clerks,

mechanics), a top performer is 12 times more productive than those at the bottom and 85% more productive than an average performer. In the most complex jobs (insurance salespeople, account managers), a top performer is 127% more productive than an average performer (Hunter & Schmidt, 1993). Competency research in over 200 companies and organizations worldwide suggests that about one-third of this difference is due to technical skill and cognitive ability while two-thirds is due to emotional competence (In top leadership positions, over four-fifths of the difference is due to emotional competence)(Goleman, 1998).

L'Oreal shows sales agents selected on the basis of certain emotional competencies significantly outsold salespeople selected using the company's old selection procedure. On an annual basis, salespeople selected on the basis of emotional competence sold \$91,370 more than other salespeople did, for a net revenue increase of \$2,558,360. Salespeople selected on the basis of emotional competence also had 63% less turnover during the first year than those selected in the typical way (Spencer & Spencer, 1993; Spencer, McClelland, & Kelner, 1997).

Another example is a large beverage firm, using standard methods to hire division presidents, 50% left within two years, mostly because of poor performance. When they started selecting based on emotional competencies such as initiative, self-confidence, and leadership, only 6% left in two years. Furthermore, the executives selected based on emotional competence were far more likely to perform in the top third based on salary bonuses for performance of the divisions they led: 87% were in the top third. In addition, division leaders with these competencies outperformed their targets by 15 to 20%. Those who lacked them under-performed by almost 20% (McClelland, 1999, p. 332). Yet another example shows that after supervisors in a manufacturing plant received training in emotional competencies such as how to listen better and help employees resolve problems on their own, lost-time accidents were reduced by 50%.

formal grievances were reduced from an average of 15 per year to 3 per year, and the plant exceeded productivity goals by \$250,000 (Pesuric & Byham, 1996, p. 26). In another manufacturing plant where supervisors received similar training, production increased 17%. There was no such increase in production for a group of matched supervisors who were not trained (Porras & Anderson, 1981).

The next example is about sales reps at a computer company, those hired based on their emotional competence were 90% more likely to finish their training than those hired on other criteria, and at a national furniture retailer, sales people hired based on emotional competence had half the dropout rate during their first year. For 515 senior executives analyzed by the search firm Egon Zehnder International, those who were primarily strong in emotional intelligence were more likely to succeed than those who were strongest in either relevant previous experience or IQ. In other words, emotional intelligence was a better predictor of success than either relevant previous experience or high IQ. More specifically, the executive was high in emotional intelligence in 74% of the successes and only in 24% of the failures. The study included executives in Latin America, Germany, and Japan, and the results were almost identical in all three cultures (Sumner, Bock, & Giamartino, 2006, p. 45)..

The last example of a description of a "star" performer reveals how several emotional competencies (noted in italics) were critical in his success: Michael Iem worked at Tandem Computers. Shortly after joining the company as a junior staff analyst, he became aware of the market trend away from mainframe computers to networks that linked workstations and personal computers (*Service Orientation*). Iem realized that unless Tandem responded to the trend, its products would become obsolete (*Initiative and Innovation*). He had to convince Tandem's managers that their old emphasis on mainframes was no longer appropriate (*Influence*) and then

develop a system using new technology (Leadership, Change Catalyst). He spent four years showing off his new system to customers and company sales personnel before the new network applications were fully accepted (Self-confidence, Self-Control, Achievement Drive) (Richman, 1994, pp. 46-54). Financial advisors at American Express whose managers completed the Emotional Competence training program were compared to an equal number whose managers had not. During the year following training, the advisors of trained managers grew their businesses by 18.1% compared to 16.2% for those whose managers were untrained (Grigoryev, 2006, p. 18).

IT Workers Without Soft Skills are Unable to Find Work

Employers are placing so much importance on soft skills that it is difficult for some employment seekers, who do not possess good soft skills, to find employment. David Dodd (2002), a consultant hired by the city of New Orleans to look at why residents could not find work, created a 31 page report which identified the lack of soft skills. The report included the ability to work in groups, make oral presentations, think creatively, and learn from mistakes as the biggest problem why residents of New Orleans cannot find work. Dodd says, “People skills and common sense are two of the biggest factors holding the area workforce back” (Guisti, 2002, p. 5).

An IDC Canada Ltd. study shows that 60% (Himmelsbach, 1999, p. 20) of firms surveyed reported project delays due to a lack of IT resources, and many reported slow business growth due to a shortage of IT personnel. Even so, Vawn Himmelsbach says; “ You may have excellent technical skills and be certified to the nines, but it doesn’t mean your going to get the job – even with the lack of IT professionals out there” (Himmelsbach, 1999, p. 20).

Julie Mohr Emin, Survey Project Manager for Jobworks, said, “Its not that employers can’t find people, its that they can’t find qualified people” (Lipp, 2001), and Himmelsbach adds, “And if a worker doesn’t have the right ‘cultural fit’, IS managers said they would have a hard time using his or her skills” (p. 20). McManus clearly states his opinion of the future for IT workers who don’t possess soft skills, “What’s at stake for IT people without the right soft skills amounts to more than lost job opportunities” (McManus, 1999, p. 11).

Not having people skills has serious ramifications; it can affect careers, as Brian Caruso, associate editor of *Employment Review*, writes, “Inability to deal with people can short-circuit a career. It is a rare IT executive who can easily handle both the technical and people sides of business. An IT manager often spends his or her career absorbing technical knowledge while paying little attention to obtaining softer communication, diplomacy, and leadership skills”

(Caruso, 1998, p. 144). The Hagberg Consulting Group says that nearly one-quarter of executives in high-tech positions are “in trouble” due to poor people skills (Caruso, 1998, p. 144).

The problem seems to be that executives in technology frequently obtain a position based on technical skills used very effectively before they were promoted. They then find, after promotion, that those skills don’t help them anymore, as Ellen Shuck, Senior Consultant and Vice President at Hagberg notes, “People in this industry are being promoted on technical genius, not on people skills” (Caruso, 1998, p. 144). Shuck believes that these employees don’t delegate well, aren’t always tactful, berate team members in front of other employees, discount new ideas, and have a hard time trusting others input. She says, “After a while other workers won’t go to them for advice – they become insulated and ineffective” (Caruso, 1998, p. 144).

The Hagberg study showed that some IT managers are very ambitious, but become frustrated when they move from a purely technical job to one that requires people management, as to why, Shuck says, “They are still more involved in their careers than other executives, putting in long hours and thinking about their jobs day and night. However, their level of satisfaction is extraordinarily low, and they are tired and discouraged. Engineers, in particular, sometimes have a difficult time adjusting to the gray areas that go along with working with people” (Caruso, 1998, p. 144).

Most applicants list only technical skills on resumes or job applications, however, employers want evidence that these soft skills are part of the package as well. Dale Grey of TMP/Hudson in Wellington, New Zealand points out that the problem is not confined to large companies, in fact, he believes that soft skills are more important in small companies due to the need for cultural fits (Strategies to hire, 2003). In the United Kingdom, The Times (2000) reported that 100 recruiters from television and radio met to discuss the quality of job applicants. The group concluded that soft skills matter most when determining an applicants chance for hire. Even though there is a shortage of IT workers, employers are not filling positions unless they can find the right person for the job.

Many consider customer service skills only important when dealing with external customers; however, internal positions that have little or no contact with external customers, are finding a need for soft skills as customer service becomes an issue with internal customers. Information technology (IT) is an example of such an area. McManus, in his article, underscores the real cost of lacking skills to keep customers happy, whether they are internal or external; “Companies can lose ground if technologists can’t adapt to an industry’s competitive demands” (McManus, 1999, p. 20). Jill Folan, vice president and consultant with Chicago’s Aon

Consulting Inc. agrees by saying, “If IT doesn’t provide good service to their internal customers, it makes it difficult for the company to provide good service (or products) to their customers. That can mean a bottom line hit” (McManus, 1999, p. 20).

A recently published book, written by CATA Alliance, and titled *Success*, outlines how over 100 current CEOs think of their own job, and what it takes to be successful. Those leaders think in “people” terms, saying that hard edged skills provide less reliance. This shift in thinking has allowed Canada to emerge as one of the strongest technology nations in the world. Maria Kirkpatrick, IT resource consultant for Merrill Lynch Canada Inc., agrees that interpersonal skills are on the top of her list when she recommends employees to the firm. She states, “Unless you have a solid ability to service customers, no matter how technical you are, you are not going to meet their mandate. There is talent in being able to deal with a client and not only understand their business needs, but how to deal with them” (Solomon, 1999, p. 2). IT skills have changed from the past when a person was only a programmer or network installer, today technical people are in sales, marketing, or customer service representatives who need to have communication skills to deal with customers. Customers who are kept abreast of the situation, and the steps being taken to correct it, are more understanding and more satisfied with the service provided (Solomon, 1999).

Tighe says the survey results were not surprising, as in the 1998 survey 97% (Solomon, 1999, p. 2) of the CIOs said they looked for soft skills when hiring technology staff, thus proving that talk may be cheap, but its worth more than technical knowledge when it comes to getting ahead in the IT field.

Definition of Terms

Soft skills involve many personality qualities and vary by definition from one person to another. Even though soft skills are composed of several individual competencies, most agree they share some basic characteristics. Patricia M. Buhler, DBA, wrote an article describing soft skills:

In the past few years, survey after survey has been conducted in American business. Employers have been asked the skills they want to see in employees. Time after time the results remain consistent. The soft skills are in demand. Unfortunately, these are the skills that are in short supply today. Topping the list for American businesses are skills such as communication skills, interpersonal skills, team player skills, ethics, creativity, an ability to add diversity, responsiveness, and willingness to change. (Buhler, 2001, p. 14)

A study conducted by The Center for Continuing Education at Mercy College, support Buhler's findings. The study was designed by Bronxville, NY based Cole Communications, and polled 150 executives with 10 multiple choice questions regarding desired employee skills. Conclusions showed executives are placing high values on soft skills, such as communications, the ability to be part of a team, and interpersonal skills (Local IT workers, 2002, p. 6). Ninety-four percent responded that the most important non-technical skill is the ability to talk to the user and understand his or her needs (Local IT workers, 2002, p. 6). Eighty-four percent cited willingness to learn and upgrade his or her skills, and 79% said working well as part of a team was important (Local IT workers, 2002, p. 6). The survey confirms Buhler's assertions that communication, interpersonal, and teamwork skills are highly valued.

Chan Chee Seng, Director of Academic Programs at Olympia College in Malaysia, says, “Skills such as team building, people management and motivating them to meet a set goal are crucial in the workplace for both managers and employees” (Singh, 2002, p. 1).

Cecilia Conrad and Wilhelmina Leigh (1999), identified four categories of soft skills: (a) Personal qualities and ethics, (b) oral communication skills, (c) problem solving and other cognitive skills, and (d) interpersonal and teamwork skills (Joint center shows, 1999). Others have added another definition of soft skills which includes “old-school etiquette” things like: (a) Proper grooming, (b) phone manners, (c) hand-shaking techniques and the ability to introduce executives in the proper order. Still other definitions of soft skills include: (a) Ethics, (b) dependability, (c) accountability, (d) integrity, (e) initiative, (f) communication skills, (g) active (h) listening, (i) communication, (j) mentoring and coaching, (k) leadership and team building, along with (a) public speaking, (b) business writing, (c) negotiation skills, (d) effective time management, (e) stress management, (f) managing meetings, and (g) speed reading.

Buhler, in her article describing soft skills says, “Communication skills remain a major concern for employers today. It is crucial that every employee (and most especially managers) be able to communicate verbally and in written form. Management is all about getting things done through others” (Buhler, 2001, p. 13). After evaluating the above, a central theme to what is included under the soft skills umbrella seems to be emotional intelligence communication skills, teamwork, social manners, and creativity.

The term gap is defined by previous researchers as; the disparity between the quality and adequacy of skills possessed by IT graduates and required by the IT industry (Youbeom, Hsu, & Stern, 2006). For the purposes of this study that definition will stand with graduates being

replaced with job seekers.

Communication Skills.

Communication skills focusing on the messenger rather than the message is an emerging theme in the study of soft skills. Buhler says, “Communication skills remain a major concern for employers today. It is crucial that every employee (and most especially managers) be able to communicate verbally and in written form. Management is all about getting things done through others” (Buhler, 2001, p. 13). When hiring MBAs, the three most desired capabilities sought are: (a) Communication skills, (b) interpersonal skills, and (c) initiative – all elements of emotional intelligence (Caudron, 1999). Communication skills are key to soft skills, and even more so in an emerging service economy as customers will not be happy long if the person helping them does not communicate, or explain the situation, especially if the customer is not getting what he or she asked for. Storm (2003), editor of Tucson Today, feels that one cannot over communicate and adds, “When I am surprised by something, I’m more likely to react differently than if I’m told up front. In order to prevent surprises, people must communicate” (p. 4). Business must have customers, or go out of business.

Without an ability to effectively communicate, work cannot be accomplished. Those individuals who are polished in their communication skills are also more effective in getting things done” (Buhler, 2001, p. 13). Communication is a reoccurring theme as a basic staple of the soft skills inventory, and there can only be a downward trend for those who cannot, or choose not to communicate effectively in the workplace. Those who thought they were indispensable if they withheld information have discovered that in today’s workplace, it is the sharer of knowledge and information who has become indispensable.

Buhler further elaborates that new technologies have also complicated the communication process by using e-mail as an example which removes the non-verbal part of communication such as, body language and facial expressions. As a result, employees need to be especially aware of how the receiver of the message will interpret it. A new set of etiquette, called “netiquette” (Buhler, 2001, p. 13) has been developed to avoid misinterpretations. Storm supports Buhler on the e-mail issue with, “Communication used to be one on one. Today, a lot of communication comes via e-mail. You need to be careful of how you word your e-mail to be sure the recipient will read the message the same way, even though it lacks facial expression or hand signals that may help clarify your message” (Storm, 2003, p. 4). E-mail that appears less than professional by containing incorrect grammar, spelling errors, or modern abbreviations commonly used on the

Web are not overlooked by the recipient, and are viewed as a professional representation of the individual.

Creativity.

Creativity is also commonly cited as a much needed soft skill. Buhler says, “Those employees who are creative will contribute extraordinary efforts to today’s organization and will help outline the vision of tomorrow’s organization. Companies have learned that they cannot conduct business the same way they did even ten years ago. Today’s changing environment requires companies to adapt to the current world. This means employing people who ‘think outside the box’” (Buhler, 2001, p. 13). Creativity is especially important in an employee empowered workplace where employees must problem solve. Buhler continues, “Rational problem solving is not enough today. Creative problem solving and an ability to identify opportunities is crucial in

this dynamic environment. Employees who can ‘think outside the box’ and present new solutions will be highly valued” (Buhler, 2001, p. 15). The need for problem solving reinforces the fact that workers of the past who took orders from a demanding supervisor are gone.

Emotional Intelligence.

Emotional intelligence has become workplace buzz word. Emotional intelligence is thought to lead to successful interaction with others. Mayer and Salovey (1993) define EI as, “a type of social intelligence that involves the ability to monitor ones’ own and others’ emotions, to discriminate among them, and to use the information to guide one’s thinking and actions” (p. 443). Weisinger (1998) described EI as, “The intelligent use of emotions: you intentionally make your emotions work for you by using them to help guide your behavior and thinking in ways that enhance your results”(p. xvi). Goleman popularized emotional intelligence in the business world by asserting EI’s importance as an ingredient for successful business careers and as a crucial component for effective group performance. Goldman found that EI plays an increasingly important role at the highest levels of the company, where differences in technical skills are of negligible importance.

The relationship between soft skills and emotional intelligence was examined by Shari Caudron, contributing editor of WORKFORCE, who wrote:

A new era is dawning in corporate America and executives are starting to talk about the importance of such things as trust, confidence, empathy, adaptability, and self-control. As a result, soft skills training is gaining new respect. What accounts for this sea of change in thinking? It can be summed up in two words: Emotional intelligence.

(Caudron, 1999, p. 60)

In 1995, Daniel Goldman, a psychologist and former *New York Times* reporter published a bestseller titled: *Emotional Intelligence: Why it can matter more than IQ*. In the book, Goldman assimilated several years of research. He asserted that emotional intelligence, which can loosely be defined as a person's ability to control his or herself and relate to other people, matters twice as much as IQ or technical skills. Goldman also revealed; a) research on 181 jobs at 121 companies worldwide showed that 2 out of 3 abilities vital for success were emotional competencies such as trustworthiness, adaptability, and a talent for collaboration, and b) he quotes a 2003 study by Storm to say, one cannot "over-communicate". According to Goldman, emotional intelligence plays a role in being a desirable employee:

1. Emotional intelligence matters in surprising places like computer programming, where the top 10% of performers exceeded average performers in producing effective programs by 320%, and the superstars at the 1% level produced an amazing 1,272% more than average. Assessments of these top performers revealed that they were better at such things as teamwork, staying late to finish a project and sharing shortcuts with coworkers. In short, the best performers didn't compete – they collaborated.
2. Studies of close to 500 organizations worldwide indicate that people who score highest on EQ measures rise to the top of corporations. Among other things these 'star employees' possess more interpersonal skills and confidence than 'regular employees' who receive less favorable performance reviews.

(Caudron, 1999, p. 61)

The Hay Group, a consulting firm specializing in emotional intelligence, uses an emotional intelligence model that includes four divisions. The first identifies self-awareness, which includes the competencies of emotional self-awareness, accurate self-assessment, and self-

confidence. The second division is self-management, which includes self-control, trustworthiness, conscientiousness, adaptability, achievement orientation, and initiative. The third division is social skills, which include the competencies of leadership, influence, communication, change catalyst, conflict resolution, building bonds, teamwork and collaboration. The fourth, and last, division is social awareness, which includes empathy, organizational awareness, developing others and service orientation (Caudron, 1999).

Caudron (1999) points out that a growing awareness of the importance of soft skills. Assessments conducted by Multi-Health Systems, further support the theory that emotional intelligence is an important factor in on the job performance. The research, which includes a study of 1,171 U.S. Air Force recruiters, showed that the best performing recruiters were those who scored high on assertiveness, empathy, interpersonal relations, problem solving, and optimism. Caudron shows another study of 1,000 sales personnel from a large U.S. based international company which notes that the most predictive of sales success were assertiveness, empathy, happiness, emotional self-awareness, and problem solving skills. The study also showed that nothing else, including gender, education, geographic area, age or hours worked were as accurate at predicting success as the emotional intelligence competencies (Caudron, 1999).

Social Manners.

Soft skills also includes social skills, therefore, using soft skills is not limited strictly to the office. More and more business transactions take place in a variety of setting such as golf courses and restaurants.

Business is littered with stories of lost sales, eroded relationships, blown opportunities and other “coulda been” scenarios caused by lack of knowledge or

application of soft skills. We're talking about manners, such as how to introduce your colleagues, how to butter your bread and even how you carry your golf bag. (Poe, 2001, p. 76)

Perrin James Cunningham, founder of Ethologie, an executive training firm, and co-author of *Business Etiquette For Dummies*, says, "This may seem like small stuff, but to the people to whom this matters, it really matters" (Poe, 2001, p. 76).

Being able to function as an individual in a social setting is also important. Ann McKeown, a buyer for *The Everyday Gourmet*, says soft skills are important outside of the office; "Important business is held at the dining table, and how one's table manners are perceived can make or break a crucial deal" (Jester, 2000, p. 16). Poe elaborates by adding:

On the surface, meeting at parties and dinners seem purely social, but many professionals are not at ease at such functions. A marketing director for a non-profit organization recalls the day it hit him hard that he was lacking in soft skills inventory, "I'd never really gone to a nice restaurant before, and here I was trying to raise \$100,000 from guys who thought nothing for dropping \$60 for each lunch. When they suggested a particularly swanky restaurant, I backed out. I freaked. Of course, now I regret it, a lot. I didn't get the money, and probably won't see those guys again. (Poe, 2001, p. 75)

Poe says that this scenario is more common than many companies realize, agreeing with Cheryl Jenkins, founder of *The Wardrobe Studio*, an image consulting firm says; "Many professionals blow it because they don't know how to present themselves". Jenkins continues, "You can have all the technical skills in the world, but if you can't get your foot in the door,

nobody is going to know about it” (Poe, 2001, p. 76). Terry Herring, president of T.C. Herring and Associates LLC, a human resources consulting firm, agrees, “If you ignore good etiquette, you run the risk of turning people off, and that can cost you business” (Poe, 2001, p. 76).

Knowing how to take advantage of the potential in these situations adds to their overall effectiveness as a representative of their organization. “Its especially important to be reminded of proper protocol closer to the holidays when there’s more socializing” (Jester, 2000, p. 16).

For those who worry that proper etiquette is out of style or old fashioned, Jan Harnish of Image Interactive, a professional image consultant firm, gives this reply; “Its not going out of style and it never will. If you don’t know what you’re doing at the dinner table, that lack of confidence comes through, and it reflects on your decision-making ability. If you’re not familiar with the menu, or don’t know how to order off the menu, it reflects on your basic abilities” (Jester, 2000, p. 16). Gloria Peterson, of Global Protocol Academy, agrees with Harnish; “Following the rules of etiquette is not stuffy or old fashioned, it is about being respectful and efficient.” (Jester, 2000, p. 16). For example, Ann Chadwell Humphries, president of Eticon, a consulting firm specializing in business etiquette, says, “You’d be surprised by the number of people who don’t return phone calls in a timely fashion” (Poe, 2001, p. 76). While these stories tell the negative side of lacking social soft skills, employees who are able to muster up the soft skills to present him or her self socially will be big winners, not losers.

