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Work Values and Perceptions of Entering Construction Professionals

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WORK VALUES AND PERCEPTIONS OF ENTERING CONSTRUCTION
PROFESSIONALS

A Thesis
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Master of Construction Science and Management

by
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August 2016

Accepted by:
Joseph Michael Burgett, Committee Chair
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ABSTRACT

The Construction Industry in the last decade is riddled with issues relating to employment, workers shortage and human capital management. Although strategic Human resource management (HRM) has been suggested by researchers, its practicality and its suit towards different organization has been one of the reasons for organizations to shy away from these strategic approaches in HRM. Adding to this condition is that Companies need to now manage a work force that is different from previous generations and has different expectations in their career. The motive of this research is to identify the expectations and perceptions of those professionals that are entering the construction industry.

The sample selected is students from Clemson University that are enrolled in the Construction Science and Management program. Through this study, the work values of construction management students are identified and trend wise inference based on construction experience and year of study in college is attempted. The Following are ranked as top 5 work values by the students:

- Provide Job security
- Provide a feeling of accomplishment
- Provides an opportunity to earn a high income
- Encourage continued development of knowledge and skills
- Permit advancement to high administrative responsibilities

The perception of the students with the help of the 21 job characteristics is observed. Trend wise inference based on construction experience and year of study in college is observed.

The following are the top 5 job characteristics of the Construction Industry as perceived by the students:

- Require meeting and speaking with many other people
- Provide a feeling of accomplishment
- Encourage continued development of knowledge and skills
- Require me to supervise others
- Provide me the opportunity to earn a high income

A comparison was drawn between work values and perception of the students to check if they differ significantly, the study found that there was a statistically significant difference between work values and perceptions for 14 of the job characteristics.

The study also found that there was a statistically significant difference between Dr. Moore's sample and this study's sample. In this comparison job characteristics relative to status and independence were more favorable to differ compared to comfort and security, and competence and growth.

Through this study few general trends about the population were witnessed and there were differences between the values the students hold and how they perceive the industry. This study also found differences in work values between the samples representing two different timeframe. HR leaders should know more about the demographics of the current workforce and understand the gap between what the current students expect and what they perceive about the industry.

DEDICATION

I would like to sincerely dedicate this research work to Dr. James Packer Smith, for inspiring me in my works and without whom this would not be possible. To my graduate committee – Dr. Joseph M. Burgett, Dr. Roger Liska, Dr. Shima N. Clarke, for your honest review and constructive criticism. A special mention goes to Dr. Jeniffer Dawn Moore, whose research on entering construction professionals was truly an inspiration for many other researchers like me.

To the Construction Science and Management students from Clemson University, thank you for your participation in the survey, thank you for your time and effort in this study.

Lastly and most importantly I would like to thank my family and friends for always being there for me. I would like to state my appreciation to Mr. and Mrs. Venugopal, Mr. Vishnu Prasad Venugopal, it is because of you guys that I was able to stay focused on my trade. I would also like to thank my good friend Ms. Prithika Manivannan, for her support and appreciation of my works during the past two years. I thank every one of you from the bottom of my heart for making this possible for me.

Shout out to Clemson University Football team for making it to the national championship finals (2016). We will be back stronger next season. Go Tigers!

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CHAPTER ONE

INTRODUCTION

Manpower in Construction Industry is undoubtedly a valuable asset upon which it depends. Rapid changes of the economy, working arrangements, and technology in construction advocate the demand to lessen future skills imbalance (Wong, 2006). Human resource planning is important during workforce supply to help organizations appoint the right people in the right job (Dom et al, 2012). According to Gidado, complexity in construction originates from variety of sources such as resources employed, the environment in which construction takes place, the level of scientific knowledge required, and the number and interaction of different parts of the working team (1996). To compete, construction companies must continually improve their performance by reducing costs, innovating processes, and improving quality, productivity, and speed to market (Gerhart & Becker, 1996). Maloney in 1997 suggested that the rate of change in construction organizations is influenced by the external environments (e.g., demographic, economic, legal and regulatory, political, social, and technological) posing an unprecedented amount of threat to the productivity and competitiveness of construction organizations (Maloney, 1997).

The unique structure of the construction industry along with the challenges of global competitiveness and changing regulatory requirements have increased the need for highly educated and competent construction management graduates. Intelligence, flexibility, adaptiveness, and the ability to deal with uncertainty and rapid change are a few attributes which the employers are expecting from graduates (Love and Haynes's, 2001).

Organizations are searching for individuals who can effectively manage through the complex, challenging, changing, and often ambiguous global environment. Keeping aside the employer's expectation from the graduates, it is also important for an employee to be managed well. Human resource management has become increasingly important in the twenty first century as the well-managed employee is essential for success in the highly competitive market. One of the major challenges is to learn how to be systematic in managing their human resources if they wish to achieve and sustain competitive advantage (Tarique & Schuler, 2010).

The construction sector is in many ways the epitome of a project-based industry, due to the vastness of the industry and complexity of projects. It is also one of the largest and most people-reliant sectors, and yet it is repeatedly argued that the industry lags behind other sectors when it comes to Human Resource policies and practices (Druker and White, 1995; Dainty et al., 2007). "With the changes taking place in the external environments, a construction organization must attempt to develop deliberate human resource management strategies. In developing these strategies, a construction organization must address issues such as the organization's strategic vision, its view of human resources, production technologies, workforce diversity, and the availability of a skilled workforce" (William F. Maloney, 1997).

