WORKFORCE ADAPTATION: EMPLOYER ASSESSMENT OF GRADUATES OF THE INDUSTRIAL DISTRIBUTION PROGRAM AT TEXAS A&M UNIVERSITY

A Dissertation

by

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ABSTRACT

The purpose of this study was twofold: to determine if the Industrial Distribution Program at Texas A&M University is producing graduates whom employers consider highly adaptable to the workplace and who quickly become productive in their organizations, and if this is true, to understand what characteristics employers perceive these graduates having that makes them successful.

This was a mixed methods study. The quantitative portion of the study used a 36 question survey instrument to gather responses from employers who hire recent graduates from the Industrial Distribution Program at Texas A&M University concerning the characteristics that made these graduates successful. The qualitative portion of the study utilized two focus groups in which employers of graduates of the Industrial Distribution Program at Texas A&M University discussed why they felt that these graduates adapted quickly and performed well in the workplace. An education model was developed from the findings.

Employers responding to the survey attributed the success of these graduates to their technical skills, in conjunction with their character and interpersonal skills. Employers also cited job knowledge, an understanding of cultural adaptation, and realistic expectations of the kind of work they would be doing upon entering the workplace as influencing their ability to adapt quickly and to become highly productive employees.

The findings from comments made by employers in the focus groups, in addition to being consistent with the findings of the survey, identified three key areas beyond the interdisciplinary curriculum that influence the ability of graduates from the Industrial Distribution program to adapt quickly and to become highly productive employees upon entering the workplace. The first area was the characteristics of the student attracted to the program. Beyond the intelligence required by the rigorous academic requirements for admittance to Texas A&M University, employers identified integrity, a strong work ethic, and a competitive desire to do well. The second area is the interaction that the faculty has with industry. Many of the members of the faculty have worked for companies in industry; others are connected to industry through research and class projects and the delivery of professional development programs to individuals who work in industries that hire graduates from the Industrial Distribution Program. The third area focused on how the companies that hire the graduates of the Industrial Distribution Program influence and support the program. By providing funding and equipment for labs, financial support for endowments, research and scholarships, and summer internships for students these companies not only hire graduates of the program, they help to educate the students. The study found that collectively these factors work in conjunction to provide the experiential learning opportunities that expose students to applications for what they are learning and foster realistic expectations concerning what it will take to adapt and perform well once they enter the workplace.

DEDICATION

Dedicated to my loving wife, Loueva Clark,

my incredibly supportive children,

Caroline Blackstone, Jason Clark and his wife, Charlene Clark,

my always inspirational grandchildren,

Andrew Flanagan, Madelynn Clark, and Jackson Clark,

and in loving memory of my parents,

Norman L. Clark, Sr. and Edna Ruth Clark,

and with Gratitude and Praise to my Lord and Savior Jesus Christ.

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CHAPTER I

INTRODUCTION

Professional education has some unique characteristics that distinguish it from most educational programs offered at colleges and universities. Higher education, though normally focused on specific disciplines, such as Biology, History, or English, enables students to master a knowledge base that will enable them to pursue careers in their fields of study. Professional education prepares students for a particular profession, such as Medicine, the Law, or Engineering. In addition to providing a knowledge base, professional education endeavors to provide students with the skills and attitudes necessary to become a competent practitioner within their chosen professions (Atkins, 1999; Jarvis, 1983; Nilsson, 2010). Professional learning typically includes experiential learning which helps students apply content knowledge to practice, in the context of the work that they are preparing themselves for (Ebert, Hoberman & Mailick, 1994).

Prior to formal education of professionals, apprenticeships were the common method of obtaining knowledge about a profession. Those new to a profession would first learn to apply techniques and then begin to associate theories and concepts with what they had learned. When professional education became institutionalized the order of these events was reversed. Students were first exposed to the theoretical and conceptual knowledge and then to practical applications for that knowledge (Ebert, Hoberman & Mailick;, 1994 Jarvis, 1983).

Christopher Langdell (Kimball, 2009) is credited with the creation of modern professional education. While dean of Harvard Law School from 1870 to 1895 he developed the educational model that is used by many professional education programs today. The model is based on a sequenced curriculum that moves from theoretical knowledge to practical knowledge. In addition, the model includes a career track for professional faculty, using professional libraries as scholarly resources, teaching from case studies which include applications for the knowledge being learned, and organizing alumni support for the school and funding strategies targeting specific professions (Kimball, 2009). In an effort to better understand how individuals are best educated to perform effectively in the professions that they choose, Shulman (1998, p.516) identified specific areas that characterize all professions:

- the obligation of *service* to others
- *understanding* of a scholarly or theoretical kind
- a domain of skilled performance or *practice*
- the exercise of *judgment* under conditions of unavoidable uncertainty
- the need for *learning from experience* as theory and practice interact; and
- a professional *community* to monitor quality and aggregate knowledge

John Dewey (1904) described two approaches to relating theory to practice. One is an apprenticeship approach in which a person works to develop the skills necessary to do a job effectively. The other approach is a laboratory approach in which practical experiences can be designed to provide applications for the theory being taught and learned. When considering professional education, Dewey favored the more scientific laboratory approach.

The notion that professional knowledge is rooted in academic knowledge creates issues for some teaching professional education in academic institutions. Students tend to perceive practical experiences as valuable while questioning the value of some academic experiences. Theory at the expense of experience is problematic for at least two reasons. First, theory is based on generalization. Research is conducted under controlled circumstances that are not always consistent with situations of practice. Second, theory is often developed within specific disciplines rather than crossing the boundaries of discipline, as is often the case in practice (Hodgkinson & Rousseau, 2009; Shulman, 1998). Although much knowledge, as it pertains to professions, is conceived or enhanced in academic settings, it is not considered professional knowledge until it has an application in practice. As a result, university-based professional educators are often perceived as having the responsibility for being somewhat critical of current practice for the purpose of advancing knowledge in the profession. For those in practice, who are concerned with building a professional practice which includes efficient profitable operations and satisfied customers, those in academia are often perceived as being out of touch (Clinebell & Clinebell, 2008; Hodgkinson & Rousseau, 2009; Kieser & Leiner, 2009; Shulman, 1998). This argument presents a bit of a paradox. Is the purpose of an academic institution to educate students or to provide job training? Certainly a tier-one research university, like Texas A&M University, has a responsibility to its stakeholders to maintain standards above job training. For these standards to be upheld it seems necessary that the focus remain on teaching theory along with applications for the theory. Maintaining this focus will help to ensure that students are educated to

understand the "why" behind the activities that they are able to perform upon entering the workplace.

Until the 1940's, engineering education in most colleges and universities employed practical curricula with an emphasis on engineering design rather than science and mathematical applications (Lattuca, Terenzini, Volkwein, & Peterson, 2006). When the Grinder report of 1955 initiated the move to include more science in engineering education, engineering courses in the United States became more theoretical, reducing the amount of exposure students had to practical application of what is being learned (Barbieri, Attarzadeh, Pascali, Shireen & Fitzgibbon, 2010). As engineering schools hired faculty to teach and conduct scientific research, the number of instructors with practical experience declined (Lattuca, et al., 2006). This emphasis on theoretical knowledge acquired at universities presented major challenges for engineers when that knowledge was not associated with practical applications (Eraut, Maillardet, Miller, Steadman, Ali, Blackman, & Furner, 2003). The theoretical focus in engineering education began to shift when the Accreditation Board of Engineering and Technology (ABET) came on the scene and began to have some influence.

ABET was founded in 1932 as the Engineers' Council for Professional Development (ECPD), an engineering professional body dedicated to the education, accreditation, regulation, and professional development of the engineering professionals and students in the United States (http://www.abet.org/History/). ABET is described on their website today as "a non-profit and non-governmental accrediting agency for academic programs in the disciplines of applied science, computing, engineering, and

engineering technology. ABET accreditation provides assurance that a college or university program meets the quality standards established by the profession for which the program prepares its students" (http://www.abet.org/accreditation/). It appeared that ABET's success in influencing changes in undergraduate engineering curriculum would have to be driven by agents outside of the academic institutions (Seymour, Hewitt & Friend, 1997).

In 1994, in an effort engage the influence of those outside of academia to consider changes to undergraduate engineering curriculum, ABET assembled a group of academicians, industry leaders, and professional practitioners for a series of consensus building workshops. In 1996 the ABET Board of Directors approved Engineering Criteria 2000 (EC2000) which shifted the emphasis of undergraduate engineering curricula from curricular specifications to learning outcomes and accountability. This has resulted in an increased emphasis on professional skills and knowledge in areas of communication, teamwork, technical writing, and engineering design that better prepare graduates for the workforce. These changes are consistent with the demands for new traits, attributes, skills and knowledge of today's workforce along with the socialization skills necessary to quickly adapt to the work force (Boyett & Conn, 1992). The changes are also consistent with employers' desires for more pragmatic, integrated approaches to education in which students develop skills specific to the work that they will be doing and the environments in which they will be working after graduation (Sptizer, 2002).

Statement of the Problem

Each year recent graduates from colleges and universities anticipate that they will enter the workforce with desirable jobs as a result of the time and money that they have invested in their educations. One way to assess the quality of professional education is to determine employment rates upon graduation. Data from the Current Population Survey conducted by the U.S Census Bureau and the National Center for Education Statistics reported that 74.5 percent of the 1.3 million 2011 recent college graduates were employed (Spreen, 2013). In 2010, the National Center for Science and Engineering Statistics estimated that there were 132,000 engineering bachelor's recipients nationwide who received their degree in academic year 2008 or 2009. On 1 October 2010, approximately 75,000 were employed in a Science and Engineering occupation (53 percent) and another 20,000 were employed in Non-Science and Engineering jobs (15 percent). This represents a total of 68 percent employed (http://www.nsf.gov/statistics/).

Information provided by the Career Center at Texas A&M University from 2010 to 2014 indicates, based on the five year average, that 63 percent of all graduates from undergraduate programs at Texas A&M University reporting information had jobs at the time of their graduation. Based on the five year average, 77 percent of students graduating from the College of Engineering had jobs at the time of their graduation, and 85 percent of students graduating with a degree in Industrial Distribution had jobs at the time of their graduation. (It should be noted that student compliance with the Center's request for employment information is voluntary.) Table 1 depicts the percentages of

graduates that had jobs upon graduation for the University, the College of Engineering, and the Industrial Distribution Program for each of the five years.

Table 1. Percentage of Students Who Have Jobs upon Graduation*

YEAR	TAMU	ENGR	ID
2010	44%	64%	78%
2011	44%	64%	65%
2012	71%	81%	93%
2013	77%	88%	92%
2014	79%	86%	96%
Avg.	63%	77%	85%

*Provided by David McMahon, Associate Director, Career Center, Texas A&M University

As evidenced by the data, employment rates at graduation for Industrial Distributions students at Texas A&M University are consistently higher than those of most graduates. These graduates are recruited by companies across a wide range of industries, including Building Materials, Chemicals, Electrical, Electronics, Fluid Power, HealthCare, HVAC, Oil and Gas, and Plumbing. Anecdotal reports from representatives of companies that hire recent graduates from the Industrial Distribution Program at Texas A&M University indicate that these graduates enter the workforce with the knowledge and work-related competencies that make them a good fit for their businesses. These employers also say that these graduates adapt to the work place and

become highly productive employees at a relatively rapid rate. However, there is no empirical verification to identify these work related competencies and that, in fact, the Industrial Distribution Program is successful in producing graduates who excel in these competencies.

Purpose of the Study

The purpose of this study is twofold: to determine if the Industrial Distribution Program at Texas A&M University is producing graduates whom employers consider highly adaptable to the workplace and who quickly become productive in their organizations; and if this is true, to understand what characteristics employers perceive these graduates having that makes them successful.

The research questions are:

1. Do employers believe that graduates from the Industrial Distribution Program at Texas A&M University are successful at adapting to the workforce and become highly productive employees?
2. What qualities do employers see as characterizing highly successful employees?

Significance of the Study

This study looks at workforce adaptation and socialization from the employer's point of view. In a dynamic environment in which employers are looking for recent graduates who come out of school with the knowledge and associated skill sets necessary to adapt to the workplace and become productive quickly--and then be able to continue to adapt as the work environment changes--the results of this study could provide some insight regarding what knowledge, skill sets, and educational experiences

to look for in these graduates. The colleges and universities that are preparing students for careers in which recent graduates are expected to enter the workforce with a proficient level of knowledge and associated skill sets specific to a particular industry could benefit from the findings of this study, as well.

The findings of this study identified specific competencies that employers of graduates of the Industrial Distribution Program at Texas A&M University can attribute, at least in part, to the success of these graduates in adapting to the workplace and becoming highly successful. Identification of these competencies can provide these employers—and employers in similar businesses and industries—with benchmarks of competencies and skill sets that they can look for in new employees to better ensure effective hires and highly successful employees. These same competencies and skill sets can be considered when designing professional development programs for current employees to enhance their success and improve their productivity.

Colleges and universities that are preparing students for careers associated with these employers can use these competencies to better design curriculums, classes and teaching methodologies to ensure that their students are well prepared upon graduation to adapt to their work environments and become successful quickly. Educators may also use this information to work with industry to design professional development programs to enhance the competencies and skill sets of their current workers. Developing better relationships with industry could enhance the material being taught in the undergraduate classroom, plus lead to funding opportunities for technical laboratories that can be used for experiential learning opportunities at the undergraduate level.

Definitions

Aggies - Nickname for persons who attend Texas A&M University.

Competency - Individual characteristics including traits, attributes skills and knowledge that are required for acceptable job performance (Boyett & Conn, 1992).

Employer – An individual who hires, supervises or otherwise closely tracks the performance and development of new hires to an organization.

Experiential learning –Applying knowledge to practice, in the context of the work for which students are preparing themselves (Ebert, Hoberman & Mailick, 1994).

Industrial distribution – A network of companies consisting of manufacturers, distributors, and industrial end users involved in the flow of goods and associated services from the manufacturer to the end user.

Internship - "Structured and career relevant work experiences obtained by students prior to graduation from an academic program" (Taylor, 1988, P. 393).

Job description – Written explanation of the nature, requirements, and responsibilities of a specific job (Futrell, 2001).

Job performance – "Employee controlled behavior that is relevant to accomplishing organizational goals" (Campbell, McCoy, Oppler, & Sager, 1993).

Organizational socialization – "The process by which an individual acquires the social knowledge and skills necessary to assume an organizational role" (Van Maanen & Schien, 1979).

Recent graduates – "Newcomers to an organization who were hired upon graduation and have up to two years' experience" (Lee, 1994).

Reflective practice – "The learner reflects on lived experience, then interprets and generalizes this experience to form mental structures. These structures are knowledge stored in memory as concepts that can be represented, expressed, and transferred to new situations" (Fenwick, 2000).

Situated cognition – "…maintains that learning is rooted in the situation in which a person participates, not in the head of the person as intellectual concepts produced by reflection" (Fenwick, 2000).

Workplace adaptation – The process by which newcomers learn the values, norms and proper behaviors required by an organization as they seek a level of comfort within their new work environments (Reio & Sutton, 2006).

Assumptions

Many of the participants in this study are graduates and/or supporters of the Industrial Distribution Program at Texas A&M University. I assume that the responses of the participants were honest and genuine and not responses that were conveying information that the participants thought would intentionally reflect the program in a good light or be information that they thought the researcher would like to hear.

Limitations

I am a faculty member in this program, so my positionality may have influenced my analysis of the data. While it is impossible to have complete objectivity in research (and, in fact, qualitative research is subjective by design), I worked hard to monitor my

subjectivity throughout this study. It is important to point out that Texas A&M University has a culture of "Spirit" that fosters a sense of pride and loyalty among its students and graduates that is quite unique. From the outside looking in, most observers of this culture will likely perceive extreme bias on the part of those loyal to the university. Throughout this study I remained conscious of this bias being perceived by the readers of this dissertation and have made efforts not to let this culture of "Spirit" influence my interpretation of the data.

CHAPTER II

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

There are many studies concerning organizational socialization and how new employees adapt to the workplace. Many that relate to this study are discussed in this literature review. I find no studies that dig deeply into what programs at colleges and universities can do to include information related to this socialization and adaptation process into their curricula. This appears to go beyond providing information about the organizational socialization process itself. Colleges and universities that provide their students with "hands on" learning experiences associated with their course work seem to better prepare their graduates to adapt to the workplace and become productive members of the organizations. Therefore, it is important for academic programs to understand what experiential learning is, how to incorporate it into their curricula, and how people transfer knowledge that they learn as students to the workplace. It seems that organizational socialization and workplace adaptability are the outcomes of a well-designed curriculum; experiential learning is a major factor influencing how the outcome is achieved.

Because the focus of this study deals with how programs at colleges and universities include experiential learning experiences in their curricula to better prepare their graduates with the skills, attitudes, and abilities necessary adapt quickly and be able to perform at high levels once they enter the workplace, the foundation of the study is based on theories and concepts associated with organizational socialization and personal

learning experiences. Organizational socialization and workplace adaptation focus on understanding what is expected in terms of job assignments and finding one's role within the organization (Van Maanen and Schien, 1979). Personal learning experiences consider how students construct knowledge, the contexts in which learning takes place, and the role that personal experiences play in preparing students to apply what they learn upon entering the workforce (Kolb, 1984).

Organizational Socialization

Organizational socialization processes play a key role in how individuals adapt to their workplaces. Organizational socialization was defined by Van Maanen and Schien (1979, p.3) as "the process by which an individual acquires the social knowledge and skills necessary to assume an organizational role." Louis (1980) perceives organizational socialization as a means of establishing and perpetuating an organization's culture in which new employees learn the roles and behaviors necessary to become effective and productive members. Anakwe and Greenhaus (1999) further explain that during the socialization process new employees need to learn what to do (technical knowledge), how to do it (practical knowledge), and why it is done that way. Korte (2010) and Champoux (2010) emphasize the importance of processes being developed to ensure that new employees are a good fit for the organization's culture and provide them a clear and efficient path to adaptation to the culture. All of these studies place responsibilities on organizations and new employees to the organizations for working to ensure that they are a good fit for each other from a cultural standpoint. The studies place the

responsibility on organizations for providing new employees with adequate knowledge and instruction to adapt to the workplace and become productive members of the organization. None of the studies focus on the responsibility of programs at colleges and universities to have processes in place to help ensure that their graduates adapt to the workplace and become productive members of the organizations that they join upon their graduation.

Korte (2010) suggests that organizational socialization is comprised of three components: social cognitive theory, social exchange theory, and relationships. Social cognitive theory, as it applies to organizations, involves the interactive process by which new employees learn by observing others and then associating these observations with their personal frames of reference. By reenacting what they see others do they are able to discover and adapt more quickly to what they need to do to achieve personal success (Hodgkinson, 2003).

The second component that Korte (2010) identifies, social exchange theory, involves the ongoing relationships between people that develop through a series of interactions in which those involved derive mutual benefit. Cropanzano and Mitchell (2005) suggest that these interactions are normally governed by an informal set of rules that evolve over time within an organization. Korte explains that while new employees are attracted to people within organizations who are willing to help them learn and adapt, those providing them assistance derive personal value as a reward for their efforts. As an example, a recent graduate from the Millennial Generation with excellent computer skills develops a relationship with a seasoned employee who understands the

organization's business very well but lacks the ability and desire to keep up with technological changes. Not only can the recent graduate learn key aspects of the business from the seasoned employee, the seasoned employee can depend on the recent graduate for assistance with spread sheets and presentations (Lancaster & Stillman, 2010). Organizations can work to foster these interactions to both enhance newcomer performance and improve attitudes toward their jobs, fellow workers and work environments (Van Knippenberg & Sleebos, 2006).

The third component of organizational socialization that Korte (2010) identifies is relationships. He states that in addition to relationships as they pertain to social interaction being dependent on reciprocal benefit to the individuals involved in the relationship, they are also influenced by the individuals' past experiences. From the perspective of learning from each other, these relationships depend on individuals being able to connect their ideas and experiences to the ideas and experiences of others. Merriam, Caffarella and Baumgartner (2007) suggest that the degree of this connectivity is influenced and enhanced by the amount and quality of collaboration, support and empathy between those providing and receiving the learning experiences. It is important for recent graduates entering the work force to understand that the individuals they learn from should derive some reward and satisfaction from the interaction, as well. This understanding can enhance the effectiveness of the learning experience, plus influence how these recent graduates feel about their jobs, their employers, their fellow workers, and their performance (Gardner & Kozlowski, 1993). Programs at colleges and

universities could better prepare their graduates to adapt to the workplace by helping them to understand the importance of these reciprocating relationships.

Institutional versus Individual Socialization

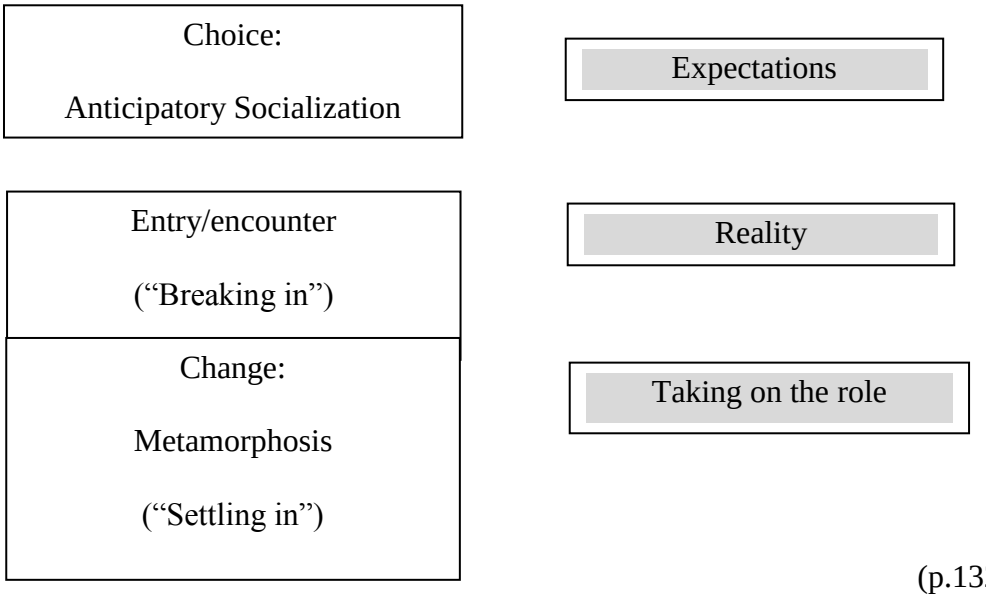
Ashforth, Saks, and Lee (1998) make a distinction between institutional socialization and individual socialization. Institutional socialization practices structure the work experiences of new employees in ways that help them to understand the company culture and traditional ways of doing things. These practices provide instruction and support to new employees as they adapt to the work environment. Institutional forms of socialization encourage conformity, and increase job satisfaction and commitment. Jaskyte (2005) suggests that institutional forms of organizational socialization can reduce the risk of employee turnover by lowering the risks of role ambiguity and conflict on the part of the newcomer. Korte (2010) describes individual socialization strategies as not so highly structured. These strategies encourage initiative and innovation on the part of new employees. This less structured approach sometimes works better with new employees who are eager to make a contribution to an organization and feel restricted by highly structured programs that stifle their initiative and creativity. Champoux (2010) contends these individuals are not content to do things the way that they have always been done, particularly when they have been exposed to more effective, and sometimes more efficient, ways of doing things. For example, many members of the Millennial Generation are comfortable expressing their opinions and want to make immediate contributions in the workplace. They want to have frequent

access to their supervisors and understand how what they are doing each day is contributing to the overall performance and objectives of the organization. Employers who do not understand this often find themselves having to replace these individuals who leave for jobs that are more challenging and provide more aggressive career paths (Lancaster & Stillman, 2010). Korte (2010) points out that the downside to these less structured programs is that they tend to increase the chances of role ambiguity which can cause uncertainty on the part of less confident individuals. This uncertainty can inhibit learning experiences and retard the development of some new employees who are continually distracted by feeling that they do not know what they should be doing. This distraction can hinder adaptation to the organization and job satisfaction, and could eventually result in termination of the newcomer. Feldman and Weitz (1990) emphasize the importance of both employers and employees being sensitive to the amount of structure required by new employees when they join an organization and work to provide the amount of structure that will enhance the newcomer's productivity and adaptation to the workplace. Programs at colleges and universities can leverage their contacts with representatives of organizations that hire their graduates to help ensure that the graduates are joining organizations that will provide the amount of structure with which they are most comfortable and which will allow them to adapt to the workplace and become productive most quickly.

Stages of Organizational Socialization

Champoux (2010) provided structure to the organizational socialization process by developing a model that outlines three stages of organizational socialization. Champoux's model is depicted in Figure 1.below.

Figure 1. Champoux's Stages of Organizational Socialization (2010)



(p.132)

Champoux (2010) explains that the first stage of the process, Anticipatory Socialization, takes place before an individual joins an organization. Individuals develop expectations about what working for an organization will be like based on the information that they learn about the organization prior to their employment. Feldman (1976) identified two primary issues that need to be considered by both the organization and the newcomer during the anticipatory stage of the organizational socialization process. They are realism and congruency. Realism deals with the way that organizations present themselves to future employees. It is important that new

employees have a realistic image of what working in the organization will be like. This image should include both the positive and negative aspects of working for the organization. New employees also have a responsibility to provide an accurate representation of their capabilities to do the job that is being offered effectively and to share concerns regarding areas in which they do not feel competent. Feldman (1976) explains that congruency has to do with the alignment of the needs of the organization and the capabilities of the individual. A person not being a good fit for a job can lead to poor performance, low job satisfaction, and turnover. Anderson and Ostroff (1996) and Bauer, Morrisom, Callister and Ferris (1998) agree that many organizations have recognized the critical importance of creating realistic expectations on the part of new employees and have incorporated screening assessments, site visits, and internships into their recruiting activities to ensure new employees being hired into the organization have realistic expectations and are good fits for the jobs that they are hired to do.