Skills as simple as good hygiene and proper grooming are also included in social manners. For many employees these areas need to be specifically addressed to establish the employers expectations, otherwise the employee could unknowingly exercise a different set of hygiene and grooming standards that are not acceptable to the employers workplace.

Teamwork.

The need for interpersonal skills has also increased as the use of teams in the workplace has increased. Employees are now being required to work in groups where both cultural and professional diversity is the norm. For example, marketing accounting, and engineering employees may all be in one international team. Often managers are in teams with peers who compete with them for resources, but still they must be able to get along with the group's members to achieve the team's goals. Melvin Sorcher and James Brant (2002), in a Harvard Business Review article, point out that people who manage by consensus often climb the corporate ladder quickly. Such employees are able to do so because their bosses view them favorably, and these employees make the bosses life easier by helping other divisions, departments, or groups run smoothly.

Phrases such as works well with others, or team player are also used to describe skills the employer is looking for in job postings when they are specifying skills related to teamwork.

Other phrases that are more general in nature, but still are specifying the need for soft skills are phrases such as: (a) Ethics, (b) able to follow-up, (c) customer service oriented, (d) professional appearance, and (e) articulate.

The demographics for a company's location being metropolitan or rural, will be determined by the population of the zip code where the company's head office is located. The cutoff value will be 100,000 for metropolitan. If the zip code falls within a larger metropolitan area, the population of the entire area will be considered part of the head quarter's zip code. The demographics for the research will be further defined by geographic area. The country was divided into 4 areas: (a) Midwest, (b) West, (c) North Eastern, (d) South Eastern and included states according to the following table:

Table 1.

Demographic Regions

Region	States
North Eastern	Maine, New Jersey, New Hampshire, Vermont, Connecticut, New York, Pennsylvania, Rhode Island, Delaware, Maryland, West Virginia, Washington, D.C., Virginia, Massachusetts

Table 1 (continued).

Region	States
South Eastern	Florida, South Carolina, North Carolina, Georgia, Alabama, Mississippi, Tennessee, Kentucky, Louisiana, Arkansas.
Midwest	Illinois, Ohio, Michigan, Wisconsin, Indiana, Minnesota, Iowa, Missouri, Oklahoma, Kansas, North Dakota, South Dakota, Nebraska Texas
West	New Mexico, Arizona, California, Oregon, Washington, Colorado, Utah, Nevada, Idaho, Wyoming, Montana, Hawaii, Alaska

The definition of a tech company for the purposes of this research paper will be any company engaged in the primary business of technology. It could be consulting, sales, programming, research, manufacturing, customer service, or distribution.

Assumptions and Limitations

An assumption that applies to this study is that employers are putting a full listing of required and desired qualifications into the online position posting.

Although this study does not have many limitations, there are a few. One limitation will be the determination of exactly defining what terms, phrases, or words will be considered to represent the soft skills. Yet another limitation will lie in determining the proper determining geographic breakpoints so the states can be properly categorized to insure good demographic analysis. The job titles themselves will be a limitation as corporate policy will influence job titles resulting in a possibility of several job titles for basically the same job duties. The last limitation is that each job posting Web site limits the number of search results returned, so access to the entire population is not possible.

Nature of the Study

This study was designed to be an examination of data already available, but not organized or analyzed. The quantitative research methodology will include a identifying a population, and based on that population a proper sample size which will then be analyzed for key words and phrases, as well as job title, education level, and company location, if available. This research approach is appropriate in this study because there are no interviews or human contact, no surveys to be filled in. The data already exists and this study will examine it for key elements then analyze the findings. There is also no need to anonymity of any of the data, since this data is readily available to anyone via the Internet. The quantitative research method for this research will be described in detail in chapter 3.

Organization of the Remainder of the Study

The remainder of the study is organized into four chapters. Chapter 2 contains a literature review of related scholarly research and articles retrieved from either peer reviewed or scholarly publications. Chapter 3 will discuss the methodology used for this research study, and chapter 4 will present the study findings. Conclusions and recommendations will be presented in chapter 5.

CHAPTER 2. LITERATURE REVIEW

A review of recent scholarly research revealed six studies that directly address the topic of the need for people skills in the workplace. The first study, conducted by Kathleen Sue Itzen, Ph.D., of the University of Nebraska at Lincoln, was published in May, 2000, and is titled Education asks employers: A survey looking at attributes of applicants and new employees. Although Itzen's premise for the study centered on the educational benefits of business's realistic view of what attributes employees need to possess, the study clearly identified the need for soft skills in the workplace. During the study, employers identified what attributes they desired in employees. The survey instrument was sent to a random sample of 800 businesses in Southeastern Nebraska. Total of 280 surveys were returned, representing a 35% return rate. Employers expressed that more employee problems came from employees not being responsible for their actions; not demonstrating initiative; and not having the interpersonal skills to work with others as a team. (Egbert, 2000).

The second study, conducted by Ruth A. Spurlock Miller, D.B.A., from Louisiana Tech University in 2000 had two purposes 1) to determine whether IS staff, IS managers, and IS users

differ in their perceptions of important communication skills that IS staff need, and 2) if differences to exist, to assess the impact of the differences on user satisfaction with IS product and service and on IS manager's job performance evaluations of staff. The variables looked at were written and oral communication skills, interpersonal skills, user satisfaction and job performance.

Results of Dr. Miller's research indicated that significant differences in perceptions in the importance of written, oral, and interpersonal communication skills exist between IS staff and users and between IS staff and managers. The results also indicated that the greater the difference in perceptions of IS staff and users with respect to written and oral communications, the lower user satisfaction was and that the greater the difference in perceptions with respect to interpersonal skills, the lower that user satisfaction with user involvement was. The findings further indicated that IS staff and managers differed significantly in their perceptions of importance of written and oral, and interpersonal communication skills and that the greater the difference, the lower job performance evaluations were.

The primary purpose of the next study, conducted by Startla Lynn Ivey, Ed.D. in 2002, at the University of Missouri - Columbia, was to investigate the perceptions of human resource personnel with respect to workplace competencies possessed by job applicants. The study also evaluated factors employed when evaluating these skills to help provide information to educators and trainers in order to better prepare applicants for the transition from school-to-work. The research questions for this study were as follows:

1. What is the level of workplace competencies possessed by perspective employees at various education/skill levels as perceived by human resource personnel?

2. Is there a significant difference among the mean workplace competencies possessed by perspective employees at various education/skill levels as perceived by human resource personnel?
3. What methods to human resource personnel utilize to access workplace competencies possessed by perspective employees at various education/skill levels as perceived by human resource personnel? (Ivey, 2002, p. 8)

Face-to-face meetings were conducted with human resource personnel from 25 employers in mid-Missouri to collect data. The survey adapted from the SCANS report included five competency domains, resources, information, interpersonal skills, systems, and technology was administered to these human resource personnel. The survey contained six demographic questions about the personal completing the survey and 20 questions addressing workplace competencies, respondents were also allowed to make comments on the survey (Ivey, 2002). Demographic data for the study was obtained from a central Missouri demographic profile dated April 2001 (Ivey, 2002). The data was analyzed using both qualitative and quantitative methods by grouping responses into one of five categories, resources, information, interpersonal, systems, and technology (Ivey, 2002).

The study found that human resource personnel commented that they were having a difficulty finding qualified applicants because fewer qualified applicants apply and their soft skills need to be higher. One of Ivey's conclusions was for employers to believe in the importance of teaching soft skills to job applicants and employers must actively encourage educational administrators to develop curriculums that accentuate soft skills.

Michael P. Golob, Ph.D., of Capella University in 2002, dealt with management competencies in the workplace. The purpose of the study was to identify which project

management competencies are most important when designing job descriptions, hiring, and promoting project managers. The study focused particularly on those skills that interviewers could look for to help them identify potential employees. The research questions for this study included the following:

1. What project management competencies are perceived by experienced project management professionals as most important when hiring new project managers?
2. What project management competencies are perceived by experienced project management professionals as most important when promoting project managers?
3. What project management competencies are perceived by experienced project management professionals as most important when designing job descriptions for project managers?
4. Which competencies hard (technical competencies) or soft (people management competencies) are most important to experienced project managers when hiring, promoting, or designing job descriptions for project managers? (Golob, 2002, p. 11)

Since a preexisting survey in this area could not be found, two pilot studies were conducted. The first was conducted at the “Top 500 Project Management Benchmarking Forum” in June 2001, and the second pilot survey was conducted during September 2001 at the Portland, Oregon PMI chapter meeting (Golob, 2002). The actual research survey was administered to project managers who attended the Project Management Institute® (PMI) 2001 Annual Seminars & Symposium November 1-5, 2001. The Project Managers were surveyed as to their perceptions regarding the importance of selected project management competencies in relation to designing

job descriptions, hiring, and promoting project managers. The survey consisted of 20 hard skill competency and 15 soft skill competency questions (Golob, 2002) as well as eight demographic questions (Golob, 2002) that were used to compare the study with the general population. Additionally, a comparison was done between the importance of hard skill competencies and soft skill competencies in regard to the three areas contained in the study. Descriptive analysis consisting of response frequencies, percentages, means, standard deviations, and ranges of response scales were used to analyze the survey data. Cross-tabulation analysis was used to compare different categories of demographic data. An ANOVA analysis was used to determine significant variance between the ranking of the competencies in the survey and the categories of application in the study. Golob's study strongly indicated that the soft skill competencies are more important than the hard skill competencies for inclusion in job descriptions, hiring, and promoting project managers.

Although not directly related to soft skills in Information Technology, the last two studies show the need for workplace soft skills is so apparent that graduate schools are now addressing the topic in programs along side hard skills education. A study conducted by Robyn Wossum Hulsart, Ed.D., in 2002, at the University of Nebraska - Lincoln, holds transferable information on the needs of business in reference to soft skills. Hulsart's study was concerned with whether a business school education, a MBA in particular, is congruent with the needs of business. The quantitative study investigated the following research questions:

1. What to business managers perceive to be the relative importance to the business organization of hard skills and soft skills?
2. What to business managers perceive to be the relative adequacy preparation in hard skills and soft skills in graduate schools of business?

3. Is there a difference between perceptions of the relative importance of hard skills and soft skills and the adequacy of preparation in graduate schools of business in each of those two skill areas? (Hulsart, 2002, p. 59-60)

The study was conducted as a Likert-scale survey that was mailed to 500 random Business Managers and/or Vice Presidents of Human Resources who were considered most likely to hire MBA graduates. Occupations categories sampled included: (a) Accounting, (b) banking, (c) consulting, (d) finance, (e) insurance, (f) investment, and (g) management. The study found significant differences between the perceived importance of hard skills and soft skills and the perceived adequacy of preparation in those skills. Hulsart concluded that business found perceived soft skills to be more important to the business organization than hard skills. In contrast, business managers rated MBA programs as more adequately preparing students in the hard skills than the soft skills.

The final study found, by Nadia Shuayto, D.B.A., at Nova Southeastern University in 2001, was titled A study evaluating the critical managerial skills corporations and business schools desire of MBA graduates. The study dovetails with Hulsart's and Miller's studies. While Hulsart was concerned with MBA programs are compatible with business needs, Shautyo's study examined gaps in perceptions of soft skills needs between Human Resource (HR) managers and Business school academics, similar to the way Miller examined gaps in perceptions of soft skills needs between IS staff and IS managers. The study administered the Porter & McKibblin's Skills and Personal Characteristics survey to 82 HR managers. The results suggested that business schools add a substantial focus on the soft skills while continuing to prepare students in the hard skills, which are the same results Ivey experienced with her study.

Along with the scholarly research represented by dissertations, several articles were found in either scholarly or peer-reviewed publications. The articles all represent the premise that the 21st century presents challenges and opportunities for educators, students, and practitioners to address communication skills which are continually cited as central to career success (Eisner, 2004). An academic literature review conducted by W. Waldrope in 2002, found that college graduates should be competent in: (a) Speaking, (b) listening, (c) persuasion, (d) leadership communication, (e) interpersonal communication, (f) teamwork, and (g) global cultural awareness. A 1999 Business-Higher Education Forum identified the need for similar skill sets, along with knowledge of ethics and opportunities to apply theoretical concepts. Similarly, AACSB International standards for business accreditation specify learning experiences that include communication, ethical knowledge and reasoning, reflective thinking, multicultural and diversity understanding and group and individual dynamics (AACSB, 2003) Susan P. Eisner, of Ramapo College of New Jersey, presents a model in her article where a class talk show venue helps students develop cognition and soft skills, particularly communication skills. Eisner explains that today's college student is less responsive to traditional lecture method, and that college students are question ethical behavior more rather than accept the behavior of others. The following is a representation of the types of questions asked during previous talk shows:

Talk Show 1: Business, government, and society post 9/11.

Consider the events triggered by the attacks of 9/11, and answer each question:

1. How have business, government, and society been affected?
2. How have you been affected?
3. What is the most important question you have about events triggered by

the attacks?

4. What do you conclude?

Talk Show 2: 21st century business, government, and society outside the United States.

Answer each question for a country other than the U.S. you know well, and then for the U.S:

1. What is the economic problem there?
2. What system has been used primarily to solve it: traditional, command, or market?
3. What system should be used to solve it?
4. What would someone visiting for the first time be most surprised to find about life there?
5. What do you conclude?

Talk Show 3: Ethical dilemmas in business:

Select one workplace ethical dilemma you have encountered and answer these questions:

1. What is the ethical dilemma?
2. Why did the ethical dilemma occur?
3. What form of ethical relativism contributed, if any?
4. Why should parties be ethical?
5. What ethical action should be taken to resolve the dilemma?
6. Does that recommended action pass the unanimity test?

Talk Show 4: Workplace privacy, safety, testing, downsizing, and whistle blowing:

Select an employee and employer conflict you have encountered and answer each question:

1. What is the conflict?
2. What is the employee perspective? What is the employer perspective?
3. How should this be resolved?
4. Is whistle blowing justified? What are the consequences of whistle blowing?
5. How can privacy rights and responsibilities of both employee and employer best be met?
6. What do you conclude?

Talk Show 5: Workforce diversity, equal employment opportunity, and sexual harassment.

Select one experience you have had regarding workplace diversity and answer each question:

1. What are the opportunities and challenges of a diverse workforce?
2. How can the opportunities be maximized and the challenges minimized?
3. How did adults balance work and personal life when you were young? With what results?
4. Will you make similar choices?
5. What do you conclude?

Talk Show 6: Media impact on behavior, values, and choices.

Consider your experience as a media consumer and answer each question:

1. What impact has media had on your behavior?
2. What impact has media had on your values?
3. What impact has media had on your academic, career, and personal choices?
4. What do you conclude?

(Eisner, 2004, p. 69)

As can be seen, the questions stimulate reasoning with answers beyond a simple yes/no reply, and require the participant to communicate and conduct themselves in a professional manner.

The next article serves as reminder that the issue of soft skills is not new. In 1974, the U.S. Army wrote three papers dealing with soft skills analysis and training. In those papers, the Army defined soft skills as important job-related skills that involve little or no interaction with machines and whose application on the job is quite generalized (Whitmore and Fry, 1974). The significance of this article is that in 33 years, employers are still struggling with the soft skills issue. Only recently has research of any magnitude occurred, with plenty of room for more research to still be conducted.

Author Terry Gillen (2004), wrote a book that has become a popular addition to the soft skills trainer's toolkit. The book contains exercises that can be used in a variety of formats: (a) Courses, (b) events, and (c) workshops, that cover topic from rapport building and group management to selling and negotiation. A thorough overview of the area of interpersonal skills. He also makes the point that developing interpersonal skills is not just about acquiring tools and techniques, but also about applying them after learning. The latter may involve changing what have become lifelong ways of operating for many people. Gillen points out that there are reasons why people lack soft skills, which include leaving school early, which is a point of why many employers want a minimum of a high school diploma, but many people lacking in soft skills are not even aware that a problem exists. This is perhaps where the book falls a little short, in that it does not give any advice or exercises to help people recognize their own lack of soft skills.

As the examined literature shows, employers are actively looking and placing a preference on employees who possess soft skills. Such skills allow them to conduct themselves in a more productive manner in the workplace. Research is being conducted into the area of soft

skills, but more still needs to be done. The literature also shows that the lack of soft skills is not a new problem, or one that has recently been discovered, instead it is a problem that has been around for decades, and as of yet still remains an area where more research and training is required for employees to reach the soft skill competency level that employers are looking for.

CHAPTER 3. METHODOLOGY

Overview of the Chapter

This chapter describes the methodology the study used. The problem, purpose of the study, and the research question will be restated in context of the methodology. The chapter will describe the research design and procedures, including population and sample sizes, along with data collection and analysis procedures.

Restatement of the Problem

Anyone who holds a management, leadership or supervisory position, who has employee hiring responsibilities, or simply works with another person can verify that it takes more than technical skills to succeed in the workplace. Soft skills are becoming more and more desirable in employees, as the economy moves into a service economy. The economy's shift from manufacturing to human services has increased the importance of effective cognitive and interpersonal skills for all jobs, including low paying and entry-level positions (Keim, Strauser, & Ketz, 2002, p. 105). A change that has such potentially altering effects on the workplace and the economy will find itself the subject of research.

The demand for IT workers is up, but hiring getting a job remains difficult, due to employers becoming selective about the qualifications they hire. Technical skills alone is not enough to get a position in IT as employers also want to recruit employees who have soft skills that can promote customer service and facilitate client satisfaction. Those employees who do have a mix of technical and soft skills will find better job satisfaction through the employers being better satisfied with the employees performance. Employers have found it expensive in

dollars and other ways, including efficiency and safety, not to have employees who possess soft skills.

Purpose of the Study

This study will provide the answers to the following research question:

1. Does the job title reference a stated need for soft skills?

It was important to ask this question to determine if there is a gap between an established demand by employers to desire soft skills in IT employees, and a lack of stating that preference for soft skills during the recruitment of new employees. This study determined to what extent employers are expressing the need for soft skills in IT job postings.

Hypotheses

The hypotheses for this study will be:

1. Employers are not stating a preference for soft skills during the recruitment phase.
2. The position being considered, management or non-management, does not correlate with the stated need for soft skills.
3. Demographics such as location do not correlate with the stated need for soft skills.
4. The type of industry does not correlate with the stated need for soft skills.
5. Education level required does not correlate with the stated need for soft skills.
6. Previous experience required does not correlate with the stated need for soft skills.

Research Design

This study used the quantitative methodology. The methodology was selected because of its ability to analyze data that is non-subjective in nature. Unlike studies that involve participants, observations, or other outside input, this study will examine data that already exists in order to shed a new light on it. The data is black and white, and the classification of the data is also structured, thus qualitative methodology would not be the best choice for this study.

Sample

Originally the sample for this study was determined by selecting the top online job posting sites plus two IT job boards. The selected were Hotjobs.com and Careerbuilder.com,, along with the IT job boards called Dice.com and Thingamajob.com. On March 17, 2007, a search was performed at each of the sites using the key works IT, with the exception of Thingamajob.com which returned a zero population with just IT, so information technology had to be spelled out to return the population size. In the first analysis, Monster.com was not included due to the site only returns the first 5000 job postings, and does not show total population, or allow a sampling of total population, however, a more thorough review revealed that Monster.com does produce consistent search results, and that the other sites also limit the results. Therefore, the actual study was conducted using Monster.com as a substitute for Thingamajob.com. The IT job board TechCareers.com was also examined and determined to be inadequate for inclusion in this study because the search results must be sorted, i.e., by job title, location, etc., thus a random sample to determine job title and evaluate management or staff influences could not be done. The following table shows the sites included in the initial site evaluation to determine total population:

Table 2.

Proposed Total Web Site Populations

Site	Total Population of Jobs Posted
www.hotjobs.com	116,690
www.careerbuilder.com	89,462
www.dice.com	39,803
www.thingamajob.com	394

With these total populations, and using the research sample size calculator at www.surveysystem.com, the following sample sizes were determined using a confidence level of 95% +/- 5%:

Table .3

Proposed Sample Size of Web sites

Site	Sample Size
www.hotjobs.com	383
www.careerbuilder.com	383
www.dice.com	316

Table 3 (continued).

Site	Sample Size
www.thingamajob.com	195

After further investigation, the determination was made that all the sites limited the number of job postings returned in a search, regardless of the total population of matches, therefore, the sample sizes were determined using the limitation of the returned search. The actual study was conducted using the following population counts for each site:

Table 4.

Actual Web Site Population

Site	Total Population of Jobs Posted
www. Careerbuilder.com	4000
www.hotjobs.com	3060
www.monster.com	1000
www.dice.com	500

Based on the above populations, the following sample sizes were determined by www.surveysystem.com using a 95% confidence level:

Table 5.