The construction industry has not been as diligent in implementing strategic Human Resource Management programs (HRM) as other industries in the United States (Ferris, 1990). Currently in the construction industry, there are very few structured workforce management programs, the human resource development which is conducted on a project,

it is usually in the form of on-the-job training, with very few resources available at the project level for further training and development of the workforce. This highlights a need for a structured workforce management strategy in construction that can be used to effectively manage a workforce regardless of its skill level (Brandenburg, Haas, & Byrom, 2006).

Statement of Problem

Millennials have surpassed Baby Boomers as the nation's largest living generation, according to population estimates released on May 2016 by the U.S. Census Bureau (Fry, 2016). Millennials, those ages 18-34, made up 34% of the nation's workforce in 2015. With immigrants adding more numbers to this group than any other, the millenials' numbers are projected to peak in the next two decades (Hoover, Managing your Millennials, 2015). This is a significant consideration for companies that now have to attract, retain and develop these largely misunderstood talents (Hoover, Managing your Millennials, 2015). The construction Industry faces particularly high obstacles in this area, provided the high risk and low margin nature of the Industry.

The construction industry has an industry-wide problem with 'image', which according to Fielden makes both men and women reluctant or uninterested in the industry. He further explains that this problem is compounded by a general lack of knowledge and information about the industry, the career opportunities it offers and the qualifications required for the industry (Fielden, 2000). Harris (1989) states that the status of the industry as a career opportunity does not compare favorably with other options.

The Bureau of Labor Statistics reports that the number of employees involved in construction between July 2005 and July 2015 has decreased by approximately 1 million. The underlying cause of the worker shortage, is the traditional view the construction industry holds of human resource management (Moore, 2011). To further through light on the personnel and strategic management, Guest and Storey (1989) explain that the difference between old-style 'personnel' and the new HRM is the strategic involvement (Guest, 1989). Strategic HRM is identified as offering a long-term solution for complex problems, directed by key decision makers towards the achievement of competitive advantage (Miller, 1989). HRM is customer oriented, integrated in approach, centralized in the corporate plan and rapid and responsive in decision taking (Storey J. a., 1990). Human resource management's effectiveness depends upon its fit with the organization's stage of development. Nadler (1980) states that this fit can be defined as the degree to which the needs, goals, objectives, and/or structure of one component are consistent with the needs, demands, goals, objectives, and/or structure of another component (as cited in Moore, 2011)

Competitive pressures, both in domestic and in global markets had shifted the desired outcomes in the management of the employment relationship away from compliance and quiescence in employee behavior towards customer and business requirements (Janet Druker, 1996). Thus there is a necessity for the employers to understand their employees. Employees start jobs with expectations based on their life experiences, career aspirations, and personal characteristics (Woods, 1993). Previous research found that when work experience aligned with career expectations, employees

tend to be more satisfied with their jobs and careers (Igbaria, Greenhaus, & Parasuraman, 1991). Thus understanding the work values and career expectations of potential employees becomes a critical piece of strategic human resource management (Moore, 2011). Work value can be defined as the importance individuals give to a certain outcome obtained within the work context (Elizur, 1984). Gahan and Abeysekera classify work values in to two type - 1) Extrinsic work values which refer to those aspects of a job that benefit the employee materially, such as pay, promotion, and good working conditions (Gahan & Abeysekera, 2009). 2) Intrinsic work values refer to those rewards that come from the job itself, such as a sense of achievement, self-determination, and self-actualization (Gahan & Abeysekera, 2009; Ware, 2013)

Purpose Statement

The purpose of this research is to identify and compare the work values and perceptions of construction management students. To compete in an industry which is diverse and has high personal risk, it is necessary for those using HRM strategies to be aware of the work values and career expectation of these aspiring professionals. The population targeted involves under-graduate and graduate students in Construction Management programs.

In the United States, 886,052 International students were accepted into Undergraduate or Graduate programs between 2013 and 2014 (usnews.com, 2014). In 2010, there were 22.9 million foreign-born workers in the United States, making up about 16% of the U.S. workforce. The construction industry employs the highest percentage of foreign-born workers outside of agriculture; about 2 million or 23% of construction

workers were born in foreign countries (cpwr.com, 2013). Thus the student population is necessarily subdivided into domestic and international students. Recently there has been some uncertainty over work permits or visa for international students in the US, differing work values and perceptions of international students might indirectly explain this current trend of uncertainty. Adding to this uncertainty is the cultural difference amongst students that might affect work values and perceptions towards a construction industry.

This research will include both the personal and demographic characteristics of the population as well as an identification of their work values and their perception of work in the construction industry. The research's primary goal is to assess the values and perceptions of construction management graduates. The subsequent step would be to draw comparison between work values and perceptions. The next step will be to compare the values of students based on their origin (domestic or international). Find out if the values differ with respect to different industries and also to record any change in the work values over the time. Moore's survey involved construction students graduating between December 2006 and May 2008. We are targeting a population of construction management students, including internationals, who are enrolled in the Construction Science and Management program during spring 2016.

A survey questionnaire was developed based on literatures on Human Resource Managements, Employment, work values and job characteristics. The population selected was construction science and management students from Clemson University. The questions in the survey comprises of two sections – (1) General information or demographics and (2) Work values and perceptions. The second section represents the core

of this research work and the first section used data for grouping and comparisons. The survey was handed out to the respondents in hard copies and the responses were collected, organized and analyzed based on the research questions.

Research Questions

The survey targets students from undergraduate and graduate Construction Management program who are enrolled in the Construction Science and Management program during spring 2016. The following are the research questions which will direct this study.