During the second stage, Entry/encounter, new employees are on the job and are able to determine if their expectations match the realities of working for the organization. During this stage the organization is working to accomplish three things (Champoux, 2010, p. 135):

1. Clarify the newcomer's role within the organization
2. Teach the newcomer about tasks, duties, and responsibilities
3. Teach the employee about the norms that govern social activity within the organization, and more specifically, the individual work group of the newcomer.

Champoux (2010) explains that during the Entry/encounter stage the organization is working to adjust the newcomer's self-image to better align with the culture and values

for the organization. Lewin (1951) outlined three steps in creating a new self-image when adapting to a new organizational environment. The first step involves disregarding some aspects of the old self-image. During this period the organization works to help the newcomer feel comfortable moving away from the image of themselves that they have when they first enter the organization. If new employees are recent graduates of a professional program, they also have to move away from the image that they have of themselves as students as they adjust to a professional schedule and lifestyle. During the second step, Lewin (1951) explains that as new employees begin to move away from certain aspects of their old self-image, the organization begins communicating and providing models for how they will be perceived by others as members of the organization. During the final step, as the newcomer gains a better understanding the expectations of the organization and begins to acquire the norms, values, and behaviors of the organization, their new self-image is formed and they begin to perceive themselves differently.

During the third stage of the socialization process, Metamorphosis, Champoux (2010) states that as change takes place new employees become less anxious and more confident. They begin to settle into their roles within organizations. According to Van Maanen and Schein (1979) new employees can have three different socialization responses to an organization during this settling in stage. A rebellious response is one in which new employees do not accept the information and training being provided and do not adapt to the expectations of the organization. A custodial response is one in which new employees accept the information and training being provided by the organization

and adapt to their new role. This is normally an indication that the newcomer's expectations of the job have been conveyed realistically. It is also an indication that the newcomer possesses the capabilities to do the job and that he or she is a good fit for the culture of the organization. The third type of response that Van Maanen and Schein (1979) describe is an innovative response. This is one in which new employees do not completely accept their roles within organizations as they are presented. In these situations Champoux (2010) proposes that the new employees envision better ways to do things and seek to change or improve their roles for what they perceive to be the good of themselves and the organization.

Champoux (2010) specifies that organizations and new employees can have different perspectives regarding the socialization process. The organization tries to influence the activities, values and behaviors of the newcomer for the purpose of enabling the person to make a contribution to the organization. The newcomer, with a unique set of skills and talents, tries to maintain a personal identity while working to fit in. These differing perspectives can lead to challenging situations when organizations require a certain degree of conformity among its employees while, at the same time, not wanting to stifle creativity and innovation that could lead to improvements within the organization. When professors and career placement personnel at colleges and universities have relationships with companies that hire their graduates, these individuals can advise graduates of the company cultures of these organizations to help ensure that the graduates and the organizations are a good fit.

Organizations that understand the steps of the socialization process can put processes of their own in place to enhance the likelihood that these new employees will adapt to the workplace and become productive more quickly. These programs can help to ensure they are:

- hiring the right people from both a culture and capability standpoint
- providing these people with realistic expectations of their job descriptions and responsibilities
- providing them the training and tools that they need to do the job
- providing feedback to help develop these new employees

This highlights the importance of organizations and new employees spending some time getting to know each other before making commitments to work together.

Workplace Adaptation

Organizational socialization processes play a key role in how individuals adapt to their workplaces. Reio and Sutton (2006) describe workplace adaptation as the process by which new employees learn the values, norms and proper behaviors required by an organization as they work to become comfortable with their new environments. Sutton (2004) considers workplace adaptation a measure of the success of the organizational socialization process. Parent (2007) emphasizes that people adapt to new situations and work environments at different rates. Some new employees assimilate quickly. They learn to fit in and become happy and productive in their new environments, while others struggle to adapt. The work force adaptation process is influenced by many things.

Reio and Sutton (2006) did exploratory studies in which they identified 17 work-related competencies that may influence how engineering graduates adapt to the

workplace. These competencies were categorized into three groups: relationships, acculturation and job knowledge. Relationships involve interaction with coworkers who can provide them with timely answers and information about how things are done within the organization. Acculturation deals with information about the culture, values and norms of the organization, information normally provided by supervisors. Job knowledge is the third category. Reio and Sutton (2006) attributed the ability to acquire job knowledge to both the interpersonal and technical competencies of the newcomer.

Kammeyer-Mueller and Wanberg (2003) did a study of new employees in seven organizations in which they considered the antecedents to workplace adjustment. These antecedents are pre-entry knowledge, proactive personality, and the socialization influence of the organization, leaders within the organization, and immediate work groups. A proactive personality is associated with interpersonal skills. New employees who are more proactive tend to do a better job of seeking out individuals within an organization who are willing to help them and then building relationships of mutual benefit. Consistent with the findings of Reio and Sutton (2006), Kammeyer-Mueller and Wanberg, (2003) support the concept that socialization influences are layered throughout the organization.

Reio and Callahan (2004) contend that new employees generally take the initiative to adapt to new situations and activities based on basic curiosity and a need to understand their new environment. However, a person's perception of his or her competence to meet the demands of new tasks in new situations greatly influences their level of confidence and ability to adapt. According to Kammeyer-Mueller and Wanberg

(2003), new employees with proactive personalities seek the support of others within the organization to improve their levels of competence in areas that they feel deficient at meeting the demands of new tasks. This allows the newcomer to overcome some of their concerns, focus on being productive, and, as a result, adapt to the workplace more quickly. Kammeyer-Mueller and Wanberg explain further that employees who are unable to meet the demands of new tasks sometimes perceive themselves as not a good fit for the environment or organization and eventually end up leaving the organization to seek other opportunities. The decision to leave an organization is sometimes made by the employee, sometimes made by the employer, and sometimes it is a mutual agreement between the employee and employer, particularly in situations where there is agreement that the fit is not good.

Preparing recent graduates from colleges and universities for the workforce involves helping them to see applications for the information that they learn during the undergraduate process. The next section of this literature review considers how people acquire and construct knowledge, how they associate what they learn with specific situations, and how they transfer knowledge from situation to situation. The concept of experiential learning is explored from the standpoint of understanding the value of being able to demonstrate through activity or performance what has been learned.

Personal Learning Experiences

Preparing recent graduates from colleges and universities for the workforce involves helping them to see applications for the information that they learn during the

undergraduate process. The next section of this literature review considers how people acquire and construct knowledge, how they associate what they learn with specific situations, and how they transfer knowledge from situation to situation. The concept of experiential learning is explored from the standpoint of understanding the value of being able to demonstrate what has been learned through activity or performance.

History and Introduction

Early work in the field of experiential learning and education was done by educational philosopher John Dewey. Dewey believed that "an ounce of experience is better than a ton of theory simply because it is only in experience that any theory has vital and verifiable significance" (1916, p. 144). He posited that "all genuine education comes about through experience" (Dewey 1938, p. 13). He clarified the statement by adding that this "does not mean that all experiences are genuinely or equally educative" (Dewey 1938) and that for learning to happen through experience, two things must be present:

> 1. Every experience must in some way be consistent with past experiences and have implications for future experiences.
> 2. An experience is constituted by the actions of a person in a particular environment.
>
> (p. 13)

By setting forth these two conditions necessary for learning to happen through experience Dewey puts learning in a situational setting, indicating that learning cannot happen in isolation, that learning has to be relatable to past and future experiences. There has to be some consistency in what is being experienced. In addition, the learning

is tied to a situation or environment so that a person can anticipate or project similar outcomes in similar situations or environments.

Kolb (1984) further developed the concept of learning from life experiences or "experiential learning." He defined experiential learning as "the process whereby knowledge is created through the transformation of experience" (p. 38). This positions the experience as the major contributing factor in the creation of the knowledge itself. Malinen (2000, p. 85) defined experiential learning as "a process of reconstruction performed by individual learners [in which] first order experience [is] modified by second order experiences". This supports Dewey's (1938) notion that every experience has to relate in some way to past and future experiences for learning to happen. If the results of a present experience are not consistent with the results of previous experiences, a person has to adapt or reconstruct the knowledge to make meaning of what happened during the new experience.

A number of scholars agree that experiential learning is grounded in the concept of being able to apply what is being learned in a practical way. Revans (1982, p. 655) felt that "To know is to be able to do…, so that one can demonstrate one's knowledge." Schon (1983, p. 163) stated that "…knowing and doing are inseparable". Hansman (2001, p. 46) also stated that "…the learning is in the doing or the experience". The common theme is that a person has not actually learned something until they can do something with the knowledge. Some action is necessary to demonstrate that the learning has occurred. As it applies to new employees being productive once they enter the workplace, the new employees have to be able to do the work to demonstrate that

they know how to do it. From the standpoint of undergraduate education, if a student can demonstrate what is being learned in a simulated real life situation, they are much more likely to be able to perform the task once they enter the workplace.

Kolb and Kolb (2005) explain that:

> Experiential learning theory draws on the work of prominent 20th century scholars who gave experience a central role in their theories of human learning and development—notably John Dewy, Kurt Lewin, Jean Piaget, William James, Carl Jung, Paulo Freire, Carl Rogers and others—to develop a holistic model of adult development (Kolb, 1984). The theory is built on six propositions shared by theses scholars.
>
> (p. 194)

The first proposition states that "Learning is best conceived as a process, not in terms of outcomes" (Kolb, 1984, p 26). This proposition proposes that seeing learning as a process rather than focusing on behavioral outcomes is what distinguishes experiential learning from more traditional approaches to education. Rather than learning something under the assumption that what is being learned will never change, the assumption is that what is being learned will continue to change and be developed over time. This proposition reinforces the concept of life-long learning. It is important that new employees understand the importance of this concept as it relates to their success when they enter the workplace, particularly in in the dynamic environment of the workplace today.

The second proposition states that "Learning is a continuous process grounded in experience" (Kolb, 1984, p. 27). This proposition establishes that learning involves re-learning. A person moves from experience to experience with expectations of what will be encountered in similar experiences. When the unexpected is encountered, a person adjusts what they have learned based on the new and different experience. New employees should be prepared upon entering the workplace to encounter situations that are not consistent with their expectation and be able to identify the most effective means of adapting to these situations.

The third proposition suggests that "The process of learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world" (Kolb, 1984, p. 29). This proposition explains that people move between opposing modes as they adapt to the world. These modes include action, feeling, thinking and reflection. When a new employee encounters conflicting outcomes in similar situations they will reflect and conceptualize alternative ways to deal with the situation. This will, likely, lead to experimentation. The results of the experimentation will alter what has been learned during previous experiences.

The fourth proposition states that "Learning is a holistic process of adaptation to the world" (Kolb 1984, p. 31). This proposition indicates that various aspects of learning happen in concert rather than independent of each other. What is learned is affected by all aspects of a person's life. Personal experiences, attitudes, and expectations influence all aspects of learning--creativity, decision making, and problem solving.

The fifth proposition states that "Learning involves transactions between the learner and the environment" (Kolb, 1984, p. 34). Interestingly, this proposition suggests that not only does the environment affect the learner, but the learner can affect and manipulate the environment. New employees should understand that as the environment changes or presents different circumstances, a person can act to alter or prevent certain situations based on previous experiences. Experiential learning experiences provided by colleges and universities can better prepare new employees to influence situations in ways that can prevent undesirable outcomes once they enter the workplace.

The final proposition states that "Learning is the process of creating knowledge" (Kolb, 1984, p. 36). This proposition was based on Dewey's (1938) description of knowledge creation. Dewey suggested that knowledge is the result of the transaction between social knowledge and personal knowledge. He described social knowledge as the objective accumulation of human cultural experiences and personal knowledge as the accumulation of a person's subjective life experiences. Dewey further explained that when there is transaction between these objective and subjective experiences during the experiential learning process knowledge is created. Biswas-Diener and Patterson (2011) contend that the transaction that takes place between social knowledge and personal knowledge during experiential learning is a critical step in a person's understanding of what needs to be done and how to perform effectively.

Fenwick (2000, p.243) defines experiential learning as "a process of human cognition." She compared five distinct perspectives of experiential learning that are

accentuated in scholarly writing. The first perspective is *refection*, which is a constructivist perspective. Fenwick (2000, p. 248) states that:

> This prevalent and influential adult learning theory casts the individual as a central actor in a drama of meaning making. The learner reflects on lived experience and then interprets and generalizes this experience to form mental structures. These structures are knowledge, stored in memory as concepts that can be represented, expressed, and transferred to new situations.

The second perspective is *interference* which is a psychoanalytic perspective. Fenwick (2000, p. 250) explains that:

> Psychoanalytic theory has been taken up by educational theorists, in addition to other cultural critics of the late 20th century, to help disrupt the notion of progressive development, certainty of knowledge, and the centered learner. Psychoanalytic also helps open way of approaching the realm of unconscious, our resistance to knowledge, the desire for closure and mastery that sometimes governs the educational impulse, and enigmatic tensions between learner, knowledge and educator.

The third perspective is *participation,* which is a situated perspective. Fenwick (2000, p. 253) states that:

> *Situated cognition* maintains that the learning is rooted in the situation in which a person participates, not the head of that person as intellectual concepts produced by reflection nor as inner energies produced by psychic conflicts. *Knowing and learning* are defined as engaging in changing processes of human activity in a

> particular community. Knowledge is not a substance to be ingested and then transferred to a new situation but, instead, part of the very process of participation in the immediate situation.

The fourth perspective is *resistance,* which is a critical cultural perspective. Fenwick (2000, p. 256) explains:

> Critical cultural perspectives center power as a core issue. The problem with some situated views and systems-theory perspectives is their lack of attention to inevitable power relations circulating in human cultural systems. Any system is a complex site of competing cultures. To understand human cognition, we must, from a critical cultural perspective, analyze the structures of dominance that express or govern the social relationships and competing forms of communication and cultural practices within that system.

The fifth perspective is *co-emergence,* which is the enactivist perspective. Fenwick (2000, p. 261) states that:

> Enactivism is a theory explaining the co-emergence of learning and setting (Maturana & Varela, 1978; Varela, Thompson & Rosch, 1991). This perspective of experiential learning assumes that cognition depends on the kinds of experience that comes from having a body with various sensorimotor capacities embedded in a biological, psychological, cultural context. Enactivists explore how cognition and environment become simultaneously enacted through experiential learning. The first premise is that systems represented by person and

context are inseparable, and the second premise that change occurs from emerging systems affected by the intentional tinkering of one with the other.

Of the five perspectives, I perceive two to be more pragmatic and relevant to my study. Reflection and participation will be examined in greater detail.

Reflection

As Fenwick (2000) stated, reflection is a prevalent theory in adult education. According to this theory learning takes place in a person's head as a result of an experience. The experience provides a catalyst, but it is separate from the learning itself (Merriam, Caffarella & Baumgartner, 2007).

Kolb (1984) conceptualizes experiential learning as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience" (p. 41). Kolb's model of experiential learning depicts a four-stage cycle that individuals progress through to create knowledge from experiences. The components that make up the process are:

1. Concrete Experiences – Individuals become involved in new experiences
2. Reflective Observation - Individuals reflect on the new experiences and view them from different perspectives
3. Abstract Conceptualization - Individuals analyze what they have observed and try to formulate courses of action based on their experiences and reflections.
4. Active Experimentation - Individuals put new ideas and concepts into practice.

(Kolb & Kolb, 2005, p. 194)

Two of the components of the model, Concrete Experience and Abstract Conceptualization, represent the grasping of experience. The other two components of

the model, Reflective Observation and Active Experimentation, represent the transforming of experience. Kolb and Kolb (2005, p. 194) go on to explain:

> Experiential learning is a process of constructing knowledge that involves a creative tension among the four learning modes that is responsive to textual demands. This process is portrayed as an idealized learning cycle or spiral where the learner 'touches all the bases"—experiencing, reflecting, thinking, and acting—in a recursive process that is responsive to the learning situation and what is being learned. Immediate or concrete experiences are the basis for observations and *reflections*. These reflections are assimilated and distilled into *abstract* concepts from which new implications for action can be drawn. These implications can be actively tested and serve as guides in creating new experiences.

Jarvis (1987) takes Kolb's experiential model a step further by considering that people bring their own personal history to learning experiences. He makes a distinction between "nonreflective learning" which involves remembering an experience and repeating it, and "reflective learning" in which a person monitors and thinks about an experience as it is happening. Nonreflective learning occurs when a person encounters familiar situations and acts in accordance with what has worked in the past. What a person has learned is reinforced. Reflective learning occurs when a person encounters situations that differ from what is expected based on previous experiences. This causes the person to have to reflect on the experience to make meaning of what is being experienced and to determine what action needs to be taken. In this instance re-learning

takes place and the person's knowledge is further developed. The delineation between reflective and nonreflective learning, as it relates to the cycle of experiential learning, is influenced by whether or not the expectations of a new experience are consistent with past experiences or the new experience reveals something that is not consistent with past experiences.

Participation

Merriam, Caffarella and Baumgartner (2007) point out that although reflection and participation both involve learning from real world experiences, there is a difference in how these experiences are perceived or interpreted. Whereas reflection considers learning from experience as something that goes on in a person's head, participation considers that the learning that takes place from experience cannot be separated from the situation in which the learning takes place. As Fenwick stated, (2002, p. 253) "Knowledge is not a substance to be ingested and then transferred to a new situation but, instead, part of the very process of participation in the immediate experience."

Lave and Wenger (1991) explain that learning happens as people interact with a community. This interaction exposes them to norms and cultural values of the community, in addition to the technology, jargon, and common practices of a community. Goel, Johnson, Junglas and Ives (2010) contend that these communities are generally represented by individuals who are motivated to achieve personal success in specific situations and see value in aligning themselves with others trying to achieve similar outcomes. To clearly differentiate reflection from participation Brown, Collins

and Duguid (1989) point out that since the learning process cannot be separated from the situation, it makes the concept of transferring knowledge from one situation to another less feasible. Wilson (1993, p. 77) supports this point of view by stating that "If we are to learn, we must become imbedded in the culture in which the knowing and learning have meaning: conceptual frameworks cannot be meaningfully removed from their settings or practitioners."

If those who advocate theories of participation are correct and the learning that takes place through experience cannot be transferred to other situations, the notion of students learning something in an academic setting and then transferring the knowledge to a workplace setting becomes clouded. For this concept to even be feasible the simulated situation in which the learning takes place would have almost perfectly to align with the real world situation. Anderson, Reder, and Simon (1996) acknowledge that that the situated nature of learning through experience makes the transfer of knowledge from one situation to another problematic. Fenwick (2003) advocates that scholars who study organizational learning believe that learning which involves tacit knowledge—knowledge that we demonstrate through our actions but may not be able to articulate—does occur through socialization with others. These scholars also recognize that explicit knowledge—knowledge that can be articulated—can be transferred from one situation to another. It makes sense that what is learned through experiential learning is comprised of both tacit and explicit knowledge, so that reflective learning and participation learning can work in conjunction with each other to better prepare graduates to adapt to and be productive members of the workplace.

Boud and Walker (1991) developed a situated approach to experiential learning in which they explore how specific contexts affect peoples' learning experiences in different ways. They introduced the concept of how individuals' emotions and their approaches to learning affect their learning experiences. A person's emotions during a learning experience can affect whether the learning experience is good or bad. How a person deals with the emotions is important because it can affect the person's confidence and attitude toward future learning experiences. Beard and Wilson (2002, p. 119) contend that "The affective domain can be seen to provide the underlying foundation for all learning." Merriam, Caffarella and Baumgartner (2007) explain that "In order for people to interpret experiences positively and learn effectively they need to have confidence in their abilities, good self-esteem, support from others, and trust in others." Supportive instructors who incorporate experiential learning experiences into their teaching create environments in which students, not only see the value in what is being learned, they want to learn and they enjoy the learning process. This helps to keep the focus on learning and works to avoid the distractions caused by students not enjoying the learning experience or wondering how they will ever use the material being taught.

Sptizer (2002) pointed out the need for a more pragmatic, integrated approach to education in which students develop skills specific to the work that they will be doing and the environments in which they will be working after graduation. Brown, Collins and Duguid (1989) observed that schools often present knowledge with little or no regard for the activity and context in which the knowledge will be used. If a person thinks of knowledge as a tool, they suggest that it is possible to acquire a tool and not be

able to use it. In fact, schools may present the knowledge and use the tools associated with the knowledge in ways that are different from the ways practitioners use them. Therefore, students may learn something well enough to pass an exam, but not be able to use the knowledge in authentic practice. Brown, Collins and Duguid (1989) also point out that until students are exposed to authentic practice--the actual practices of the culture in which the knowledge is used--they are frequently unable to use the tools that they acquire. Hernandez-March, Martin del Peso and Leguey (2009) contend that this can cause some employers to feel that there is a disconnect between industry and academia, and that students are not well prepared to enter the work force. This argument reinforces the concept that programs at colleges and universities that incorporate experiential learning experiences into their curricula should not only provide students with knowledge, they should provide them with an understanding of how to actually apply the knowledge in the workplace, as well.

Hay and Barab (2001) explain that to better prepare students to enter the work force, learning environments can be created in which students can apply what they are learning in simulated real world situations. Designing these learning environments, referred to by Senge (1994) as practice fields, involves identifying what needs to be learned, then designing experiences and activities which let the learner apply what is being learned. Senge acknowledges that these practice fields are not equivalent to learning in real world situations, but play a useful role in helping students to apply what is being learned.

Cognitive Apprenticeships

Cognitive apprenticeships afford students the opportunity to practice what they are learning in the real world situations. Brown, Collins and Duguid (1989) explain that cognitive apprenticeships, similar to craft apprenticeships, expose learners to the cultures, authentic practices and social interaction of the job or profession in which they will be working. There is a focus on teaching and skill development. Based on their studies of several professions, including law, medicine and architecture, LeGrand, Farmer, and Buckmaster (1993, p. 70) developed a five phase model of cognitive apprenticeship.

1. Modeling--the teachers demonstrate the activity as they verbally describe what they are doing.
2. Approximating--the learner does the activity with the support and coaching of the teacher.
3. Fading--the support and coaching are gradually removed as the learner begins to work more independently.
4. Self-directed learning--assistance from the teacher is only provided when requested.
5. Generalizing--general applications for what is being learned are discussed and the learner is encouraged to try what is being learned in new situations

Merriam, Caffarella and Baumgartner (2007) indicate that a cognitive apprenticeship instruction model of instruction produces better results than traditional instruction. The effectiveness of this model is rooted in the direction and support that the learner receives from the instructor. Instructors who are able to demonstrate what good applications of what is being learned looks like provide learners with a model to emulate during their skill development. As a result, learners spend less time wondering what to do and more time practicing the techniques and developing their skills. The gradual

withdrawal of support from the instructor enables learners to gain confidence in their abilities as they learn to perform tasks on their own. Hansman (2001) emphasizes that cognitive apprenticeships expose students to authentic practices and social interaction in the environments of practitioners. Working with and learning from people who make their living in a specific profession enables students to see first-hand how what they are learning is applied in practice.

In higher education opportunities for cognitive apprenticeships are made available to students through cooperative education (Co-op) and internships. Groenewald (2004) states that:

> Cooperative education is a structured educational strategy integrating classroom studies with learning through productive work experiences in a field related to a student's academic or career goals (p. 17).

Sutton (2004) explains that cooperative education programs in higher education often involve students working some semesters and going to school others. Students generally receive course credit and compensation when participating in cooperative education programs.

Taylor (1988, p. 393) defined internships as "structured and career relevant work experiences obtained by students prior to graduation from an academic program." Summer internships are common in industry. Some are paid and some are not. Like cooperative education programs, in addition to providing students an opportunity to work with and learn from people in a specific profession and providing these students an opportunity to see first-hand how what they are learning is applied in practice,

internships provide opportunities for both students and the companies to see if they are a good fit for each other. Knouse, Tanner and Harris (1999) emphasize that college internships can improve students' performance while in school and enhances opportunities for finding jobs after graduation. Both cooperative education and internships provide real world experience to students wanting to gain the relevant knowledge and skills required to enter into a particular career field. The primary focus of these learning experiences is to provide an opportunity to apply what is learned in the classroom to real world situations. The academic program that is the focus of this study encourages and helps students to find summer internships.

Summary and Application

This chapter provided a review of the literature pertaining to organizational socialization and personal learning experiences. In summary, I will identify the portions of the literature that best inform and pertain to my study.

Champoux's (2010) model that outlines the stages of organizational socialization closely aligns with my study because of the emphasis on expectations prior to employment. Many theories discuss the importance of "fit" between the new employee and the organization. My study explores how programs at colleges and universities can better prepare their graduates to enter the workplace by helping them to understand the importance of gaining a good understanding of what they will be doing and what their performance expectations will be prior to accepting a job offer. The program seems to accomplish this by working to building relationships with the people inside the organizations that hire their graduates and better understanding what their requirement of

the graduates are. Then efforts are made to include in their curriculum and advising activities information that will help their graduates acquire more realistic expectations of what a job entails prior to joining the organization.

Kammeyer-Mueller and Wanberg (2003), in addition to highlighting the importance of pre-entry knowledge prior to joining and organization, emphasize the importance of a new employee having a proactive personality. Many of the students in the program that is the focus of my study have proactive personalities and, by the time that they graduate, have developed very good interpersonal skills. This confidence and the ability communicate well, likely, influences their ability to seek out those within the organizations that they join who can provide them with the knowledge and support they need to adapt to the workplace and become productive employees at an accelerated pace.

The six propositions on which Kolb's (1984) experiential learning theory is built provide points of reference for a better understanding of why specific experiential learning exercises help graduates of this program to transfer the knowledge that they learned in school to the workplace. Specifically, Kolb's (1984) four-stage cycle that individuals progress through to create knowledge from experiences is the best experiential learning theory that explains the steps that students in the academic program that I am studying go through in many of their experiential learning exercises. Through hands-on applications in simulated real world situations or being exposed to actual situations through interaction with industry representatives or internships, where they actually perform the work, these students have an opportunity to experience, reflect, think, and act. Kolb's model provides the best conceptual framework that explains the

learning process the students follow. Students in the academic program that is the focus of my study experience both “nonreflective learning” and “reflective learning” as described by Jarvis (1987). They learn through experiential learning experiences that the information being taught may have different applications in the workplace depending upon the circumstances encountered.