Actual Sample Population of Web sites

Site	Sample Size
------	-------------

www.careerbuilder.com	351
www.hotjobs.com	341
www.monster.com	278
www.dice.com	217

Originally a total of 1,277 samples will be taken from each site at intervals to determined by taking total population and dividing it by the sample size. The sites will be sampled as follows:

Table 6.

Proposed Sample Frequency for Web sites

Site	Sample Frequency
www.hotjobs.com	Every 300 postings
www.careerbuilder.com	Every 230 postings
www.dice.com	Every 6 postings
www.thingamajob.com	Every 100 postings

The actual sample posting to be examined within the interval will be determined using the number generator function in Excel. Based on updated populations, the actual sample size was 1186. When the actual study was conducted, the idea of a sample frequency was abandoned and www.random.com was used to generate random numbers for each site's population.

A sample sample was taken on March 17, 2007 to determine suitability of each site's postings for inclusion in this study. The search was entered just as it will be in the actual study, by using the key word IT at three sites and information technology at thingamajob.com. The following is a sample Web site. The other 3 sample job postings, along with one from Monster.com are in appendix A.

IT Administrative/Database Assistant job in Lansing, MI: Clerical/Administrative careers - Yahoo HotJobs - Mozilla Firefox

File Edit View History Bookmarks Tools Help

file:///C:/Dissertation/job_detail.html

Getting Started Latest Headlines

IT Administrative/Database Assistant j... IT Administrative/Database Assi...

Yahoo! My Yahoo! Mail Search: Web Search

YAHOO! hotjobs Welcome, glendat213 [Sign Out, My Account] Hotjobs Home - Help

Home Job Search My Searches My Jobs My Resumes Career Tools Employers: Post Jobs Hiring Solutions Sign In

[Jobs Home](#) > [Job Search](#) > [MI](#) > [Lansing](#) > [Jackson National Life Insurance Company](#) > IT Administrative/Database Assistant

IT Administrative/Database Assistant: Jackson National Life Insurance Company

[Back to Results](#)

Job ID	IT Admin/DBA Asst
Company Name	Jackson National Life Insurance Company
Job Category	Clerical/Administrative
Location	Lansing, MI
Position Type	Full-Time, Employee
Salary	Unspecified
Experience	2-5 Years Experience
Date Posted	February 27, 2007

[View Jackson National Life Insurance Company profile and job listings](#)

[Apply Now](#) [IM Job](#) [Save Job](#) [Print](#)

The IT Administrative/Database Assistant will be responsible for providing primary administrative and technical support to the Vice President of the Systems & Programming (Administration and Financial Systems) department. Duties include: gathering, updating, and tracking project dates and status information; creating and generating reports from various databases (primarily Access); budget reporting; scheduling meetings and setting up travel arrangements; creating various documents in Word, Excel, and PowerPoint; and developing system diagrams in Visio. Additionally the Administrative/Database Assistant will track associate time off, expense reporting, and coordinating new hire or contractor workspace setup. This person will

Done

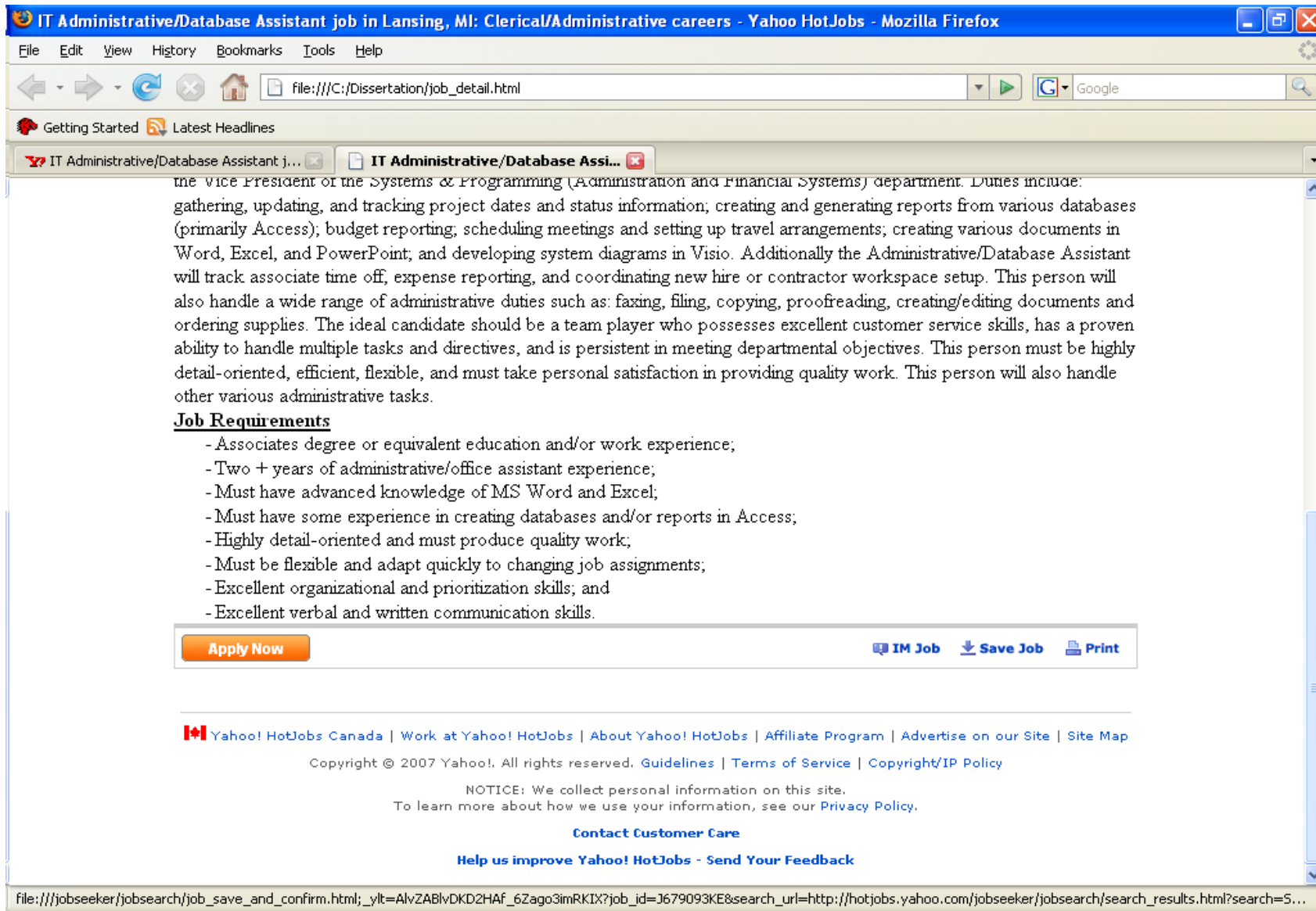


Figure 1. Sample graphical view of www.hotjobs.com.

Data Collection Procedures

For a view of what the researcher saw, and used, to collect data in graphical form please see figures 2 through 5, from Appendix A. Job posting sites were visited using a computer hooked to the Internet via a wireless broadband connection. The data was examined to determine if the research question is answered in a yes or no format, and for the presence of words or phrases that would indicate a preference for soft skills. The data was recorded immediately into a database on a second computer. A separate Excel spreadsheet was created to record the actual words or phrases used in describing the soft skill traits.

Data was collected every day for 30 days. Forty samples were taken daily for 29 days, and on the last day, 26 samples were taken to achieve the 1186 sample population size, the last day being the least amount to account for fractions on previous days. The sites were also divided so that postings were examined equally from each site each day. Careerbuilder had 12 postings examined each day, Hotjobs had 11 postings examined each day, Monster had 9 postings examined each day, and Dice had 7 postings examined each day, with the last day making the numbers total. The researcher was aware that the job posting data bases are dynamic and constantly changing, however, this was not considered a limitation, as the positions are randomly selected, and all postings should follow the same patterns, thus time was not a considerable factor.

The data collected was: (a) Job title, (b) type of industry the company operates in, (c) education requirements, (d) experience required, (e) management or staff position, (f) company location, (g) frequency of soft skill term usage, (h) length of the ad in screens, and (i) a table that contains the actual term or phrase used to identify soft skills. After the research was concluded, the job title variable was evaluated and put into a job category variable. This action was

necessary due to the wide array of job titles for the same classification of position. Doing this allowed some job categories to accumulate enough counts to be analyzed.

Data Analysis

The data analysis was comprised of a frequency distribution and cross-tabulations of all major categories to determine the relationship between variables. Chi-square tests will also be conducted to test for possible relationships between the variables. Frequency, cross-tabulations, and chi-square test results will be presented in chapter 4. A statistical software package was used to conduct the tests.

Validity and Reliability

All tests were run twice to ensure accurate results. Since the data collection process depended on the researchers ability to enter the data correctly, the researcher double checked all input before moving on to the next sample, and will backed up stored data in a separate location to ensure data was not lost to tragedy.

CHAPTER 4. DATA COLLECTION AND ANALYSIS

A database was created in SPSS to store the following variables: (a) Soft skills, (b) industry, (c) management, (d) experience, (e) education, (f) size, (g) location, (h) site, (i) ad number, (j) company, (k) blind, (l) job title, (m) overview, (n) preferred, and (o) job category.

A separate spreadsheet was kept in Excel to record the exact wording of each occurrence soft skills words or phrases (see Appendix B). The most frequent word or phrase was communication with 175 requests, thus occurring in 14.8% of the total postings. Communication was followed by teamwork at 156 requests, or showing up in 9.0% of the postings. The term ‘interpersonal’ was the only other term to have over 100 requests at 107. The definition of this term is wide, and would include several other traits that were counted separately, none-the-less, interpersonal showed up in 23% of the postings. When the numbers were calculated using only those postings that had requested soft skills, communications accounted for 37.6%, teamwork accounted for 33.5%, and interpersonal accounted or 13.2%.

Table 7.

Actual Word and Phrase Counts

Skill	Count
Communication	175
Teamwork	156
Interpersonal	107
Problem Solving	93

Table 7 (continued).

Skill	Count
Analytical	90
Oral	66
Customer Service	40
Presentations	38
Collaborative	35
Mentor/Coach	20
Verbal	14
Listening	11
Influence	11
Creative	9
Professional	9
Ethics	8
Flexibility	8
Facilitation	7
Negotiation/Conflict Resolution	6
Adaptability	5
Innovative	4
Consultative	4
Integrity	4
People Skills	4
Cooperative	3
Public Speaking	2
Partnership	2
Learning	2

Table 7 (continued).

Skill	Count
Soft Skills	2
People Management	2
Reasoning	1
Client Skills	1
Smile	1
Critical Thinking	1
Polite/Courteous	1
Persuade	1
Upbeat personality	1
Honest	1
Deal with and Ability to Change	1
Imaginative	1
User Interaction	1
Personable	1
Attitude	1
Smile	1

Frequency Analysis

A frequency analysis of the data demographics using the entire population (1,186), resulted in some very useful information. The job posting was broke down into three areas, overview, required, and preferred, thus, enhancing the understanding of how much importance is place on soft skills by where the request is placed in the job posting.

The first demographic, the site the job posting was on, showed that Careerbuilder had the

most postings. A total of 351 (29.6%) postings were examined from Careerbuilder.com, while 341 (28.8%) postings were examined from Hotjobs.com, and 278 (23.4%) from Monster.com, and 216 (18.2%) were examined from Dice.com.

Analysis of management verses non-management demographics showed that 18.5% (220) of the postings were recruiting for management positions leaving 78.3% (929) for non-management staff, and the other 3.1% (37) did not indicate management or non-management.

When demographically looking at minimum experience requirements, 4-5 years category requested the most soft skills at 27.2% (322), 6-10 years accounted for 25.4% (301), 1-3 years at 15.9% (189), 10+ years at 8.7% (103), no experience required at 2.5% (30), and 20.3% (241) did not indicate a minimum required experience level.

A bachelor degree was required in 54.3% (644) of the postings, followed by 35.8% (424) that did not indicate an education level. The next closest degree was an associate degree with 3.6% (43), and a masters degree at 3.0% (35). High school education accounted for 2.7 % (32), and the Ph.D. accounted for 0.7% (8) of the postings. The bachelor degree, with over 50%, is the most desired degree when considering all the postings examined.

Four regions were arbitrarily created to use as categories for geographic location (table 1 pg. 30). Once into the data, a fifth category was added to accommodate postings from Canada. Geographically, the data showed that the Northeast region offered the most postings with 31.5% (374), followed closely by the West with 30.3% (359). The Midwest accounted for 24.1% (286) of the postings, then the Southeast at 13.7% (163), and lastly Canada with 0.3% (4).

Due to a wide array of job titles for similar job duties, actual job titles were recorded along with a more general categorization. For example, developers and programmers were all put

in the developer general category regardless of the language used. Senior levels were categorized separately. Categorization allowed a few job categories to accumulate enough data counts to be analyzed. The developer job category topped the count by holding 20.2% (239) of the postings followed by sr. developer at 5.1% (60). The other categories fell significantly and were not analyzable.

In an attempt to identify whether a posting associated with an employer had any relationship to the incidence of soft skills requests, blind and non-blind ads were recorded. The majority of postings were non-blind. Non-blind ads accounted for 52.9% (627) of the ads, while 47.1% (559) of the postings were blind. The next data recorded was the type of industry posting the positions, 43.3% (513) of the postings were from staffing or placement agencies, thus not a direct placement from the employer. Another 17.5% (208) came from the technology sector, and 8.3% (98) the consulting industry. Along with the industry, the company name was also recorded. IBM accounted for the largest share if the posting by any single employer at 6.0% (71), followed by two staffing agencies, CyberCoders at 5.4% (64) and Kforce at 5% (59).

Cross-tabulations

Cross-tabulation analysis and chi-squared tests were performed to evaluate if any dependent variable had a relationship with the incidence of soft skills in the job postings. The following is an example of a cross-tabulation of soft skills blind job postings:

Table 8.

Cross-Tabulation of Soft Skills and Blind Job Postings

			Blind		Total
			No	Yes	No
SS	No	Count	344	376	720
		Expected Count	380.6	339.4	720.0
		% within SS	47.8%	52.2%	100.0%
		% within Blind	54.9%	67.3%	60.7%
		% of Total	29.0%	31.7%	60.7%
		Residual	-36.6	36.6	
	Yes	Count	283	183	466
		Expected Count	246.4	219.6	466.0
		% within SS	60.7%	39.3%	100.0%
		% within Blind	45.1%	32.7%	39.3%
		% of Total	23.9%	15.4%	39.3%
		Residual	36.6	-36.6	
Total		Count	627	559	1186
		Expected Count	627.0	559.0	1186.0
		% within SS	52.9%	47.1%	100.0%
		% within Blind	100.0%	100.0%	100.0%
		% of Total	52.9%	47.1%	100.0%

As can be seen, the data was examined in several ways. The first was to calculate the soft skills cross-tab percentages using the total job posting population of 1,186. The second was to use the 466 population that contained only those postings that requested soft skills. If appropriate, and to give further understanding of the data, further calculations were performed on some of the data using the population for that specific variable, for example when

management was examined, the population examined included that non-management population and the management population. Discrepancies of percentages that do not add up to 100% are due to not all job postings contained all of the categories examined. The job title, industry, company, and job category often gave counts too small to provide any useful analysis.

Management Variable

When soft skills were cross-tabbed with management, 9.4% (112) of management postings requested soft skills, while a slightly smaller number, 9.1% (108), did not. The non-management postings ask for soft skills in 29.3% (348) of the postings, while 49.0% (581) did not. When considering the soft skills population only (466), those numbers change to management position asking 24% (112), and non-management asking for soft skills 74.7% (348) of the time. The numbers become clearer when further analysis looked only at the management or non-management populations. When the population of management positions only was looked at, 49.1% (108) did not ask for soft skills, but 50.9% (112) did ask for them. In the non-management positions, 62.5% (581) did not ask for soft skills while 37.5% (348) did. Even though the split is fairly even, the data shows that a higher percentage of management postings (50.9%) did ask for soft skills than management postings that didn't (49.1%). The following cross-tab table illustrates these findings:

Table 9.

Cross-Tabulation of Soft Skills and Management

			Management		Total	
			No	Yes	No	
SS	No	Count	581	108	31	720
		Expected Count	564.0	133.6	22.5	720.0
		% within SS	80.7%	15.0%	4.3%	100.0%
		% within Management	62.5%	49.1%	83.8%	60.7%
		% of Total	49.0%	9.1%	2.6%	60.7%
		Residual	17.0	-25.6	8.5	
	Yes	Count	348	112	6	466
		Expected Count	365.0	86.4	14.5	466.0
		% within SS	74.7%	24.0%	1.3%	100.0%
		% within Management	37.5%	50.9%	16.2%	39.3%
		% of Total	29.3%	9.4%	.5%	39.3%
		Residual	-17.0	25.6	-8.5	
Total		Count	929	220	37	1186
		Expected Count	929.0	220.0	37.0	1186.0
		% within SS	78.3%	18.5%	3.1%	100.0%
		% within Management	100.0%	100.0%	100.0%	100.0%
		% of Total	78.3%	18.5%	3.1%	100.0%

Expected counts in this area supported the above findings by revealing that management positions ask for soft skills 26.3% (25.6) more than expected. While non-management postings

ask less than expected at 4.7% (17), the chi-square test indicated that the soft skills and management variables could share a relationship. To examine that relationship further, a layered cross-tab was created between soft skills and management, and then with: (a) education, (b) experience, (c) industry, (d) location, (e) site, (f) company, (g) blind, and (h) job category. With regards to education the layered cross-tab resulted in the chi-square reinforcing the relationship, however, the expected values were only significant in the Bachelors degree, and only in the soft skills requested responses. In the Bachelors degree category, the non-management actual counts (211) were less than expected (221) by 10 (-4.5%). The opposite happened in the management position postings where actual counts (82) of requests for soft skills exceeded expected (70) requests by 12 (17.1%). This further supports the relationship between management postings and the requests of soft skills, however, overall, the majority of all postings, including management do not request soft skills.

When soft skills and management was cross-tabbed with experience, the chi-square test agreed with the simple cross-tab that the variables appeared to have a relationship. The 4-5 years experience non-management postings ask for soft skills less than expected and management postings ask for soft skills more than expected. Non-management actual requests for soft skills were 19, while expected was 25.1, a variance of -6.1 (-24.3%). Management positions were opposite by asking for soft skills 25 times when the expected count was 18.9, a variance of 6.1 (32.3%). The next experience category to have a significant variance between actual and expected was the 6-10 years experience with non-management positions actual count of 39 exceeding the expected count of 32.5 by 6.5 (20%). Again, the management positions were opposite the non-management, however, this time the management positions actual count of 90 requests for soft skills fell below the expected count of 96.2, a variance of -6.2 (-6.4%). The 10+

years experience category agreed with the 6-10 year category, whereby, the non-management actual count of 32 requests for soft skills exceeded the expected count of 26.2 by 5.8 (22.3%). The management postings actual requests for soft skills of 19 fell short of the expected count of 24.8 by -5.8 (-23.6%). This closer examination appears to show that only a relationship between soft skills and management and experience exists within the 4-5 years experience category.

Taking the soft skills and management cross-tab analysis to the industry category the chi-square calculation suggested a relationship. A closer look by creating a layered cross-tab between soft skills, management, and industry showed that 6 industries continued to have chi-square values that suggested a relationship in the variables. Five of those industries all had less requests for soft skills in the non-management positions and higher than expected asking in the management postings, the sixth had more asking in the non-management postings than expected and less than expected in the management postings. The first of the five industries was the financial industry where variances between actual (17) and expected requests (20.3) for soft skills among non-management postings was down 3.3 (-16.3%).

The insurance industry was the next industry with variances. Actual counts in non-management of 7 were lower than the expected count of 8.3 by 1.3 (-15.7%), and management actual counts for soft skills of 4 exceeded the expected count of 2.8 by 1.2 (42.9%). This trend continued into the manufacturing industry where the actual count of soft skills for non-management positions stood at 8, and was lower than the expected count of 10.1 by 2.1 (-20.8%). Management postings had a higher actual count of 7 than the expected count of 4.8 by 2.2 (45.8%). The staffing industry saw variances, but only in the management postings where actual requests for soft skills of 28 exceeded the expected count of 22.5 by 5.5 (24.4%). The technology industry also only had variances in the management postings with actual requests for

soft skills of 15 out numbering the expected count of 13 by 2 (15.4%).

The last industry with variances was healthcare, where the non-management postings actual count of 24 requests for soft skills, out numbered the expected count of 22.2, by 1.8 (8.1%). Management postings had a less than expected count of 9, which was 1.3 (-12.6%) less than the expected count of 10.3.

The job category cross-tabs showed a possible relationship as a result of a chi-square test in the administrator and sr. support categories. The administrator numbers showed an actual request of management postings asking for soft skills of 5 and an expected count of 1.6, which left a variance of 3.4 (212.5%). The sr. support had numbers less than 0, and could not accurately be analyzed.

A layered cross-tab between soft skills, management, and location showed some possible relationships with regards to better understanding the management postings that ask for soft skills. The analysis showed that the Northeast had an actual soft skills request count of 46, while expected was 31.1, leaving a variance of 4.9 (15.8%). The Southeast had 13 actual requests with requests of 8.9, for a variance of 4.1 (46.1%), and the West came in with 35 actual requests, while the expected was 28.4, leaving a 6.6 (23.2%) variance. The analysis also showed that the non-management postings ask for soft skills less than expected.