1. What are the work values of construction management students?
2. How do the students of construction management program perceive the construction industry's ability to meet various work values?
3. How do the work values of construction management students relate with their perception about the industry?
4. How do the work values/expectations differ between international and domestic construction management students?
5. How have the work values of construction students changed over time?
(Comparison to Moore's work)

Overview of the Chapters

Following this introduction chapter, Chapter 2 will provide a review of the literature. Chapter 3 will contain the methodology and procedures followed in the study. Chapter 4 presents the data collected and data analysis, and Chapter 5 includes the study's

conclusions, and recommendations for future research. Survey Questionnaire and the cover letter used in this study are included in the Appendices.

CHAPTER TWO

LITERATURE REVIEW

The purpose of this research is to identify work values and perceptions and to compare the work values of construction management students. To further find out if the construction industry does have a problem with image, it would be a significant finding if there remains a difference between what students perceive about the industry and what their expectations are from the industry. Within this setting of work values and perceptions, influence of demographics, generation trends and changes in the construction industry are included. In order to understand more about the work values and perceptions of students, it is necessary for us to understand the connection between management and value system/ perceptions of the students.

Work Values Definition

According to Gahan and Abeysekera (2009), values are difficult to define. Research studies have frequently shown that there is an overlap with attitudes, preferences, and norms, making it difficult to come up with a distinct definition for values (Gahan & Abeysekera, 2009). Sabir feels that researchers have taken various approaches to defining the nature and meaning of values (Sabir, 1980). But one of the most appropriate definition for this study of values is given by Ros et al.,(1999) who states that values are the “desirable, trans-situational goals that vary in importance as guiding principles in peoples’ lives” (Schwartz, Ros, & Surkiss, 1999). Based on this definition, values provide individuals with the ability to decide when they need to choose between different courses of actions (Gahan & Abeysekera, 2009).

Some of the earliest research works on values are done by Kluckhohn(1951) and Rokeach (1973), these researches divided values into either instrumental or terminal. Instrumental values represented certain modes of behavior (e.g., cooperation), while terminal values represented “the end states toward which behaviors are motivationally directed (for example, harmony in the workplace)” (Gahan & Abeysekera, 2009, p. 129;as cited in Ware, 2013). More recent research has concentrated on values as the basis for motivational attitudes or has distinguished between types of values, based on the relative importance of the life domain to which those values relate (Gahan & Abeysekera, 2009).

The term work values have been defined by researchers to mean “the end states that individuals desire and expect through working” (Gahan & Abeysekera, 2009, p. 129). Work values are often related to work goals because work values are considered significant in shaping the way individuals view work, how they respond to certain work situations, and how they perform in their designated roles at work (Gahan & Abeysekera, 2009). HRM literatures discusses work values as two types, those two types are extrinsic work values and intrinsic work values (Ros et al., 1999). Extrinsic work values refer to those aspects of a job that benefit the employee materially, such as pay, promotion, and good working conditions (Gahan & Abeysekera, 2009). Intrinsic work values refer to those rewards that come from the job itself, such as a sense of achievement, self-determination, and self-actualization (Gahan & Abeysekera, 2009; Ware, 2013).

According to Warr (2008), the study of work values is important for two reasons. First, since work values influence employee behavior, it is important to examine how they operate in working scenario (Warr, 2008). Second, Warr suggested that it is essential; to

learn more “value’s nature, measurement, and association with other features” (Warr, 2008). HRM researchers have been particularly interested in understanding individuals’ value orientation for several reasons. First employee retention, performance appraisal, and employee commitment to the job have all been found to be influenced by the fit between what employees want and expect and what is actually provided by the organization (Ros et al., 1999; as cited in Ware, 2013).

About Human Resource Management

Human Resource Management (HRM) is the form of practice in organizations that employ people and form employment relationship (Storey J. , 2007). According to Wood, synergy, fit and integration are the key concepts in modern HRM (Wood, 1999). In spite of a diverse perspective on HRM that have been evident in recent years, much of the writing that succeeds beyond technical issues can be found as interpreting HRM as soft (Developmental humanist approach) or a hard approach, (Situational Contingent approach) (Boxall, 1996). Hard HRM is closely aligned with what is often termed “strategic HRM”, according to Legge (Legge, 1995 a). It is based on these instances that we can relate HRM with business strategy. A “hard,” contingency-based approach to HRM is often seen as an essential part of a cost-minimization strategy (Grant, Kane, & Crawford, 1999). Although there are literatures that suggest soft and hard HRM, there appears to be less evidence that they have been translated to practice with few exceptions.

Jean-Marie Hiltrop suggests that there is little real evidence, but it is growing and indicates that corporate HRM policies and practices are associated with high (financial) performance, and can encourage employee behavior and attitudes towards strengthening

the competitive strategy of an organization (Hiltrop, 1999). Another important piece of information from this article is the arguments recorded for and against contingency approach of HRM.

Arguments For

1. Management personalities, skills and styles must be selected to match different situations.
2. As business needs change, so must people.
3. Behaviors need to be channeled through appropriate pay appraisal systems.
4. A contingency approach facilitates the use of different approaches to employee relations in different parts of the business.
5. It reduces the importance of questions about culture, style and non-economic issues.