Although theories of reflection and participation as described by the scholars cited in this literature review appear to be contrary to each other, both these theories help explain the experiential learning process of the students in the program under study. In some situations learners, through experience, do reflect on an experience and construct knowledge in their heads that can be transferred to other situations. In other situations the participation in an experience and the community or environment in which the experience takes place may be so specific to the learning experience that the knowledge cannot be applied to other situations. As it pertains to the academic program that is the focus of this study there appear to be situations in which both reflection and participation are at work during experiential learning experiences in academic settings and in workplace settings.

Taken together, the literature reviewed in this chapter provides a useful conceptual framework to achieve the purpose of this study. In the next chapter I will explain the research methodology used to conduct this study.

CHAPTER III

METHODOLOGY

The purpose of this study is twofold: to determine if the Industrial Distribution Program at Texas A&M University is producing graduates whom employers consider highly adaptable to the workplace and who quickly become productive in their organizations; and if this is true, to understand what characteristics employers perceive these graduates having that makes them successful.

This is a mixed-methods study consisting of both qualitative and quantitative methods. The quantitative portion of the study was selected because a reliable survey instrument for measuring work-related competencies and workforce adaptation had been identified in a study done by Sutton (2004). Sutton's study involved determining whether or not Cooperative Education Programs for engineering students had a significant effect on their work performance and workforce adaptation when compared to engineering students who did not participate in Cooperative Education. The qualitative portion of the study was selected in order to engage employers of recent graduates of the Industrial Distribution Program at Texas A&M University in face-to-face dialogs with other employers of the recent graduates. These dialogs were accomplished through focus groups (Krueger & Casey, 2000).

Quantitative Methodology

A survey instrument was used to collect information for the quantitative portion of this study. Respondents were asked to provide demographic information about themselves and the recent graduates about whom they were responding. In addition, the survey instrument collected information concerning adaptation of these recent graduates to the workplace and the competencies that these recent graduates possessed at the time that they entered the workplace that caused them to adapt and perform well. The procedures used for participant selection and research measures are described in the following sections.

Sample Selection

The population for the quantitative portion of the study was employers that hire recent graduates of the Industrial Distribution Program at Texas A&M University. A link to the survey was e-mailed to 282 individuals representing 107 employer companies. In addition to the original e-mail, a reminder e-mail was sent to individuals who had not responded after two weeks of the original e-mail. Of 282 individuals, 170 accessed the survey site and opened the survey. A sample size of approximately 100 respondents is normally regarded as an acceptable sample size (Gall, Borg & Gall, 1996). Of the 170, 129 completed the survey and 41 partially completed the survey. Only the 129 completed surveys were used in the data analysis, which represents a response rate of 45.7 percent of the total number of individuals to which the link to the survey was sent,

and 75.9 percent of the individual who accessed the survey. The average response rate for business surveys is 21 percent (Dillman, 2000).

Data Collection

The survey used in this study was adapted from a survey used by Sutton (2004) in a study to collect data to determine similarities between recent engineering graduates who participated in Cooperative Education Programs and those who did not. Sutton's survey was developed using a Work-Related Competency Index developed by Braunstein (1999) and a Workplace Adaptation Questionnaire developed by Morton (1993). The survey includes an introduction, demographic information, and 36 survey questions (APPENDIX I). Respondents were asked to consider a recent graduate hired from the Industrial Distribution Program at Texas A&M University as they respond to the survey.

Braunstein's (1999) Work-Related Competency Index (WCI) was selected because it is comprised of work-related competencies and outcomes identified by employers (rather than recent graduates) and by the Accreditation Board for Engineering and Technology (ABET). Content validity for the WCI was established by a panel of 10 judges who were content experts (Sutton, 2004). The Workplace Adaptation Questionnaire (WAQ) tests the adaptation variables: job knowledge, acculturation, and establishing relationships. The WAQ was developed by Morton (1993) and modified by Reio (1997). The studies of Morton and Reio showed that these three variables are interdependent in accomplishing the socialization process (Sutton, 2004).

Data Analysis

A principal component analysis was performed on the response to the Work-Related Competency Index and the Work-Related Competency Index.

> The central idea of principal component analysis (PCA) is to reduce the dimensionality of a data set consisting of a large number of interrelated variables, while retaining as much as possible of the variation present in the data set. This is achieved by transforming to a new set of variables, the principal components (PC's), which are uncorrelated, and which are ordered so that the first *few* retain most of the variation present in *all* of the originals. (Joliffe, 2002, p. 1).

Chronbach's alphas were computed to determine the reliability of the measurement scales of the 17 item Work-Related Competency Index and the 19 item Work-Related Competency Index. The generally accepted standard for reliability is .70 and above (Tabachnick and Fidell, 2001).

Spatz (2007, p.2) states that "descriptive statistics produce a number or figure that summarizes a descriptive set of data." Responses to both the Workplace Adaptation Questionnaire (WAQ) and the Work-Related Competency Index (WCI) were collected using a Five Point Likert Scale that indicated the level of importance of each item being considered. The ratings on the scales were:

1-strongly agree / completer competence
2-agree / satisfactory competence
3-neither agree nor disagree / moderated competence
4-disagree / some competence
5-strongly disagree / no competence

A ranking analysis was used in which arithmetic means were computed to provide a comparison of the importance of each item relative to the other items included in each instrument.

Qualitative Methodology

Two focus groups were used to collect information for the qualitative portion of this study. Respondents were asked to provide personal information pertaining to their job responsibilities and their involvement in the hiring and developing recent graduates for their organizations. In addition, each participant identified competencies that recent graduates of the Industrial Distribution Program at Texas A&M University possessed at the time that they entered the workplace that caused them to adapt and perform well. After theses competencies had been identified participants engaged in a discussion about how each of these competencies influenced the workplace adaptation and rapid success of the recent graduates. The procedures used for participant selection and research measures are described in the following sections.

Sample Selection

The population for the quantitative portion of the study was employers that hire recent graduates of the Industrial Distribution Program at Texas A&M University. Respondents to the survey in the quantitative portion of the study were asked if they would like to participate in one of two focus groups to further explore the idea that the Industrial Distribution Program at Texas A&M University is producing graduates whom

employers consider highly adaptable to the workplace and who quickly become productive in their organizations, and to understand what characteristics employers perceive these graduates having that makes them successful. Of the respondents to the survey, 39 indicated that they would like to participate in a focus group and provided their contact information. Sixteen participants were selected to participate in the focus groups based on their availability on the dates that the focus groups were scheduled.

Data Collection

Krueger and Casey (2000) state that:

> The purpose of conducting a focus group is to listen and gather information. It is a way to better understand how people feel or think about an issue, product or service. Focus groups are used to gather opinions. Participants are selected because they have certain characteristics in common that relate to the topic of the focus group. The researcher creates a permissive environment in the focus group that encourages participants to share perceptions and points of view without pressuring participants to vote or reach consensus (p. 4).

Below is a description of those whose schedules allowed them to participate in the two focus groups. The first focus group had seven members:

FG1-1	National Sales Manager	Pipe, Valve & Fitting Distributor
FG1-2*	Account Manager	Building Supply Distributor
FG1-3*	Branch Manager	Building Supply Distributor

FG1-4	Regional Vice President Transmission Distributor	Pump, Bearing & Power
FG1-5	Area Director	Electronic Distributor
FG1-6	Director Human Resources	Electrical Distributor
FG1-7	Senior Vice President	Pipe, Valve & Fitting Distributor

The second focus group had nine members:

FG2-1	Chief Operating Officer	Pipe, Valve & Fitting Distributor
FG2-2	Branch Manager	Electrical Distributor
FG2-3	Sales Manager	Electrical Manufacturer
FG2-4*	Senior Sales Executive	Electrical Systems
FG2-5	Human Resource Manager	Fluid Power Distributor
FG2-6	VP Market Development	Chemical Distributor
FG2-7	Regional Vice President Transmission Distributor	Pump, Bearing & Power
FG2-8*	Manager of Development	Chemical Distributor
FG2-9*	Sales Manager	Polymer Distributor

* Graduate of the Industrial Distribution Program at Texas A&M University

Regarding discussion topics for members of the focus groups, I initially planned to use the findings of the survey concerning the skills and characteristics that employers found desirable in Industrial Distribution graduates. After some deliberation I decided that for the purpose of triangulation achieved by having multiple sources of data that it would be more effective to solicit the topics of discussion from the members of the focus

groups themselves (Merriam, 1998). At the beginning of each session focus group members were asked to introduce themselves. Then they were asked to respond to the following questions in writing:

- Anecdotal reports from representatives of companies that hire recent graduates from the Industrial Distribution Program at Texas A&M University indicate that these graduates enter the workforce with the knowledge and work-related competencies that make them a good fit for their businesses. These employers also say that these graduates adapt to the work place and become highly productive employees at a relatively rapid rate. **Would you agree or disagree that this is the case?**

  Agree **Disagree**

- **If you agree, what are the top three characteristics or skills** that you attribute to them being a good fit and their ability to adapt to the workforce and become productive at a relatively rapid rate?

The participants were then asked to share what they had written with the group and a comprehensive list was created on a white board. Once the list was complete each item was discussed by the group. An audio recording was made during each of the two focus groups; these were later transcribed.

Data Analysis

Audio recordings were made of the discussion that took place in each of the focus groups. Theses audio recordings were then transcribed. I analyzed the data using the constant comparative method (Glaser & Strauss, 1967). I read the transcripts generated from the focus groups multiple times and identified themes across the data set, and then I sorted the data into the following categories: Input, Curriculum, Faculty

Influence, Industry Influence, and Output. I developed a model by making inferences from the categories. Huberman and Miles (1994, p. 261) described this process of model building as "no longer just dealing with observables, but also with unobservables, and connecting the two with successive layers of inferential glue." I describe the model in detail in Chapter IV.

The quantitative portion of this study was performed first to identify, from a broad perspective, the competencies that employers found to influence the workplace adaptation and rapid success of graduates of the Industrial Distribution program at Texas A&M University. The validity of the survey instrument used in this portion of the study had already been established. The fact that the findings of this study were consistent with findings of previous studies gave me confidence that the competencies identified by the respondents to the survey were influential in the rapid workplace adaptation and productivity of the graduates of this program. In addition, the findings of the quantitative portion of the study were consistent with and supported the findings of the qualitative portion of the study. The consistencies among data collected by quantitative methods and the data collect by qualitative methods provided confidence that the findings of this study were valid and reliable.

The discussions that took place in the focus groups during the qualitative portion of this study provided a deeper understanding of how these competencies specifically influenced the adaptation and development of the recent graduates. The examples shared by the participants in the focus groups (which are included in Chapter IV) helped to understand why these competencies are important to employers and helped to

differentiate recent graduates of this program from recent graduates from other programs who were hired by the employers participating in the study. The more detailed discussion provided the information necessary to construct The Model of the Industrial Distribution Program at Texas A&M University described in Chapter IV.

It is worth mentioning again that throughout the analysis and reporting of the data I was conscious that some may perceive bias on my part because I am a member of the faculty in the program being studied. I was also considerate of the fact that 54 percent of the respondents to the survey were graduates of Texas A&M University which may cause some to suspect bias in the findings. In Chapter Four I address in more detail the significance of the Industrial Distribution Program at Texas A&M University as it pertains to providing employees for the distribution industry and the loyalty of former students to this program. This helps to explain the large percentage of Texas A&M graduates in the distribution industry and responding to the survey. I worked hard not to let these issues detract from my objectivity.

CHAPTER IV

FINDINGS

The Industrial Distribution Program at Texas A&M University was the focus of this study. The employment rates for graduates of this program have been consistently higher than employment rates of any other program at the University, but reasons for this have not been empirically studied. This research focused on the opinions of employers of recent graduates of the program. Data were initially collected using a survey instrument and then additional data were collected using focus groups comprised of a smaller sample of the employers.

The survey instrument revealed that the employers judge recent graduates of the program as very successful at adapting to the workplace and quickly becoming highly productive employees. More specifically, they attribute the success of these graduates to their technical skills, and to their character and interpersonal skills. In addition, they believe the success of these graduates is fostered by their job knowledge and cultural adaptation upon entering the workplace.

Employer discussions in the focus groups yielded a more comprehensive picture of what accounts for the success of the graduates of this program at adapting to the workplace and becoming highly productive. Employers looked at the educational process of the Industrial Distribution Program and a model was developed that describes their perception of this process. They looked beyond the interdisciplinary curriculum and considered the characteristics of incoming students, as well as the contributions of

faculty and industry to the program. All these elements work in synchrony to produce graduates with attributes and skill sets that make them highly successful and productive in the workplace.

For these findings to make sense, I begin with a description of the Industrial Distribution Program itself. Then I provide a detailed account of the quantitative findings, and then of the qualitative findings. I close with a discussion of the broad findings and how they are supported by both analyses.

Description of the Industrial Distribution Program

The Industrial Distribution Program at Texas A&M University is unique as an undergraduate program in that its curriculum is interdisciplinary and it is greatly influenced by the collaboration between a discerning faculty and representatives from industry. As a result, graduates of this program are highly sought by employers; in fact, it is the most highly recruited major at Texas A&M University.

Faculty

Many of the faculty members in the Industrial Distribution Program have industry experience. All of the faculty members have contacts and relationships with industry through research projects, class projects, having industry representatives speak to their classes, and through industry visits. Many of the Industrial Distribution faculty consult with industry in their areas of expertise and develop and deliver professional development programs for the continuing education of industry employees. This industry

interaction helps to ensure that relevant information is being taught in the classroom, information for which students can see practical applications.

The Industrial Distribution Program at Texas A&M University has an Industry Advisory Board comprised of executives from companies in the industrial distribution community. The members of this Advisory Board inform the faculty regarding what they are looking for in graduates of the program. Because of their industry involvement and their willingness to listen to industry, faculty members have realistic ideas about what employers expect graduates to know when they leave school and enter the work force. Industrial Distribution faculty members also do a lot to prepare students for events in which the students will be interacting with industry representatives. Students are coached both inside and outside the classroom on resume preparation, interviewing skills, how to interact with industry representatives at career fairs, and the importance of working as interns in industry prior to their graduation.

Interdisciplinary Degree

Students graduating from the Industrial Distribution program at Texas A&M are well prepared for the working world from the standpoint of knowing what to expect once they enter the workplace. Their interdisciplinary education, which includes business, technical, and distribution courses, provides a holistic understanding the role of industrial distribution in marketing channels, namely, getting products from manufacturers to end users. In addition, experiential learning opportunities in classrooms

and technical labs provide them with a realistic understanding of the terminology, processes, products, and services that they will encounter once they enter the workforce.

Industrial Distribution students take courses in three major areas of study:

- **Business Courses**
  - Principles of Economics
  - Survey of Accounting Principles
  - Business Law
  - Business Information Systems
- **Technical Courses**
  - Nonmetallic Materials
  - Metallic Materials
  - Industrial Electricity
  - Mechanical Power Transmission
  - Industrial Automation
  - Fluid Power Transmission
- **Distribution Courses**
  - Introduction to Industrial Distribution
  - Distribution Logistics
  - Manufacturer-Distributor Relations
  - Sales Engineering
  - Distribution Information and Control Systems
  - Distributor Operations Financial Management
  - Purchasing Applications in Distribution
  - Quality Processes for Distribution
  - Ethics and Leadership in Distribution

Experiential learning opportunities, both technical and interpersonal, help Industrial Distribution students to develop skill sets that enhance their ability to understand the basic technical issues involved in a problem, the curiosity and problem solving aptitude to analyze the situation, and the interpersonal skills to communicate their analysis and offer alternative solutions. The success that graduates gain from experiential learning experiences as undergraduate students contributes to the confidence that allows them to approach a more

seasoned person in a workplace environment and offer a solution that may represent a new perspective. They have previous points of reference on which the can draw to substantiate and defend their analysis and thought process.

Interpersonal skills are enhanced through students working in groups. Upper level classes include group assignments that expose students to the challenges of working with others to accomplish tasks. Having to schedule times that group members can meet, manage projects, delegate responsibilities, deal with "slackers" and those who feel they "have to be in control" exposes students to situations that they will encounter in the working world. The experience of dealing with these issues and learning how to effectively overcome the challenges associated with working with others helps students to develop skills that they can use to interact more effectively and build relationships once they enter the workplace.

Industry Interaction

Students in the Industrial Distribution Program have an abundance of opportunities to interact with industry representatives, both inside and outside the classroom. Industry representatives are invited, as guest speakers, into all of the Industrial Distribution classes to share their knowledge and industry experiences. In addition, many of the upper level Industrial Distribution classes include projects in which students collaborate with industry representatives to study topics that are of interest to these companies specifically, and the industrial distribution community in general. Outside the classroom campus recruiting events, like career fairs, golf

tournaments, and socials, are held specifically for Industrial Distribution students to encourage student interaction with industry representatives.

Conclusion

The Industrial Distribution Program at Texas A&M University is unique among undergraduate programs at major universities. The interdisciplinary nature of the curriculum exposes students to business courses, technical courses, and distribution courses. This course work in conjunction with the experiential learning opportunities, a faculty with industry experience and contacts, and multiple opportunities for students to interact with industry representatives throughout their undergraduate experience produces graduates with skill sets sought by many employers in industry.

This was a mixed design study that used both quantitative and qualitative methods. While the findings from each method were congruent, the different methods offered specific information about how the participating employers view graduates of the Industrial Distribution Program at Texas A&M University as successful, and what characteristics they believe are responsible for the success of these graduates in their companies. For that reason I will discuss them separately.

Quantitative Findings

The survey used in this study was developed using a Work-Related Competency Index (WCI) developed by Braunstein (1999) and a Workplace Adaptation Questionnaire (WAQ) developed by Morton (1993). These survey instruments were

chosen because they have been used in studies similar to this one and have been validated for reliability. The survey instrument used in this study can be found in Appendix I. A detailed description of the survey instrument, previous studies in which it was used and how it has been validated can be found in the Data Collection section of Chapter III.

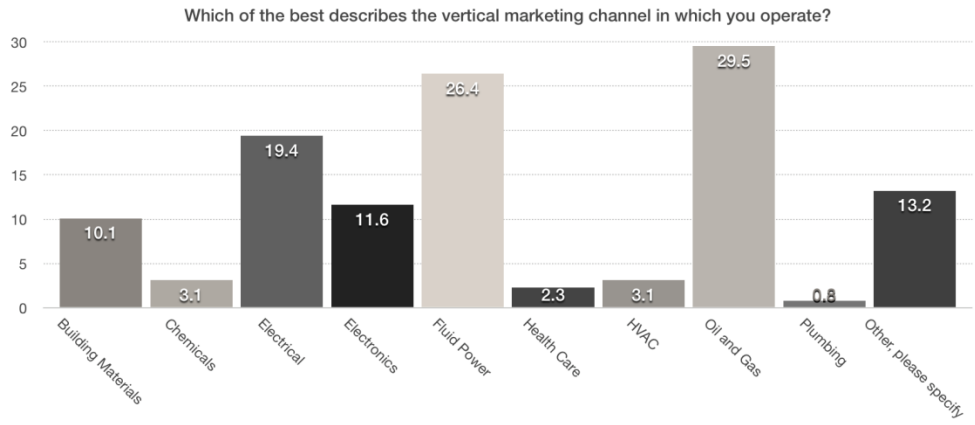
Demographics

The survey contained nine multiple choice questions regarding the demographics of the employers and the recent graduates that they were evaluating. Question one asked for the type of business represented by the employer: Distributor, Manufacturer, Manufacturer's Rep/Agency (an outsourced sales organization representing several manufacturers), or "Other". As one might expect, the majority, 94, (72.9 percent) of respondents were individuals representing distribution companies; 19 (14.7 percent) were individuals from manufacturing companies, 3 (2.3 percent) were individuals from manufacturer's rep/agency, and 14 (10.9 percent) were individuals from the "Other" category. Those describing themselves as "Other" specified: Financial Services, Software, Oil and Gas Service Provider, Retailer, Wholesaler, or Technology/Engineering.

Question two asked for the vertical marketing channel (industry category) in which the employer operates: Building Materials, Chemicals, Electrical, Electronics, Fluid Power, Health Care, HVAC, Oil & Gas, Plumbing, or Other. See Figure 2. for the breakdown of the vertical marketing channels represented. Those describing themselves

as “Other” specified: Automotive, Bearing and Power Transmission, Fasteners, Hoses and Gaskets, Instrumentation, Material Handling, Polymers, and Investments.

Figure 2. Marketing Channels



Question three asked respondents to describe the size of the employer’s full-time workforce: Three (2.4 percent) responded Small (1-50), 65 (51.6 percent) responded Medium (51-499), and 58 (46.0 percent) responded Large (500 plus). Three people did not respond to this question.

Question four asked from which college, university or trade school the person completing the survey graduated. Of the respondents, 58 (45 percent) graduated from Texas A&M University, six (4.7 percent) of those from the Industrial Distribution Program; 27 (20.9 percent) graduated from other Texas colleges or universities; 32 (24.8 percent) graduated from out-of-state colleges or universities; three (2.3 percent) attended community colleges or trade schools; and nine (7.0 percent) responded that they did not attend college or that the question was not applicable. Of the 58 (45 percent) respondents

who graduated from Texas A&M University, only six (4.7 percent) of all respondents graduated from the Industrial Distribution Program.

Referencing my comments in the "Limitations" section of Chapter I, it is important to bring attention to the culture of "Spirit" that exists at Texas A&M University. Graduates are loyal to the university and many of the graduates support the programs from which they graduate with their money, their time and their influence. It is also important to point out that there are fewer than a dozen industrial distribution programs housed in academic institutions in existence. There are currently in excess of 600 undergraduate students in the Industrial Distribution Program at Texas A&M University. This exceeds the total undergraduate student enrollment at all of the other industrial distribution programs combined. Both the loyalty of Texas A&M graduates and the size and effectiveness of the Industrial Distribution Program at Texas A&M university at providing employees for the distribution industry help to explain the number of Texas A&M University graduates that responded to the survey.

Question five asked the title of the person completing the survey: 67 (51.9 percent) responded Manager or Supervisor; 9 (7.0 percent) responded Human Resources Personnel; and 53 (41.1 percent) responded "Other." Those responding "Other" specified: Owners, CEO's, Presidents, Vice Presidents, and Directors. The survey was sent to individuals who are involved in the recruiting efforts of their companies. It is interesting that so few human resources personnel responded to the survey. Being familiar with the culture of most of these companies, I suspect that Human Resources

personnel are not actively involved with the development of employees beyond the hiring process.

Question six asked the gender of the person completing the survey. Of the respondents, 106 identified as male (83.5 percent) and 21 identified as female (16.5 percent). Two individuals did not respond to the question.

Question seven asked the ethnicity of the person completing the survey: Non-minority or Minority (e.g. African American, Asian, Hispanic, Native American). A majority of 119 responded Non-minority (92.2 percent) and 10 responded Minority (7.8 percent).

Question eight asked the gender of the person being evaluated. Of those being evaluated, 108 were male (83.7 percent) and 21 were female (16.3 percent).

Question nine asked the ethnicity of the person being evaluated: Non-minority or Minority (e.g. African American, Asian, Hispanic, Native American). Of those being evaluated, 120 were Non-minority (93.8 percent) and 8 were Minority (6.3 percent). One individual did not respond to this question.

Question ten asked how long the person being evaluated had been employed: 10 (7.9 percent) responded 0-3 months;10 (7.9 percent) responded 4-6 months, 14 (11.1 percent) responded 7 months -up to one year, and 92 (73.0 percent) responded 1 year- up to 2 years. Three individuals did not respond to this question. The great majority (73.0 percent) of the recent graduates being evaluated had been on the job one to two years at the time the survey was completed.

Reliability Analysis

Chronbach's alphas were computed to determine the reliability of the measurement scales of the 17-item Work-Related Competency Index (WCI) and the 19-item Workplace Adaption Questionnaire (WAQ). The generally accepted standard for reliability is .70 and above (Tabachnick and Fidell, 2001). A Principal Component Analysis (Joliffe, 2002) was performed on the results of the Work-Related Competency Index (WCI). The factors loaded into two categories: Technical Skills, and Character and Interpersonal Skills. The reliability for the Technical Skills was .876 and the reliability for the Character and Interpersonal Skills was .956. These reliability values are both above the acceptable standard. A Principal Component Analysis was performed on the results of the Workplace Adaption Questionnaire (WAQ). The factors loaded into three categories; Job Knowledge, Cultural Adaptation, and Establishing Relationships. These loadings were consistent with the results of Sutton's study (2004). The Chronbach's alphas for the three categories are listed below in Table 2. for both this study and Sutton's study.

Table 2. Chronbach's Alphas -Clark and Sutton

	Clark	Sutton
Job Knowledge	.932	.94
Cultural Adaptation	.91	.88
Establishing Relationships	.951	.91

All of the reliability values for both studies are above the acceptable standard. The consistency between the reliability values for both studies indicates that the Workplace Adaptation Questionnaire is likely a useful tool in workplace adaptation studies.