To examine the soft skills and management relationship even further, a series of 2-layer cross-tabs were created using soft skills, management, and education as the base. There were no chi-square tests that showed any possible relationships, however, there were some variances observed which are worth noting. When experience was added, the bachelor degree and 4-5 years experience was the only relationship with a variance between actual of 18 requests for soft skills and an expected 14.2, leaving a variance of 3.8 (27.8%). The bachelor degree came up

again when blind ads were added to the layer as the bachelor degree was requested more with both blind and non-blind ads. This finding should not be surprising since the bachelor degree was the most requested degree overall in the total population. Blind ads had 23 actual requests for soft skills with an expected count of 18, leaving a variance of 5 (27.8%). Non-blind ads also had more requests for soft skills from the bachelor degree with 59 actual and 53.4 expected. The variance this time was 5.6 (10.5%). The site the postings were found on also had a variance with the bachelor degree. This time, Careerbuilder and Hotjobs both exceeded the expected count of soft skills requests in the bachelor degree category. Careerbuilder had an actual count of 24 requests for soft skills in management postings with an expected count of 20.9. The variance was 3.1 (14.8%). Hotjobs also had more actual requests of 29 than the expected 22.8 requests. The variance was 6.2 (27.2%).

The bachelor degree came up again when location was added as the additional layer. The Northeast management postings with a bachelor degree, requested soft skills 31 times, with an expected asking of 25.5, a variance of 5.5 (21.6%). The Southeast had actual requests of 12, and an expected count of 9.2, leaving a variance of 2.8 (30.4%). The West also made more requests for soft skills in the bachelor degree category for management positions than the expected with 27 actual and 24.1 expected. A variance of 2.9 (12%).

When industry was added as a layer, the bachelor degree appeared again in the staffing industry with an actual request count of 20 and an expected count of 16. A variance of 4 (25%) of management postings asking for soft skills and a bachelor degree. However, none of this data is out of the ordinary when taking into account that 54.3% of the total postings requested a bachelor degree.

A 2-layer cross-tab created using soft skills, management, and experience as the base caused the chi-square indications of possible relationships to fall out, as did the variances between actual and expected counts.

Emerging from a review of the data just discussed is a large variance between non-management jobs not asking for soft skills by as much as a 25% margin over those non-management postings that did ask for soft skills. As the data shows, if a position is classified as management, there is an increase in soft skills requests.

Experience Variable

Cross-tabbing soft skills with experience showed that 4-5 years experience was the category with the highest incidence of soft skills requests at 11.6% (138), followed closely by 6-10 years experience at 11.3% (134). One to three years held third at 6.2% (74), 10+ years was 4.3% (51), and no experience had the lowest requests at .5% (6).

When only the soft skills population was examined the data revealed that 4-5 years experience represented 29.6% (138) of the postings, with 6-10 (134) years accounting for 28.8% (134), followed by 1-3 years at 15.9% (74), 10+ years held 10.9% (51), and no experience only accounted for 1.3% (6). The following table shows the data found in the soft skills and experience cross-tab:

Table 10.

Cross-Tabulation of Soft Skills and Experience

	Experience	Total
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		4-5 years	6-10 years	10+ years	None	1-3 years			
SS	No	Count	184	167	52	24	115	178	720
		Expected Count	195.5	182.7	62.5	18.2	114.7	146.3	720.0
		% within SS	25.6%	23.2%	7.2%	3.3%	16.0%	24.7%	100.0%
		% within Experience	57.1%	55.5%	50.5%	80.0%	60.8%	73.9%	60.7%
		% of Total	15.5%	14.1%	4.4%	2.0%	9.7%	15.0%	60.7%
		Residual	-11.5	-15.7	-10.5	5.8	.3	31.7	
	Yes	Count	138	134	51	6	74	63	466
		Expected Count	126.5	118.3	40.5	11.8	74.3	94.7	466.0
		% within SS	29.6%	28.8%	10.9%	1.3%	15.9%	13.5%	100.0%
		% within Experience	42.9%	44.5%	49.5%	20.0%	39.2%	26.1%	39.3%
		% of Total	11.6%	11.3%	4.3%	.5%	6.2%	5.3%	39.3%
		Residual	11.5	15.7	10.5	-5.8	-.3	-31.7	
Total		Count	322	301	103	30	189	241	1186
		Expected Count	322.0	301.0	103.0	30.0	189.0	241.0	1186.0
		% within SS	27.2%	25.4%	8.7%	2.5%	15.9%	20.3%	100.0%

Table 10 (continued).

	Experience						Total
% within	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Experience								
% of Total	27.2%	25.4%	8.7%	2.5%	15.9%	20.3%	100.0%	

The analysis showed that there were variances between actual and expected counts in the 4-5 years experience category where the actual count of 136 exceeded the expected of 126.6 by 11.5 (9.1%). Another variance was in the 6-10 years experience category where the actual count of 134 exceeded the expected count of 118.3 by 15.7 (13.3%). The largest variance was in the 10+ years category where the actual count of 51 exceeded the expected count of 40.5 by 10.5 (25.9). This suggests that the more experience the more the actual count exceeded the expected, therefore, a relationship between appears to exist. The chi-square test indicated a possible relationship between soft skills and experience, therefore, a more in depth analysis took place. As previously discussed, the 4-5 years experience, the 6-10 years experience, and the 10+ years experience all had higher than expected requests for soft skills when being analyzed in relation to management positions.

When soft skills and experience are cross-tabulated with education the chi-square indicated no relationship, however, the 4-5 years experience with a bachelor degree is the only category with a variance of actual over expected counts of soft skill requests. The actual count was 94 and the expected count was 84.9, leaving a variance of 9.1 (10.7%). This finding agreed with the variances from the management only postings where bachelor degree consistently had higher actual requests for soft skills than expected. One must keep in mind that both the Bachelor degree and the 4-5 years experience categories were the highest requested in the general population.

The cross-tab of soft skills, experience, and location showed that all of the regions, with the exception of Canada, had higher than expected actual counts of soft skills as the years of experience increased. The chi-square test indicated a possible relationship in the Northeast and Southeast, however, variances between actual and expected counts in the Midwest also. The Midwest started having more requests for soft skills in the 6-10 years experience category with the actual count of 18 and the expected count of 25.4, leaving a variance of 2.6 (10.2%). The 10+ category had an actual count of 8 and an expected count of 6.7, for a variance of 1.3 (19.4%). The Northeast started having variances in the 4-5 year category with an actual count of 50 and an expected count of 43.1, leaving a variance of 6.9 (16%). The 6-10 year category had an actual count of 45 and an expected count of 40.6, for a variance of 4.4 (10.8), and the 10+ year category had actual requests of 21 and expected requests of 16.9 for a variance of 4.1 (24.3%). The Southeast began having variances in the 6-10 year category with an actual count of 18 and an expected count of 12.4, for a variance of 5.6 (45.2%). The 10+ year category had an actual count of 8 with an expected count of 5.2, for a variance of 2.8 (53.8%). The West region had variances starting with the 4-5 year category with an actual request for soft skills count of 46 and an expected request count of 40.5, leaving a variance of 5.5 (13.6%). The 6-10 year category had 43 actual requests, and also had an expected count of 40.5, leaving a variance of 2.5 (6.2%), and the 10+ year category had 13 actual requests and an expected request count of 11.7, for a variance of 1.3 (11.1%).

A cross-tabulation of soft skills, experience, and job category showed that the analyst, business analyst, data base administrator (DBA), and developer all had higher than expected requests for soft skills in the 4-5 years experience category. Analyst had an actual soft skills request count of 9 and an expected count of 6.6, for a variance of 2.4 (41.7%). The business

analyst job category had an actual count of 6 and an expected count of 3.6, leaving a variance of 2.4 (66.7%). The DBA had an actual count of 4 with an expected count of 2.2, and a variance of 1.8 (81.1%). Finally, the developer had an actual count of 24 with an expected count of 21.9, for a variance of 3.1 (14.2%). The chi-square test showed up a possible relationship with consult, however, a closer examination of the data revealed numbers too small to analyze. It should be noted that the numbers were negative in the 6-10 years experience category, with less than expected requests for soft skills, but only by a .2 of less than 1 counts.

The soft skills, experience, and company cross-tabulation showed numbers too small to work with, and chi-square calculations that did not indicate any relationships.

When only the population of within each category was considered, 39.5% (17) of the associate degree requests also included soft skills requests. The bachelor degree requests had a soft skills request rate of 64.1% (297), and the masters degree requested soft skills 54.3% (19) of the time. This upward trend followed from the associate degree through the masters degree, there, however, it stopped. The Ph.D. had 37.5% (3) requests for soft skills. Since the numbers for the Ph.D. are small, this could be due to not enough data to adequately analyze.

Education Variable

When education was cross-tabbed with soft skills, and using the total population, the bachelor degree had 25.0% (297) of the postings asking for soft skills. The next closest was masters with 1.6% (19), associate with 1.4% (17), then high school diploma at 0.5% (6), and last the Ph.D. at 0.3% (3). It is worth noting that the masters degree, with 19 requests for soft skills, out numbered the 16 postings that did not request soft skills, the only category to do so. When this cross-tab was recalculated using only the soft skills population the numbers, the bachelor degree had 63.7% (297) of the postings asking for soft skills. The next closest was masters with

4.1% (19), associate with 3.6% (17), then high school diploma at 1.3% (6), and last the Ph.D. at 0.6% (3). The following table shows the education and soft skills cross-tabs:

Table 11.

Cross-Tabulation of Soft Skills and Education

		Education					Total		
		Bachelo	High	Masters	Doctorat	Assoc			
		r Degree	School	Degree	e				
SS	No	Count	347	26	16	5	300	26	720
		Expected	391.0	19.4	21.2	4.9	257.4	26.1	720.0
		Count							
		% within SS	48.2%	3.6%	2.2%	0.7%	41.7%	3.6%	100.0%
		% within	53.9%	81.3%	45.7%	62.5%	70.8%	60.5%	60.7%
		Education							
		% of Total	29.3%	2.2%	1.3%	0.4%	25.3%	2.2%	60.7%
		Residual	-44.0	6.6	-5.2	0.1	42.6	-0.1	
	Yes	Count	297	6	19	3	124	17	466
		Expected	253.0	12.6	13.8	3.1	166.6	16.9	466.0
		Count							

Table 11 (continued).

		Education					Total		
		% within SS	63.7%	1.3%	4.1%	0.6%	26.6%	3.6%	100.0%
		% within	46.1%	18.8%	54.3%	37.5%	29.2%	39.5%	39.3%
		Education							
		% of Total	25.0%	.5%	1.6%	0.3%	10.5%	1.4%	39.3%

	Residual	44.0	-6.6	5.2	-0.1	-42.6	0.1	
Total	Count	644	32	35	8	424	43	1186
	Expected	644.0	32.0	35.0	8.0	424.0	43.0	1186.0
	Count							
		Bachelo r Degree	High School	Masters Degree	Doctorat e		Assoc	
	% within SS	54.3%	2.7%	3.0%	0.7%	35.8%	3.6%	100.0%
	% within	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Education							
	% of Total	54.3%	2.7%	3.0%	0.7%	35.8%	3.6%	100.0%

The next analysis came from looking at soft skills, and education, and cross-tabulating them with the other variables. The experience variable has already been analyzed in the experience and management variable sections.

When industry was cross-tabbed with soft skills and education, 3 industries had enough data counts to analyze. The consulting industry, with a bachelor degree, had actual requests for soft skills at 28, which exceeded the expected count of 23.8 by 4.2 (17.6%). Next, the financial industry where, in the bachelor degree category, the actual count of 17 exceeded the expected count of 14.9 by 2.1 (14.1%). The staffing industry also exceeded expected counts in the bachelor degree category, with an actual of 100, and an expected of 80.8, for a variance of 19.2 (23.7%). It is important to note that the other degree categories did not contain enough count to make any analysis on. The chi-square test did not show any significant relationship possibilities.

With regards to adding the company variable to the soft skills an education cross-tab,

most of the numbers were too small to have any meaning, however, three companies did have both chi-square and expected variances worth looking at. All fell in the 4-5 year experience with a bachelor degree. The first company was Comrise Technology which had an actual count of 7 postings making a request for soft skills, and an expected count of 5, leaving a variance of 2 (40%). The next company was CyberCoders with an actual count of 12, an expected count of 11, leaving a variance 1 (9.1%). The last company was MATRIX Resources with an actual count of 2 and an expected count of .6, for a variance of 1.4 (233.3%).

Two job categories had higher than expected requests for soft skills when cross-tabbed with soft skills and education. The first was developer in the bachelor degree category with an actual count of 54, and an expected count of 42.6 for a variance of 11.4 (26.8%). The other job category was sr. developer, with a bachelor degree, which had an actual count of 20 and an expected count of 15.8, for a variance of 4.2 (26.6%).

Soft skills, education, and location were also cross-tabulated. The chi-square indicated a possible relationship, and there were variances between actual and expected in the Northeast and Southeast regions. The Northeast had more requests for soft skills across all the education categories, expect masters degree. The bachelor degree category had an actual count of 50 and an expected count of 43.1, for a variance of 6.9 (16%). The high school diploma had an actual count of 45 and an expected count of 40.6, for a variance of 4.4 (10.8%), and the associate degree had an actual count of 34 and an expected count of 31.8, leaving a variance of 2.2 (6.9%). The Southeast only showed an above expected count in the masters degree with actual requests for soft skills at 8 and expected at 5.2 for a variance of 2.8 (53.8%).

When considering the numbers from within each categories own population, there is a trend for more experience to make more requests for soft skills. Starting with the no experience

category, soft skills were requested 20.0% (6) of the time. The 1-3 years experience category has soft skills requests in 39.2% (74) postings. The 4-5 year category, which had the most requests in count, had 42.9% (138) requests, and the 6-10 year category was slightly higher with 44.5% (134), but 4 less in actual count. The highest experience category, 10+ years, also had the highest request rate at 49.5% (51). This shows a relationship between experience, management, and soft skills.

Location Variable

The next variable examined was location. Geographic location of the job, when cross-tabbed with soft skills and using the total population, showed that the Northeast had the most requests for soft skills at 13.3% (158), followed by the West at 12.6% (150) and the Midwest at 8.5% (101). The Southeast showed 4.7% (56) of the job posting requesting soft skills, and Canada had the least at 0.1% (1). The same cross-tab calculated using the soft skills population resulted in the Northeast accounted for 33.9% (158), the West 32.2% (150), the Midwest 21.7% (101), the Southeast 12% (56), and Canada for 0.02% (1). The following table shows the cross-tabulation of soft skills and location:

Table 12.

Cross-Tabulation of Soft Skills and Location

			Location					Total
			Canada	MidWest	NorthEast	SouthEast	West	Canada
SS	No	Count	3	185	216	107	209	720
		Expected	2.4	173.6	227.0	99.0	217.9	720.0
		Count						
		% within SS	.4%	25.7%	30.0%	14.9%	29.0%	100.0%

	% within	75.0%	64.7%	57.8%	65.6%	58.2%	60.7%
	Location						
	% of Total	.3%	15.6%	18.2%	9.0%	17.6%	60.7%
	Residual	0.6	11.4	-11.0	8.0	-8.9	
Yes	Count	1	101	158	56	150	466
	Expected	1.6	112.4	147.0	64.0	141.1	466.0
	Count						
	% within SS	.2%	21.7%	33.9%	12.0%	32.2%	100.0%
	% within	25.0%	35.3%	42.2%	34.4%	41.8%	39.3%
	Location						
	% of Total	.1%	8.5%	13.3%	4.7%	12.6%	39.3%
	Residual	-0.6	-11.4	11.0	-8.0	8.9	
Total	Count	4	286	374	163	359	1186
	Expected	4.0	286.0	374.0	163.0	359.0	1186.0
	Count						
	% within SS	.3%	24.1%	31.5%	13.7%	30.3%	100.0%
	% within	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Location						

Table 12 (continued).

	Location					Total
	Canada	MidWest	NorthEast	SouthEast	West	Canada
% of Total	0.3%	24.1%	31.5%	13.7%	30.3%	100.0%

When soft skills, location, and industry were analyzed, the chi-square test indicated no significant possible relationships, and the data was too small to analyze for variances.

A chi-square test of soft skills and company did indicate that a possible relationship existed with IBM, but when cross-tabbed soft skills with location and company, the numbers were too small in each category to analyze. A more layered cross-tab using soft skills, location, and company resulted in a chi-square test that indicated a possible relationship with the Midwest. A closer look revealed mostly numbers too small to analyze, however, Kforce did have a variance in the Midwest region. The variance was in the favor of not asking for soft skills as much as the expected by having an actual request count of 5 when the expected count was 6.7 for a variance of -1.7 (-25.4%).

The same scenario played out, with nothing significant being indicated by the chi-square, for the analysis of soft skills, industry, and job category. The numbers were also too much here to analyze for variances. Location has already been discussed with regards to management, education, and experience.

When the location variable was analyzed within its own population, the numbers indicated that the Northeast at 42.2% (158) had the highest soft skills request rate. The West followed not far behind at 41.8% (150) requests, while the Midwest at 35.3% (101) and the Southeast at 34.4% (56) came in lower. This shows that the Northeast and the West are requesting more soft skills than the center of the country, or Canada.

Industry Variable

When examining soft skills and industry, the chi-square test showed that there could be a relationship between the two variables. A cross-tab calculation revealed that 5 industries had actual requests for soft skills higher than expected, while 2 industries fell below the expected. The first company to exceed the expected count was marketing with an actual count of 5 against an expected count of 2.8, for a variance of 2.2 (78.6%). Next, was the insurance industry, where

the actual requests for soft skills was 16 and the expected count was 7.9, thus exceeding the expected by 3.1 (39.2%). Manufacturing also had higher actual requests for soft skills with a count of 16, which was over the expected count of 11.8, by 4.2 (35.6%). Healthcare had higher than expected requests for soft skills. The actual request count was 34 and the expected count was 27.6, which left a 6.9 (25.6%) variance. The consulting industry also had more requests than expected with 41 actual requests and 38.5 expected. The variance was 2.5 (6.5%).

Two industries had actual requests lower than then expected. They were the staffing industry and the technology industry. Staffing had actual requests of 175, expected at 201.6, and a variance of -26.6 (-13.2%) less requests than expected. The technology industry had actual requests at 77 and expected requests of 81.7, which is down 4.7 (-5.8%) from expected.

When evaluating how the industry might impact the presence of a request for soft skills, most of the data was too small in count to be of any use, however, there were 8 of the 38 total industries had counts high enough to examine. The industry with the highest request for soft skills came from the financial industry with 28 job postings out of 47 (59.6%) making the request for soft skills. The insurance industry took second place with 11 postings out of 20 (55%) asking for soft skills. Third place was held by manufacturing where 16 out of 30 (53.3%) postings ask for soft skills, Next, healthcare ask for soft skills in 34 out of 69 (49.3%) postings. Retail accounted for 16 out of 33 (48.5%) making the request, followed by the consulting industry which ask for soft skills in 41 of 98 (41.8%) postings. The technology industry held seventh place with 778 out of 208 (37) job postings asking for soft skills, and the last one with counts large enough to examine was the staffing industry with 175 out of 513 (34.1%) of the postings making the soft skills request.

The industry variable showed some interesting numbers when each industry's own population was used to analyze the data. The staffing industry, with the largest count (513), requested soft skills in 34.1% of the postings. The next largest industry, technology with a count of 208 postings, ask for soft skills in 30.0% of them. The financial industry at 59.6% (28) requests, was the industry with the most soft skills requests. Lower, but still over 50%, was the manufacturing industry at 53.3% (16). Falling below 50%, was retail at 48.5% (16), and even lower was consulting at 41.8% (41) requests. While no trends appear here, it is somewhat surprising to see the industries on the higher and lower ends.

Company Variable

A chi-square test between soft skills and company indicated a possible relationship. A cross-tab of the two showed that 10 companies had a variance in the expected counts when asking for soft skills in the job postings. Four of the companies had actual counts higher than the expected, however, six of the companies had actual counts lower than expected requests for soft skills. On the higher than expected side, the highest variance came from Raytheon with 15 actual counts, which is 6.4 (74.4%) more than the expected count of 8.6. Deloitte also had a higher actual count of 20 than expected count of 13, a 7 (53.8%) variance. The next company, on the more than expected side, was AAA with an actual count of 5, an expected count of 3.5, leaving a variance of 1.5 (42.9%). The last company to ask for soft skills more than expected was Comrise Technology. The actual count was 7 with an expected count of 5.5, for a variance of 1.5 (27.3%).

On the less requests for soft skills than expected, TEKsystems lead the way with 3 actual requests and an expected 11.8 requests for a -8.4 (-71.2%) variance. IBM followed with an actual count of 10 when a count of 27.9 was expected. A variance of -17.9 (-64.2%).