Arguments Against

1. It assumes a rigidity of personality and stereotypes managers.
2. It requires an unrealistic precision in selection systems.
3. It creates an unrealistic requirement for mobility and flexibility.
4. Training, job rotation and rewards can be used to develop a broad repertoire of behaviors in managers.
5. The strategy process and business differentiation is never really based on situational contingencies

Studies in the past have found that HR practices seems to give an identity and character to companies. These companies are especially effective in the market or have a competitive advantage. This further interests us as to how effective firms manage their people. Pfeffer's

study enumerated that and explained sixteen distinctive management practices, which are mentioned below (Hiltrop, 1999; Pfeffer, 1994):

1. Financial incentives for excellent performance.
2. Work organization practices that motivate employee effort and capture the benefits of know-how and skill.
3. Rigorous selection and selectivity in recruiting.
4. Higher than average wages.
5. Employee share ownership plans.
6. Extensive information sharing.
7. Decentralization of decision-making and empowerment.
8. Work organization based on self-managed teams.
9. High investment in training and skill development.
10. Having people do multiple job and job rotation.
11. Elimination of status symbols.
12. A more compressed distribution of salaries across and within levels.
13. Promotion from within.
14. Along-term perspective.
15. Measurement of HR practices and policy implementation.
16. A coherent view of the employment relation.

Out of these 16 items, most of them highlights the understanding between the Organization and its employees. Based on his works on HRM and its impact on Organizational performance, Hiltrop concludes that the evidence is consistent with the view that the HRM

policies and practices of an organization have a powerful influence in motivating employees to exhibit the kinds of attitudes and behavior that are needed to support and implement the competitive strategy of an organization (Hiltrop, 1999).

Although it is not evident that HRM policies and practices has a direct impact on the performance of an Organization, Hiltrop's study brings to light the necessity for Companies to motivate their employees so that they exhibit the right kind of attitude and behavior that are required for an Organization. An organization's rigorous selection or selectivity in recruiting as mentioned in Pfeffer's "Sixteen distinctive management practice", is one significant practice which can impact their performance. This gives an idea as to why it is necessary to understand the entering professionals.

Expectation from the Management

Love and Haynes's, 2001 research on Construction Manager's expectation was aimed at whether or not the graduates are meeting the expectation of their employers. The authors adopted a survey research strategy, a questionnaire was developed and it was mailed to 50 Construction managers in Contracting Organizations in the state of Victoria, Australia. Response rate of 54% was recorded. The questionnaire contained 18 factors that are researched to be important graduate skills. The Construction managers were asked to indicate the level of importance for these 18 variables (Peter E.D. Love Natasha S. Haynes Zahir Irani, 2001). The 18 Variables included:

1. Academic achievement
2. Accept responsibility
3. Adaptable to changing working environment

4. Computer literacy
5. Time management
6. Exercise professional judgement
7. Practical building knowledge
8. Interpersonal
9. Leadership capability
10. Numeracy
11. Oral communication
12. Problem solving
13. Environmental awareness
14. Teamwork
15. Trust and honesty
16. Update professional knowledge
17. Work autonomously
18. Written communication

In order to determine if the graduates were meeting the needs of industry, managers were asked to indicate the expected skill level of entry level professionals and then they were asked to identify what they observed from these fresher's. The findings of this research indicated that the graduates are generally meeting the expectations of the contractor, but still there are few skills were the graduates fell below expectation of the Construction Managers. There are certain skills out of this 18 which can only be acquired through experience (Love and Haynes, 2001). This research informs that manager's

expectation and graduate's requirement in a construction industry may or may not be balanced. Graduate's requirement is more or less an expectation which they have from the Company.

Millennials – Largely Misunderstood Workforce

The year 2015 represented a milestone in the U.S. labor market. For the first time, millennials (individuals born between 1980 and 2000) became the majority in the workforce. This is a significant shift for companies that now have to figure out how to most effectively attract, recruit and retain these younger workers (Hoover, www.fminet.com, 2016).

According to Hoover much has been written about the millennials and how they differ from previous generations in their approach to work—and careers in general (2016). Indeed, millennials are often unfairly saddled with the dubious reputation for being entitled, disloyal, self-centered or optimistic go-getters, but it turns out that they're actually not that different from their older work colleagues. A recent study conducted by the IBM Institute for Business Value, where the authors stated that the differences among millennials, Gen X and baby boomer employees have been grossly exaggerated (IBM Institute for Business value, 2015). According to the survey findings, baby boomers, Gen Xers and millennials share similar values, aspirations, attitudes and goals when it comes to work. The survey also found that some of the more common assumptions regarding millennials could actually be incorrect (as cited in Hoover, www.fminet.com, 2016).

Hoover states that they find similar misconceptions about the millennial in the Construction Industry. In a recent study, FMI (2016) surveyed more than 200 millennials

in the industry to measure their level of engagement and to explore what this generation of workers is expecting from an employer. The following are preliminary survey statistics—some of which dispel widespread millennial stigmas:

- 74% of survey respondents expect to remain more than five years with their company.
- 96% of survey respondents are willing to work beyond what is required of them to help the business succeed.
- 93% of survey respondents feel proud to be part of their company.
- 98% of survey respondents stated that it was important for them to understand their career path and opportunities within their company.

The following criteria ranked highest for millennials in construction:

1. Competitive pay
2. Work-life balance
3. Personal development

Based on the findings and additional conversations with industry stakeholders, FMI have identified that the millennials are loyal and dedicated, tech-savvy and innovative thinkers. While managers often perceive millennials as entitled, disloyal and lazy, it appears that they really aren't. As shown in FMI's recent construction industry survey, millennials are ambitious and eager to make a big impact in their careers early on, which sometimes can be misread as entitlement. (Hoover, 2015; www.fminet.com, 2016).