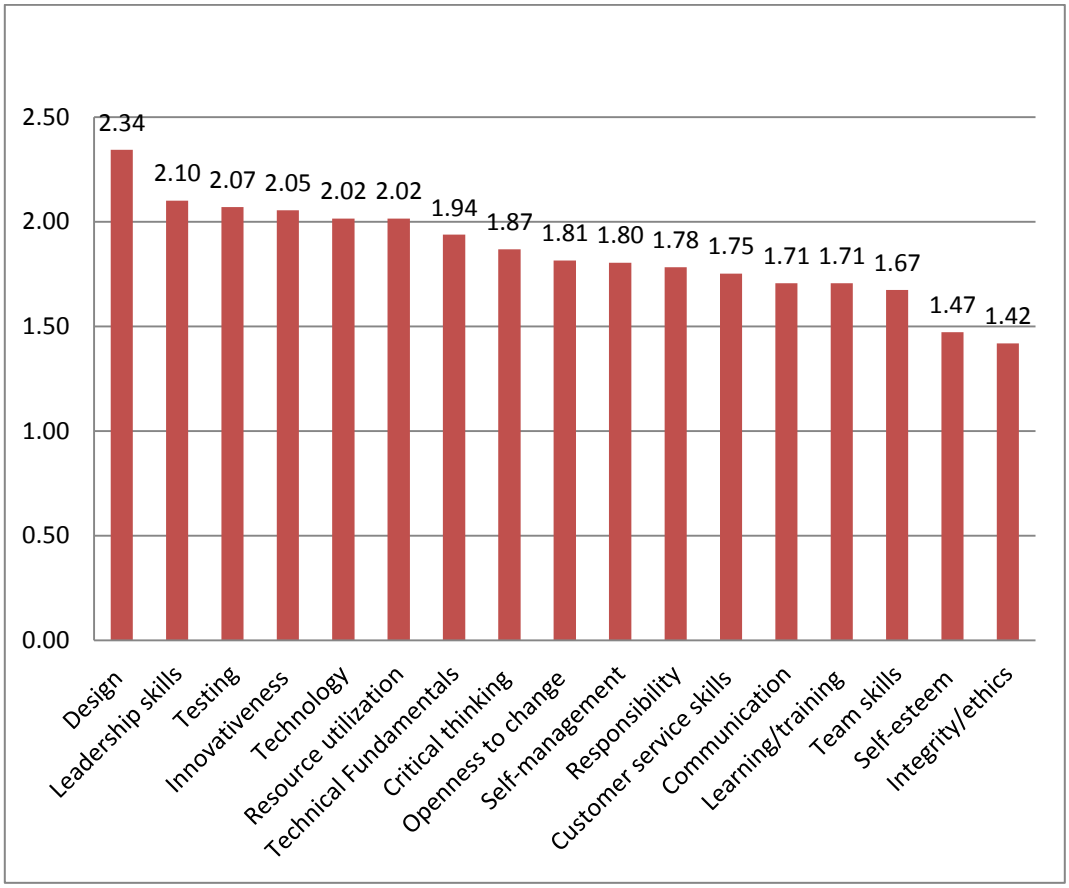
Ranking Analysis

A ranking analysis was used in which arithmetic means were computed to provide a comparison of the importance of each item relative to the other items included in each instrument.

Work-Related Competency Index (WCI)

Figure 3. contains graphical representations of the overall rankings of the respondents indicating the ability of recent graduates to demonstrate proficiency on each of the 17 items in the Work-Related Competency Index. The items are listed in descending order from left to right on the graph, with the most important listed first.

Figure 3. WCI Overall Rankings



Considering the information provided by all of the respondents, the top six areas (both areas associated with the ranking of five received the same score) in which recent graduates of the Industrial Distribution Program at Texas A&M University demonstrated proficiency were:

1. **Design** (can design a system, component, or process to meet desired needs).
2. **Leadership skills** (is visionary, builds trust and consensus and has the ability to motivate and empower others).
3. **Testing** (can conduct experiments and tests as well as analyze and interpret data).

4. **Innovativeness** (has knowledge of contemporary issues, their impact, and the ability to visualize, develop creative solutions, and continually search for a better way).
5. **Technology** (can evaluate, select and utilize technologies including engineering tools, equipment and computer programs/software).
   Resource utilization (understands the elements of business applications, fundamentals of project management and asset management concerning how to identify, organize, plan and allocate resources such as time, money, materials and human resources).

Considering the categories into which the factors loaded when the Principal Component Analysis was conducted, four of the top six areas in which recent graduates of the Industrial Distribution Program at Texas A&M University demonstrated proficiency were in the "Technical Skills" category. These four areas were "**Design** (can design a system, component, or process to meet desired needs)", **Testing** (can conduct experiments and tests as well as analyze and interpret data)", "**Technology** (can evaluate, select and utilize technologies including engineering tools, equipment and computer programs/software), and "**Resource utilization** (understands the elements of business applications, fundamentals of project management and asset management concerning how to identify, organize, plan and allocate resources such as time, money, materials and human resources)." The description of the interdisciplinary nature of the Industrial Distribution Program at Texas A&M University outlined in detail in the opening section of this chapter helps to provide an understanding of both the technical nature of the curriculum and the impact that the experiential learning experiences have on the development of the students.

The other two areas in which these graduates demonstrated proficiency were in the "Character and Interpersonal Skills" category. These areas were "**Leadership skills** (is visionary, builds trust and consensus and has the ability to motivate and empower others" and "**Innovativeness** (has knowledge of contemporary issues, their impact, and the ability to visualize, develop creative solutions, and continually search for a better way)." The skills and confidence developed in these areas during the undergraduate experience are likely a result of the type of student attracted to the program, extensive interaction with faculty and industry representatives, and situated experiential learning experiences that reflect the real world.

These results of the analysis of the Work-related Competency Index (WCI) are summarized in Table 3. below

Table 3. Findings of Work-Related Competency Index

Principal Component Analysis

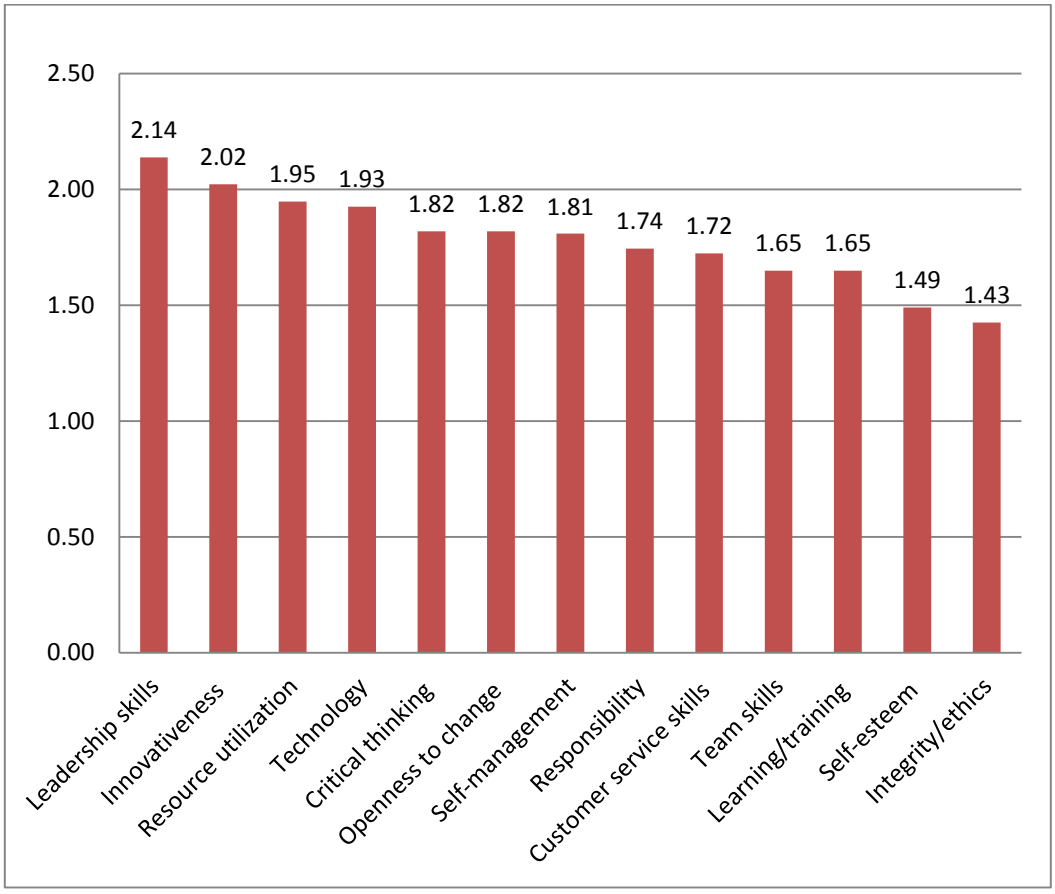
- Technical Skills (TS)
- Character and Interpersonal Skills (CIS)

Ranking Analysis

- Design (TS)
- Leadership skills (CIS)
- Testing (TS)
- Innovativeness (CIS)
- Technology (TS)
- Resource utilization (TS)

Responses of individuals representing distributors' organizations and manufacturers' organizations were examined in greater detail for two reasons. First, they collectively represented 88 percent of the total respondents to the survey. This would be expected since distributor and manufacturer organizations hire the majority of graduates from the Industrial Distribution Program at Texas A&M University. The second reason is that these two groups of organizations are in completely different businesses. Manufacturers are in the business of designing and making things. Distributors are in the business of selling the things made by manufacturers. This being the case, it is possible that they could hire graduates of the Industrial Distribution Program for different reasons. Figure 4. depicts the information provided by representatives of distributors' organizations.

Figure 4: WCI Distributors



The top six areas (both areas associated with the ranking of five received the same score) in which recent graduates of the Industrial Distribution Program at Texas A&M University demonstrated proficiency were:

1. **Leadership skills** (is visionary, builds trust and consensus and has the ability to motivate and empower others.
2. **Innovativeness** (has knowledge of contemporary issues, their impact, and the ability to visualize, develop creative solutions, and continually search for a better way)
3. **Resource utilization** (understands the elements of business applications, fundamentals of project management and asset management concerning

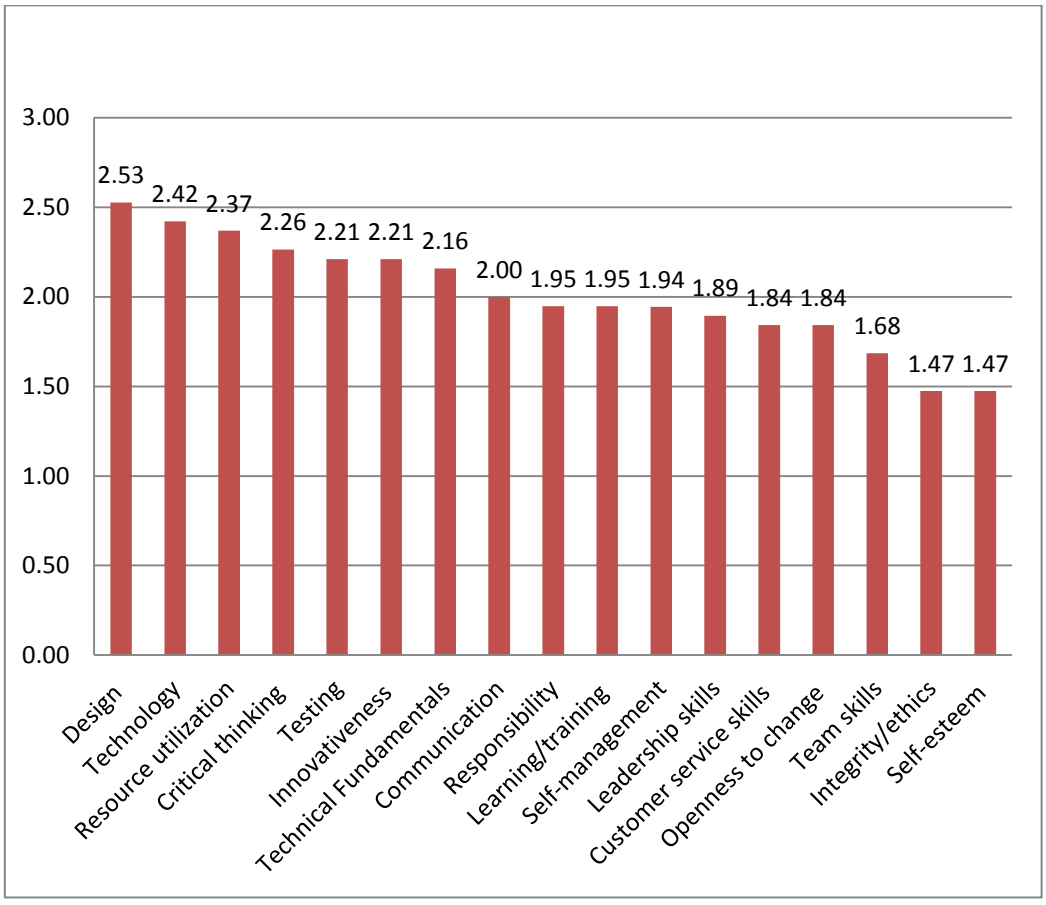
how to identify, organize, plan, and locate resources such as time, money materials and human resources).

4. **Technology** (can evaluate, select and utilize technologies including engineering tools, equipment and computer programs/software).
5. **Critical thinking** (can identify, assess, analyze problem solve, and recommend appropriate solution).

   Openness to change (responds to change and views change as an opportunity to improve performance and productivity.

Figure 5. depicts the information provided by representatives of manufacturers' organizations.

Figure 5. WCI Manufacturers



The top six areas (both areas associated with the ranking of five received the same score) in which recent graduates of the Industrial Distribution Program at Texas A&M University demonstrated proficiency were:

1. **Design** (can design a system, component, or process to meet desired needs).
2. **Technology** (can evaluate, select and utilize technologies including engineering tools, equipment and computer programs/software).
3. **Resource utilization** (understands the elements of business applications, fundamentals of project management and asset management concerning how to identify, organize, plan, and locate resources such as time, money materials and human resources).
4. **Critical thinking** (can identify, assess, analyze problem solve, and recommend appropriate solution).
5. **Testing** (can conduct experiments and tests as well as analyze and interpret data).

   Innovativeness (has knowledge of contemporary issues, their impact, and the ability to visualize, develop creative solutions, and continually search for a better way).

When comparing the top five responses of the distributors to the top five responses of the manufacturers they are identical with two exceptions. Distributors tend to value "Leadership skills" and "Openness to change" to a greater extent than manufacturers. This could be attributed to the fact that distribution companies are primarily sales organizations with a focus on developing markets for products and services, thus the greater emphasis on the ability to influence others and adapt to changing market conditions. Manufacturers tend to value "Design" and "Testing" to a greater extent than distributors. This could be attributed to the fact that they design and

manufacture products. Overall manufacturers and distributors are in agreement concerning the areas in which recent graduates of the Industrial Distribution Program demonstrate proficiency. Both groups appreciate the technical and character and interpersonal skills that these graduates bring to their organizations.

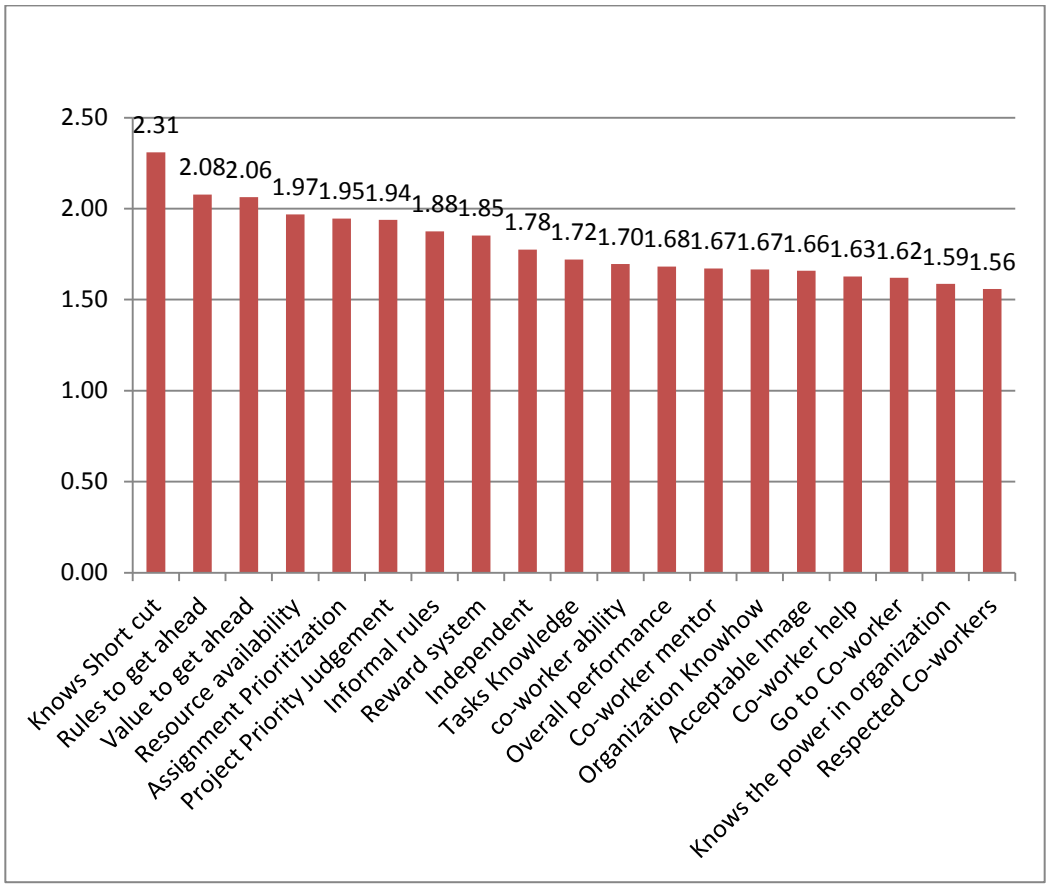
Figure 1 in Appendix II compares the responses of representative from small (1-50 employees), Medium (51-499 employees) and large (500 plus) companies. In general the information provided in this graph is consistent with the overall analysis of the data regarding the top five areas of proficiency among recent graduates regardless of the size of the organization.

Figures 2 through 10 in Appendix II are graphs of the responses from the respective marketing channels (different industries).These channels were categorized as; Building Materials, Chemicals, Electrical, Electronics, Fluid Power, Health Care, HVAC, Oil and Gas, Plumbing, and Other. Those describing themselves as "Other" specified: Automotive, Bearing and Power Transmission, Fasteners, Hoses and Gaskets, Instrumentation, Material Handling, Polymers, and Investments. (There were not enough responses from the plumbing channel to create a graph.) The top five responses, when broken down by individual marketing channels, were generally consistent with the overall findings and there were no major differences among the respective marketing channels. This indicates that is an overall consensus across industry lines regarding the areas of proficiency that are valued by employers of recent graduated of the Industrial Distribution Program.

Workplace Adaptation Questionnaire (WAQ)

Figure 6. contains graphical representations of the overall numerical rankings of the respondents indicating the ability of recent graduates to demonstrate proficiency concerning of each of the 19 items in the Workplace Adaptation Questionnaire. The items are listed in descending order from left to right on the graph, the most important listed first.

Figure 6. WAQ Overall Rankings



Considering the information provided by all of the respondents, the top five areas in which recent graduates of the Industrial Distribution Program at Texas A&M University demonstrated proficiency were:

1. Know the **"short cuts"** that they can take on the job.
2. Knows what the **rules are for getting ahead** in the organization.
3. Knows **what is really valued to get ahead** in the organization.
4. Knows what **resources are available** to help the do their job.
5. Knows how to **prioritize assignment**.

By ranking the items in which the respondents felt the recent graduates demonstrated proficiency in an order from most to least it can be inferred that the items at the top of the list are the traits or characteristics most valued by the respondents. It can also be inferred that these are the traits or characteristics of these recent graduates that contribute most to their adaptation to the workplace.

Considering the categories into which the factors loaded when the Principal Component Analysis was conducted, two of the top five areas in which recent graduates of the Industrial distribution Program at Texas A&M University demonstrated proficiency were in the "Job Knowledge" category. These areas were "Know the **'short cuts'** that they can take on the job" and "Knows how to **prioritize assignment."** It is likely that the industry interaction and experiential learning activities that these recent graduates experienced during their undergraduate experience provided them with some job knowledge and realistic performance expectations prior to entering the workplace.

The other areas in which these recent graduates demonstrated proficiency were in the "Cultural Adaptation" category. These areas were "Knows what the **rules are for**

getting ahead in the organization", "Knows **what is really valued to get ahead** in the organization", and "Knows what **resources are available** to help them do their job." Knowledge in these three areas demonstrates a certain "organizational and business savvy" on the part of these graduates as they enter the workforce. This can, likely, be attributed to the exposure that the recent graduates have had to workplace environments through site visits, internships, and interaction with industry representative during classroom visits as guest speakers.

It is interesting that none of the top five factors loaded into the "Establishing Relationships" category of the Principal Component Analysis. One reason for this could be that the length of time in which the graduates have been employed wasn't yet sufficient for them to have established important relationships within the company.

The results of the analysis of the Workplace Adaptation Questionnaire are depicted in the Table 4. below.

Table 4. Findings of Workplace Adaptation Questionnaire

Principal Component Analysis

Job Knowledge (JK)
Cultural Adaptation (CA)
Establishing Relationships (ER)*

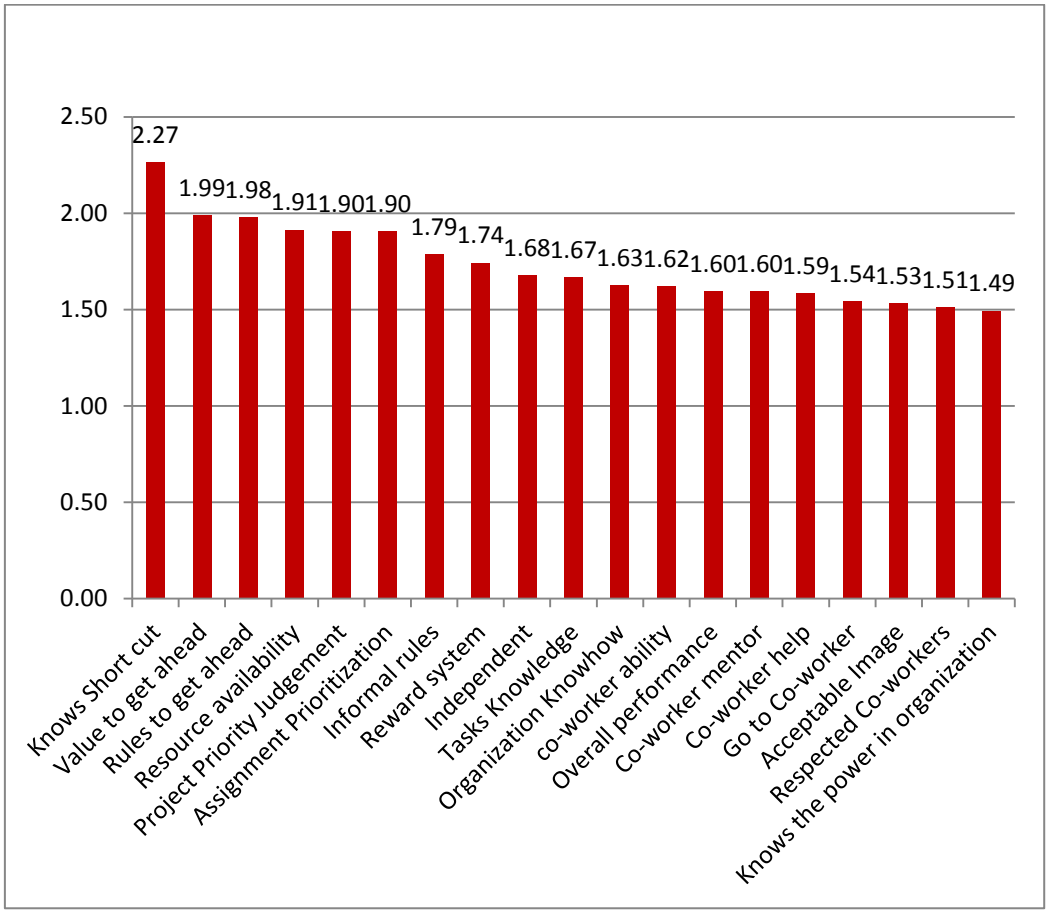
Ranking Analysis

Short cuts (JK)
Rules for getting ahead (CA)
What's really valued to get ahead (CA)
Resources available (CA)
Prioritize assignments (JK)

*Considerations for why factors loading under Establishing Relationships were not ranked in the top five are discussed in the text above.

Consistent with the analysis of the findings of Work-Related Competency Index above, responses of individuals representing distributors' organizations were compared to responses of individuals representing manufacturers' organizations to identify differences in competencies and skill sets of recent graduates that are important to the respective groups. Figure 7. depicts the information provided by representatives of distributors' organizations.

Figure 7. WAQ Distributors



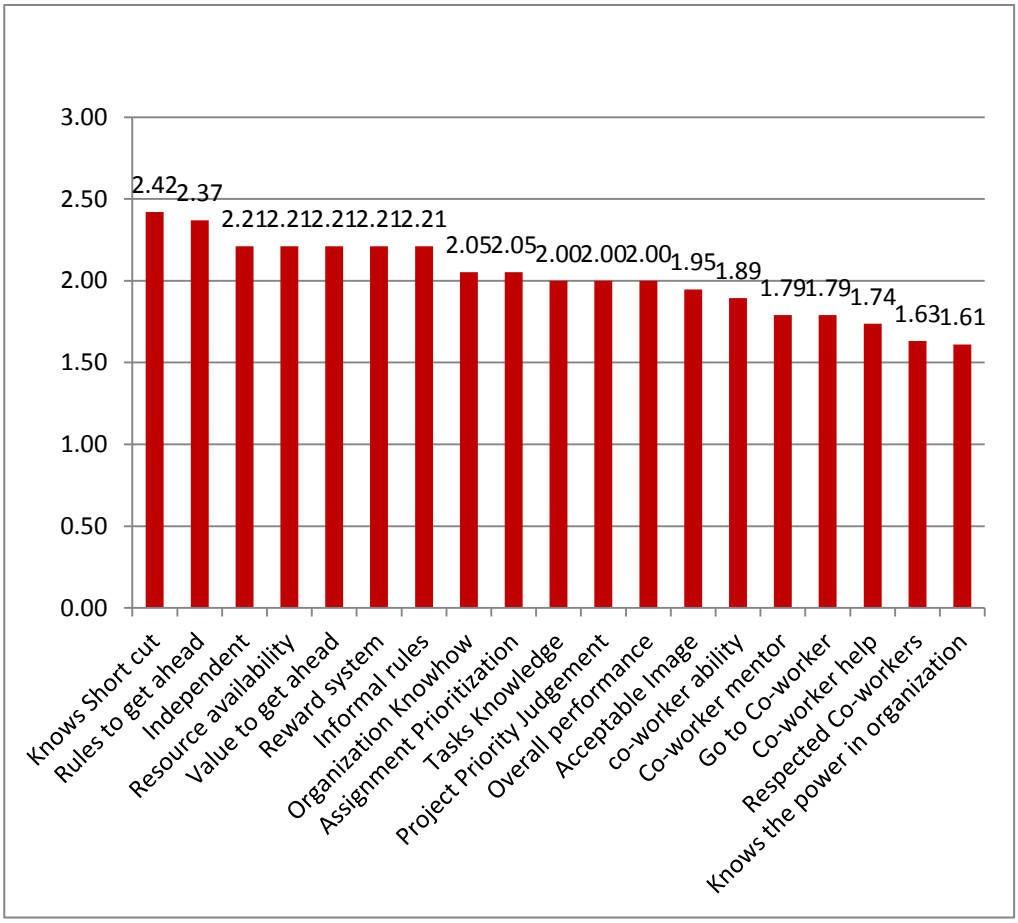
The top six areas (both areas associated with the ranking of five received the same score) in which recent graduates of the Industrial Distribution Program at Texas A&M University demonstrated proficiency were:

1. Know the **"short cuts"** that they can take on the job.
2. Knows what is **really valued to get ahead** in the organization.
3. Knows what the **rules are for getting ahead** in the organization.
4. Knows what **resources are available** to help the do their job.
5. Can **judge** which **projects are really important**.