CyberCoders (-10.1) and Robert Half (-5.8) both had 40.2% less requests for soft skills than

expected. CyberCoders had 15 actual requests with an expected 25.1 requests, for variance of -10.1 (-40.2). Robert Half accounted for 8 actual requests with an expected 13.8 requests, leaving a variance of -5.8 (-42.0%), and Kforce was next with 16 actual requests and an expected request count of 23.3, for a variance of -7.3 (-31.3%). The last company, Manpower, had an actual count of 8 down 2.6 (-24.5%) from the expected 10.6 request count.

The next analysis was a look at the individual company's name. Three companies had over 50% of their postings asking for soft skills. United Health Group was the highest with 8 out of 11 (72.7%), Raytheon was second with 15 of 22 (68.2%) requesting soft skills, and Deloitte was the third company with 20 out of 33 (60.6%). The next group of companies percentages fell down in to the 20% and 30% range. The highest, in this group, was a tie between Aerotek and Spherion, both with 5 of 13 (38.5%) of job postings, requesting soft skills. Not too far behind was The Judge Group with 4 out of 11 (36.4%), followed by AAA having 5 out of 9 (31.4) postings wanting soft skills. From there, the percentages dropped below the 30% mark with Manpower at 8 out of 27 (29.6%), Kforce having 16 out of 59 (27.1%), Appleone with 3 out of 12 (25%), CyberCoders with 15 out of 64 (23.4%), Robert Half with 8 out of 35 (22.9), and MATRIX Resources having exactly 20% with 2 out of 10 postings asking for soft skills. At the very bottom, of companies who had enough counts to analyze, where IBM with 10 of 71 (14.1%), and TEKsystems with 3 out of 29 (10.3%) of the job postings asking for soft skills. There is no recognizable trends that emerge from this cross-tab analysis.

The analysis of soft skills, company, and job category had a chi-square test that indicated a possible relationship with the consultant job category, however, the data counts were too small to analyze.

Job Category Variable

The job category variable has been analyzed with other variables except location. The chi-square test did not show any significant possible relationships. An analysis of the variances showed no consistency between any one location being up in request for soft skills over any other in any recognizable way.

There were 28 job categories that contained enough data to analyze. Three job categories, director with 11 of 18 (61.1%), sr. business analyst with 5 out of 9 (55.6%), and business analyst with 15 out of 29 (51.7) ask for soft skills a majority of the time. The rest of the companies ask for soft skills less than 50%. The highest among that group was support with 22 of 46 (47.8%), followed closely by analyst with 25 out of 53 (47.2%), sales with 15 out of 32 (46.9%), Sr. administrator with 14 out of 30 (46.7%), and manager with 25 out of 54 (46.3%). Tester and security tied with each having 9 out of 20 (45%), integration was at 4 out of 9 (44.4%), and sr. consultant with 12 out of 28 (42.9%) of the posting followed. Two more job titles fell into the 40% range with help desk having 14 out of 33 (42.4%), and sr. developer at 25 out of 60 (41.7%) asking for soft skills. Falling into the 30% range were 8 job categories. Within this group, designer was highest with 10 out of 26 (38.5%), next, general office with 8 out of 21 (38.1%) asking for soft skills. A three way tie between architect with 12 out of 33, and sr. analyst and team lead with 4 out of 11, 36.4% came in next. At the bottom of the 30% range was quality analyst with 5 out of 14 (35.7%), administrator with 29 out of 88 (33%), and developer with 76 out of 239 (31.8%) of the job postings requesting soft skills. Falling even lower was Lead developer with 2 out of 8 (25%), DBA with 6 out of 25 (24%), and consultant with 10 out of 49 (20.4%) of the job postings wanting soft skills.

There are some surprising things in this data. First, of the analyzable data, consultant came in last with only about 1 in 5 jobs requesting soft skills. This is an area where one would expect to see soft skills as a highly recruited skill. Also surprising was trainer, which only had 5 job postings, but had 0 requests. The senior positions are requesting soft skills more often than the lower level counterpart. This is a reflection of the influence management positions has on the soft skills request rate.

Blind Variable

A chi-square calculation also indicated that there could be a relationship between soft skills and blind ads. A cross-tab showed that there was a variance between actual and expected counts. The non-blind ads ask for soft skills more than expected with 283 actual requests and 246.4 expected requests, a variance of 36.6 (14.9%). On the other hand, the blind ads ask for soft skills less than expected. Blind ads ask for soft skills 183 times, when the expected was 219.6 which accounts for a variance of -36.3 (-16.5%). Another cross-tab was conducted comparing blind ads with soft skills. Using the total population, the results showed that 15.4% (183) of blind ads asked for soft skills while, 31.7% (376) of blind ads did not ask for soft skills. The calculation using the soft skills population showed that 39.3% (183) of blind ads asked for soft skills while, 52.27% (376) of blind ads did not ask for soft skills. It would appear that when a company name is associated with the posting, there is a higher request rate for soft skills.

Site Variable

Using the total population, a cross-tab was also calculated to compare the site the job posting was on with the incidence of soft skills requests. The sites came in as, Hotjobs at 11.4% (135) making requests for soft skills, Careerbuilder at 10.7% (127) making requests, Monster requesting soft skills 9.8% (116) of the time, and Dice and having 7.4% (88) of the examined job

postings requesting soft skills. The initial analysis showed that the site chosen for advertising did not have any relationship with the incidence of soft skills mentioned, however, a closer examination showed something different. This calculation was further analyzed using the number of postings examined per site. This time the results were different when Monster rose from 9.8% of the total population to having 41.7% (116) of its 278 population. Dice, which at 216 had the smallest share of the total population examined, had 40.7% of its total postings referencing soft skills. Hotjobs saw a rise from 11.4% of the total population to 39.6% of its 341 population. Likewise, Careerbuilder, the largest contributor to overall population, came in last with a rise from its 10.7% of the total population to 36.2% of its 351 population. Although these numbers all fall in close proximity and are all in the bottom half of the percentages, however, it does show that Monster ask for soft skills 5.5% more than Careerbuilder. The following table shows the cross-tabulation of soft skills and posting site.

Table 13.

Cross-Tabulation of Soft Skills and Posting Site

			Site				Total
			Career Builder	Dice	HotJobs	Monster	Career Builder
SS	No	Count	224	128	206	162	720
		Expected Count	213.1	131.1	207.0	168.8	720.0
		% within SS	31.1%	17.8%	28.6%	22.5%	100.0%
		% within Site	63.8%	59.3%	60.4%	58.3%	60.7%
		% of Total	18.9%	10.8%	17.4%	13.7%	60.7%
		Residual	10.9	-3.1	-1.0	-6.8	

Yes	Count	127	88	135	116	466
	Expected Count	137.9	84.9	134.0	109.2	466.0
	% within SS	27.3%	18.9%	29.0%	24.9%	100.0%
	% within Site	36.2%	40.7%	39.6%	41.7%	39.3%
	% of Total	10.7%	7.4%	11.4%	9.8%	39.3%
	Residual	-10.9	3.1	1.0	6.8	
<hr/>						
	Expected Count	351.0	216.0	341.0	278.0	1186.0
		Career	Dice	HotJobs	Monster	Career
		Builder				Builder
<hr/>						
	% within SS	29.6%	18.2%	28.8%	23.4%	100.0%
	% within Site	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total	29.6%	18.2%	28.8%	23.4%	100.0%

Overview, Required, and Preferred Cross-tabulations

Management Variable

Data was collected to determine where, if any, in the posting soft skills were being mentioned. When trying to determine the importance placed on soft skills, the postings were divided into three sections; overview, required, and preferred. These 3 areas were only recorded if there was a presence of soft skills in the posting. When overview was cross-tabbed with management, 17.4% (206) of management did not, while 1% (12) of management postings did list soft skills in the overview section. The non-management postings that did not ask for the soft skills in the overview section was 74.4% (882), while asking for them 3.5% (42), when considering the total population. Those ads that did ask for soft skills in the overview section, became 2.6% (12) of management postings and 9.0% (42) of non-management, when only the

soft skill population was considered. To look at the calculations from a standpoint where only the population of management (220) and non-management positions (929) are considered, the analysis shows that management ask for soft skills 5.5% (206) and non-management ask 4.5% (42) of the time. By 1% there is more management postings asking for soft skills in the overview section of the posting than the non-management postings. Still, the largest majority, management 93.6% (206), and non-management 94.9% (882) did not ask for soft skills in the overview when considering the management/non-management population only.

A look at the required section of the job posting for management and non-management postings shows that when using the entire sample population, 8.4% (100) of management postings mentioned soft skills in the required section, while 25.9% (307) of non-management postings ask for them in the required section. Creating an analysis that only considered the soft skills population shows that management asked for soft skills 21.5% (100) of management postings mentioned soft skills in the required section, while 65.9% (307) of non-management postings ask for them in the required section.

The next set of cross-tabs was performed using the preferred section of the job posting and the total population. When the preferred variable was cross-tabbed with management, 0.07% (8) of the total sample population of management postings made the request for soft skills in the preferred section. The non-management postings asked for soft skills in the preferred section 2.2% (26) of the time. When the population was changed to the soft skills population, the analysis resulted in 1.7% (8) of the management postings made the request for soft skills in the preferred section of the job posting. The non-management postings asked for soft skills in the preferred section 5.6% (26) of the time.

The data indicates that the largest portion of soft skills requested in management postings is being requested in the required section of the posting. This places the highest priority on soft skills.

Experience Variable

To help analyze the importance placed on experience, the data was analyzed using the three sections of overview, required, and preferred. Cross-tabbing overview with experience showed that 6-10 years experience was the category with the highest incidence of soft skills requests in the overview section, at 1.3% (16), followed by closely by 4-5 years experience at 1.2% (14). The 10+ years experience category was .5% (6), while 1-3 years had .3% (4), and no experience had the lowest requests at 0.2% (2). Using the soft skills only population produced the following numbers; 6-10 years at 3.4% (16), followed by closely by 4-5 years experience at 3.0% (14). The 10+ years experience category was 1.3% (6), while 1-3 years had 0.9% (4), and no experience had the lowest requests at 0.4% (2).

Cross-tabbing experience with required showed that 4-5 years experience was the category with the highest incidence of soft skills requests in the required section at 10.8% (127). Six to ten years experience followed with 9.8% (116), while 1-3 years experience came in with 5.6% (66), and 10+ years experience had the lowest requests at 0.4% (5).

When the soft skills only population was considered, cross-tabbing experience with required showed that 4-5 years experience was the category with the highest incidence of soft skills requests in the required section at 27.3% (127). Six to ten years experience followed with 24.9% (116), while 1-3 years experience came in with 14.2% (66), and 10+ years experience had the lowest requests at 1.1% (5).

A cross-tab of preferred with experience, when using the total population, showed 6-10 years experience was the category with the highest requests for soft skills in the preferred section of the job posting at 1.3% (15), followed by 1-3 years experience which had 0.8% (10), and 4-5 years experience at 0.5% (6). The 10+ years experience category had 0.4% (3) requests , and no experience had the lowest requests in the preferred section of the job posting at 0.0% (0).

A further examination using only the soft skills population showed 6-10 years experience was the category with the highest requests for soft skills in the preferred section of the job posting at 3.2% (15), followed by 1-3 years experience which had 2.1% (10), and 4-5 years experience at 1.3% (6). The 10+ years experience category had 0.06% (3) requests , and no experience had the lowest requests in the preferred section of the job posting at 0.0% (0).

The data indicated that experience followed the general population, with the most requests for soft skills being in the required section and in the 4-5 years experience category. From there, the 6-10 years held the highest percentages in the overview and the preferred sections.

Education Variable

When education was cross-tabbed with overview, and using the total population, the associate degree and masters degree both accounted for 0.0% (0), with doctorate and high school both sharing 0.1% (1). The only category with notable requests for soft skills was the Bachelor degree which had 2.7% (32) of the postings asking for soft skills in the overview section. An examination using the soft skills population resulted in the bachelor degree requesting 6.9% (32) of the postings, while high school diploma, and doctorate had 0.02% (1), and associate degree and masters degree had 0.0% (0).

Moving on to the required section of the job posting, and using the total population, showed that the Bachelor degree had 22.1% (262) on the high end of the category. The associate degree had 1.4% (17), masters degree accounted for 1.0% (12), high school diploma had 0.5% (6), and doctorate had 0.2% (2).

Using the soft skills population, the bachelor degree with 56.2% (262) was the highest degree to have the request for soft skills in the required section. No education indicated had 24.2% (113), associate degree had 3.6% (17), masters accounted for 2.6% (12), high school diploma had 1.3 % (6), and a Ph.D. had the least amount of requests for soft skills in the required section of the job posting at 0.04% (2).

The preferred section of the job posting, using the total population showed that the bachelor degree had the highest requests for soft skills in the preferred section of the job posting at 2.2% (26), masters degree had 0.5% (6), associate degree at 0.1% (1), and high school diploma and Ph.D. shared 0.0% (0). Considering only the soft skills population, the bachelor degree had the highest requests for soft skills in the preferred section of the job posting at 5.6% (26), masters degree had 1.3% (6), and associate degree had 0.02% (1). high school diploma and Ph.D. shared 0.0% (0).

The required section of the job posting held the highest percentages of requests for soft skills, as did the bachelor degree. Both of these findings agree with the demographics of the general population.

Site Variable

A cross-tab was calculated, using total population, of the overview section of the job posting and the site the posting was listed on. The sites came in as; Monster at 1.4% (17), Hotjobs at 1.2% (14), and Dice at 1.0% (12), and Careerbuilder at 0.9% (11), of the postings

mentioning the soft skills in the overview section of the job posting. This calculation was further analyzed using the number of postings examined per site. This time, the results were different with Monster having 6.1% (17) of its 278 population, Dice, which at 216 had the smallest share of the total population examined, had 5.5% (12) of its total postings referencing soft skills in the overview section. Hotjobs had 4.1% (14) of its 341 population, and Careerbuilder, the largest contributor to overall population, came in with the least requests at 3.4% (12) of the total 351 population. Although the numbers are small, they do show that Monster mentioned soft skills in the overview section 2.7% more than Careerbuilder, which is nearly twice as often. Yet another calculation performed on the site data was to use the population of 54 postings that mentioned soft skills in the overview section. This time, the results showed Monster having 31.5% (17), followed by Hotjobs at 25.9% (14), then by Careerbuilder and Dice both of which had 22.2% (12).

A cross-tab was also calculated using the total soft skills population to compare the site the job posting was on with the overview section of the job posting. The sites came in as Monster at 3.6% (17), Hotjobs at 3.0% (14), and Dice and Careerbuilder tied at 2.6% (12) of the postings mentioning the soft skills in the overview section of the job posting.

The first cross-tab to compare the site the job postings were listed on with the required section of the job posting, used the total population. The sites came in as Hotjobs had 10.1% (120) making requests for soft skills in the required section, Careerbuilder had 9.3% (110), Monster had 8.8% (104), and Dice had 6.6% (78) having the mention of soft skills in the required portion of the job posting. This time when a calculation was prepared using each sites own total population, the numbers showed that Hotjobs the held the highest spot at 43.2% (120), Dice was second at 36.1% (78), Careerbuilder at the bottom with 31.3% (110), and Monster had

30.5%

(110). Clearly, when soft skills are requested, they are considered required as these numbers are the highest of any section to make the request in.

The third calculation performed on the sites was to analyze the numbers using the 412 population of ads that had soft skills in the required section. This time the numbers showed that Hotjobs the held the highest spot at 29.1% (120), Careerbuilder and Monster both tied at 26.7% (110), and Dice was last at 18.9% (78). A cross-tab was also calculated using the soft skills population. The sites came in as Hotjobs had 25.8% (120) making requests for soft skills in the required section, Careerbuilder had 23.6% (110), Monster had 22.3% (104), and Dice had 6.7% (78) having the mention of soft skills in the required portion of the job posting.

A cross-tab was also calculated to compare the site with the preferred section the job. When the total population was considered, the sites came in at Hotjobs 1.3% (15), Careerbuilder at 0.8% (10), Monster at 0.7% (8), and Dice had 0.3% (4) postings request soft skills in the preferred section. Next, a calculation was prepared using each sites own total population. The numbers showed that Hotjobs held the highest spot at 4.4% (15), Monster had 2.9% (8), closely followed by Careerbuilder with 2.8% (10), and Dice was last at 1.9% (4). Yet, a third calculation was performed using the 37 population of ads that contained a preferred section. Again, the numbers showed that Hotjobs the held the highest spot at 40.5% (15), Careerbuilder with 27.0% (10), followed by Monster at 21.6% (8), and Dice was last at 10.8% (4). Noting that Monster and Careerbuilder changed places with this calculation.

The calculations were also prepared using the soft skills population. The sites came in at Hotjobs 3.2% (15), Careerbuilder at 2.1% (10), Monster at 1.7% (8), and Dice had 0.09 % (4)

postings request soft skills in the preferred section. This time when a calculation was prepared using each sites own total population, the numbers showed that Hotjobs the held the highest spot at 4.4% (15), Monster was second with 2.9% (8), followed by Careerbuilder with 2.8% (10) Dice at was at the bottom with 1.8% (4).

Blind Variable

The cross-tab comparison of overview with blind ads, using the total population, showed that 2.1% (25) of the blind ads mentioned the soft skills in the overview portion of the job posting. Non-blind ads that asked for soft skills, asked for them in the overview section 2.4% (29) of the time. Using the soft skills population, blind ads ask for soft skills in the overview section of the job posting 5.4% (25), and non-blind ads ask for them 6.2% (29).

The most requests were in the required section of the job posting, again, following the general population. However, it does appear that while Monster had the highest rate of requests in the overview, Hotjobs had the highest rate in both the required and the preferred sections of the job postings.

A cross-tab was conducted comparing blind ads with the occurrence of soft skills mentioned in the required section of the job posting. Using the total population, the results showed that 13.5% (160) of blind ads, and 21.2% (252) of non-blind ads, asked for soft skills in the required section of the job posting. Using the soft skills population, the results showed that 34.3% (160) of blind ads, and 54.1% (252) of non-blind ads, asked for soft skills in the required section of the job posting.

A cross-tab was conducted comparing blind ads with the occurrence of soft skills mentioned in the preferred section of the job posting. Using the total population, the results showed that 1.3% (16) of blind ads, that asked for soft skills, did so in the preferred section of

the posting. The cross-tab also showed that 1.8% (21) of the non-blind ads, that asked for soft skills, did so in the preferred section of the posting. Again, a cross-tab was calculated using the soft skills population. The results showed that 3.4% (16) of blind ads, that asked for soft skills, did so in the preferred section of the posting. The cross-tab also showed that 4.5% (21) of the non-blind ads, that asked for soft skills, did so in the preferred section of the posting.

This data clearly presents non-blind ads as asking for soft skills more than the blind ads in all 3 sections of the job postings, as well as, the overall population of postings that ask for soft skills.

Location Variable

Geographic location, when cross-tabbed with overview, and using the total population, showed that the Midwest, Northeast, and West were all close with 1.5% (18), 1.4% (17), and 1.3% (15) respectively in requests for soft skills. The Southeast had 0.3% (4), and Canada had 0.0% (0). Geographic location, when cross-tabbed with overview using the soft skills population, showed that the Midwest had 3.9% (18), the Northeast had 3.6% (17), the West had 3.2% (15), the Southeast had 6.0% (3), and Canada had 0.0% (0) mentioning soft skills in the overview section of the job postings.

Geographic location when cross-tabbed with required, and using the total population, showed that the West had 11.4% (135), followed closely by the Northeast at 11.3% (134) making the request for soft skills in the required section of the job posting. The Midwest accounted for 7.7% (91), the Southeast totaled 4.3% (51), and Canada had 0.1% (1) of the requests for soft skills showing up in the required section of the job posting. Using the soft skills population, geographic location when cross-tabbed with required showed that the West had 29.0% (135), followed closely by the Northeast at 28.8% (134) making the request for soft skills

in the required section of the job posting. The Midwest accounted for 19.5% (91), the Southeast totaled 10.9% (51), and Canada had 0.02% (1) of the requests for soft skills showing up in the required section of the job posting.

Geographic location of the job, when cross-tabbed with preferred and using the total population, showed that the Northeast at 1.3% (16) had the highest requests for soft skills in the preferred section of the job posting. The West at 1.1% (13), the Midwest at 0.5% (6), the Southeast at 0.2% (2), and Canada at 0.0% (0) all followed. Geographic location of the job, when cross-tabbed with preferred, and using the soft skills population, showed the Northeast at 3.4% (16), the West at 2.8% (13), the Midwest at 1.3% (6), the Southeast at 0.04% (2), and Canada at 0.0% (0) followed.

General Analysis

Analysis showed 94.8% (1124) of the total sample population did not mention soft skills in the overview of the job. Additionally, 60.7% (720) did not mention soft skills in required skills. Preferred job skills were not included in 94.3% (1118) of the postings, which left 5.7% (68) of postings that soft skills were mentioned in. That 5.7% broke down as 2.6% (31) did not request and 3.1% (37) did request soft skills in the preferred skills section of the posting. This is significant, as this is the first time a higher percentage is on the side of wanting soft skills, although, it is a clear minority of overall adds, and is preferred, not required. Stating soft skills as required sends a potential employee a much stronger message that the employer is placing a high value on soft skills. In order to evaluate the importance an employer places on soft skills, it is necessary to know where the mention of soft skills appeared in the job posting. This data is encouraging, as it does send the message that when soft skills are requested, they are generally

thought of as essential to the job by being mentioned either in the overview as a integrated core of the position, or in the required section, and not as an after thought in the preferred area.