Hoover (2015) suggests that as the labor market continues to tighten, contractors might need to reinvent their hiring and recruiting strategies. She feels that HR department

holds a significant role in today's business environment. She cites that in recent research on human capital trends, only 5% of companies rate their HR performance as "excellent" (Hoover 2015). HR in the construction industry has been viewed more as an administrative concern than a strategic one. As human capital becomes top priority in recent times for companies, HR needs to be factored into broader context of business success (Hoover, *Managing your Millennials*, 2015, www.fminet.com, 2016).

Expectations of Millennials

The retirement of a large number of US employees belonging to the Baby Boomer generation means that the organizations now face a crisis to recruit and retain the generations younger than the Baby Boomers who hold different values, attitudes and expectations from the workplace (Ng, Schweitzer, & Lyons, 2010). The Society for Human Resource Management study in the year 2004 conducted by Mary E. Burke, states that there are three areas where the generations differ: work ethics, managing change and perception of organizational hierarchy. Other researchers suggest that management associates the millennials with common stereotypes that include disloyalty, entitlement, and casual and unmanageable attitudes (Thompson & Gregory, 2012).

Piper and Madadi (2015) feel that many organizations face the challenge of integrating diverse generations in a workplace. Now that large number of Baby Boomers are retired, the current intake of Millennials in the workplace, organizations are facing a challenge to attract and retain the millennial generation. Their research gives an overview of a pilot study conducted in a geographical area of the US to understand the millennial generation's perception of the workplace of the construction industry.

Common Myths about the Millennials (1981 - 2000)

Howe and Straus in 2000 said that Millennials do not have a long-term attachment or commitment towards the organization and regard their job as a means for building their career resume (Howe & Strauss, 2000). The Millennials regard fun in the workplace as a requirement. They are also known as the “Trophy Generation” or “Trophy Kids” because of the trend to reward everyone for participation rather than rewarding only the winners. Many of the Millennials have observed high rates of layoffs and are skeptical about long-term commitments. Members of this generation are described as confident, conventional, optimistic, socially conscious and civic-minded. They prefer collective action and team work and desire to have time flexibility in their career (Dries et al., 2008; Hewlett et al., 2009; Kowske et al., 2010).

They are the first generation considered to be digital advanced. Millennials grew up with abundance of existing technologies. They are generally unafraid of new technologies and are usually the first ones to try, buy and critic about new gadgets and technologies (Glass, 2007). Using technology and incorporating it into their daily lives play an important role. Having access to technology and the Internet has been a source for exploring the world and getting information instantaneously (Zemke et al., 1999).

They have a preference towards working with clear expectations and a desire to maintain a well-defined career path (Westernam & Yamamura, 1996). Unlike the Boomers, this generation is not ready to dedicate much of their daily life to work. They prefer having a balance between their work life and other interests (Smola & Sutton, 2002). Having been raised in an environment with constant feedback, individual attention and praise, they

expect the same level of feedback from the workplace in terms of individual development (Ng, Shweitzer, & Lyons, 2010).

Debunking these Myths and Stigmas about the Millennials:

While these literatures stated that the millennial generation is associated with stereotypes, Piper and Madadi's study (2015) showed that the millennials think much similarly to the other Baby Boomers and Generation X respondents belonging to the construction industry. Their findings showed that the perception of the millennials is not very different from the other generations in the workplace. The millennials considered close supervision and job performance reviews to improve their performance on the jobs. According to Piper and Madadi, the construction students appreciated formality in the workplace which contradicted the study conducted by Mary E. Burke (2004).

The results of the research study also showed that a majority of the millennial generation preferred working in a company with a formal organizational structure and following an established chain of command, but did not prefer attending company sponsored social events for employees and their families. This indicated that the population of this study had a preference of keeping their personal and work life separate from each other. The research study proved that students preferred communicating in person rather than by electronic methods and welcomed impromptu meetings to receive important information and updates. This is opposing the common myth as foretold by Zemke et al., 2000.

Although the millennials in this research study did not care for working more than 60 hours a week on a regular basis as a salaried employee, they did not mind working

overtime in order to get a project back on schedule. They considered traveling as an opportunity if it is a part of the job description, but also favored traveling less than 50 miles on a daily basis to a job site.

In summary, Piper and Madadi's study, based on the results obtained have described the following as the preferences of the millennials in the Construction Workplace:

- Flexible work hours to meet family/ personal commitments.
- Believe in team work and job performance reviews.
- Do not mix personal and work life.
- Prefer to communicate in person rather than using electronic methods and do not mind impromptu meetings to receive important information.
- Prefer using the latest technologies and do not mind learning and keeping up with the changes in technology.

International Human Resource Management

Schuler and Tarique (2007) suggest that the recent years have witnessed tremendous advancements in the research and practice of international human resource management (IHRM). Their paper on International Human Resource Management describes several sub themes in IHRM that have evolved during the past 2 decade. The implications for IHRM of the global realities for MNEs were provided at four different level. Considering only the workforce level, since our research focuses on entering professionals, we see more emphasis has been placed on managing diversity, requirement

of talented individuals, employee's readiness and HRM policies and practices with respect to global workforce (Schuler & Tarique, 2007).

Implications for IHRM: Workforce Level

1. Greater need for transnational and diverse teams, global leadership, and borderless careers.
2. High-quality managers, those that can motivate employees to innovate, will be in big demand.
3. High-talent individuals, those who have skills and are flexible and innovative, will be in big demand.
4. Need for global mindsets and cross-cultural competencies.
5. Need to think of IHRM policies and practices in terms of the global workforce but also in terms of regional and local workforces and how to mesh them.
6. Need to prepare employees to deal with complexity, volatility and change.
7. The challenge of managing employees of an MNE will increase as MNEs get larger.