   Knows how to **prioritize assignment**.

Figure 8. depicts the information provided by representatives of manufacturers' organizations.

Figure 8. WAQ Manufacturers



The top seven areas (all areas associated with the ranking of three received the same score) in which recent graduates of the Industrial Distribution Program at Texas A&M University demonstrated proficiency were:

1. Know the **"short cuts"** that they can take on the job.
2. Knows what the **rules are for getting ahead** in the organization.
3. **Completes** most tasks **without assistance**.

   Knows what **resources are available** to help the do their job.

Knows what is **really valued to get ahead** in the organization.

4. Knows what the **reward systems** are for the organization.
5. Knows the **informal rules**, policies, and procedures of the organization.

When comparing the top responses of the manufacturers to the top responses of the distributors they were identical with a few exceptions. Distributors indicated that the recent graduates "can judge which projects are really important" and "knows how to prioritize assignments." Manufacturers indicated that the recent graduates "could complete most tasks without assistance", "knows what reward systems are for the organization" and "knows the informal rules, policies, and procedures of the organization." Consistent with the findings of the Work-related Competency Index, this could be attributed to the fact that distribution companies are primarily sales organizations with a focus on developing markets for products and services, thus the greater emphasis on the ability judge which projects are most important and prioritize their activities to pursue the projects that are most likely to generated greater revenues and profits. Manufacturers tend to place more value on adapting to the organization's culture and being able to identify what is rewarded within the organization." This could be attributed to the fact that the primary focus of most manufacturers is increasing market share and promoting their brand. Therefore, it is appreciated when recent graduates understand and quickly "buy in" to the culture, norms and visions of the organization. Overall manufacturers and distributors are in agreement concerning the areas in which recent graduates of the Industrial Distribution Program demonstrate proficiency. Both groups appreciate the "organizational and business savvy" that the recent graduates possess as they enter the work force.

Figure 1 in Appendix III compares the responses of representative from small (1-50 employees), Medium (51-499 employees) and large (500 plus) companies. In general the information provided in this graph is consistent with the overall analysis of the data regarding the top five areas of proficiency among recent graduates regardless of the size of the organization. This is consistent with the analysis of the Work-Related Competency Index above.

Figures 2 through 10 in Appendix III represent responses to the Workplace Adaptation Questionnaire broken down by vertical marketing channels (different industries). These channels were categorized as; Building Materials, Chemicals, Electrical, Electronics, Fluid Power, Health Care, HVAC, Oil and Gas, and Other. Those describing themselves as "other" specified: Automotive, Bearing and Power Transmission, Fasteners, Hoses and Gaskets, Instrumentation, Material Handling, Polymers, and Investments. (There were not enough responses from the plumbing channel to create a graph.)Top five responses broken down by individual marketing channels were generally consistent with the overall findings. This indicates that is an overall consensus across industry lines regarding the areas of proficiency that are valued by employers of recent graduated of the Industrial Distribution Program. This, too, is consistent with the analysis of the Work-Related Competency Index above. It could be inferred that the competencies and skill sets of Industrial distribution graduates somewhat unique and universally appealing to the employers that hire these graduates.

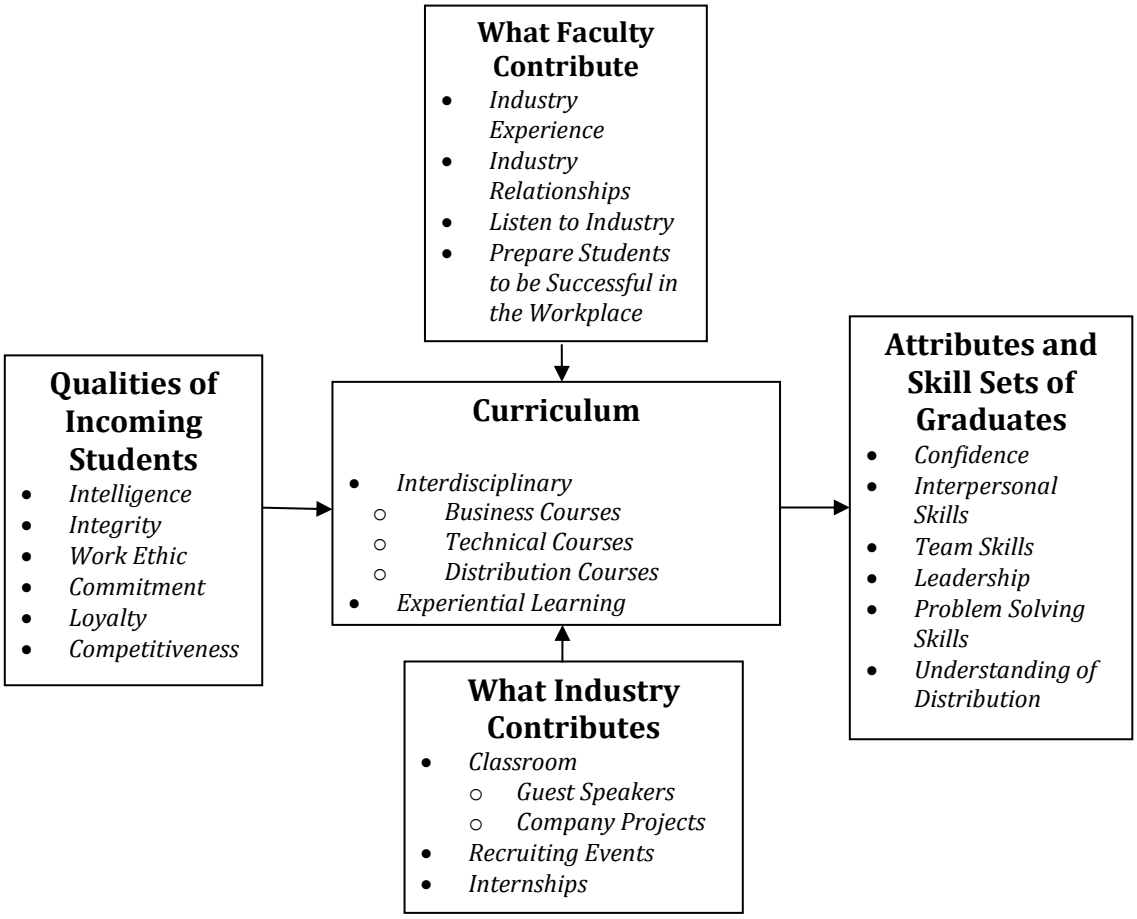
Qualitative Findings

Analysis

Analysis of the data collected from participants during the two focus groups in the qualitative portion of this study resulted in the development of a model which represents how these employers perceive the educational process of the Industrial Distribution Program This model is depicted in Figure 9. In the model the employers consider the curriculum in terms of what incoming students bring to the program, as well as what faculty and industry contribute to it, and see graduates of the program in terms of the attributes and skill sets they derive from the program that make them highly successful and productive in the workplace. In this section I discuss the components of this model in more detail and provide key comments of the respondents that support these components. Each quote from the interview transcripts is marked to indicate which focus group it is from, as well as which participant said it. For example, FG2-3 means this quote came from the second focus group and was given by participant #3.

The Model

Figure 9. How Informants Perceive the Educational Process of the Industrial Distribution Program



Qualities of Incoming Students

There was a consensus among members of both focus groups that students' who qualify for admittance to Texas A&M University possess qualities and values that make them good candidates for employment with their organizations. Because of rigorous

admittance requirements a person has to have above average intelligence to be admitted to Texas A&M University, but it goes farther than that.

> FG1-5 – I think, and I don't want to use the term intelligence, but it might be the level of the individual's intelligence. I struggle with the term intelligence even though it is there. It is a combination of a lot of things and I think the individuals [who] get accepted to Texas A&M are a breed of their own. The expectation is higher than it is at other institutions. I think that expectation is then fostered while they are here. Then, to remain at A&M and continue at A&M the expectation just gets set higher and higher as you progress.

Texas A&M University seems to attract students who grew up in homes where they were taught integrity, work ethic, commitment, and loyalty. In addition, the Industrial Distribution Program seems to attract students who have a drive to succeed.

> FG1-7 – We've consistently had young people [from the ID program] that have a lot of integrity and a great work ethic….The first time that we came to the career fair to recruit, I walked around and looked at all of the companies that were there. There were some you just had to wonder, how did they find the Texas A&M ID program? The two I thought were the most unlikely to have found it, I asked them why they started recruiting. There were multiple answers, but both companies used the word integrity. So, it can't be just a coincidence.
>
> FG2-2 – [They students] come in and are used to having to perform the academic environment here in the ID program with a very strong degree of high integrity.
>
> FG2-9 – I call it kind of a work ethic. They have a sense that they have got to get

something done; they can't wait to get to it.

FG2-1 – I wrote down commitment and loyalty. It is interesting—the career conversations I get to have with the ID students are really different, they get it. This is in terms of patience, knowing there is a career path….I think the commitment comes from the culture of the university

FG2-7 – I am looking at it and the majority of our key account folks are from [the ID] program….the others that we brought in [from other schools] just don't have the drive. They don't have the loyalty….you put one of these kids from the ID program up against someone else, and there is a stark difference.

FG2-5 – I think the work ethic, the team, the loyalty, and I think all those things are seen by the customer, as well. If you act that way and that's how you are then the customer sees that….and I think loyalty will overcome pricing and a lot of those different things in the long run and I think that's one of the things our customers absolutely love when they know someone is going to take care of them.

Participants in the focus groups indicated that students that are attracted to the culture at Texas A&M University have observable values and characteristics that set them apart from graduates of other programs that they hire. These employers specifically identified intelligence, integrity, work ethic, commitment, loyalty and competitiveness as qualities that they find desirable in ID students at Texas A&M University. According to these employers, a significant factor contributing to what they like about ID graduates is the quality of the person that is attracted to Texas A&M University and the ID program

in the first place.

Curriculum

Participants in both focus groups commented on how the interdisciplinary nature of the curriculum in the Industrial Distribution Program helped to develop in its graduates a skills set that better prepares them for careers with their companies. These employers appreciate that these graduates take business courses, technical courses, and courses that help them to understand the role of distribution in getting products from manufacturers to end users. Exposure to the three disciplines causes graduates to enter the work force with a holistic view of what industrial distribution is. Employers also appreciate the practical exposure and experiences that graduates received through experiential learning opportunities in courses which include labs.

FG1-6 – Going back to the interdisciplinary question, I think the fact that they do have finance and accounting and they had to take business law class, I think that's all very important general knowledge of the business world, but the industry involvement that's in some of the technical sales classes is huge.

FG1-2 – A lot of [ID graduates] have the ability to adapt quickly to different areas of business, whether that's sales or operations. They can jump back and forth without a problem. I think that goes along with the broad course work that ID has.

FG2-4 – [An employer and former student] There was a lot of theory classes and a lot of hands on experience, it was not all theory….I know that there are a lot of labs and that is

what attracted me [to ID], was a lot of the practical lab experience and the idea to take some business courses and accounting and management courses, along with the technical side of it, and the learning of the two together in combination.

Employers in the focus groups attributed a great deal of the success of the ID Program to the faculty. They commented that many of the faculty members have industry experience which helps them understand and teach practical applications for the information that they convey to the students. Employers also pointed out faculty members valued their comments regarding the curriculum and make adjustments to courses and the curriculum to better prepare students for the work place.

FG1-3 – A lot of the professors came from industry. So many of the professors are teaching students what they are about to go do [in the real world]. I think their first-hand experience is very valuable.

FG2-6 – When they [ID graduates] get in the workforce they are able to relate to it because many of the faculty have specific industry experience, as opposed to just academic experience. So there is a practical application and I think they have a better opportunity to identify with real life situations as opposed to just theoretical ones.

FG2-5 – It's so simple to me, taking what the industry is saying, that is, what I am looking for, and applying it to the curriculum.

Employers were also impressed with how many of the faculty members demonstrated a genuine concern for students learning what they need to know when they

enter the workforce.

FG2-5 – I've seen this first hand, [one of the professors] will stop the [classroom discussion] if he feels [the students don't] understand or he sees question marks. He stops it and asks if they [understand] and has [a] discussion on why it's important to ask these questions [if they don't].

FG2-5 – I think one of the reasons that makes [the faculty] successful in getting the students to really open up is [they] care about the students…whether they find a job or not. [They] care about the companies, as well. I think that that's unique and some professors in other places we actually go to that are more so about the theory things and getting that next paper done, but they don't care much about what the kids go through and they don't care about the companies. There is a bond with industry and a bond with the student and they [both] see that loyalty with [the faculty] and they trust [them] so there is something about that that is unique. You don't see it anywhere else.

Employers observed that the faculty's concern for the students goes beyond the learning that takes place in the classroom. They were impressed with how faculty members prepare students for events during which students will be interacting with industry representatives.

FG2-2 – [Students] are prepped in class if they have an event this evening or tomorrow [as] to what to do. I don't know that that's done in other curriculums.

FG1-6 – I do think other schools have those services, resume reviews and mock

interviews. I don't think nearly the number of students utilize those resources [to the extent that they] do in the ID program. That's because it's advertised and people know about it.

Employers also expressed that the exposure to and interaction with industry representatives during their undergraduate experience plays a significant role in preparing ID graduates for entry into the work force.

FG1-3 – Through ID [students] have a lot of exposure to the industry. They have a lot of opportunities to do career fairs, golf tournament, talk with industry, do an internship. So, I think ID encourages those opportunities a lot more so than other schools.

FG2-7 – I think that there are so many kids who go off to college that never have that opportunity [to interact with industry representatives] until they graduate and then they go to an interview and say "What do you do?" The ID program here has promoted so much of that interaction between students and industry.

Employers participating in the focus groups value the interdisciplinary nature of the ID Program at Texas A&M University. They deem that the combination of business courses, technical courses and courses relating specifically to industrial distribution better prepare graduates to assimilate into their working environment. They also recognize the importance of experiential learning experiences to help students better understand real-world applications for what they learn. Employers acknowledge that industry experience and industry interaction on the part of the faculty influences the curriculum and course work in a way that brings academia and industry into alignment.

This helps to produce graduates that are better prepared for the work place. By bringing academia and industry together students are positioned to interact with industry representatives during their undergraduate experience. Employers value graduates that enter the work force with the ability to communicate effectively and confidently with people at all levels within their organizations.

Attributes and Skill Sets of Graduates

The participants in the focus groups believe that students who complete the interdisciplinary educational process graduate with a skill set that is attractive to industry. Graduates enter the work force with a high degree of confidence based on their interpersonal, team, leadership and problem solving skills. These graduates know what industrial distribution is and have a good idea of what will be expected of them as they enter the work force.

Confidence

Based on the comments of the employers who participated in the focus groups, graduates of the Industrial Distribution Program enter the workplace with a confidence not common among most other graduates that they interview and hire. They attribute this confidence to the job specific knowledge learned in their classes, the exposure to industry that they receive in their classes, and their experience working for companies as interns during the summer. These experiences give them an understanding of terminology and processes that they will encounter once they enter the workforce.

Because of this exposure employers find ID students and graduates are more comfortable talking with industry representatives during the interview process. Employers find them more knowledgeable about the jobs that they are interviewing for, and therefore able to ask more informed questions about employment opportunities for which they are being considered.

FG1-5 – What I find is an extremely high level of confidence as they leave and go out into the workforce… I value that high confidence.

FG2-7 – There's a confidence level that the program provides them. The interaction they have with professors and then internships has built a really nice base so that they are not afraid, they will step a little bit out of their comfort zone. They are not afraid to ask questions. They are confident to ask a question, maybe that's the way to put it.

FG1-5 – They've been around business professionals through internships and all of that, so it's not intimidating when they walk up and sit down in front of [industry] people. They are used to that environment.

FG2-5 – I actually underlined confidence because I think that is something that is key. They are challenged with business cases, industry experience, presenting to senior management, so I think they actually come out with more confidence than [graduates] from other programs.

Participants in the focus groups acknowledged that upon entering the workforce ID graduates have gained enough basic knowledge about the distribution industry

through their course work, summer internships, and other interaction with industry representatives that they have the confidence to ask questions. Their working understanding of distribution terminology and processes gives them the confidence to ask for clarification or further explanation about things that they do not fully understand. This gives them an advantage over new hires from other programs who do not know enough about distribution to know what questions to ask.

FG2-7 – To have that service mentality they have to have the ability to ask questions and the confidence to ask questions.

FG2-4 – And the culture here seems to be that you need to ask those questions, you are not being judged negatively because of what you are asking, you are being viewed as proactive in trying to do a job or task.

FG2-1 – The other thing I have been impressed with is not only their confidence, but their ability to learn, they are not afraid to ask questions. And I think what gets a lot of young people in trouble when they start with a company is that they are afraid to engage and ask questions. All of the students we have hired [from the ID program] are very eager to learn, and very eager to contribute and they are not afraid to ask; and ours is a pretty complex business with specifications—material specs—and customers. I am just blown away by how fast they are able to show up. They are contributing within three months.

FG1-1 – They are willing to take a chance and apply themselves. I think that's a result of what they've learned in the [ID] program.

Employers expressed that there is an elevated performance expectation of graduates of the Industrial Distribution based on the performance of graduates of the program currently in the workforce. This expectation is communicated to students by professors, industry representatives, former students, and fellow students. As a result, employers have observed that many recent graduates in the workplace feel that it is their responsibility to be innovative and offer new ideas, rather than being content with doing things the way that they have always been done. Employers have also observed that working on industry projects during their undergraduate experience provides ID graduates with a level of experience that many graduates do not achieve until they enter the workplace. This combination of expectations and experience contributes to the explanation of why graduates of the ID program adapt to the workplace and become productive more quickly, and why employers find them desirable.

FG2-3 - …Success breeds success. You've got an awful lot of alumni out there from the ID [program] that go back to Dr. Rice's days. [ID students] see how successful they have been. They want to follow in their footsteps.

FG2-6 - I'm thinking about the people that work for us from ID. We're really, we have higher, I think I have higher expectations of them because it's ID and we're in distribution. The other people who come out and they say you know, well I need to learn the whole business. I'm thinking okay, I've got to teach them everything from the ground floor up. What does a distributor do? I expect the ID graduate is already going to know the answer to those things, so it's easier for me to say "Come here. This is what I want

you to do." And they say "I got it."

Employers represented in the focus groups recognize and appreciate that graduates of the ID Program have a working knowledge of distribution terminology and procedures when they enter the workforce. They also appreciate that they have experience communicating with industry representatives. Employers expressed that the combination of this knowledge and experience fosters in these graduates the confidence to ask informed questions, both during the interview process and once they enter the workforce. They know enough to know what they do not know. This gives them the confidence to ask meaningful questions to help them better understand what they need to learn to effectively perform the tasks that they are assigned.

Interpersonal Skills

Because effective communication is critical in highly functioning organizations, employers are attracted to recent graduates who have superior interpersonal skills. Participants in the focus groups indicated that Graduates of the ID Program at Texas A&M University enter the workforce with an ability to communicate effectively, both in one-on-one situations and when presenting to groups. This ability to communicate effectively is attributed to their interaction with industry representatives during their undergraduate experience in classrooms, during career fairs, and working in industry as interns. Since most of the upper level ID classes require students to make presentations to groups, graduates have learned how to make effective presentations, plus they have developed a level of confidence when presenting information to groups. Employers

value these experiential learning experiences that allow students to develop interpersonal skills prior to entering the workplace, skills that cause them to communicate more effectively and more confidently with people inside and outside of their organizations.

FG2-1 – [ID Graduates have] the ability to interact in a very professional way on levels with the company and with the stakeholders; in fact, I will say [this is true on] day one. The students we have hired have been very successful; it is their ability to interact with the organization. We have them interacting with high level customers already. It must be something you are teaching or a learning process, but it is very strong to start out that way.

FG2-7 – Defining professional, I mean they know how to interact, talk, they know how to quickly respond, written communications, oral communications.

FG1-6 – [ID graduates] have a general respect of that knowledge and experience [of more seasoned employees], but then also the confidence to bring up new ideas and just the interpersonal skills to know how to do that without ticking the guy off.

FG2-6 – They have great presentation skills because their curriculum demands it. They're up giving presentations, Power Points, and all sorts of stuff. So they have that experience factor and they've got that team work, you take all these bullet points and you put them together, and you probably have a continuum of energy and interest and curiosity that gives them an edge over somebody who comes out of school and says, "I don't know what the hell I want to do. I got my degree. I guess I'll go to work."

In distribution organizations where timely and effective communication is critical to customer satisfaction, participants in the focus groups feel that new hires that enter the workforce with good interpersonal skills have an advantage gaining the confidence of those with whom they interact. These employers value young people who come into their organizations with the ability to communicate confidently and respectfully with people inside and outside their organization.

Team Skills

Employers participating in the focus groups want to hire people that are a "good fit" for their organizations, people that can adapt and function well with their fellow workers. The very nature of the distribution industry is such that people are depending on each other to ensure customer satisfaction. Different individuals are responsible for finding new business, entering orders, filling orders, maintaining inventory levels, and creating invoices. It is important that these people communicate effectively and work well together. Employers recognize that graduates of the ID Program enter the workforce with an understanding of what it means to be a team player. Their participation in group projects as undergraduates exposes them to and helps prepare them for many of the challenges that they encounter as a team player in the workforce.

FG2-6 – [Having worked in small groups] causes that type of interest or desire to relate to one another and work together, which is what we do in business. That's how it all comes together for us.

FG2-8 – So the ability to work with others and work as a team comes a lot from that group activity. So it's really helpful and allows them to assimilate a lot more quickly.

FG2-7 – We see them as having achievement-oriented, highly competitive students that come out of the university that have desire to leave a mark and play on the team, and to take the lead.

Employers value new hires that enter the workforce understanding that they need to be team players and have the willingness and ability to communicate effectively with others both inside and outside their organizations. Because of their experiences gained working in groups and their frequent interaction with industry representatives as undergraduates, graduates from the ID program Texas A&M enter the workforce with interpersonal and team skills that help them to adapt to the workplace and work well with others.

Leadership

Employers recognize that working in groups provides students the opportunity to develop leadership skills. They are looking for people who can organize projects, assign responsibilities, and hold people accountable. Employers value graduates who have assumed leadership roles and had opportunities to experiment with different techniques for getting things done through other people. Employers are also attracted to graduates who have had opportunities to assess the talents and abilities of others and are able to assign tasks to team members who are best suited to successfully accomplish respective tasks.

FG1-3 – [A graduate of the ID program relating how he is current applying what he learned as a student.] You're coming out ready to coach people. I'm coming out and managing 14 people at my branch, and I'm the youngest person there. It's about learning how to play on people's personalities well to help achieve your goal without acting like you're better that them.

Employers highly value graduates who have developed and practiced leadership skills prior to entering the workforce. These graduates position themselves to be targeted for leadership roles within their organizations. They are identified as people who can "get things done" and consequently they are given more responsibility early in their employment, and this contributes to them becoming productive more quickly.

FG2-6 - One of the things that I think that we've noticed that we need to provide, I don't know if this is right or not, but we need to provide a different environment for the Aggies [ID graduates] that we hire. Not to say that we're discriminating or giving something less or something more, but I think we're challenged more by Aggies who work for us. So consequently we tend to interact with them and tend to challenge them more and give them more responsible tasks. Which gives them again, that full circle, gives them the opportunity to demonstrate their skill set. Someone else who doesn't have their characteristics, they're not as forthright. They're not as confident. I mean, who do you go to when you want something done? You go to the guy that we have confidence in, the guy or girl. You say this person is a performer, by god; if you want to get something done this is who you come to. And those people, the Aggies or the ID grads

that have those attributes instilled in them from their education, are going to be the go-to people. So why do they move up faster? Probably because we're going to them first as opposed to other people we hire.

FG2-7 - We see them having achievement orientation, highly competitive students that come out of the university that have desire to leave a mark and play on the team, and take the lead role on the team.

FG1-2 – [A graduate of the ID program relating how he is current applying what he learned as a student.] I think it is more successful if you approach it more as a leader than a boss. To sort of work with everyone's qualities and put them together and make a final result instead of coming in there and saying, "We are going to do it this way. If you don't do it, you're out of here." You don't get respect from that. So much so that you are going to lead the team to the final outcome, you're going to utilize everyone's qualities.

FG1-1 – There are few people that are willing to step up and be leaders. I think producing leaders out of this program is a great thing...these young men being at their age in a leadership position is highly unusual, but I think [it is] a great thing.