The other categories of variables were too diverse in answers to provide enough numbers in any one to calculate usable percentages for evaluation.

To evaluate the section of the job posting the request for soft skills was found in, a cross-tabulation was made for each of the three posting categories, overview, required, and preferred. The reference to soft skills was made 0.5% (54) of the time in the overview section, 34.1% (407) in the required section, and 3.1% (37) in the preferred section of the job posting of all job posting examined. Of the 466 postings that made a reference to soft skills, that reference showed up 11.6% (54) in the overview, 87.3% (407) in the required section, and 7.9% (37) in the preferred section. These percentages add up to 106.8% which can be accounted for the reference to soft skills being mentioned in more than one section of a posting, thus getting counted more than once in the section tabulation, but not in the overall count of postings with soft skills references in them. This shows that while the majority of jobs that did not address soft skills in anyway, those that did consider them to be highly important by placing them in the overview as an integral part of the job, or in the required skills section.

The data also showed that 60% (720) of the sampled job postings did not address soft skills.

CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS

During the course of this research, 18,976 pieces of data have been examined to determine whether companies are specifically recruiting for the soft skills that the literature has established employers desire employees to possess. It is important to research this topic in order to determine if there is a gap between an established demand by employers who desire soft skills in IT employees, and a lack of stating that preference for soft skills during the recruitment of new employees.

The first conclusions drawn from the research data indicate that demographically the Northeast was most active in IT recruitment during the research time frame with 374 job postings, and that the majority of the jobs required a bachelor degree at 54.3% (644) of the total postings. The majority of postings were for non-management positions with 78.3% (929) postings. While the numbers to track industry, company, and job category variables were small, there were a few in each that fell out as noticeable. In the industry variable, the financial industry stood out with 59.6% (28) of the postings requesting soft skills. The technology industry fell short of asking for soft skills in 2/3 of the postings with 63% (131) of the ads not requesting soft skills, and only 37% (77) asking for soft skills.

The company that had the most postings was IBM with 71, however, IBM did not have high requests for soft skills at only 10 (14.1%). This finding goes against what one might expect from an industry leader in the technology field. Cybercoders with 64 (5.4%) postings and 15 (23.4%) requests for soft skills, and Kforce with 59 (5.0%) postings and 16 (27.1%) requests for soft skills, also fell short of the 39.3% requests for soft skills found in the general population. These findings coming from staffing agencies is curious. The gap could be either a need to fill

positions, and since they are not directly impacted by the quality of that individual, they are not as interested in the soft skills, or it could be the result of what the blind ad data revealed. The blind data analysis showed that when a company name was associated with the posting, the requests for soft skills increased. It appears that the reputation and accountability factor comes into play when a company puts their 'signature' on the posting.

The job category with the highest counts was developer with 239 (20.2%), and requests for soft skills in 76 (31.8%) of them. The amount of postings for developers was surprising. developer postings accounted for 1 in 5 postings. With this amount of numbers, it was disappointing to not see more requests for soft skills, especially when much of the literature specifically addressed wanting more soft skills in the more technical job fields.

Hypotheses

Hypothesis 1

The first hypothesis was: Employers are not stating a preference for soft skills during the recruitment phase. During the analysis it came to light that soft skills were requested in 466 (39.3%) of the 1186 job postings that were examined, therefore, soft skills were not requested in 60.7% (720) of the job postings. Thus, the first null hypothesis holds true, in fact, employers are not stating a preference for soft skills during the recruitment phase. The following frequency table shows the data:

Table 14.

Frequency of Soft Skills Requests in Total Population

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	8	0.7	0.7	0.7
No	1124	94.8	94.8	95.4
Yes	54	4.6	4.6	100.0
Total	1186	100.0	100.0	

Hypothesis 2

The second hypothesis was: The position being considered, management or non-management, does not correlate with the stated need for soft skills. The data revealed that the null version of this hypothesis was not true, in fact, a position that is management does have a higher request rate for soft skills than do the non-management postings. The data revealed a close split, with 50.9% (112) of the management postings requesting soft skills and 49.1% (108) not requesting soft skills. As previously discussed, there also was a recognizable trend in the job category in Senior level postings, and there was a higher percentage of management postings that did request soft skills than those that did not. This finding is not surprising, however, there is cause for concern that the non-management positions, which frequently are the ones with client contact, are not requesting soft skills in a majority of the postings.

Hypothesis 3

The third hypothesis was: Demographics such as location do not correlate with the stated need for soft skills, does not have an easy answer. There are more soft skills requests in the Northeast and in the West. While many trends do start on the coasts, and make their way toward the center of the country, it is not possible to definitely say this is what is happening. When considering historical data regarding employers stating a desire to have soft skills, these requests can be dated back 2 decades and more in the literature, therefore, it would be hard to hypothesis that this trend is moving inward to the rest of the country. Therefore, the third hypothesis, based on this study is false, in fact, demographics such as location do correlate with the stated need for soft skills. There is a significant difference in the rate of requests within each demographic location category, with the Northeast at 42.2% (158), and West at 41.8% (150) when compared with the Midwest at 35.3% (101), the Southeast at 34.4% (56), and Canada at 25.0% (1) requests for soft skills.

Hypothesis 4

The fourth hypothesis was: The type of industry does not correlate with the stated need for soft skills. This Hypothesis is also false. There is as much as 29.6% difference between the financial industry and the technology industry, considering only the industries with large enough numbers to analyze. This is a significant difference. To find the technology industry at the lower end of soft skills requests is not surprising, but is counter to the industries cries for soft skills. This clearly indicates that a gap exists between what the industry thinks it needs in skills for its employees, and what it is asking for during the recruitment process.

Hypothesis 5

The fifth hypothesis was: Education level required does not correlate with the stated need for soft skills. This hypothesis is also false. The rate of requests within each educational category goes up with each level of education. The high school diploma only held 18.8% (6) request rate, that rate rose to 39.5% (17) for the associate degree, and to 46.1% (297) for a bachelor degree. The upward movement continued with the masters degree asking for soft skills 54.3% (19) of the time. The Ph.D. dropped to 37.5% (3) requests, however, with only 8 requests in the Ph.D. category where too few requests to properly analyze.

Hypothesis 6

The sixth, and last, hypothesis was: Previous experience required does not correlate with the stated need for soft skills. Again, this hypothesis is false, as the requests for soft skills rose as the experience required rose. The no experience category had 20% (6) of the requests for soft skills within the experience category, 1-3 years had 39.2% (74) requests, 4-5 years rose up to 42.9% (138), and the 6-10 year category had 44.5% (134) requests. Finally, the 10+ years held the top at 49.5% (51) requests for soft skills. Clearly an upward trend with experience and the rate of requests for soft skills.

Research Question

While some job categories did ask for soft skills more than the general population, there was not any recognizable consistency or criteria for that finding. For example, the sr. developer category had a higher than average request rate for soft skills, however, the developer category was below average. The consultant category, where one might expect to see a request for soft skills due to the type of human contact a consultant would have in the position, had a very low rate of requests for soft skills in those postings.

The research question was: Does the job title reference a stated need for soft skills? Answering this question turned out to be difficult. The job titles themselves were so diverse with many different titles referencing the same job. That alone made it difficult to answer this question. After the job titles were categorized, there still were low counts in most categories, but a few had enough to analyze. While no one category stood out as asking for soft skills in itself, there was a trend in the senior level positions. This trend did not appear to be a residual of the management position relationship with soft skills recruitment. This trend can be seen by looking at the data and analyzing it by the job category population. The administrator job category had 33% (29) requests for soft skills, while in the sr. administrator job category, the requests jumped to 46.7% (14). Similarly, the consultant category had 20.4% (10) requests for soft skills, the sr. consultant saw a request rate at 42.9% (12). The developer and sr. developer categories also saw this increase with developer at 31.8% (76) and sr. developer at 41.7% (25). The really interesting story is in the analyst and sr. analyst categories. These categories are the only ones where soft skills are requested more than 50% of the time, with business analyst at 51.7% (15), and sr. business analyst at 55.6% (5). A disappointing performance was reported by the analyst at 47.2% (25), and the sr. analyst falling to 36.4% (4). Still, there is enough data in the other categories to support the trend of higher requests for soft skills in the higher level positions. The complication comes from the fact that these upper level positions are not necessarily management, therefore, the residual of management positions asking for more soft skills cannot

be a determining factor. Given the data that could be analyzed, the answer to the research question would be yes, in fact, job title does reference a stated need for soft skills.

Other Observations

In addition to the formal research question and hypotheses, some other observations were made with regards to the data. There was an increase in soft skill requests when a company identified itself in the posting, as opposed to a blind ad. The other noticeable finding was that the staffing agencies had lower rates of soft skills requests than companies that did their own recruiting.

A very interesting piece of data that was kept was the terms list. The following figure shows the results of that data tracking:

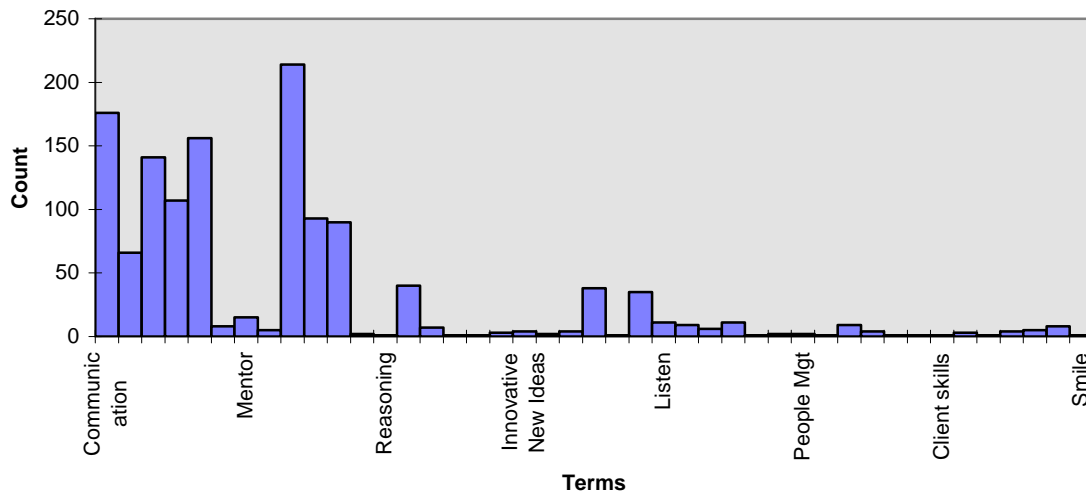


Figure 2. Term list graph.

The term requested the most was written communication skills with 214 requests, however, for the purposes of this research written skills were not defined as soft skills, therefore, the most requested soft skill was communication skills with 176 requests, followed by teamwork

with 156 requests. The term soft skills had only 2 requests. Please refer to Appendix B for the full term list.

Analysis showed 94.8 % (1124) of the total sample population did not mention soft skills in the overview of the job. Additionally, 60.7% (720) did not mention soft skills in required skills. Preferred job skills were not included in 94.3% (1118) of the postings, which left 5.7% (68) of postings that soft skills were mentioned in. That 5.7% broke down as 2.6% (31) did not request and 3.1% (37) did request soft skills in the preferred skills section of the posting. This is significant, as this is the first time a higher percentage is on the side of wanting soft skills, although, it is a clear minority of overall adds, and is preferred, not required. Stating soft skills as required sends a potential employees a much stronger message that the employer is placing a high value on soft skills. In order to evaluate the importance an employer places on soft skills, it is necessary to know where the mention of soft skills appeared in the job posting. This data is encouraging, as it does send the message that when soft skills are requested, they are generally thought of as essential to the job by being mentioned either in the overview as a integrated core of the position, or in the required section, and not as an after thought in the preferred area.

Suggestions for Future Research

Future research in this area could explore the gap between employers stating they want soft skills, and job postings that don't ask for them. It would be interesting to survey the companies and see what their perceptions are as to whether or not they perceive that they are requesting soft skills. Another area for research could lie in the staffing agencies. Finding out why they have a lower request rate than companies that do their own recruiting, could provide an valuable information as to why a gap exists. Is it that these agencies are just looking for warm

bodies in a labor shortage, or that they aren't as vested in the employee performance?

Repeating this study in 5 years, but specifically limiting the population to geographic regional areas would also give some insight into whether there is a trend moving inward across the country. Repeating this entire study in 5 years would help identify if employers are asking for soft skills more than they did in this study, or if any industries, or job categories have started requesting at higher rates than in this study.

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APPENDIX A. DATA COLLECTION VIEWS

The screenshot shows a Mozilla Firefox browser window with the address bar displaying the URL: <http://www.careerbuilder.com/JobSeeker/Jobs/JobDetails.aspx?CiBookMark=1&dv=dv&sfasc=IT&IPath=C>. The browser window has a single tab titled "Tech". The page content is from CareerBuilder and features a job listing for "IT Audit Senior" at Kforce Technology Staffing. The job details include:

- Company:** [Kforce Technology Staffing](#)
- Status:** Full-Time Employee
- Level:** Computer Software
- Salary:** \$65,000.00 - \$80,000.00 /Year
- Job Location:** US-CT-Hartford
- Job Ref Code:** 1137~AQG~719505P1~48

The job description states: "Responsibilities: Our Hartford County client has an immediate need for a Senior IT Auditor to perform in-charge responsibilities for assigned audits of various technology departments, products, and processes. You will identify significant IT risks, assess the adequacy and effectiveness of controls in place, and verify compliance with IT policies, standards, and procedures. Responsibilities include: developing a comprehensive IT Audit Plan and allocating appropriate resources, supervising audit teams and assuring compliance with departmental and professional standards, providing guidance on identifying and prioritizing key risks related to IT exposures."

Additional text on the page includes: "If you are not a local candidate but are relocating, please inform me of your arrangements (i.e., date and city/state you are relocating to)." and "Kforce (NASDAQ: KFRC) is a full-service specialty staffing firm providing flexible and permanent staffing solutions for organizations and career management for individuals".

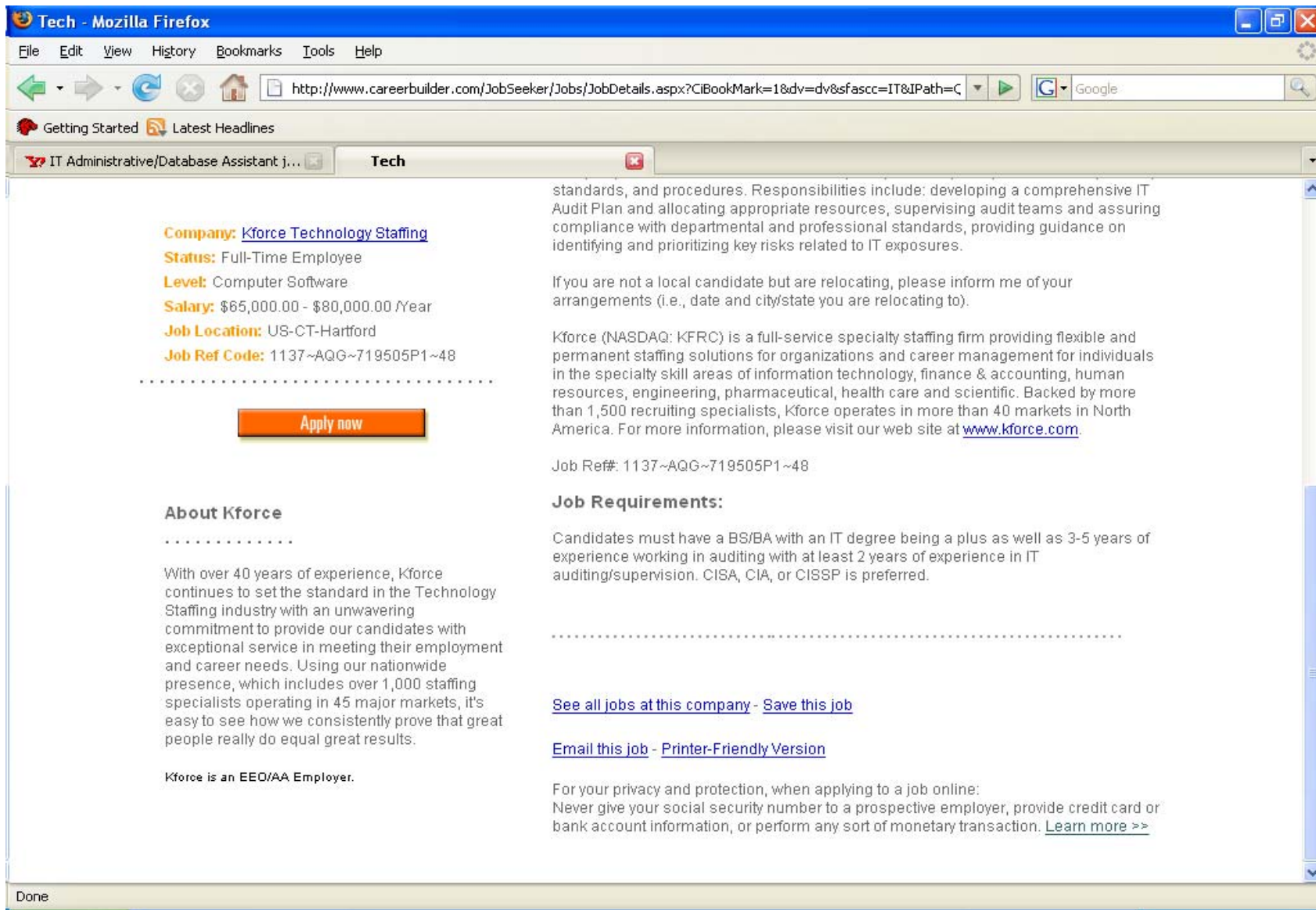


Figure A1. Sample graphical view of www.careerbuilder.com.

Find IT Strategy and Management - Senior Manager - Life Sciences jobs at Dice.com - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://seeker.dice.com/jobsearch/servlet/JobSearch?op=302&dockey=xml/2/4/24ed0e520abb800f8a59821

Getting Started Latest Headlines

Dice
The Career Hub for Tech Insiders™

Engineering Services - www.hatl.com
Labview Software, C++, Data Acq. Hardware and Software Consulting

Search Jobs MyDice MyResume Search Agents Saved Jobs Training Resources Resume Writing Discussions

Deloitte.

[Find more jobs with Deloitte](#)

[Back to search results](#)

Save Job Rate this Job Positive Neutral Negative Rate! [Click Here to Apply](#) [Email to a friend](#)

Title: IT Strategy and Management - Senior Manager - Life Sciences

Skills: IT, Management, Manager, Consulting, excel, CIO, architecture, performance, development, biotechnology , applications, systems, wireless, video, RFID, analysis, blueprinting, Application, Risk Management

Date: 4-6-2007

Location: Santa Ana, CA

Area code: 714

Tax term: FULLTIME

Pay rate: Competitive

Length: Permanent

Position ID: 1799482000007812

Dice ID: deloitbot

Done

Find IT Strategy and Management - Senior Manager - Life Sciences jobs at Dice.com - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://seeker.dice.com/jobsearch/servlet/JobSearch?op=302&dockey=xml/2/4/24ed0e520abb800f8a59821

Getting Started Latest Headlines

Job description:

Deloitte & Touche USA LLP is the U.S. member firm of Deloitte Touche Tohmatsu and services are provided by its subsidiaries, including Deloitte & Touche LLP, Deloitte Consulting LLP, Deloitte Financial Advisory Services LLP and Deloitte Tax LLP. Deloitte & Touche USA LLPs subsidiaries are among the nations leading professional services firms, providing audit, tax, consulting, and financial advisory services through nearly 40,000 people in more than 90 cities. Known as employers of choice for innovative human resources programs, they are dedicated to helping their clients and people excel.

Deloitte Consulting LLP

Deloitte Consulting helps CIOs master technology and business challenges through the people and offerings of its **IT** Strategy & Management practice. Our end-to-end services cover the range of CIO challenges, from defining **IT** strategy and implementing the architecture to measuring and maximizing **IT** value as well as optimizing performance. We help our clients align their **IT** strategies with business strategies and transform the **IT** organization, processes, and technologies through financial discipline and a business-focused perspective.

Many Life Sciences organizations are faced with the promise of great discoveries and the challenges of market fluctuations and increasing regulation. Our healthcare professionals serve a distinct group of clients that are involved in the discovery, development, manufacturing and sale of pharmaceuticals, biotechnology and medical devices. Deloitte Consulting can help clients respond to market forces and maximize their possibilities by addressing these and other challenges in today's complex environment.

Senior Managers in our **IT** Strategy & Management (ITSM) practice manage and deliver complex engagements that provide insight and direction on how our clients can better align their **IT** strategies with their business strategies and transform the **IT** organization, processes and technologies through financial discipline and a business-focused perspective. Senior Managers lead teams that provide this integrated set of advisory services to CIOs, CTOs and top **IT** executives.