(As cited in Schuler & Tarique, 2007) Based upon R.S. Schuler, I. Tarique and S.E. Jackson, 'International Human Resource Management', Presentation at the 7th IHRM Conference, Limerick, Ireland, June 2004; Schuler and Jackson (2005: 11–35); D. Briscoe and R. S. Schuler, *International Human Resource Management* 2nd edn. London: Routledge, 2005; PriceWaterhouseCoopers, 9th Annual Global CEO Survey: Globalisation and Complexity, New York: PWC; Trade and Development Report (Geneva: UNCTAD, 2005, especially Chapter V); R. Schuler, 'IHRM: Realities and Trends for MNEs: Implications for the IHRM Field and IHR Professionals,' Presentation at the Rutgers

Business Conference, Rutgers University, New Brunswick, NJ, 24 March 2006. R. Schuler, 2006; The Global Competitiveness Report 2006–2007, World Economic Forum: Davos, Switzerland, 2006; and Garelli (2006: 46–51).

Since Construction is one such industry where the management has to deal with diverse workforce, IHRM's implications for global realities can be a good place to further investigate on the problems that management face.

Global Talent Management

Today's global economy has created a more complex and dynamic environment in which most firms must learn to compete effectively to achieve sustainable growth. Workforces around the world have become larger, increasingly diverse, more educated, and more mobile (Briscoe, Schuler, & Claus, 2009) (Friedman, 2005). The current global environment has both changed the way business is conducted and created need for organizations to manage their workforces in a global context. Organizations that are large and small, public and private, have recently come to the realization that in order to gain and sustain a global competitive advantage they must manage their workforces effectively. And to do so they must confront the reality of *global* talent management (GTM) and its many challenges and develop human resource management activities to meet those challenges (as cited in Tarique, 2010, Beechler & Woodward, 2009 ; Collings & Mellahi, 2009).

In Schuler and Tarique's framework of GTM in MNEs, the exogenous drivers of GTM challenges are the demographics, demand-supply gap and globalisation. Exogenous drivers refer to forces or drivers that are external to the firm and that are largely beyond

management's control but can create challenges that can affect an organization's IHRM system (Schuler, Dowling, & DeCieri, 1993).

Globalization

Majority of studies in this area discussed the challenges associated with talent flow which refers to the migration of talented individuals between countries for a variety of reasons such as to undertake advanced studies abroad and/or acquire foreign work experience, and then subsequently return to their country of origin to take advantage of economic opportunities and development (Carra, Inkson, & Thorn, 2005) (Tung, 2008). A few studies have compared talent flow to the notion of 'brain drain' and suggested that the latter is too restrictive and does not focus on the psychology of migration as well as the economic, political, cultural, family, and career forces motivating it (Carra, Inkson, & Thorn, 2005).

Demographics

Research that talked about demographics has examined the challenges associated with the changing workforce demographics. Current trends show that while the size of populations of much of the developed economies is projected to remain relatively stable (but get older), and in some cases even shrink, the populations of the developing economies and those just emerging economies are expanding and getting younger (Strack, Baier, & Fahlander, 2008). Research along these lines has attempted to examine how organizations attract, select, develop, and retain two generations of employees: older or mature workers and younger workers (also referred to as "Generation Y" born between 1980 and 1995) both of which have many high talent individuals (Faust, 2008).

Demand–Supply Gap

Studies in this category have found that a majority of employers worldwide are having difficulty filling positions due to the lack of suitable talent available in their markets (Strack, Baier, & Fahlander, 2008). There are also studies that focused on the causes of the shortages such as the changes in the employment relationship (Cappelli, 2005), and a misfit or mismatch between the training adequacy and employment structure (McGuinness & Bennett, 2006).

Previous Research Works

Previous research works in work values were used in the field of psychology and organizational behavior. Manhardt 1972 and Meyer et al, 1998 are two major researches that has been followed by researchers in this particular scope. However, the measure used in this study consists of 21 job characteristics developed by Manhardt (1972). Items are rated on a five-point scale (1 = *not important*, 5 = *very important*). Despite their similarity, both Manhardt, 1972 and Meyer et al., 1998 had slightly different results as to the structure of the scales within the measure. Manhardt's analysis resulted in dropping four items out of the 25 items originally created for low factor loadings. One of the recent researches on job characteristics in Construction Management students is done by Moore 2011, who used manhardt's work values inventory as her measure.

Meyer et al. 1998

Meyer, Irving and Allen in 1998 tested the hypothesis that the influence of early work experiences on organization commitment would be moderated by the value employees place on these experiences. They measured work values in two samples of

recent university graduates prior to organizational entry. They found that the nature of the interaction was different for different work value/experience combinations (Meyer, Irving, & Allen, 1998). Meyer and colleague used a sample of 257 university graduate and undergraduate students from MBA program that had recently graduated and started full-time employment to examine the structure of Manhardt's instrument. Participants completed the measure at three different time points— pre-entry to the job, 1 month, and 6 months. Internal consistency reliability (coefficient alpha) over the three time periods ranged from .63 to .72 for Comfort and Security; .65 to .80 for Competence and Growth; and .62 to .68 for Status and Independence.