Participants in the focus groups indicated that they are looking for graduates with leadership skills and experience. In many instances, they find, not only the skills, but the experience as well, in graduates that they hire from the Industrial Distribution Program. Through leadership roles in group activities, student organizations, and work experiences during internships, these graduates have learned first-hand what works and what does not work when they are responsible for accomplishing a goal that involves the

contributions and cooperation of others. Employers also appreciate the willingness of these graduates to step up and assume responsibilities of leadership.

Problem Solving Skills

Many employers like to hire graduates who have transferred out of pure engineering disciplines into the ID program. These students were originally attracted to engineering because they are good in math and science, and they enjoy solving problems. These students were attracted to the ID program because it helps to prepare them for a career in which they have more opportunity to interact with other people. Employers find that these ID graduates have the unique combination of a natural desire to solve problems and the interpersonal skills required to communicate effectively in a business environment.

FG1-6 – So many of the students that I have spoken to have said, "ID is the best thing I have ever found because I really decided that I want to be involved in the business aspect, but I love the technical as well." So they are not throwing engineering out the window because they have an aptitude for that, but at the same time they are saying "I want more…" So we are getting that engineering intellect that is coming with an interest in the distribution business. I think that's a find for us.

FG1-6 – They have this desire to fix things, tear them apart and put them back together, their minds work in that fashion, So you take that, I guess that's what I was trying to articulate, you take that type of (if it's inbred, I don't know) mindset and compliment it

with the business part because there is something that drives them to say, “I’m really intrigued, I don’t want to be in a laboratory, I want to be out there with people.” And you mold that together and the result is a higher performance level. You got really bright kids, not just average.

FG1-1 - The benefit for us is that they seem to come out with the capability to grasp a problem and take action on it which is something that we highly value. I think it’s one thing to put a problem out in front of people and say we have a problem here. For people to really understand what that problem is and to grasp that there is indeed a problem and that there may be solutions to it rather than just acknowledge that there is a problem and maybe we’ll always have a problem.

FG1-5 – [ID graduates] suggest a solution to a problem rather than just throwing it on the table. I have some extremely good results with some of the folks coming out that actually [say], “Here’s a problem as I see it today, whether it’s high level within the organization or whether it’s process driven, and here’s something that I think might work.” That’s what I’ve been getting out of the folks here.

FG2-7 – [When interacting with customers] we talk a lot about rotation equipment through pump curves and some theory, but in the real world, it’s like, “How do I transfer that to a customer who is having an application problem?” And these students can miraculously, with a couple of questions, connect the dots. These kids are good because they are not afraid to ask questions.

Many employers in industry are looking for graduates with technical aptitudes

and problem- solving skills. Graduates of the Industrial Distribution Program, particularly the ones who transferred into ID from pure engineering disciplines, have an interest in what makes things work and the curiosity to try to fix things when they are not working. This, in conjunction with the practical education that they receive in their technical classes and labs, provides them with problem-solving skills that employers recognize and appreciate. Employers also appreciate that these graduates can go beyond identifying and solving problems; they are proactive in finding possible solutions to the problems and have the confidence and interpersonal skills to communicate these solutions.

Understanding of Industrial Distribution

Employers that hire graduates of the Industrial Distribution Program at Texas A&M University comment that these graduates enter the work force with a good understanding of what industrial distribution is and what their companies do. Employers appreciate that these graduates have chosen a career in distribution based on their exposure to and experience with industry during their undergraduate education. Through coursework specific to the distribution industry, experiential learning experiences, and summer internships these graduates are enabled to make an informed choice as they choose their careers. For employers this means less time spent educating new hires as to what distribution is, and it also reduces employee turnover caused by hiring people who are not a "good fit" for their industry.

FG1-6 – [ID graduates] have a general understanding of what distribution is and what our business does. Comparing ID students to some of the other schools we recruit out of, [graduates of other schools] really have no idea what they are getting into or what our business does.

FG2-6 – Comparing to students we hire from other sources, the thing we find attractive is the ID students have already chosen the field of distribution. So they understand, and they have been schooled in, and have internships in the distribution environment. Whereas, others come in and say, "What do you folks manufacture?" The learning curve is significantly steeper, or faster, as a result of them coming from an environment where there is more industry.

FG1-3 – When they graduate they know exactly what they want to do. So, they're going to interview and they are going to be hired by a company that they enjoy in an industry that they like. I think that's why the success rate is so high. They already know what they want to do.

FG2-6 – I think it is easier for them to propel themselves and be more successful because they know directionally where they want to go. As opposed to saying, "This is so broad, help me; I don't know what to do."

FG2-8 – A lot of the important tools that we have to improve our profitability, inventory stratification, customer stratification, they already understand that. So, where we have to spend a lot of time training the rest of our workforce on how it works and why it is important, [the ID graduates] already have a grasp of that. So there is a lot less on the job

training involved for them.

FG2-8 – A lot of [understanding distribution] is that service mentality. And so much as we are in distribution; we are selling a service and not a tangible asset. If they have that service mentality up front, it helps them to assimilate into the sales organization more easily.

FG2-4 – [ID Graduates have] a good basic knowledge and foundation of the sales process and concepts, right out of the box.

Employers value new hires that join their companies with an understanding of what their company does. For a new hire to understand the terminology and processes specific to distribution operations reduces the amount of time that employers spend developing employees to a level at which they are productive -- making money for their companies.

Conclusion

The findings of this study provide empirical evidence that the employers of recent graduates of the Industrial Distribution Program at Texas A&M University find theses graduates very successful at adapting to the workplace and quickly becoming highly productive employees. Employers responding to the survey used in the quantitative portion of the study attributed the success of these graduates to their technical skills, in conjunction with their character and interpersonal skills. Employers also cited job knowledge, an understanding of cultural adaptation, and realistic

expectations of the kind of work they would be doing upon entering the workplace as influencing their ability to adapt quickly and to become highly productive employees.

Discussion among employers in the focus groups in the qualitative portion of the study, while consistent with the quantitative findings, provided additional insight into how the Industrial Distribution Program prepares students to adapt and perform well as they enter the workplace. Looking beyond the interdisciplinary curriculum employers identified three key areas that influenced the success of the program in preparing its graduates for the workforce. The first area focused on the characteristics of the student attracted to the program. Beyond the intelligence required by the rigorous academic requirements for admittance to Texas A&M University, employers identified integrity, a strong work ethic, and a competitive desire to do well. The second area focused on the interaction that the faculty has with industry. Many of the members of the faculty have worked for companies in industry; others are connected to industry through research and class projects and the delivery of professional development programs to individuals who work in industries that hire graduates from the Industrial Distribution Program. The third area focused on how the companies that hire the graduates of the Industrial Distribution Program influence and support the program. By providing funding and equipment for labs, financial support for endowments, research and scholarships, and summer internships for students these companies not only hire graduates of the program, they help to educate the students.

Findings from the quantitative and qualitative portions of the study were consistent and informed each other for a better understanding of why the Industrial

Distribution Program at Texas A&M University prepares students to adapt and perform well as they enter the workplace. Employers felt that the faculty's willingness to engage industry, listen to suggestions for better preparing students to be more productive upon entering the workplace, and then making adjustments to the curriculum to accommodate these suggestions were distinguishing factors not found in other undergraduate programs. These factors in conjunction with the experiential learning opportunities that expose students to applications for what they are learning foster realistic expectations concerning what it will take to perform and be successful once they enter the workplace.

CHAPTER V

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was twofold: to determine if the Industrial Distribution Program at Texas A&M University is producing graduates whom employers consider highly adaptable to the workplace and who quickly become productive in their organizations; and if this is true, to understand what characteristics employers perceive these graduates having that makes them successful. The quantitative component of this study more specifically identified competencies and skill sets that recent graduates of the program have at the time that they enter the workplace that cause them to adapt and becoming productive quickly. The qualitative component of the study went deeper to identify the characteristics of the curriculum and factors influencing the curriculum that make the graduates of the Industrial Distribution Program attractive hires for industry.

A review of the scholarly literature pertaining to organizational socialization and workplace adaptation reveals that realistic expectations of what a job entails and what is necessary to perform well on the job play a large part of the socialization and adaptation process (Champoux, 2010). The "fit" between the new employee and the organization's culture is also a factor (Feldman, 1976; Anderson & Ostroff, 1996; Bauer, Morrison & Callister, 1998). Confidence and interpersonal skills on the part of new employees as they enter the workplace also influence a person's ability to adapt to and become productive within an organization (Kammeyer-Mueller & Wanberg 2003). Responsibility for this socialization and adaptation process is divided among the new

employee, the culture of the organization, and individuals at varying levels within the organization who are willing to help new employees during the socialization and adaptation process. I found nothing specific in the literature concerning academic programs at colleges and universities sharing in the responsibility for the socialization and adaptation process. This study considers the impact that these academic programs can have on preparing their graduates to enter the workforce, adapt quickly, and perform well.

An analysis of the responses of employers who hire recent graduates of the Industrial Distribution Program at Texas A&M University helped to identify several areas in which these academic programs can make an impact. Industry involvement with an academic program not only helps educators to understand what information graduates need to know to be able to perform their work effectively once they enter the workplace, this relationship also enables the educators to involve industry in the education of the students. This can be done through class projects for companies, industry guest speakers, site visits, internships, and funding and equipment for labs. Industry involvement fosters experiential learning which provides students with "hands on" opportunities to experience "real world" applications for what they are learning. In addition, it provides students an opportunity to interact with representatives from industry to help them develop the confidence and interpersonal skills necessary to communicate effectively once they enter the workforce. The findings of this study reveal that the contact with and influence of representatives from the industries in which graduates will be working greatly influences a recent graduate's ability to adapt to the workforce and become

productive. Experiential learning opportunities in which students understand and have an opportunity to perform many aspects of the work that they will be doing once they enter the workplace provide realist expectations of what will be required of them. Having a basic understanding of the work recent graduates will be performing in the workforce and providing these experiential learning opportunities seem to be the "keys" to how academic programs can share in the responsibility of preparing their graduates to enter the workforce, adapt quickly, and perform well.

Discussion

From the perspective of educational theory, Dewey (1925/38) believed that all genuine education was the result of experience. As stated above, this learning from life experiences or experiential learning (Kolb, 1984), according to the employers responding in this study, is a major factor in the preparation of graduates of the Industrial Distribution Program at Texas A&M University for the workplace. Participation in group problem solving activities in classrooms and technical labs, role-playing activities, and making presentations to groups during classes provide students with opportunities to reflect on their experiences and make meaning of them (a constructivist approach to learning). Summer internships, company-sponsored class projects, and interaction with industry representatives on campus provide students opportunities to learn by dealing with real world issues in the context in which they occur (a situated approach to learning) (Merriam, Caffarella & Baumgartner, 2007; Fenwick, 2003).

Current literature highlights a number of studies indicating that recent graduates struggle with their college-to-work transition. Employers have identified mismatches between the competencies required in the workplace and those acquired by graduates of colleges and universities (Hernandez-March, del Peso & Leguey, 2009; Fallows & Steven, 2000; Shah, Pell & Brooke, 2004). According to the findings of this study, the Industrial Distribution Program at Texas A&M University has been able to close this gap, at least in part, between the competencies required in the work place and those acquired by graduates of colleges and universities. According to employers of Industrial Distribution Program graduates, the fact that the degree is interdisciplinary is an important factor. Graduates leaving school have an understanding of business practices, technical concepts and applications (they, at least, can speak the technical language), and know how a profitable distribution operation works when they enter the workplace. As it relates to socialization theory (Korte, 2010), affording students experiential learning opportunities in situations that simulate the types of work that they will be doing after they enter the workplace provides them with personal frames of reference for what will be expected of them on the job. As a result, these graduates not only know what to expect, they have developed some level of proficiency prior to entering the workplace.

The Industrial Distribution Program at Texas A&M University seems to be an anomaly when compared to other programs within academic institutions. Embracing experiential learning appears difficult for many academicians who are rewarded by their ability to generate and replicate theories and construct new knowledge. Considering this reward system, having connections with industry, engaging in applied research, and

providing undergraduates with an understanding of what they will be doing once they enter the workplace is not only beyond the scope of their responsibility, but in some instances, the scope of their interest. To the point of Hernandez-March, del Peso & Leguey (2009), some employers suggest that graduate's lack of understanding of a practical focus for what they are being taught could be attributed to the distance between university faculty members and professional practice outside the university. The findings of this study revealed that employers of recent Industrial Distribution graduates attributed the faculty's interaction with industry as a major factor responsible for these graduates being better prepared to enter the workforce. As a result of applied research projects, undergraduate class projects, industry representatives in the classrooms, and industry-sponsored labs, the faculty is largely in tune with professional practice. They have a realistic understanding of what graduates are going to need to know to be successful in the workplace.

Student interaction with industry representatives during the above mentioned events and activities was also cited by employers as a reason that ID graduates were better prepare to enter the workforce. Relationships as they pertain to socialization theory (Korte, 2010) depend on reciprocal benefit. Both students and industry representatives have a lot to gain from these opportunities to interact with each other. Both are looking for a good "fit" as it pertains to employer-employee relationships after graduation. Frequent opportunities to interact with representatives improved the confidence and communication skills of Industrial Distribution graduates. According to employers who hire Industrial Distribution graduates, the combination of confidence,

practical communication skills and a good understanding of the kind of work that they will be doing upon entering the workforce positions these graduates to admit when they do not know something and to ask questions when they need help. This knowledge, confidence and the willingness to ask for help were cited by employers as major contributing factors separating Industrial Distribution graduates from graduates of other academic programs as they enter the workplace.

The findings of the study also revealed that students' working in groups and engaging in problem-solving activities enhance their abilities to adapt to a work environment. From the perspective of socialization and learning, relationships depend on individuals being able to connect their ideas and experiences to those of others (Korte, 2010). This connectivity is influenced by the quality of collaboration and support among those working together (Merriam, Caffarella & Baumgartner, 2007). According to the employers of Industrial Distribution graduates, the group projects in which the graduates participated as students during their upper-level classes prepared them for many of the challenges presented by working with others in the workplace and helped them to assimilate into the cultures of their organizations.

Conclusions

The inclusion of experiential learning is a major topic of discussion at many colleges and universities (Herrington & Herrington, 2006; Fink, 2013). These institutions want to provide their students with "hands on" experiences that will help the students understand applications for what they are learning. This study and the program

that is the focus of this study provides insight into the effective use of experiential learning to better prepare graduates to enter the workplace, adapt to the workforce and become productive. To be effective at preparing graduates for the work that they will be doing upon entering the workplace experiential learning has to be at the root of the curriculum. Its foundation has to be based in the work that students will be doing after graduation. For this to happen the educational program has to be supported by the industries and companies within these industries that hire their graduates. These companies should do more than just hire the students. They should help educate the students. These companies should be able to make recommendations regarding the content of the curriculum, provide guest lecturers and class projects, provide funding and equipment for experiential learning-based labs, and provide internships for students. In order to hire graduates who can adapt quickly to their organizations and become productive at a fairly rapid rate these companies are well served to have a vested interest in the education of these students. Industry involvement at this level will help to ensure that students are prepared for the work that they will be doing once they enter the workplace. In addition it will help to ensure that these graduates, upon entering the workplace, will have realistic expectations of what it takes to adapt to the workplace and become productive at an accelerated rate. When directors and members of the faculty of academic programs fully understand and embrace these concepts, and then take the action necessary to make it happen, they will have positioned themselves to be a contributing factor to the ability of their graduates to adapt to the workforce and become productive more quickly.

Recommendations for Practice

The findings of this study can, likely, provide some insight to programs within colleges and universities that are looking to develop curricula that includes experiential learning experiences to better prepare their graduates for the workplace. As stated in the conclusion of this chapter, it is important for the directors and members of the faculty of these programs to understand that industry support goes beyond funding and hiring students. Industry has to be involved at a level that will provide direction regarding the competencies and skill sets necessary for graduates to be successful upon entering the workplace.

Programs preparing undergraduates for the workforce may also find value in engaging in applied research with industry to help identify best practices and, in some instances, create new knowledge to inform practitioners as to more efficient ways of doing things. This would help to decrease the distance between university faculty members and professional practice outside the university (Hernandez-March, del Peso & Leguey 2009). The development and delivery of professional development programs to enhance the skill sets and effectiveness of employees currently working in industry is another way for faculty to decrease the distance between themselves and practitioners outside the university. In addition to providing an additional source of revenue for the programs, the interaction with people working in industry helps to keep information being presented in the classroom current and consistent with what practitioners are doing in the workplace.

The findings of this study may also benefit employers who hire recent graduates from programs at colleges and universities by providing these employers with knowledge concerning specific character attributes and skill sets of employees who perform well within their organizations. Having this information would allow employers to take a more targeted approach to identifying the candidate who are most likely to adapt and perform well within their organizations. In addition, hiring graduates who are a better fit could reduce employee turnover, as well as hiring and training expense.

Areas for Future Research

The focus of this study was on the opinions of employers who hire graduates from the Industrial Distribution Program at Texas A&M University and how the program prepares its graduates for the workplace. A similar study involving the opinions of recent graduates of this program identifying specific areas of their undergraduate experience that contributed to their workplace adaptation and their ability to make contributions to their organizations at a fairly rapid rate would, likely, provide additional insight into this topic. It would be interesting to see to what extent the perceptions of the recent graduates were consistent with the perceptions of employers. Learning about areas in which they felt that they were not sufficiently prepared upon entering the workplace would likely provide information for improving the curriculum to ensure that graduates are even better prepared to enter the workplace.

Based on the analysis of the perceptions of employers of recent graduates of the Industrial Distribution Program at Texas A&M University an education model was

constructed that depicted the factors contributing to effectively preparing these graduates for the workplace. Studies of other academic programs that focus on preparing professionals for their careers, like law, medicine, and engineering, may help to identify different factors that influence the successful preparation of graduates for the work that they will be doing after graduation. It would be interesting to see how employers and graduates of those programs perceive the learning process and to understand how these perceptions vary by field.

The results of additional studies could identify the components necessary to construct programs in which companies that hire graduates of these programs contribute to the education of these students to ensure that the have the necessary competencies and skill sets to perform well upon entering the workplace. Beyond the identification of necessary components, processes could be constructed for developing and initiating these programs. Perhaps with a proven, well outlined plan to follow, academicians would be more willing to consider a new approach to educating their students. They may consider partnering with practitioners that hire their students to engage in research activities and professional development programs that reduce the distance between these academicians and practitioners. Or perhaps, programs of this nature would attract practitioners with advanced degrees to the classroom to better prepare graduates for their professions.

Finally, a study of the Industrial Distribution Program at Texas A&M University from a critical cultural perspective could inform whose interests are being served by the alliances between industry and academia. More importantly, a look at these alliances

from a critical perspective may identify how participants from industry influencing the curriculum to address their own needs and interests may, in some ways, not be in the best interest of the university, the program or the students.

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APPENDIX A

RECENT GRADUATE EMPLOYER SURVEY

FOR ASSESSING WORK-RELATED COMPETENCIES AND WORKPLACE ADAPTATION SKILLS OF RECENT GRADUATES

INTRODUCTION: This survey is part of a doctoral dissertation research project. I am exploring the degree to which work-related competencies and outcomes specified by employers and the Accreditation Board for Engineering and Technology (ABET) are identifiable in recent graduates of the Industrial Distribution Program at Texas A&M University. *Recent graduates are defined as employees with your organization who were hired upon graduation and have* ***up to two years experience****.*

As you complete the survey, please consider a recent graduate employed with your organization who graduated from the **Industrial Distribution Program at Texas A&M University**.

-To complete the survey on-line go to _____. The user name is _____and the password is _____. Your input is confidential. We do not ask you to identify the employees you include in this study. Neither you nor your company will be identified with the data you provide.

This study is Exempt from Use of Human Subjects in Research by The Office of Research Compliance at Texas A&M University.

Thank you in advance for your time and assistance. Your input will allow us to better identify the work–related competencies possessed by recent graduates of the Industrial Distribution Program at Texas A&M University that enhance their abilities to adapt to the workforce more quickly and become productive earlier in their careers. It will also provide valuable feedback for employers concerning which workplace competencies to look for in recent graduates, and feedback to educators that could help in the design of more effective curriculums. The survey will take approximately 10 minutes.

PART I: DEMOGRAPHIC INFORMATION:

EMPLOYER Information:

1. **Which of the following best describes your organization? Please select only one.**
   - **Distributor**
   - **Manufacturer**
   - **Manufacturer's Rep/Agency**
   - **Other, please specify _____**

2. **Which of the following best describes the vertical marketing channel in which you operate?**
   - **Building Materials**
   - **Chemicals**
   - **Electrical**
   - **Electronics**
   - **Fluid Power**
   - **Health care**
   - **HVAC**
   - **Oil and Gas**
   - **Plumbing**
   - **Other, please specify _____**

3. **What is the size of the total full-time workforce of your organization?**
   - **Small** **1-50**
   - **Medium** **51-499**
   - **Large** **500 plus**

4. **From what College, University or Trade School did you graduate?**
   - **Please specify _____**

5. **What is your title?**
   - **Manager or Supervisor**
   - **Human Resources Personnel**
   - **Other, please specify _____**

6. **Please indicate you gender.**
   - **Male**
   - **Female**

7. **Please indicate your ethnicity.**
   - **Non minority**
   - **Minority (e.g. African American, Asian, Hispanic, Native American)**

***INDUSTRIAL DISTRIBUTION GRADUATE* Information:**

8. **Please indicate the gender of the employee.**
   - **Male**
   - **Female**

9. **Please indicate the ethnicity of the employee.**
   - **Non minority**
   - **Minority (e.g. African American, Asian, Hispanic, Native American)**

10. **To the best of your knowledge, how long has this person been employed at your company?**
    - **0 – 3 Months**
    - **4 – 6 Months**
    - **7 Months – up to 1 Year**
    - **1 Year – up to 2 Years**

PART II: WORK-RELATED COMPETENCIES AND ADAPTATION SKILLS

Below you will find ABET work-related competencies and workplace adaptation skills many consider important to superior job performance and career achievement. Please rate the recent graduate from the Industrial Distribution Program at Texas A&M University on the survey form. The employees will not be identified or named in this study.

Please rate each item below according to the following scale:

1-complete competence	**2-satisfactory competence**	**3-moderate competence**	**4-some competence**	**5-no competence**

___	1	Technical Fundamentals (can apply knowledge of engineering, mathematics, and science).
___	2	Testing (can conduct experiments and tests as well as analyze and interpret data).
___	3	Design (can design a system, component, or process to meet desired needs).
___	4	Communication (can interact effectively with a diverse audience including writing accurate reports and documents, speaking, making presentations, listening, and observing.)
___	5	Technology (can evaluate, select and utilize new technologies including engineering tools, equipment and computer

programs/software.)

___ 6 Critical thinking (can identify, assess, analyze, problem solve, and recommend appropriate solutions).

___ 7 Resource utilization (understands the elements of business applications, fundamentals of project management and asset management concerning how to identify, organize, plan, and locate resources such as time, money, materials and human resources).

___ 8 Responsibility (can set and accomplish goals and understands the impact of decisions on the organization, their profession, and society).

___ 9 Self-management (has initiative and can develop and monitor professional and career goals).

___ 10 Innovativeness (has knowledge of contemporary issues, their impact, and the ability to visualize, develop creative solutions, and continually search for a better way).

___ 11 Integrity/ ethics (can choose an ethical course of action and treats people in a respectful manner).

___ 12 Self-esteem (demonstrates a belief in own self-worth and maintains a positive view of self).

___ 13 Team skills (understands team dynamics, can function effectively as a team member and team leader, and build trust, cooperation, and consensus).

___ 14 Customer service skills (can listen and meet the needs of internal and external customer and clients).

___ 15 Leadership skills (is visionary, builds trust and consensus and has the ability to motivate and empower others).

___ 16 Learning/training (understands the importance of continuous learning and has the ability to work one-on –one and with groups to help others learn).

___ 17 Openness to change (responds to change and views change as an opportunity to improve performance and productivity).

Please rate each item below according to the following scale:

1-strongly agree	**2-agree**	**3-neither agree nor disagree**	**4-disagree**	**5-strongly disagree**

___ 18 Completes most tasks without assistance.

___ 19 Knows how to perform their job in the organization.

___ 20 Knows the tasks that they must perform on the job.

___ 21 Can judge which projects are really important.

___ 22 Knows how to prioritize assignment.

___ 23 Is pleased with the overall quality of their work performance.

___ 24 Knows the "short cuts" that they can take on the job.

___ 25 Knows what resources are available to help them do their job.

___ 26 Knows what is really valued to get ahead in the organization.

___ 27 Knows what the rules are for getting ahead in the organization.

___ 28 Knows what the reward systems are for the organization.

___ 29 Know what the acceptable image is for the organization.

___ 30 Knows the informal rules, policies, and procedures of the organization.

___ 31 Knows which co-workers are likely to be able to answer their questions correctly.

___ 32 Knows which co-workers are interested in helping them.

___ 33 Knows which co-workers are interested in mentoring them.

___ 34 Knows which co-workers to go to when they want to get something done.

___ 35 Knows which co-workers are respected in the organization.

___ 36 Knows who has the power to get things done in the organization.

THIS CONCLUDES THE SURVEY. THANK YOU FOR YOUR PARTICIPATION!

The second part of this study will involve two focus groups in which participants will discuss the findings of this survey in an effort to better understand the work–related competencies possessed by recent graduates of the Industrial Distribution Program at Texas A&M University that enhance their abilities to adapt to the workforce more quickly and become productive earlier in their careers.