Senior Managers must have:
10+ years experience with 5-7+ years experience in **IT** strategy or **IT** management roles
Excellent written and oral communication skills, including significant experience with executive level communication

Done

Find IT Strategy and Management - Senior Manager - Life Sciences jobs at Dice.com - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://seeker.dice.com/jobsearch/servlet/JobSearch?op=302&dockey=xml/2/4/24ed0e520abb800f8a59821

Getting Started Latest Headlines

Excellent written and oral communication skills, including significant experience with executive-level communication

Demonstrated prior experience in managing teams through design, development, and/or operations of complex technology environments (programs, applications, systems and/or infrastructure) (5-15+ resources)

Demonstrated prior experience in managing technology assessments and developing strategic recommendations

Ability to articulate leading business issues and trends, including the associated technology implications within one or more industries

Demonstrated experience in business process improvement, leveraging information and technology

Understanding and experience with **IT** economics - including popular financial measures (such as CFROI, TCO etc) is preferred

Experience with **IT** organization design and management principles/techniques, as well as **IT** management tools (e.g., Mercury, PlanView, ProSight, Niku) is preferred

- A willingness to travel nationally to client locations

Ideal candidates will also have a strong background and experience in at least one of the following areas:

- Technology Innovation - Leveraging emerging technologies (wireless, sensors, narrow-casting, video, RFID, smart displays, etc.) to create completely new business models and potentially disruptive strategies for revenue enhancement and cost efficiency
- **IT** Strategy & Alignment - Delivering **IT** Strategies driven both from a top down analysis starting with an articulated business strategy and a bottom up technology capability analysis. Experiences include:
 - IT**/Business Alignment **IT** Transformation **IT** Organization/Operating Models **IT** Assessment/Due Diligence Improving Business Performance Developing Functional Strategies
 - Enterprise Architecture - Delivering both the blueprinting and capabilities required to effectively deliver **IT** capabilities within an organization. Experiences include: Enterprise Architecture Assessment Application & Infrastructure Consolidation Data Management Application/Technology Selection
 - **IT** Effectiveness - Assisting clients in formalizing the tools and processes needed to understand how **IT** resources and programs create shareholder (business) value, and how to improve **IT** resource allocation to maximize value. Experiences include:
 - IT** Performance Management **IT** Portfolio Management **IT** Sourcing/Outsourcing/Offshoring
 - IT** Cost Allocation/Chargeback **IT** Cost Reduction **IT** Talent and Resource Management **IT** Compliance/Risk Management Program Leadership/PMO **IT** Merger Integration

Deloitte & Touche USA LLP and its subsidiaries ("the Deloitte US Firm") are equal

Done

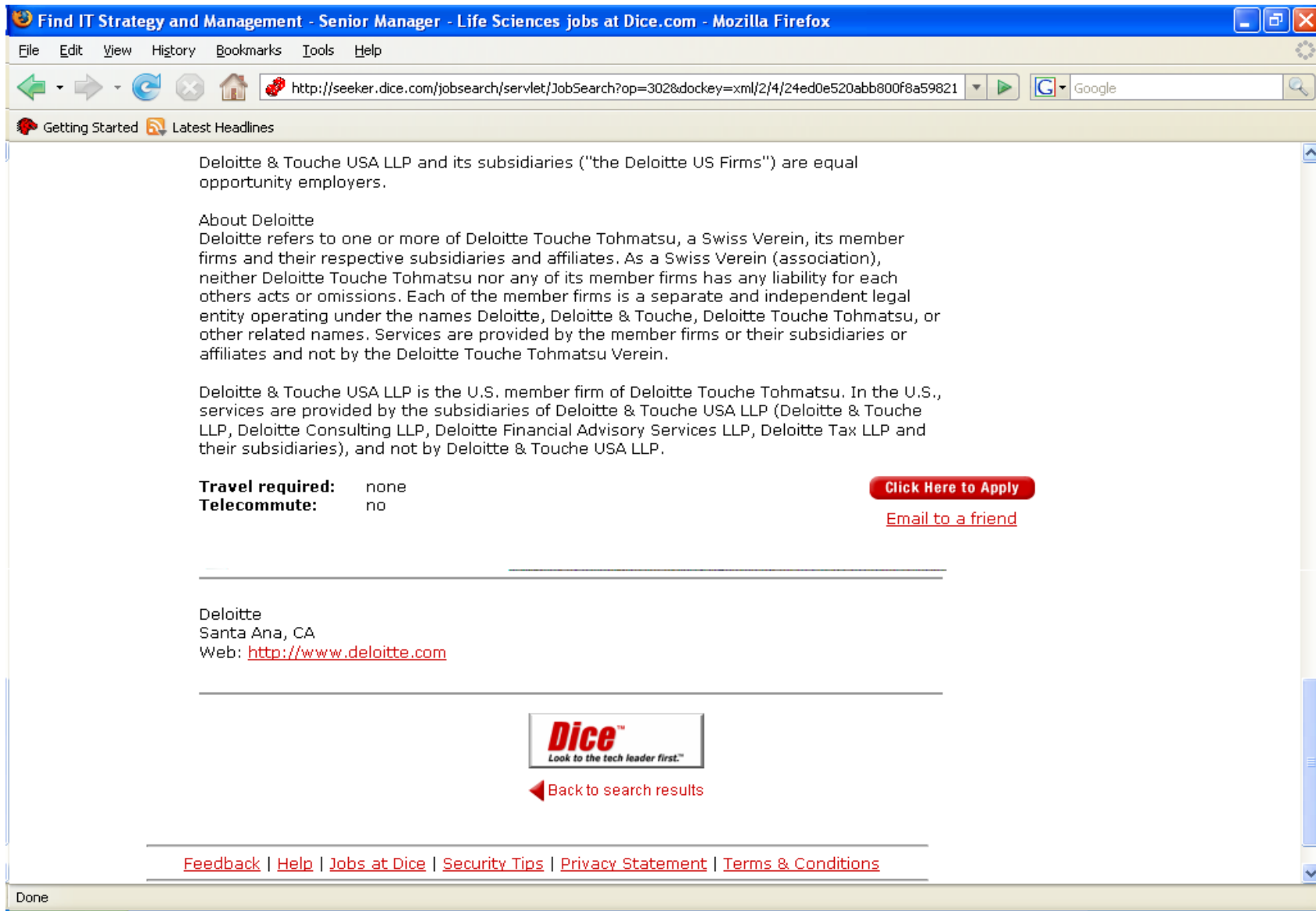


Figure A2. Sample graphical view of www.dice.com.

US-CA-Burbank-.NET Developer - Mozilla Firefox


File Edit View History Bookmarks Tools Help


http://jobview.monster.com/getjob.asp?JobID=64884585&JobTitle=.NET+Developer&fn=660&brd=1&cy=1

Getting Started Latest Headlines

MapQuest: Map... Charm for Char... Find Jobs - HUM... Job Search Resu... Low Fare Alert - ... US-CA-Burba... Free Daily Chine...

Search Jobs My Monster Career Center Home For Employers

 [Back to Job Search Results](#)

 CONSULTING. TECHNOLOGY. OUTSOURCING

.NET Developer

Company: Capgemini U.S. LLC	Location: Burbank, CA 91501
Status: Full Time, Employee	Job Category: Information Technology
Education Level: Bachelor's Degree	

[Save to job file](#)

Job Description

Capgemini Jobs

Capgemini is one of the world's largest providers of Consulting and technology services. The company helps businesses implement strategies and leverage technology. The organization employs approximately 60,000 people worldwide and reported 2006 global revenues of over \$8 billion.

We are currently seeking a .NET Developer to work within our Telecom, Media & Entertainment (TME) division in Burbank, California. TME is a global industry practice of Capgemini with over 3,500 industry professionals focusing on the consulting and systems integration needs of communications and media players worldwide. This includes many of the prominent US studios, television players and home entertainment groups as well as working with leading retailers and broadband providers in digital media distribution.

Done

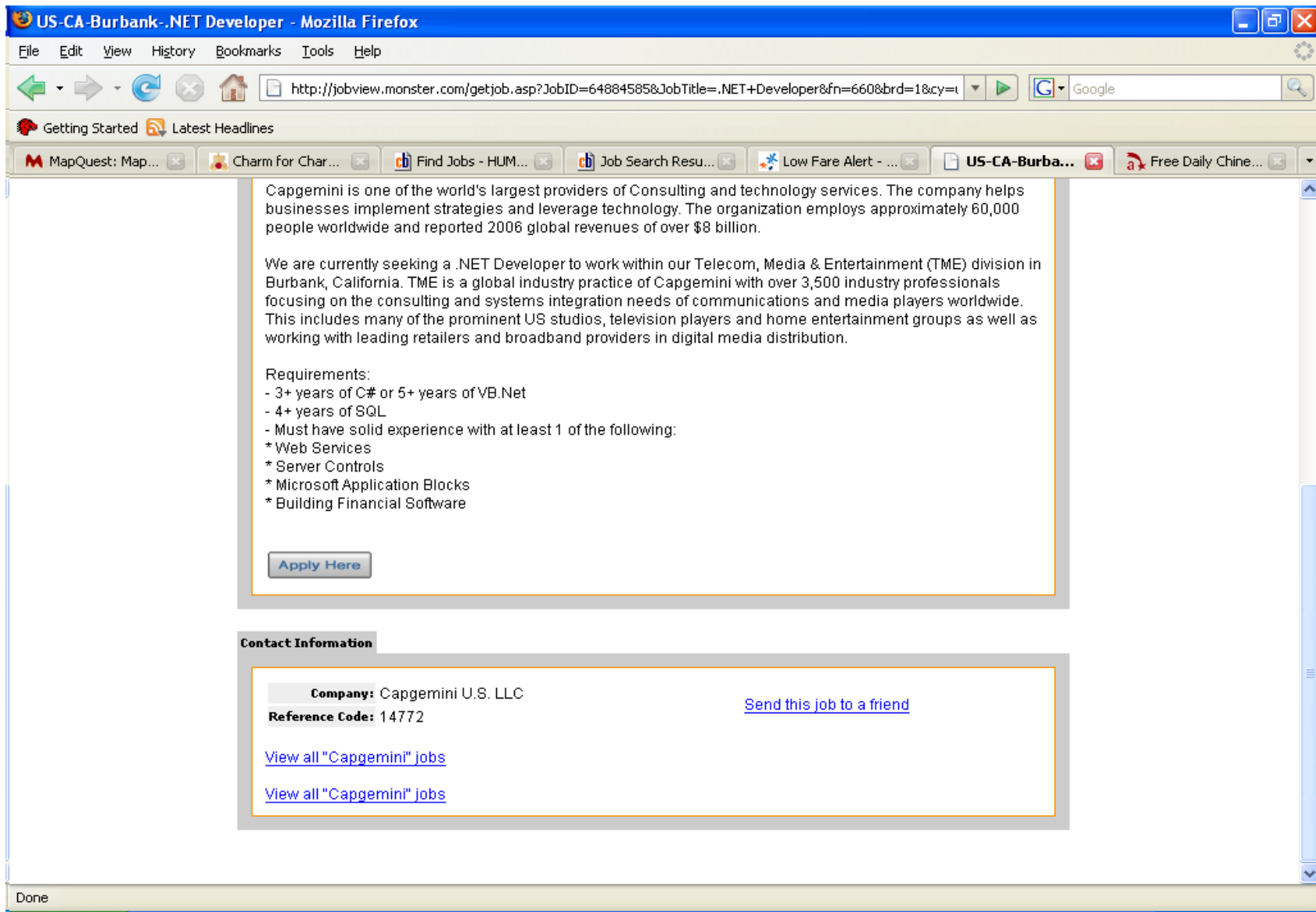


Figure A3. Sample graphical view of www.monster.com.

APPENDIX B. TERM LIST

Term List

- 1 Ability to influence others
- 2 Ability to analyze
- 3 Ability to analyze information
- 4 Ability to collaborate
- 5 Ability to collaborate with a team
- 6 Ability to communicate and collaborate with multiple project teams and clients
- 7 Ability to communicate effectively
- 8 Ability to communicate effectively and work as a team player
- 9 Ability to communicate effectively at senior levels
- 10 Ability to communicate effectively and professionally
- 11 Ability to communicate in person
- 12 Ability to communicate verbally and in writing
- 13 Ability to coordinate across teams
- 14 Ability to demonstrate effective written and verbal communication skills
- 15 Ability to effectively adapt
- 16 Ability to effectively communicate requirements, both verbally and written to other engineers and management
- 17 Ability to foster a positive work environment by promoting teamwork, open communication, and corporate culture
- 18 Ability to influence
- 19 Ability to learn and mentor
- 20 Ability to listen
- 21 Ability to manage own workload and deliverables with little supervision under strict timelines
- 22 Ability to organize and write effective documentation and good presentation skills is necessary
- 23 Ability to problem solve
- 24 Ability to work alone and as part of a team
- 25 Ability to work alone and in a team environment
- 26 Ability to work and interact within a team environment
- 27 Ability to work and team effectively with others
- 28 Ability to work as part of a team
- 29 Ability to work close with others
- 30 Ability to work closely with others
- 31 Ability to work collaboratively
- 32 Ability to work collaboratively
- 33 Ability to work effectively and add value to a team

- 34 Ability to work effectively in a team environment
- 35 Ability to work effectively with other team members
- 36 Ability to work effectively within a small team
- 37 Ability to work in a collaborative team environment
- 38 Ability to work in a flexible, team-oriented environment
- 39 Ability to work in a small team environment
- 40 Ability to work in a team atmosphere
- 41 Ability to work in a team environment
- 42 Ability to work in a team environment
- 43 Ability to work in a team environment
- 44 Ability to work on a team
- 45 Ability to work well in a team
- 46 Ability to work with a team
- 47 Ability to work with and influence areas outside their own
- 48 Ability to actively listen to others
- 49 Ability to analyze and solve problems
- 50 Ability to communicate well
- 51 Able to clearly communicate over the phone
- 52 Able to collaborate
- 53 Able to collaborate
- 54 Able to collaborate
- 55 Able to collaborate
- 56 Able to collaborate
- 57 Able to collaborate
- 58 Able to collaborate
- 59 Able to collaborate
- 60 Able to collaborate
- 61 Able to collaborate
- 62 Able to function effectively as part of a team
- 63 Able to function effectively in a dynamic cross-organizational team environment
- 64 Able to solve problems independently
- 65 Able to work effectively in a team
- 66 Able to work effectively in a team
- 67 Able to work in a diverse team
- 68 Able to work in a fast paced team environment
- 69 Able to work in a team environment
- 70 Able to work in a team environment

- 71 Adaptable
- 72 Always demonstrate integrity
- 73 Analytical
- 74 Analytical / problem solving capabilities
- 75 Analytical and resourceful hands-on problem solver
- 76 Analytical skills
- 77 Analytically minded
- 78 Analyze
- 79 Analyzes
- 80 Analyzing
- 81 Analyzing and problem solving
- 82 Analyzing issues
- 83 Aptitude for analytical and problem resolution
- 84 Be active participant and team player
- 85 Be polite and courteous at all times
- 86 Clear oral and written communication skills, analytical thinking, problem recognition and resolution skills, strong interpersonal skills, team player
- 87 Clearly communicate
- 88 Clearly communicate in English both verbally and in writing
- 89 Coach
- 90 Coach
- 91 Collaborate
- 92 Collaborate
- 93 Collaborate
- 94 Collaborates
- 95 Collaborates, mentor
- 96 Collaboration skills, team player, customer service orientation
- 97 Collaboration, Integrity
- 98 Collaborative style
- 99 Collaborative team building
- 100 Collaborative work style
- 101 Collaborative working style
- 102 Commitment to teamwork
- 103 Communicate effectively (both written and verbally)
- 104 Communicate effectively with customers
- 105 Communicate productively
- 106 Communication
- 107 Communication - clear concise, orally and in writing

- 108 Communication and interpersonal skills
- 109 Communication skills
- 110 Communication skills
- 111 Communication skills
- 112 Communication skills
- 113 Communication skills
- 114 Communications excellence
- 115 Competent written and oral skills
- 116 Conflict management
- 117 Creative
- 118 Creative
- 119 Creative individual with problem solving skills
- 120 Creative problem solver
- 121 Creative problem solving
- 122 Creative problem solving
- 123 Creative problem solving
- 124 Critical thinking
- 125 Customer focus
- 126 Customer focus and problem solving
- 127 Customer focused
- 128 Customer focused
- 129 Customer relationship management
- 130 Customer service orientation
- 131 Customer service skills
- 132 Customer service skills
- 133 Dealing with ambiguity / change
- 134 Dedicated team player with strong work ethics
- 135 Demonstrated interpersonal skills
- 136 Demonstrate customer awareness and team skills
- 137 Demonstrate team skills
- 138 Demonstrated ability for creative thinking
- 139 Demonstrated interpersonal skills
- 140 Demonstrated problem solving and decision making skills
- 141 Demonstrated team building
- 142 Desire to learn
- 143 Display strong analytical and problem solving skills
- 144 Driving passion for innovation

- 145 Effective analytical skills
- 146 Effective communication skills
- 147 Effective communication skills for writing reports/proposals and making presentations
- 148 Effective communications
- 149 Effective communicator (both written and verbal), Team player
- 150 Effective interpersonal skills and excellent communication skills
- 151 Effective presentation skills
- 152 Effective problem solving skills
- 153 Effective verbal and written communication and interpersonal skills
- 154 Effective verbal and written communication and presentation skills
- 155 Effective verbal and written communication skills
- 156 Effective verbal and written communication skills
- 157 Effective written communication skills
- 158 Energetic team players with excellent interpersonal and communication (both written and verbal) skills
- 159 Enjoy working in a team environment
- 160 Excellent analysis skills
- 161 Excellent analytic and problem solving skills, ability to analyze complex situations
- 162 Excellent analytical ability, communication skills
- 163 Excellent analytical and communication skills
- 164 Excellent analytical and communication skills
- 165 Excellent analytical and creative problem solving skills
- 166 Excellent analytical and problem solving skills
- 167 Excellent analytical and problem solving skills
- 168 Excellent analytical and thorough problem solving skills
- 169 Excellent analytical skills
- 170 Excellent analytical skills
- 171 Excellent analytical skills
- 172 Excellent analytical skills
- 173 Excellent analytical skills
- 174 Excellent analytical skills
- 175 Excellent client relationship skills
- 176 Excellent communication (oral and written) and interpersonal skills
- 177 Excellent communication (written and oral) and interpersonal skills
- 178 Excellent communication (written and verbal) and interpersonal skills
- 179 Excellent communication (written and verbal) and interpersonal skills
- 180 Excellent communication and interpersonal skills
- 181 Excellent communication and interpersonal skills

- 182 Excellent communication and presentation skills
- 183 Excellent communication and presentation skills
- 184 Excellent communication and relationship building skills
- 185 Excellent communication and user interaction skills
- 186 Excellent communication is required
- 187 Excellent communication skills
- 188 Excellent communication skills
- 189 Excellent communication skills
- 190 Excellent communication skills
- 191 Excellent communication skills
- 192 Excellent communication skills
- 193 Excellent communication skills
- 194 Excellent communication skills
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- 204 Excellent communication skills
- 205 Excellent communication skills
- 206 Excellent communication skills
- 207 Excellent communication skills
- 208 Excellent communication skills (particularly listening and speaking)
- 209 Excellent communication skills (written and oral)
- 210 Excellent communication skills (written and verbal, team oriented)
- 211 Excellent communication skills , both oral and written
- 212 Excellent communication skills are essential
- 213 Excellent communication skills both written and oral; along with strong analytical and problem solving skills
- 214 Excellent communication skills, both oral and written
- 215 Excellent communication skills, both written and verbal
- 216 Excellent communication skills, both written and verbal
- 217 Excellent communication skills, oral and written
- 218 Excellent communication, interpersonal, facilitation, communication, collaboration, presentation, and negotiating skills

- 219 Excellent communications
- 220 Excellent communications
- 221 Excellent communications (written and oral), customer service skills and problem solving skills
- 222 Excellent communication and customer care skills
- 223 Excellent communication skills
- 224 Excellent customer service skills
- 225 Excellent customer service and communication skills
- 226 Excellent customer service skills
- 227 Excellent customer service skills
- 228 Excellent customer service skills
- 229 Excellent customer service skills
- 230 Excellent customer service skills
- 231 Excellent customer service skills, excellent communication skills
- 232 Excellent customer support skills, as well as, good written and verbal communication skills
- 233 Excellent influencing, facilitation, and partnering skills
- 234 Excellent interpersonal and communication skills
- 235 Excellent interpersonal and communication skills
- 236 Excellent interpersonal and communication skills
- 237 Excellent interpersonal and communication skills
- 238 Excellent interpersonal and communication skills
- 239 Excellent interpersonal and verbal/written communication skills
- 240 Excellent interpersonal both verbal and written communication skills
- 241 Excellent interpersonal communication skills, group presentation skills and written communication skills
- 242 Excellent interpersonal communication, consultative, and teamwork skills
- 243 Excellent interpersonal skills
- 244 Excellent interpersonal skills with strong oral and written communication skills
- 245 Excellent interpersonal team building skills
- 246 Excellent interpersonal, analytic and verbal and written communication skills
- 247 Excellent interpersonal, business partnership, team building and all around leadership skills
- 248 Excellent interpersonal, communication, and presentation skills
- 249 Excellent interpersonal, verbal and written communication skills
- 250 Excellent interpersonal, verbal and written communication skills
- 251 Excellent interpersonal, verbal and written communication skills
- 252 Excellent interpersonal, written, and verbal communication skills
- 253 Excellent listening skills
- 254 Excellent management, interpersonal, oral, and written communication skills
- 255 Excellent oral and written communication skills