The following are Manhardt's work values inventory as used in Meyer et al, 1998:

Comfort and security:

- Permits a regular routine in time and place of work
- Provides job security
- Has clear-cut rules and procedures to follow
- Provides ample leisure time off the job
- Provides comfortable working conditions

Competence and growth:

- Requires meeting and speaking with many other people
- Is intellectually stimulating
- Requires originality and creativeness
- Makes a social contribution by the work you do
- Satisfies your cultural and aesthetic interests

- Encourages continued development of knowledge and skills
- Permits you to develop your own methods of doing the work
- Provides a feeling of accomplishment
- Provides change and variety in duties and activities

Status and independence:

- Permits advancement to high administrative responsibility
- Provides the opportunity to earn a high income
- Requires supervising others
- Permits working independently
- Is respected by other people
- Requires working on problems of central importance to the organization
- Gives you the responsibility for taking risks

Moore 2011

Moore's research was destined to give those construction organizations focused on strategic human resource management a better understanding of the individuals currently entering the workforce (2011). The study involved defining work values and career expectations of soon-to-be Construction Management graduates as related to their personal characteristics (Moore, 2011).

Based upon Manhardt's (1972) Work Values Inventory, students from construction management program were asked to rank 21 job characteristics on a scale of 1 (least important) to 5 (most important). The 21 items included within Work Values Inventory can be grouped into 3 separate constructs. In this instance, the values were broken into the

constructs of comfort and security, competence and growth, and status and independence. Moore found that the work values associated with status and independence ranked above those associated with competence and growth and comfort and security. Constructs of status and independence had highest mean scores.

Summary of Literature Review

This chapter covered the definition of work values and its different types. Explained how HRM policies and practices are associated with high (financial) performance, and can encourage employee behavior and attitudes towards strengthening the competitive strategy of an organization. The Literature review also determined if the graduates were meeting the needs and standards of industry and on how there are few skills were the graduates fell below expectation of the Construction Managers. This highlights the skill shortage in current graduates and the necessity for a better training program.

In spite of the graduate's failure to meet standards, it is also necessary for HR leaders to manage the current generation effectively. Hoover (2015) feels critical of the HR leaders managing the current generation, she says that millennials are often unfairly saddled with the dubious reputation for being entitled, disloyal, self-centered or optimistic go-getters, but it turns out that they're actually not that different from their older work colleagues. Madadi and Piper's study also supports this misunderstanding of millennial's values. This reflects the misunderstanding of their values and falling under the common presumption about a generation of workers who are overtaking other generations in the workforce.

The final part of this chapter, depicted the history of work values inventory and its usage in different researches (Moore, 2011 and Meyer., et.al 1998). This shows one the reliability of the survey instrument being used in this study. The usage of the work values inventory in these researches also explains how the 21 job characteristics are grouped under 3 different constructs.

CHAPTER THREE

RESEARCH METODOLOGY

Through our Literature search, we see that values have an influence in career expectations of the entering professionals. Although there are evidences connecting perceptions and values with career expectations, researches on career choices and about industry's image has been minimal or limited in recent years. This remained as a drive to look into the perceptions and work values of students who will be entering the construction industry. It will be a phenomenal observation to see if there is a difference between what work values the graduates hold and what they perceive about the industry(in their career).

Research Design

The research design used for this study is a comparative and non-experimental approach. Since our study involves comparison of values amongst people of different origin, it will help in increasing the range of independent variables available for study in a culture. Comparative research, simply put, is the act of comparing two or more things with a view to discovering something about one or all of the things being compared. This technique often utilizes multiple disciplines in one study. When it comes to method, the majority agreement is that there is no methodology peculiar to comparative research (Heidenheimer, Heclo, & Adams, 1983).

Non experimental research approach generally lacks the manipulation of an independent variable, random assignment of participants to conditions or orders of conditions, or both. Non experimental research usually do not provide strong evidence that

changes in an independent variable because of differences in a dependent variable. (Price, 2016).

Cross-cultural research can also make contributions to theory development by identifying groups of people who might seem to behave contrary to other groups of people (Brislina, 1976). Since our study involves identifying and comparing work values and perceptions, it is felt that this research design is appropriate.

A survey questionnaire was developed based on literatures on Human Resource Managements, Employment, work values and job characteristics. The population selected was construction science and management students from Clemson University. The questions in the survey comprises of two sections – 1.General information or demographics and 2. Work values and perceptions. The second section represents the core of this research work and the first section used data for grouping and comparisons. A pilot test was performed with the help of 10 volunteering students and their feedbacks and level of understanding the survey was noted for refining the questionnaire. The survey was handed out to the respondents in hard copies and the responses were collected and uploaded to www.surveymonkey.com. The data collected was grouped based on program classification, college year, construction experience and citizenship. TTest and Anova test were performed on these grouped data to find any statistical inference.

Sampling Frame

Sampling frame for this research is taken from a student population from the Construction Science and Management program in Clemson University. This student population is presumably representative or typical of the larger population entering the

construction industry. All the students surveyed are enrolled in either Undergraduate or Graduate Construction Management Program. The Construction Science and Management Program currently has 180 students, out of which 155 students responded to the survey. Out of this 155 respondents 141 (90%) were male and 16 (10%) were female. Age of the respondents ranged between 18 years and 31 years with an average of 21 years. Out of the 155 students who responded, 6 were graduate students (4%), 21 were freshman (14%), 52 were sophomore (34%), 41 were junior (26%) and 35 were seniors (23%). 151 students identified themselves as US citizens (97%) and remaining 4 students are non-US citizens (Indian – 3%). Additionally 134 out of 155 respondents identified themselves as Caucasians (86%).