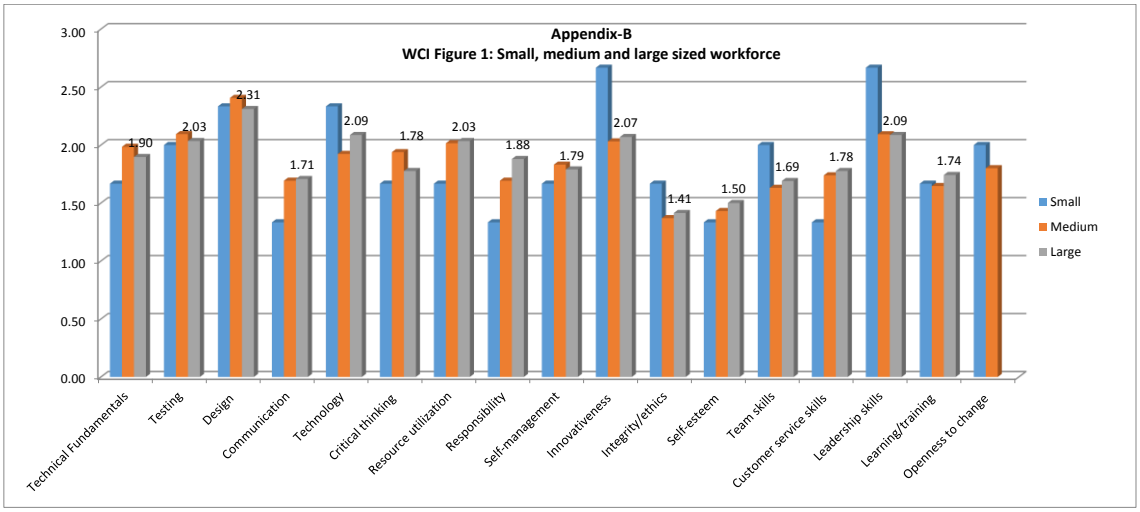
If you would like to participate in one of these focus groups, please provide us with the following information:

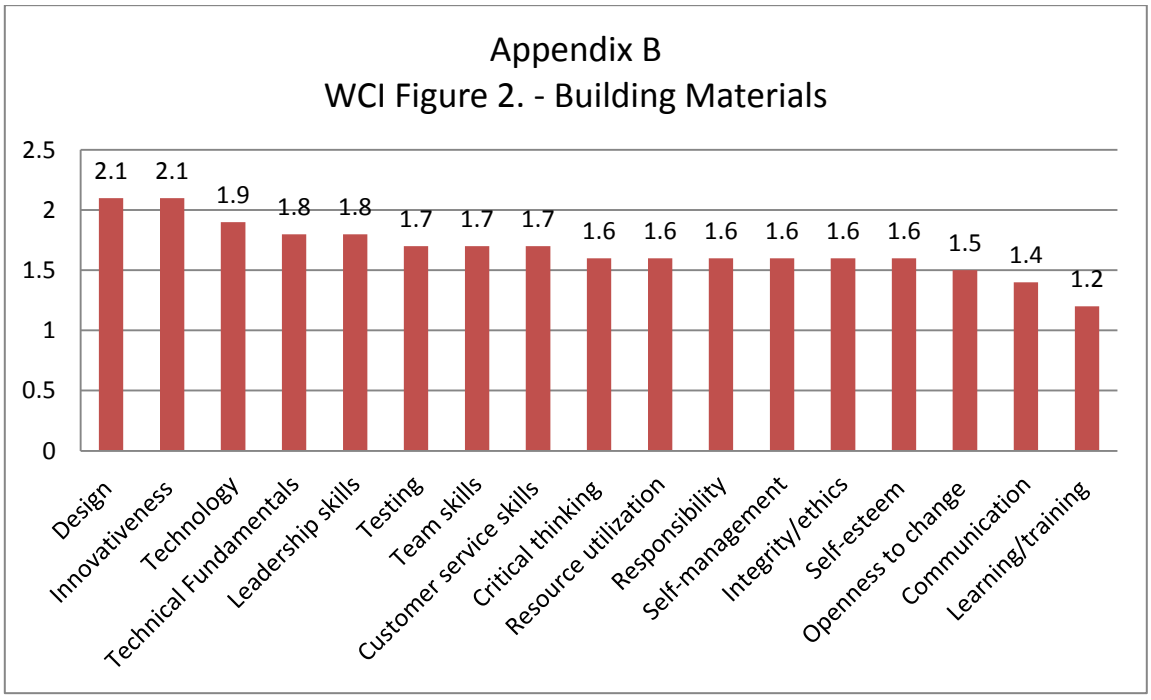
Name: _____

E-mail address: _____

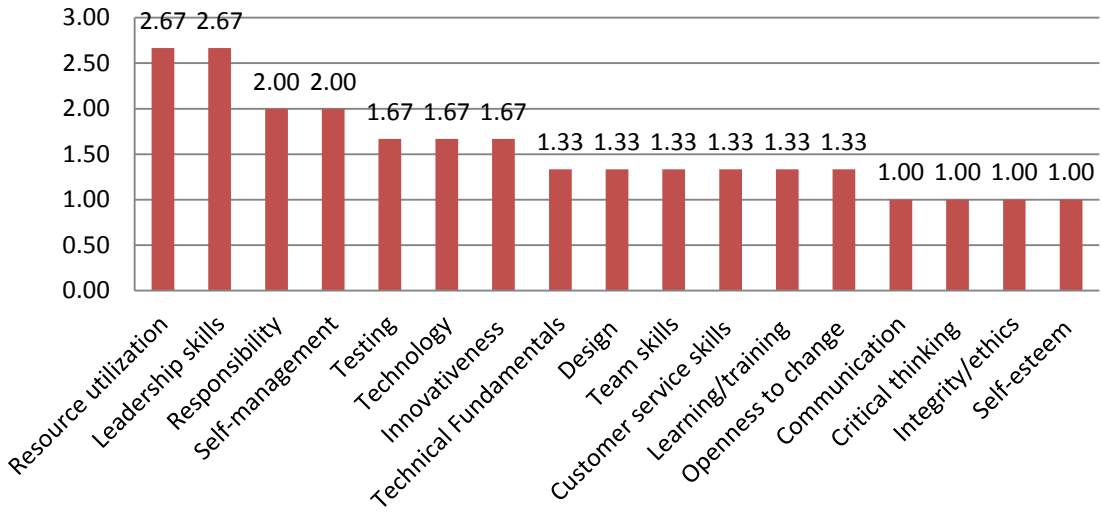
APPENDIX B

RESULTS: WORK-RELATED COMPETENCY INDEX

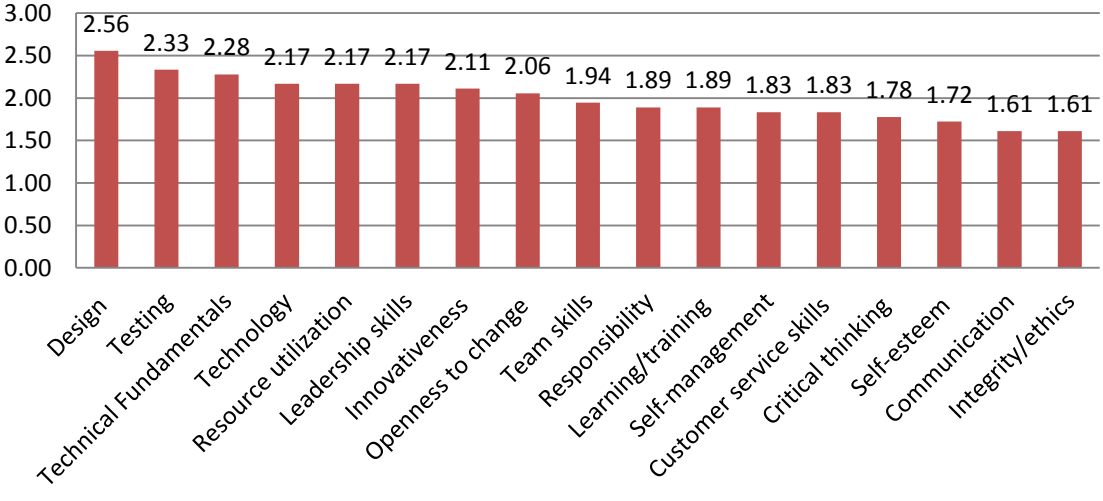


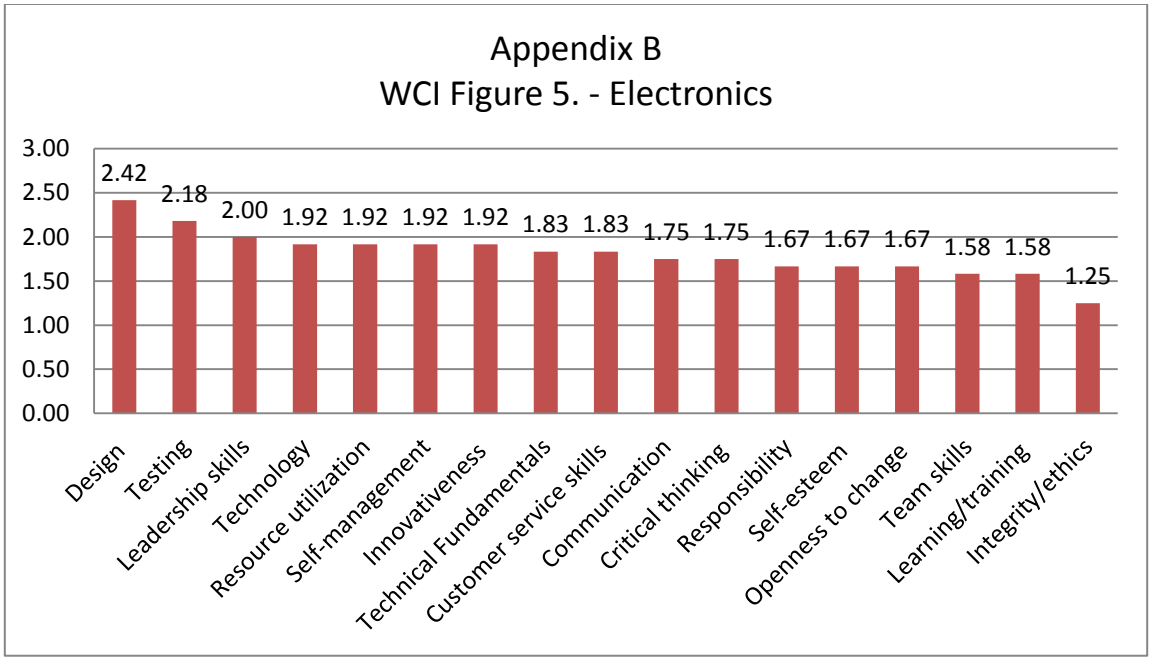


Appendix B
WCI Figure 3. - Chemical



Appendix B
WCI Figure 4. - Electrical




Appendix B
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2.00
1.50
1.00
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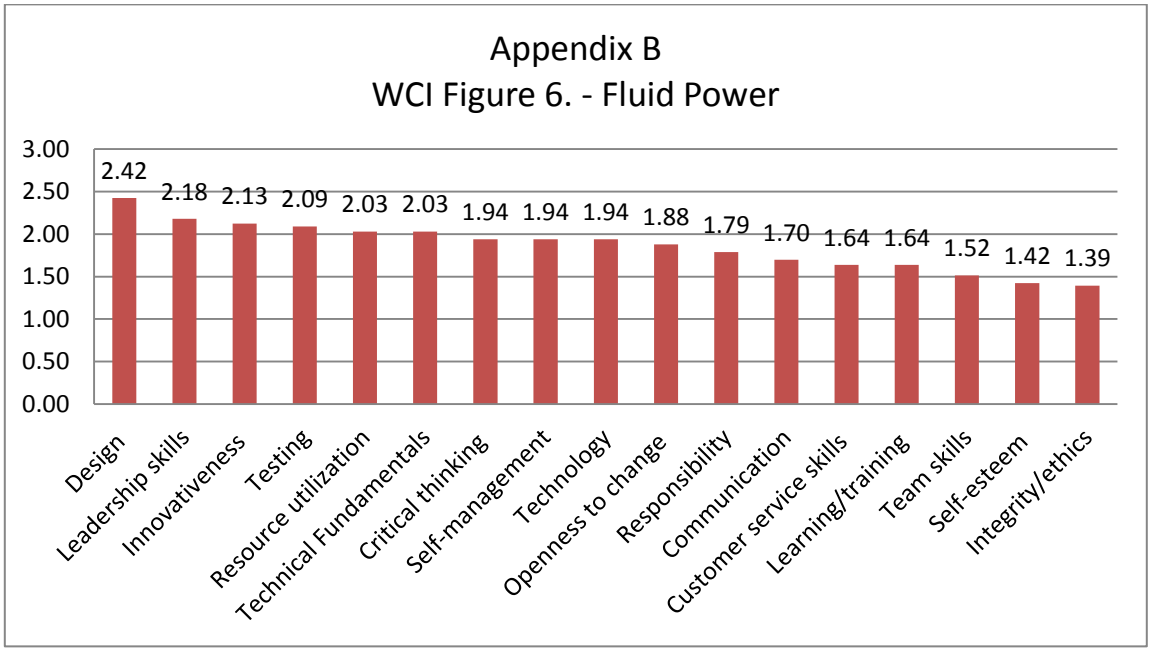
0.00
2.42
2.18
2.00
1.92
1.92
1.92
1.92
1.83
1.83
1.75
1.75
1.67
1.67
1.67
1.58
1.58
1.25
Design
Testing
Leadership skills
Technology
Resource utilization
Self-management
Innovativeness
Technical Fundamentals
Customer service skills
Communication
Critical thinking
Responsibility
Self-esteem
Openness to change
Team skills
Learning/training
Integrity/ethics


Appendix B
WCI Figure 6. - Fluid Power
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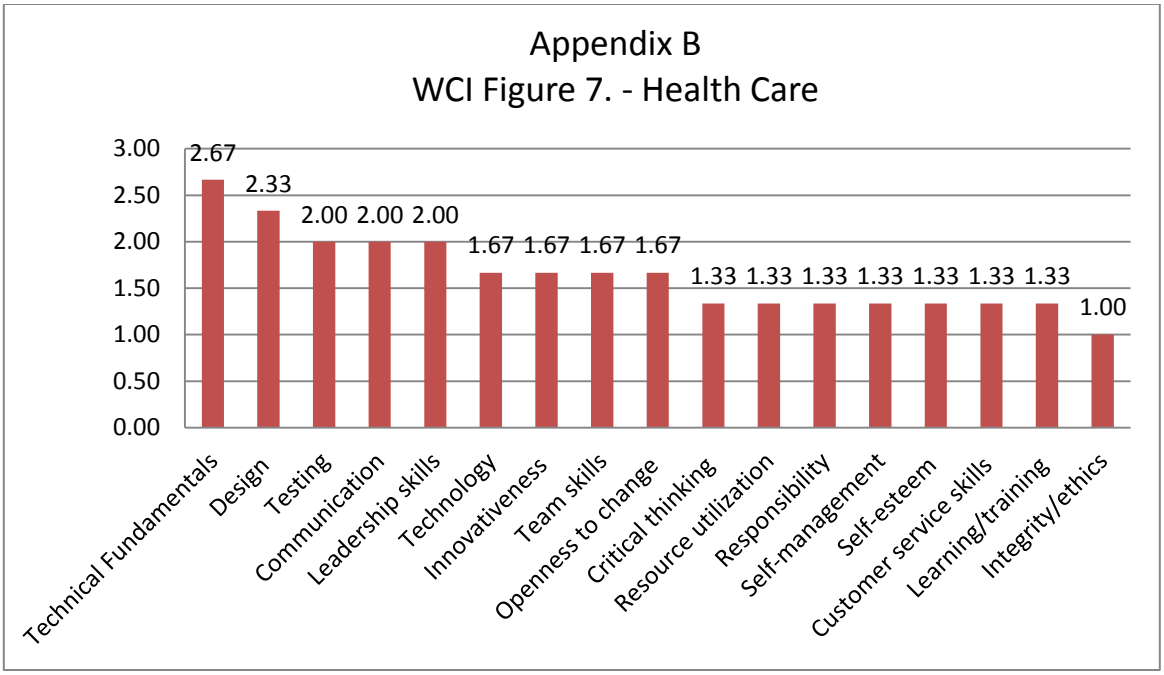
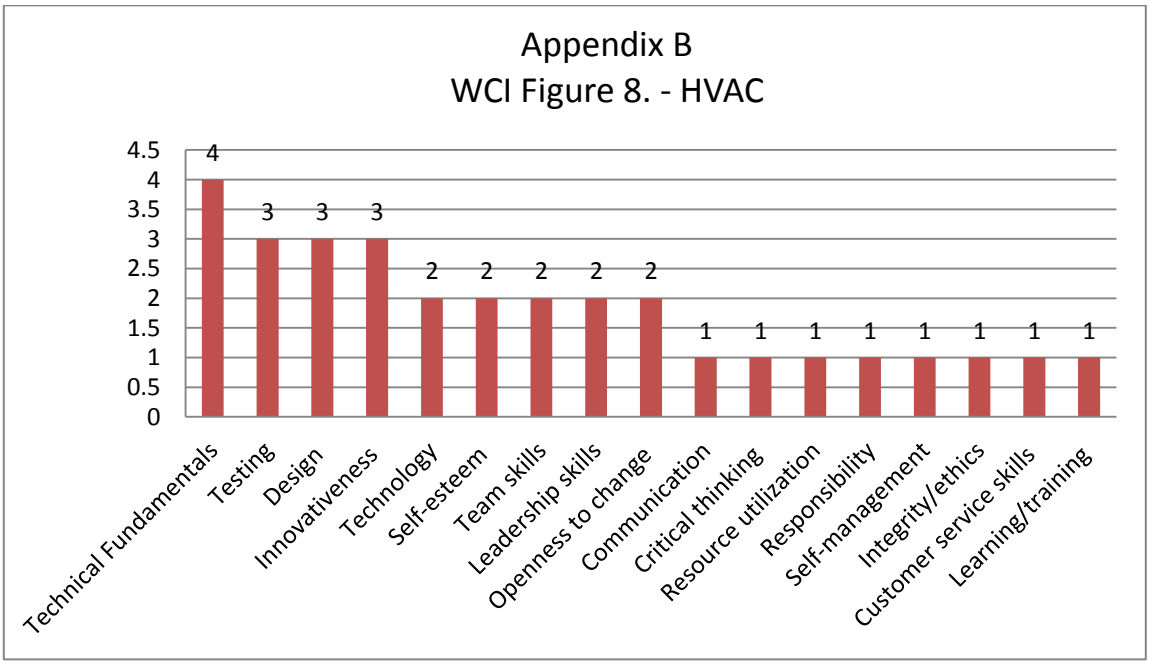
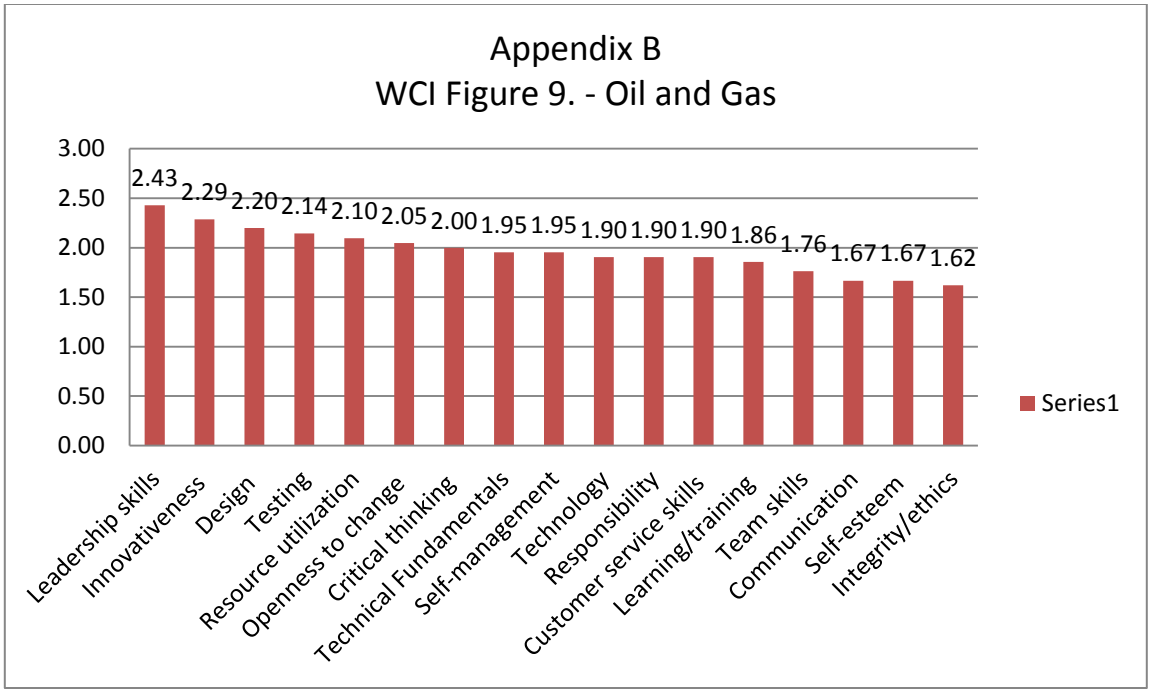
2.50
2.00
1.50
1.00
0.50
0.00
2.42
2.18
2.13
2.09
2.03
2.03
1.94
1.94
1.94
1.88
1.79
1.70
1.64
1.64
1.52
1.42
1.39
Design
Leadership skills
Innovativeness
Testing
Resource utilization
Technical Fundamentals
Critical thinking
Self-management
Technology
Openness to change
Responsibility
Communication
Customer service skills
Learning/training
Team skills
Self-esteem
Integrity/ethics