- 256 Excellent oral and written communication skills are required
- 257 Excellent oral and written communication skills
- 258 Excellent oral and written communication skills
- 259 Excellent oral and written communication skills
- 260 Excellent oral and written communication skills
- 261 Excellent oral and written communication skills
- 262 Excellent oral and written communication skills
- 263 Excellent oral and written communication skills
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- 265 Excellent oral and written communication skills
- 266 Excellent oral and written communication skills
- 267 Excellent oral and written communication skills
- 268 Excellent oral and written communication skills
- 269 Excellent oral and written communication skills
- 270 Excellent oral and written communications and people skills
- 271 Excellent oral and written skills
- 272 Excellent presentation and communication skills
- 273 Excellent presentation and communication skills
- 274 Excellent problem resolution skills
- 275 Excellent problem solving
- 276 Excellent problem solving skills
- 277 Excellent problem solving skills
- 278 Excellent problem solving skills
- 279 Excellent problem solving skills
- 280 Excellent problem solving skills
- 281 Excellent professional and communication skills
- 282 Excellent reasoning and problem solving skills
- 283 Excellent team motivation skills
- 284 Excellent team player, with a desire to learn and grow the with the company
- 285 Excellent team work, communication, and interpersonal skills
- 286 Excellent teamwork and communication skills both verbal and written
- 287 Excellent teamwork skills
- 288 Excellent verbal and presentation skills
- 289 Excellent verbal and written communication skills
- 290 Excellent verbal and written communication skills
- 291 Excellent verbal and written communication skills
- 292 Excellent verbal and written communication skills

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302 Excellent verbal and written communication skills
303 Excellent verbal and written communication and presentation skills
304 Excellent verbal and written communication skills
305 Excellent verbal and written communication skills
306 Excellent verbal and written communication skills
307 Excellent verbal and written communication skills
308 Excellent verbal and written communication skills
309 Excellent verbal and written communication skills
310 Excellent verbal and written communication skills
311 Excellent verbal communication skills
312 Excellent verbal/written communication skills
313 Excellent verbal/written skills
314 Excellent writing and communication skills
315 Excellent writing skills
316 Excellent written and communication skills
317 Excellent written and oral communication
318 Excellent written and oral communication skills
319 Excellent written and oral communication skills
320 Excellent written and oral communication skills
321 Excellent written and oral communication skills
322 Excellent written and oral communication skills
323 Excellent written and verbal communication skills
324 Excellent written and verbal communication skills
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326 Excellent written and verbal communication skills
327 Excellent written and verbal communication skills
328 Excellent written and verbal communication skills
329 Excellent written and verbal communication skills

- 330 Excellent written and verbal communication skills
- 331 Excellent written and verbal communication skills
- 332 Excellent written and verbal communication skills including a demonstrated ability to participate in teams
- 333 Excellent written and verbal communication skills, compelling public speaker
- 334 Excellent written and verbal communication skills, problem solving, and analytics
- 335 Excellent written and verbal communication skills/presentation skills
- 336 Excellent written and verbal skills
- 337 Excellent written and verbal skills
- 338 Excellent written, verbal and communication skills
- 339 Excellent written, verbal, and presentation skills
- 340 Excellent written, verbal, and presentation skills
- 341 Excellent written oral and diagrammatic communication skills
- 342 Excellent written/verbal communication skills
- 343 Excellent written/verbal communication skills
- 344 Exception communication skills
- 345 Exceptional ability to work as part of a team
- 346 Exceptional communication and presentation skills
- 347 Exceptional communication skills
- 348 Exceptional customer service orientation and active listening skills
- 349 Exceptional customer service, communication, problem determination skills are essential
- 350 Exceptional interpersonal skills
- 351 Exceptional oral and written communication skills
- 352 Exceptional trouble shooting skills
- 353 Exceptional verbal and written communication skills
- 354 Exceptional written and verbal communication skills
- 355 Exceptional written and verbal communication skills
- 356 Exceptional written, verbal and interpersonal skills
- 357 Excellent communication and interpersonal skills
- 358 Excellent consultative skills, able to work collaboratively
- 359 Excellent oral and written communication, customer focused, team player
- 360 Exemplary communication skills
- 361 Exemplary communication skills and presentation skills
- 362 Exemplary communications both verbal and written, strong customer relationship management
- 363 Exhibit desirable and appropriate professional behavior with integrity
- 364 Exhibit effective verbal and written communication skills
- 365 Experience working with design teams and collaborating with engineering teams
- 366 Expert analytical skills

- 367 Expert conflict resolution skills
- 368 Extensive public speaking experience
- 369 Flexibility
- 370 Flexibility
- 371 Flexibility, team building, ability to analyze, coaching and mentoring
- 372 Flexible
- 373 Flexible team player attitude is critical
- 374 Good analytical skills
- 375 Good analytical skills
- 376 Good analytical skills
- 377 Good communication (both verbal and written) skills
- 378 Good communication skills
- 379 Good communication and interpersonal skills
- 380 Good communication and interpersonal skills as well as the ability to adapt
- 381 Good communication and presentation skills
- 382 Good communication and presentation skills (written and oral, talking and listening)
- 383 Good communication and teamwork skills
- 384 Good communication and writing skills, good interpersonal skills
- 385 Good communication skill
- 386 Good communication skills
- 387 Good communication skills
- 388 Good communication skills
- 389 Good communication skills
- 390 Good communication skills
- 391 Good communication skills
- 392 Good communication skills
- 393 Good communication skills
- 394 Good communication skills
- 395 Good communication skills
- 396 Good communication skills (written and verbal) are required
- 397 Good communication skills along with a desire to work in a highly collaborative team environment
- 398 Good communication skills and ability to be a effective team player
- 399 Good communication skills, team player, consulting skills
- 400 Good communications and presentation skills
- 401 Good communications project management skills a must
- 402 Good communications skills
- 403 Good interpersonal communication capabilities

- 404 Good interpersonal communication skills
- 405 Good interpersonal skills
- 406 Good interpersonal skills
- 407 Good interpersonal skills
- 408 Good interpersonal skills and communications skills are also required
- 409 Good interpersonal skills and teamwork skills
- 410 Good interpersonal skills, ability to interact with staff on all levels
- 411 Good interpersonal skills
- 412 Good listening skills
- 413 Good oral and written communication skills
- 414 Good oral and written communication skills
- 415 Good oral, written and interpersonal communication skills
- 416 Good presentation skills
- 417 Good presentation skills
- 418 Good problem solving skills
- 419 Good problem solving skills
- 420 Good problem solving skills
- 421 Good problem solving skills; Strong communication and documentation skills
- 422 Good team player
- 423 Good teamwork skills
- 424 Good verbal and communication skills
- 425 Good verbal and written communication skills
- 426 Good verbal and written communication skills
- 427 Good verbal and written communication skills
- 428 Good verbal and written communication skills
- 429 Good work ethic and is a team player
- 430 Good written and verbal communication
- 431 Good written and verbal communication skills
- 432 Good written and verbal communication skills
- 433 Good written and verbal communication skills
- 434 Good written and verbal communication skills
- 435 Good written and verbal communication skills
- 436 Good written and verbal skills
- 437 Good written communication skills
- 438 Great attitude and communication skills
- 439 Great communication skills to work with a small team
- 440 Great communicator

- 441 Group facilitation
- 442 Group facilitation, mediation and conflict resolution skills
- 443 High-energy, hands-on, innovative team player
- 444 High degree of flexibility
- 445 High interpersonal and communication skills
- 446 Highly analytical
- 447 Highly developed interpersonal and communication skills
- 448 Highly ethical
- 449 Imaginative
- 450 Influencing
- 451 Interpersonal Savvy / Effective communications
- 452 Interpersonal skills
- 453 Interpersonal skills and professionalism are critical
- 454 Interpersonal skills to resolve complex problems and represent the organization in a professional manner
- 455 Interpersonal skills to resolve complex problems and represent the organization in a professional manner
- 456 strong communication and problem solving skills
- 457 Listens carefully
- 458 Maintain cooperative working relations
- 459 Make presentations
- 460 Mentor
- 461 Mentor
- 462 Mentor junior members of the QA team
- 463 Mentor team members
- 464 Mentor team members
- 465 Mentoring
- 466 Mentoring
- 467 Mentoring
- 468 Mentoring junior QA engineers
- 469 Mentoring, coaching
- 470 Much be a team player
- 471 Must be a motivated team player with a strong work ethic
- 472 Must be a team player
- 473 Must be a team player
- 474 Must be a team player
- 475 Must be able to communicate effortlessly both orally and in writing
- 476 Must be able to effectively communicate with other team members and customer
- 477 Must be able to work in a team environment

- 478 Must be able to work in a team environment
- 479 Must be able to work in a team environment
- 480 Must be able to work in a team environment, and be able to interact effectively with others
- 481 Must be able to work with a team
- 482 Must be flexible, adaptable, and innovative
- 483 Must display strong team working and problem solving skills
- 484 Must have a cooperative and service-oriented attitude
- 485 Must have clear communication skills
- 486 Must have effective verbal and written communication skills
- 487 Must have excellent communication skills
- 488 Must have excellent communication skills, both oral and written
- 489 Must have excellent customer service skills
- 490 Must have excellent verbal and written communication skills
- 491 Must have excellent verbal and written communication skills
- 492 Must have good interpersonal and communication skills, customer focus
- 493 Must have strong communication and people skills
- 494 Must have strong communication skills in the team environment
- 495 Must have strong demonstrated problem solving abilities
- 496 Must have strong verbal and written communication skills, as well as strong interpersonal skills
- 497 Must have the ability to make ethical decisions
- 498 Must have well-developed interpersonal, problem solving skills, and be a team player
- 499 Must work as part of a team
- 500 Must work effectively with peers and senior management
- 501 Must work well in a small team
- 502 Must work well in a team environment
- 503 Must work well in a team environment
- 504 Negotiation/Conflict resolution
- 505 Optimize effective communications and customer service
- 506 Oral and written presentation skills
- 507 Oral/written communication skills
- 508 Outstanding analytical
- 509 Outstanding analytical, negotiation, and influence skills required
- 510 Outstanding communication (verbal and written) and interpersonal skills
- 511 Outstanding communication skills
- 512 Outstanding communication skills
- 513 Outstanding mentoring and coaching skills
- 514 Outstanding teamwork skills

515 Outstanding verbal and written communication skills
516 Outstanding written and verbal communication skills
517 Outstanding written, verbal and visual communication and team skills
518 Part of a collaborative environment as an integral part of a team
519 People management skills
520 Personable and professional demeanor
521 Persuade and influence, professionalism, personal integrity
522 Polished communication style
523 Positive customer service orientation, strong analytical skills, works well in a team environment,
524 Present information for one-on-one or group meetings
525 Presentation and communication skills
526 Presentation skills
527 Presentation skills
528 Presentation skills a plus
529 Problem identification
530 Problem solver
531 Problem solving
532 Problem solving
533 Problem solving
534 Problem solving
535 Problem solving
536 Problem solving ability, team player
537 Problem solving and analytical skills
538 Problem solving skills
539 Problem solving skills
540 Problem solving skills
541 Problem solving skills
542 Problem solving, adaptability, teamwork, communication and interpersonal skills
543 Professional demeanor, outgoing
544 Professional phone presence and good communication skills
545 Proficient problem solving
546 Proven customer service skills
547 Proven excellent written and oral communication skills
548 Proven influencing skills
549 Proven skills as a team member
550 Proven skills as a team member
551 Proven skills as a team member

- 552 Proven skills as a team member
- 553 Proven skills as a team member
- 554 Put a "smile" in your face and voice
- 555 Quick learner who enjoys problem solving
- 556 Require team player
- 557 Requires excellent problem solving skills
- 558 Requires strong interpersonal skills
- 559 Self-starter that is also an excellent team player
- 560 Soft skills are critical
- 561 Soft skills, integrity, honesty, good work habits
- 562 Solid business analysis skills
- 563 Solid communication skills
- 564 Solid communication skills
- 565 Solid communication skills
- 566 Solid problem solving skills
- 567 Solid team and people management skills
- 568 Solid teamwork and interpersonal skills
- 569 Solid writing skills
- 570 Stellar communication skills
- 571 Strong analytical and problem solving abilities with excellent verbal and written communication skills
- 572 Strong analytical and problem solving skill sets
- 573 Strong analytical and problem solving skills
- 574 Strong analytical skills with a strong understanding of business and how technology is used to solve business problems
- 575 Strong analytical, problem solving skills and written and verbal communication skills
- 576 Strong communication and interpersonal skills
- 577 Strong communication skills
- 578 Strong communication and interpersonal skills
- 579 Strong interpersonal and communication skills works well as part of a team
- 580 Strong problem solving and analysis skills
- 581 Strong problem solving skills
- 582 Strong technical analysis, writing and communication skills
- 583 Strong analytical and communication (verbal and written) skills are essential
- 584 Strong verbal communication skills
- 585 Strength collaborating
- 586 Strong analytical and excellent written and verbal communication skills
- 587 Strong written and verbal communication skills
- 588 Strong analysis

- 589 Strong analysis skills
- 590 Strong analytical ability
- 591 Strong analytical and communication skills
- 592 Strong analytical and excellent written and verbal communications skills
- 593 Strong analytical and problem solving skills
- 594 Strong analytical and problem solving skills
- 595 Strong analytical and problem solving skills
- 596 Strong analytical and problem solving skills
- 597 Strong analytical and problem solving skills
- 598 Strong analytical and problem solving skills
- 599 Strong analytical and problem solving skills
- 600 Strong analytical and problem solving skills with the ability to be creative or innovative
- 601 Strong analytical skills
- 602 Strong Analytical skills
- 603 Strong analytical skills
- 604 Strong analytical skills
- 605 Strong analytical skills
- 606 Strong analytical skills
- 607 Strong analytical skills
- 608 Strong analytical skills
- 609 Strong analytical skills
- 610 Strong analytical skills
- 611 Strong analytical skills
- 612 Strong analytical skills
- 613 Strong analytical skills
- 614 Strong analytical skills, excellent written and verbal skills, good interpersonal skills
- 615 Strong analytical skills, good interpersonal communication and writing skills
- 616 Strong analytical, diagnostic and problem solving skills with ability to generate new ideas
- 617 Strong analytical, written communication skills
- 618 Strong analytical, written, and verbal communication skills
- 619 Strong analytics
- 620 Strong analytical and problem solving skills
- 621 Strong analytical skills
- 622 Strong analytical skills
- 623 Strong and clear communications
- 624 Strong aptitude for creativity
- 625 Strong collaboration skills

- 626 Strong collaboration skills and ability to deal effectively in a team environment
- 627 Strong command of English, both written and spoken
- 628 Strong communication and interpersonal skills, work well with others in a team environment
- 629 Strong communicate skills a must have
- 630 Strong communication and interpersonal skills
- 631 Strong communication and interpersonal skills
- 632 Strong communication and writing skills
- 633 Strong communication skills
- 634 Strong communication skills
- 635 Strong communication skills
- 636 Strong communication skills
- 637 Strong communication skills
- 638 Strong Communication skills
- 639 Strong communication skills
- 640 Strong communication skills
- 641 Strong communication skills, concise written and oral communication
- 642 Strong communications skills both written and verbal
- 643 Strong communications skills both written and verbal
- 644 Strong communication skills
- 645 Strong communicator
- 646 Strong cooperative problem solving skills
- 647 Strong customer and verbal skills
- 648 Strong customer focus
- 649 Strong customer service skills
- 650 Strong customer service skills
- 651 Strong customer service skills
- 652 Strong data analysis skills
- 653 Strong facilitation skills
- 654 Strong interpersonal skills
- 655 Strong interpersonal and analytical skills
- 656 Strong interpersonal and excellent verbal skills
- 657 Strong interpersonal communication skills
- 658 Strong Interpersonal skills
- 659 Strong interpersonal skills
- 660 Strong interpersonal skills
- 661 Strong interpersonal skills
- 662 Strong interpersonal skills

- 663 Strong interpersonal skills
- 664 Strong interpersonal skills
- 665 Strong interpersonal skills and the ability to deal effectively in a team
- 666 Strong interpersonal skills and the ability to work closely with others in a team environment are required
- 667 Strong interpersonal skills effective writing and verbal communication
- 668 Strong interpersonal skills with the ability to effectively and professional communicate with clients
- 669 Strong interpersonal skills with the ability to work as part of a team
- 670 Strong interpersonal, leadership and managerial skills
- 671 Strong mentoring and collaboration skills
- 672 Strong oral and written communication skills
- 673 Strong oral and written communication skills
- 674 Strong oral and written communication skills
- 675 Strong oral and written communication skills
- 676 Strong oral and written communication skills
- 677 Strong oral and written communication skills including presentation skills
- 678 Strong oral and written communication skills
- 679 Strong oral communication skills
- 680 Strong oral, written, and interpersonal communication skills
- 681 Strong oral, written, and interpersonal communication skills
- 682 Strong oral, written, and presentation skills are mandatory
- 683 Strong people interaction skills
- 684 Strong people skills with customer focus
- 685 Strong presentation skills
- 686 Strong presentation skills
- 687 Strong presentation skills
- 688 Strong problem-solving skills
- 689 Strong problem solving
- 690 Strong problem solving and analytical skills
- 691 Strong problem solving and consultative skills
- 692 Strong problem solving skills with excellent written and verbal communications skills
- 693 Strong problem solving skills
- 694 Strong problem solving skills
- 695 Strong problem solving skills
- 696 Strong problem solving skills
- 697 Strong problem solving skills
- 698 Strong skills in problem solving
- 699 Strong team and people skills required

- 700 Strong team player
- 701 Strong team player with effective interpersonal skills
- 702 Strong team working spirits
- 703 Strong teamwork
- 704 Strong verbal and oral communication skills
- 705 Strong verbal and written communication skills
- 706 Strong verbal and written communication skills
- 707 Strong verbal and written communication skills
- 708 Strong verbal and written communication skills
- 709 Strong verbal and written communication abilities
- 710 Strong verbal and written communication skills
- 711 Strong verbal and written communication skills
- 712 Strong verbal and written communication skills
- 713 Strong verbal and written communication skills are a plus
- 714 strong verbal and written communication skills and excellent interpersonal skills.
- 715 Strong verbal and written skills
- 716 Strong verbal communication and interpersonal skills as well as strong phone skills
- 717 Strong verbal communication skills
- 718 Strong verbal, interpersonal and written communication skills
- 719 Strong written & verbal communication skills
- 720 Strong written and oral communication skills
- 721 Strong written and oral communication skills
- 722 Strong written and oral communication skills
- 723 Strong written and oral communication skills are imperative
- 724 Strong written and verbal communication skills
- 725 Strong written and verbal communication skills
- 726 Strong written and verbal communication skills
- 727 Strong written and verbal communication skills
- 728 Strong written and verbal communication skills needed to work across multiple systems and business teams
- 729 Strong written and verbal communication, listening, and strong presentation skills
- 730 Strong written and verbal skills
- 731 Strong written and verbal skills are critical
- 732 Strong written skills
- 733 Strong, clear communication skills, both written and verbal
- 734 Successful customer facing skills and effective team collaboration
- 735 Superb written and verbal communication skills as well as listening skills
- 736 Superior analytical skills

- 737 Superior communication skills
- 738 Superior communication skills and a disciplined work ethic
- 739 Superior conceptual, organizational, communication, time management, interpersonal, and problem solving skills
- 740 Superior interpersonal skills
- 741 Superior interpersonal skills
- 742 Superior language skills, both written and oral
- 743 Superior verbal and written communication skills
- 744 Superior written and verbal communication skills
- 745 Superior written communication skills
- 746 Team based collaborative environment
- 747 Team building
- 748 Team building, facilitation, influencing
- 749 Team environment
- 750 Team environment and excellent communications skills a must
- 751 Team facilitation
- 752 Team oriented
- 753 Team oriented
- 754 Team oriented environment
- 755 Team player
- 756 Team player
- 757 Team player
- 758 Team player
- 759 Team player
- 760 Team player
- 761 Team player
- 762 Team player
- 763 Team player
- 764 Team player with good work ethics
- 765 Team work
- 766 Teamwork
- 767 Teamwork
- 768 Terrific problem solving skills
- 769 Upbeat personality, customer service skills
- 770 Use of influence
- 771 Very strong written and verbal communication skills are a must
- 772 Willing to listen and collaborate
- 773 Willingness and ability to work in a team environment

- 774 Work as part of a team
- 775 Work as part of a team
- 776 Work effectively in a team environment
- 777 Work effectively in a team environment
- 778 Work in a team environment
- 779 Work in team environment
- 780 Work will with a team of professionals
- 781 Work will with colleagues
- 782 Work with teams
- 783 Working within a team
- 784 Works well in a team structure
- 785 Works well with others
- 786 Works with teammates
- 787 Written and verbal communication skills Level 4 - can perform without assistance and has in-depth knowledge