Appendix B
WCI Figure 7. - Health Care



Appendix B
WCI Figure 8. - HVAC




Appendix B
WCI Figure 9. - Oil and Gas
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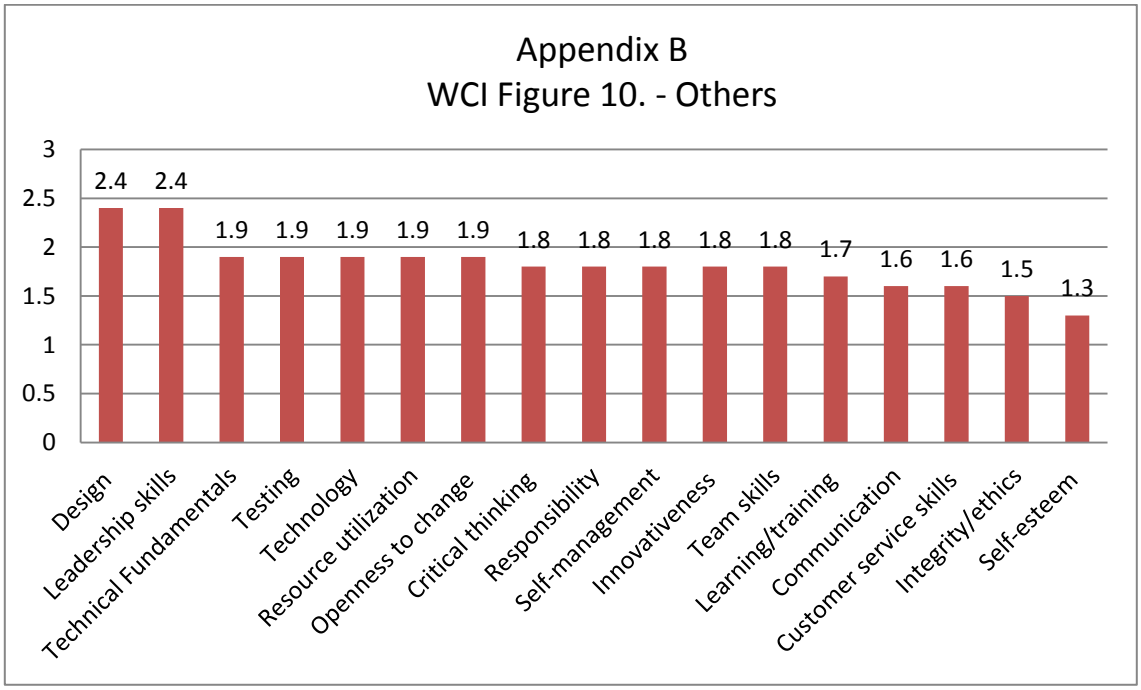
1.00
0.50
0.00
2.43
2.29
2.20
2.14
2.10
2.05
2.00
1.95
1.95
1.90
1.90
1.90
1.86
1.76
1.67
1.67
1.62
Leadership skills
Innovativeness
Design
Testing
Resource utilization
Openness to change
Critical thinking
Technical Fundamentals
Self-management
Technology
Responsibility
Customer service skills
Learning/training
Team skills
Communication
Self-esteem
Integrity/ethics
Series1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2.5
2
1.5
1
0.5
0
2.4
2.4
1.9
1.9
1.9
1.9
1.9
1.8
1.8
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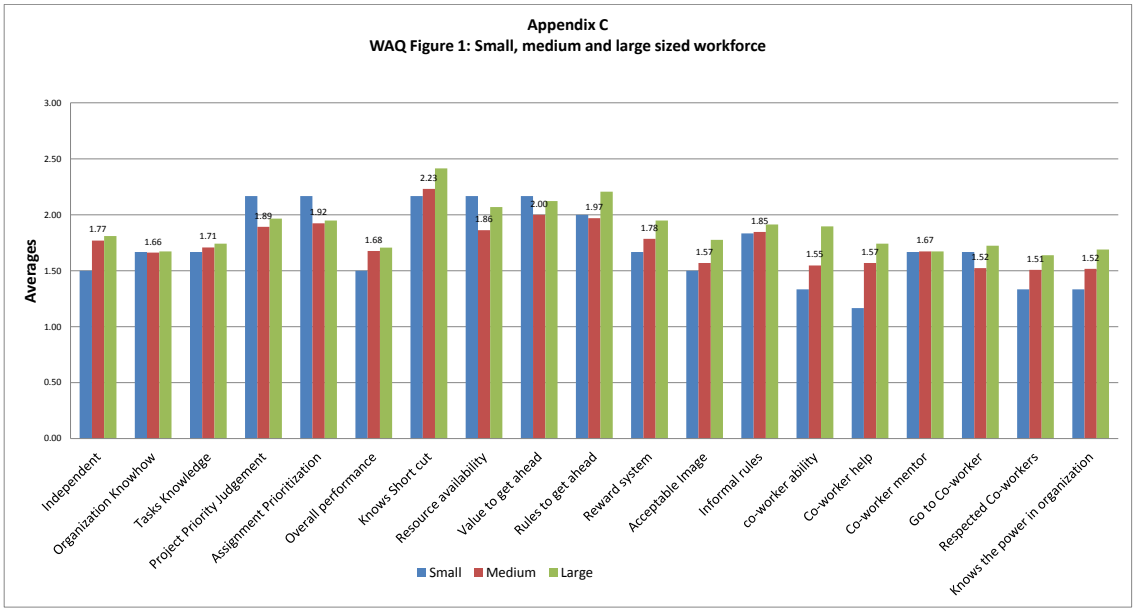
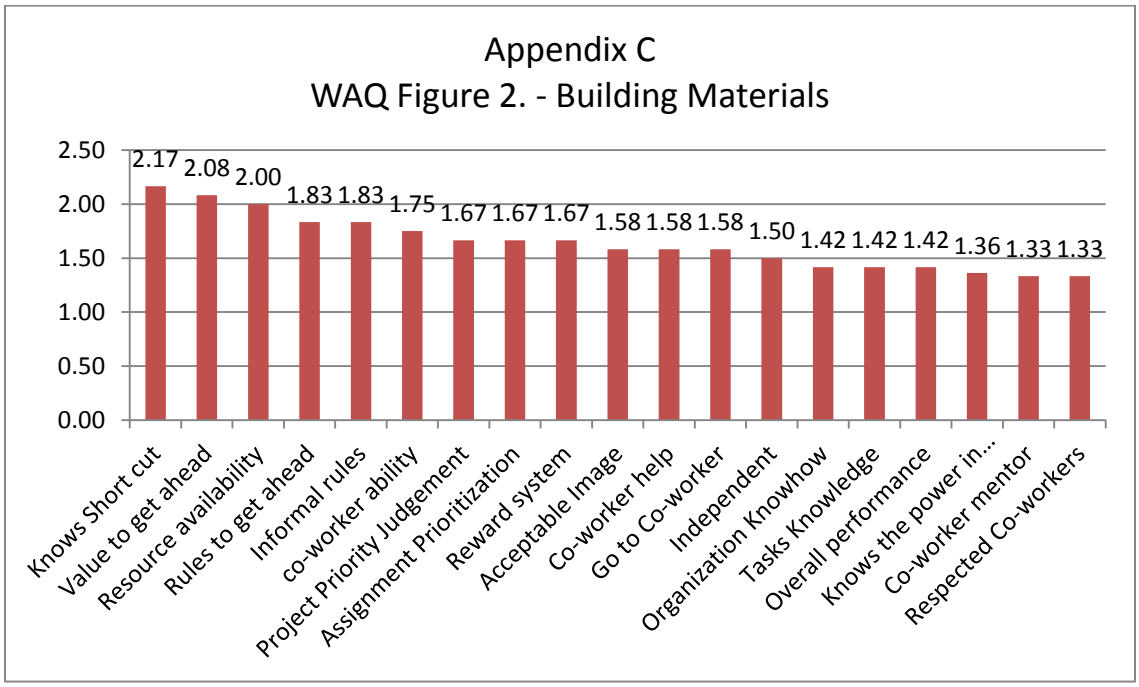
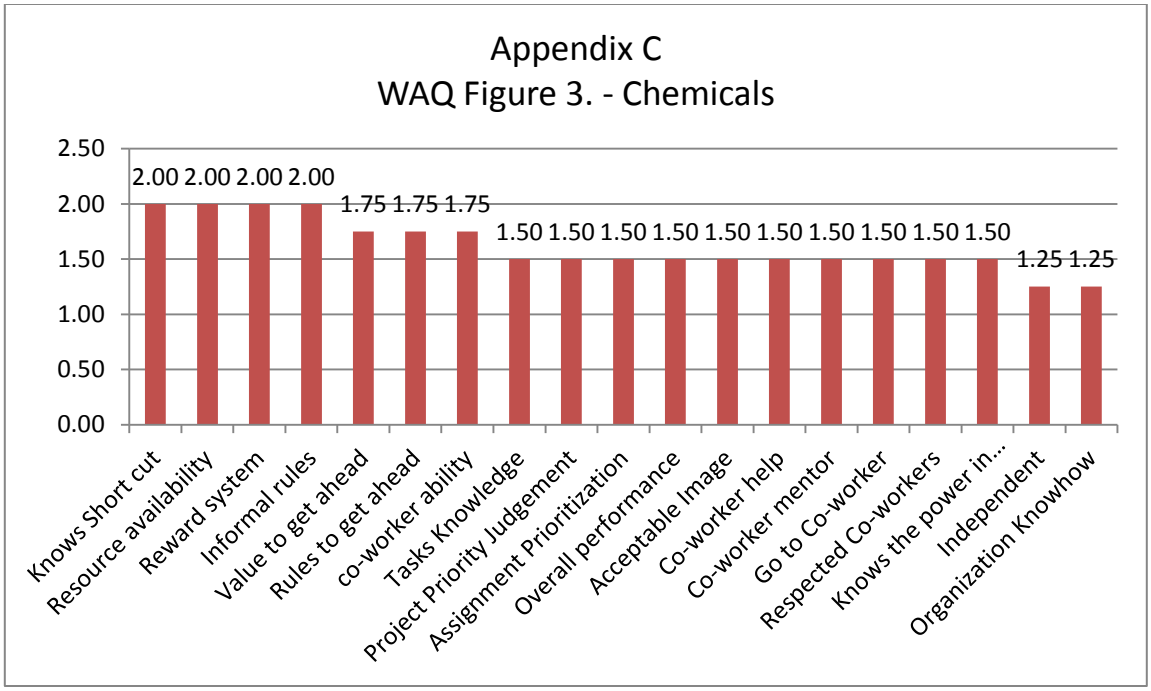
1.8
1.7
1.6
1.6
1.5
1.3
Design
Leadership skills
Technical Fundamentals
Testing
Technology
Resource utilization
Openness to change
Critical thinking
Responsibility
Self-management
Innovativeness
Team skills
Learning/training
Communication
Customer service skills
Integrity/ethics
Self-esteem

APPENDIX C

RESULTS: WORKPLACE ADAPTATION QUESTIONNAIRE



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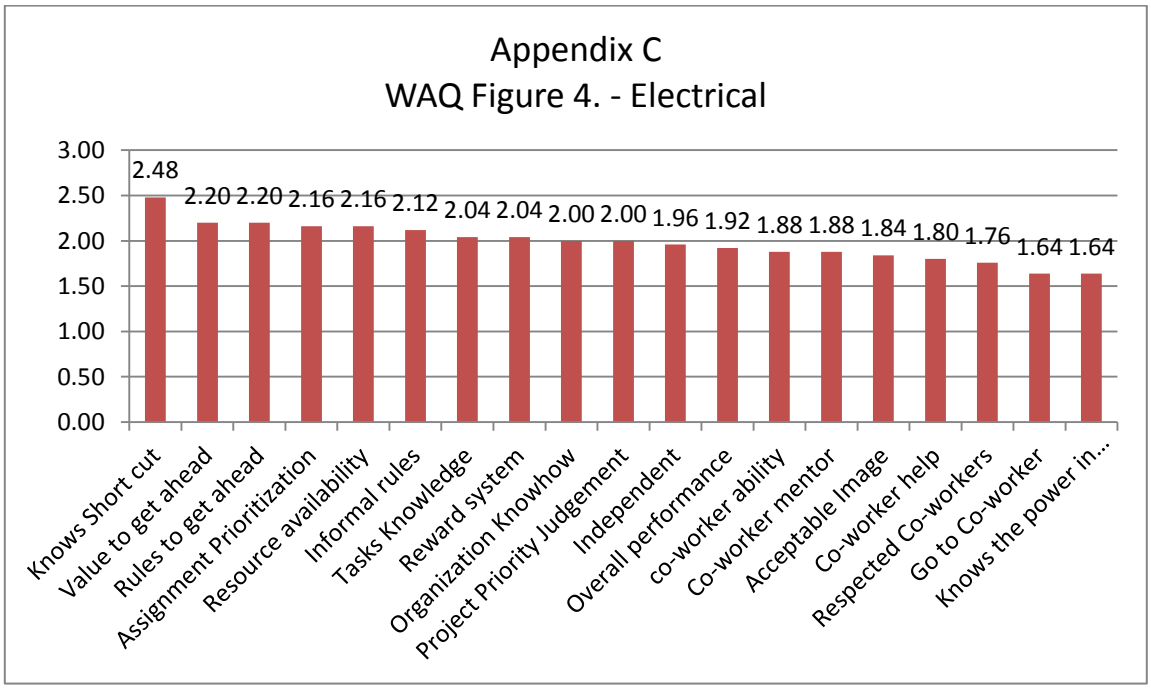
Knows Short cut
Resource availability
Reward system
Informal rules
Value to get ahead
Rules to get ahead
co-worker ability
Tasks Knowledge
Project Priority Judgement
Assignment Prioritization
Overall performance
Acceptable Image
Co-worker help
Co-worker mentor
Go to Co-worker
Respected Co-workers
Knows the power in...
Independent
Organization Knowhow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Knows Short cut
Value to get ahead
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Overall performance
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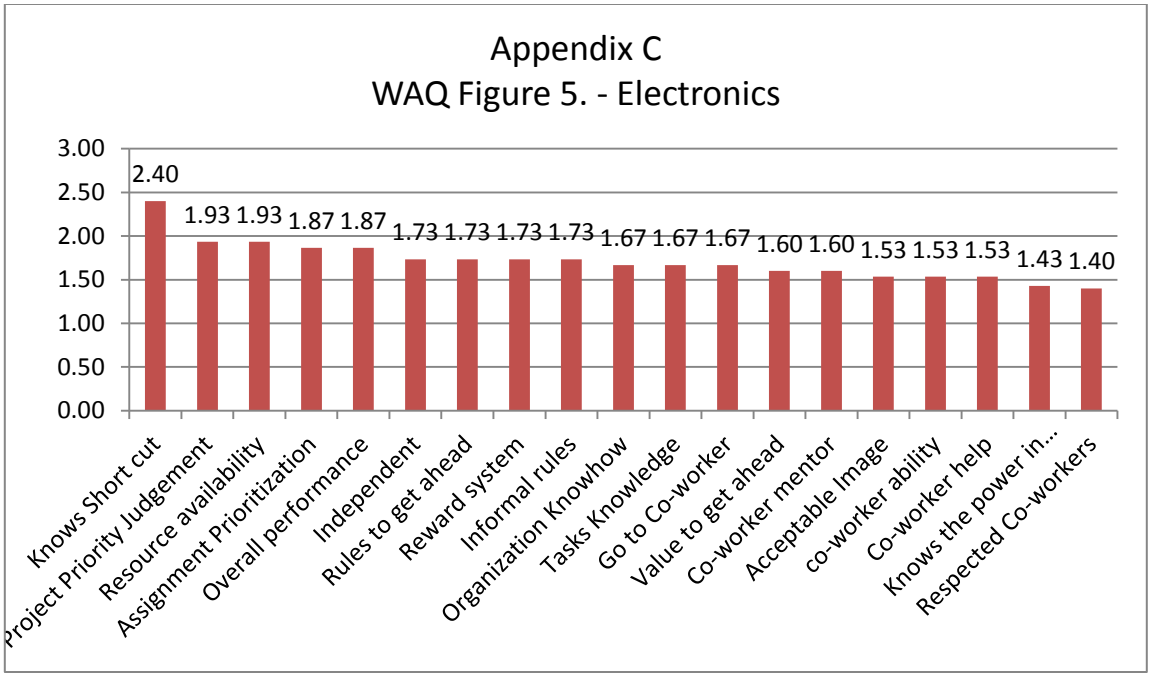
Co-worker mentor
Acceptable Image
Co-worker help
Respected Co-workers
Go to Co-worker
Knows the power in...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WAQ Figure 5. - Electronics
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Knows Short cut
Project Priority Judgement
Resource availability
Assignment Prioritization
Overall performance
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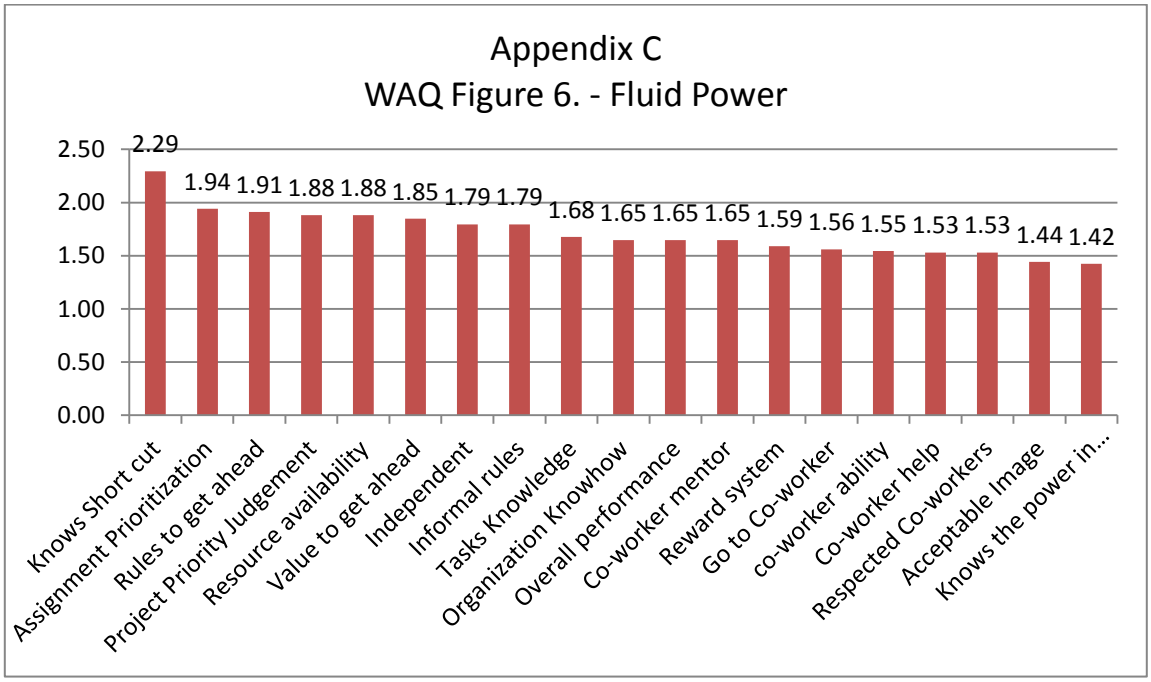
Go to Co-worker
Value to get ahead
Co-worker mentor
Acceptable Image
co-worker ability
Co-worker help
Knows the power in...
Respected Co-workers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Knows Short cut
Assignment Prioritization
Rules to get ahead
Project Priority Judgement
Resource availability
Value to get ahead
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Informal rules
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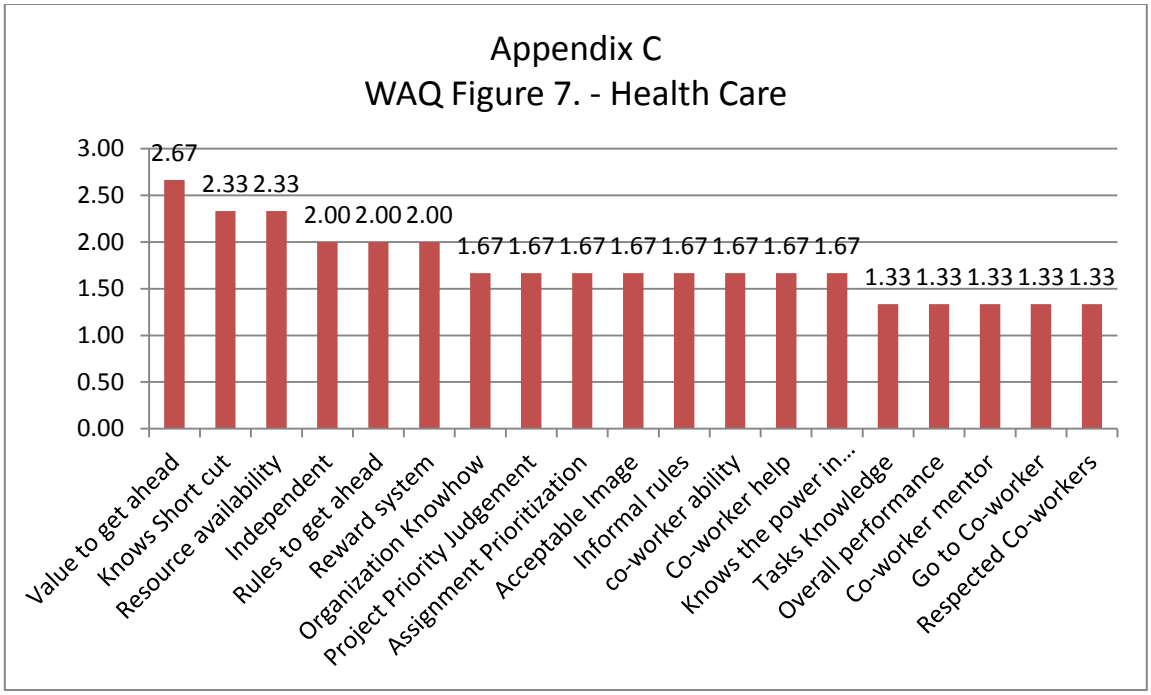
Co-worker help
Respected Co-workers
Acceptable Image
Knows the power in...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Value to get ahead
Knows Short cut
Resource availability
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Rules to get ahead
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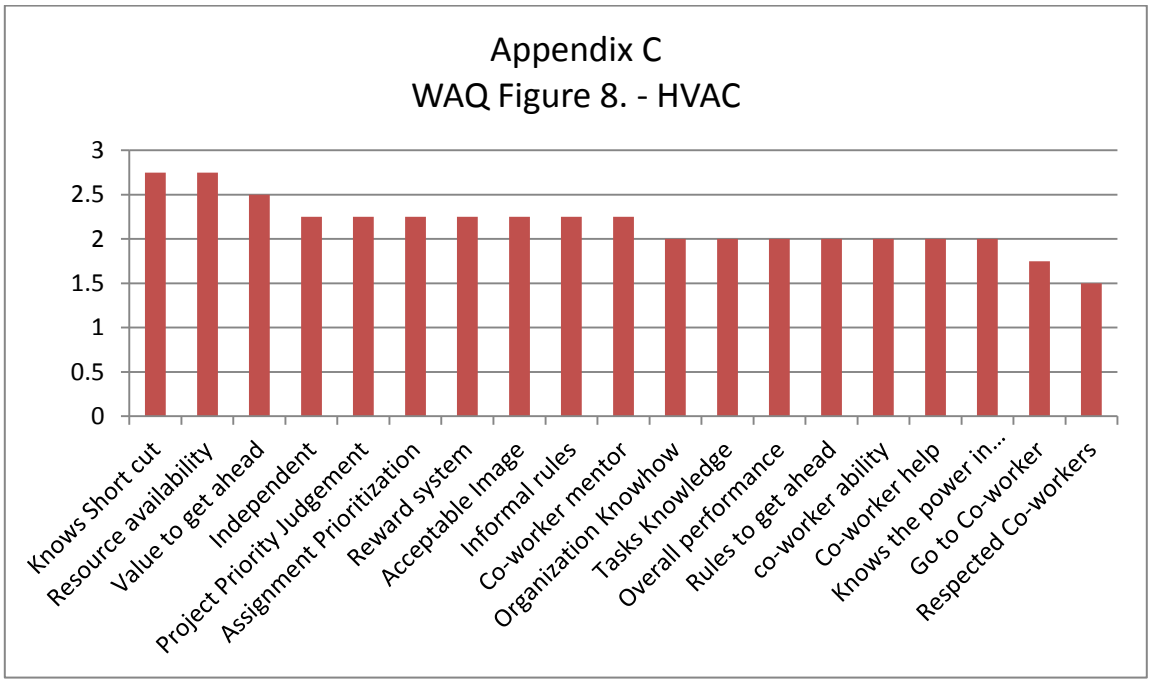
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Knows Short cut
Resource availability
Value to get ahead
Independent
Project Priority Judgement
Assignment Prioritization
Reward system
Acceptable Image
Informal rules
Co-worker mentor
Organization Knowhow
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Knows the power in...
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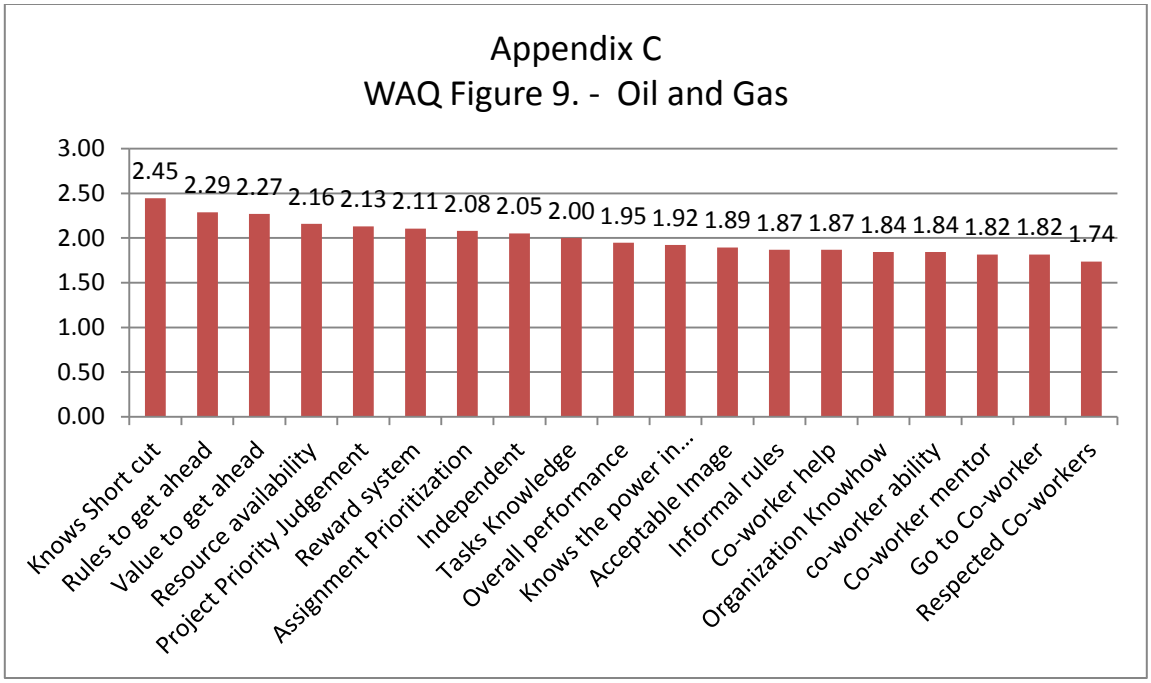
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1.87
1.84
1.84
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1.74
Knows Short cut
Rules to get ahead
Value to get ahead
Resource availability
Project Priority Judgement
Reward system
Assignment Prioritization
Independent
Tasks Knowledge
Overall performance
Knows the power in...
Acceptable Image
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Go to Co-worker
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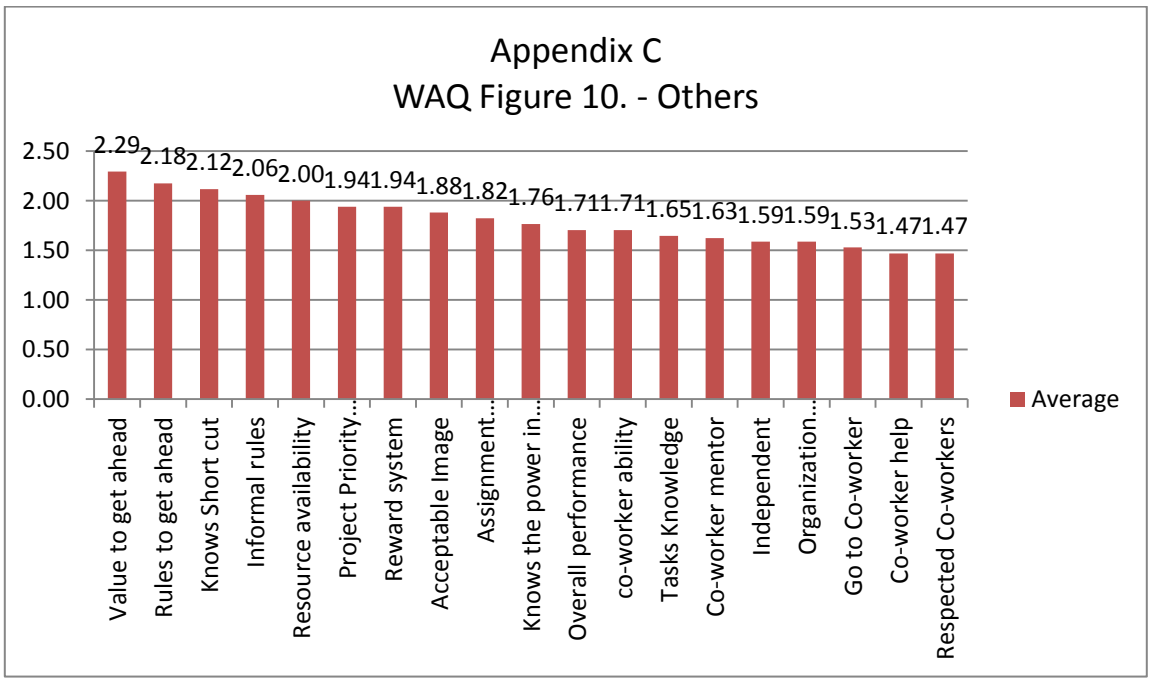
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2.06
2.00
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1.88
1.82
1.76
1.71
1.71
1.65
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1.53
1.47
1.47
Value to get ahead
Rules to get ahead
Knows Short cut
Informal rules
Resource availability
Project Priority...
Reward system
Acceptable Image
Assignment...
Knows the power in...
Overall performance
co-worker ability
Tasks Knowledge
Co-worker mentor
Independent
Organization...
Go to Co-worker
Co-worker help
Respected Co-workers
Average