Data Collection

The survey instrument used for this study is self-administered survey. The purpose of the instrument in this study is to collect data and analyze it statistically (quantitative analysis). The survey comprises of 14 question, in which the first 12 questions gathered demographic variables. These demographic variables were later used in the statistical analysis of questions 13 and 14. Questions 13 and 14 of this survey was developed through Manhardt's (1972) Work Values Inventory. The Work Values Inventory, was originally developed to assess the importance of 25 different job characteristics. Manhardt found that 21 of these characteristics grouped into three dimensions and also Meyer, Irving, & Allen, 1998 used these characteristics in their study of work values and early work experiences on organizational commitment. Adding to these previous research works, it is Dr. Moore's study on work values (2011) which inspired this study, which also used the 21

characteristics from Manhardt's characteristics (Moore, 2011). Thus these 21 characteristics were included as part of this survey instrument.

The survey sections and questions were designed to be self-explanatory and made simple to understand and interpret. The questionnaire had four different types of questions (based on responses) such as dichotomous questions, multiple choice questions and likert scale type questions and open ended questions. A 5-point likert scale was used for questions 13 and 14. For the 21 items in question 13, the Likert scale was 1. Not significant 2. Less significant 3. Somewhat significant 4. Significant 5. Highly significant. . For the 21 items in question 14, the likert scale was 1. Strongly Disagree 2. Disagree 3. Neither agree nor disagree 4. Agree 5.Strongly agree.

A cover letter was created to explain to the respondents that their involvement in the study is purely voluntary and there is no benefits or known risks by participating in this survey. The survey questionnaire along with the cover letter was handed out in person to the respondents in their respective classes. They were given enough time (15 to 30 mins) to finish their survey and return the questionnaire. The data administering and data collection proceeded for 2 weeks and a final total of 166 surveys were collected, out of which 155 were usable, 11 of the responses were either incomplete or were not received before the deadline.

Reliability and Validity of Instrument

Previous research studies on work values (Manhardt's and Moore's works) have shown that the 21 characteristics are grouped into 3 construct such as 1. Comfort and security, 2. Competence and growth and 3. Status and independence. But in this study, the

21 characteristic were not grouped and analyzed, instead were individually assessed. Thus the construct validity is not as significant when compared to the content validity in this research's scope. Measuring reliability is different as one must express reliability of an instrument in numerical form, generally as a correlation coefficient. (Gliner & Morgan, 2000) (Moore, 2011).

Using previously validated scales to measure work values of this population itself will be an advantage as the validity and reliability of the survey instrument has been tested. In Meyer et al.'s (1998) modification of Manhardt's Work Values Inventory instrument, coefficient alpha values ranged from 0.63 to 0.72 for the construct of comfort and security, 0.65 to 0.80 for competence and growth, and 0.62 to 0.68 for status and independence (Moore, 2011). The alpha values denote the internal consistency or the internal consistency reliability of the test, the range of alpha is generally between 0 and 1. Alpha generally increases when the correlations between the items increase (Explorable.com, 2010). The value placed on comfort and security correlated positively with the value placed on status and independence and continuance commitment. The value placed on competence and growth correlated positively with the value placed on status and independence, normative commitment, and affective commitment (Meyer et al., 1998).

Data Analysis

Statistical analysis was used to find answers for the research questions. Descriptive analysis was conducted for those demographic question (questions 1 to 12). The measures included gender, age, program enrolled, nationality, race, construction experience, position seeking, type of work, sector and career path. Inferential statistics were used to make

inference about population values based upon sample data which was collected and analyzed. Comparative analysis was conducted for questions 13 and 14. The 21 characteristics from Manhardt's work value inventory that was used in this survey was treated as independent variables. Although Moore (2011) and Meyer et al.'s (1998) modification of this work values inventory deals with grouping the 21 characteristics into 3 different construct, this study simply retained the 21 characteristics as 21 independent variables so that the statistical analysis (comparative) for these 21 characteristics can more narrowly be identified. Anova and t test was used for statistical analysis, t test were used for comparing between two samples and to hypothesize if they are different. Anova tests were performed for testing differences between more than two samples (groups).

CHAPTER FOUR

FINDINGS

The purpose of this research is to identify and compare the work values and perceptions of construction management students. To compete in an industry which is diverse and has high personal risk, it is necessary for those firms using HRM strategies to be aware of the work values and career expectation of these aspiring professionals. The subject was of interest because for the first time millennials (individuals born between 1980 and 2000) became the majority in the workforce during 2015. This is a significant shift for companies, as they now have to figure out how to effectively attract, recruit and retain these younger workers. The population targeted are these soon to be younger workers, who are currently an under-graduate or graduate student in Construction Management program.

This chapter is divided into four sections. The first section will review the survey instrument used in this study. The second section gives an overall depiction about the sample selected from the population. Few demographic questions were added in the survey so as to give one an idea about the entering construction professionals. The demography of construction experience and classification of program are used for further statistical analysis. The third section will provide the research questions that guided this study. The fourth section will report the findings of the study. The analysis of the results will be presented in Chapter 5.

Survey Instrument

The research design used for this study is a comparative and non-experimental approach. A survey questionnaire was developed based on literature on Human Resource

Managements, Employment, work values and job characteristics. The population selected was construction science and management students from Clemson University. The questions in the survey comprise of two sections – 1. General information or demographics and 2. Work values and perceptions. The second section represents the core of this research work and the first section used data for grouping and comparisons.

The demographic section of the survey contained questions that targeted the gender, age, program classification, program enrolled, citizenship and race. Another sub section was added to this section so as to identify the career paths of the respondents. This section contained questions that asked for the construction experience, position preferred, type of work, sector preferred and career path (see appendix A). This section didn't ask about the locations where the students come from or where they would prefer working which remains as a limitation in this survey.

The second section is the work values and perceptions section. This section has used Manhardt's work values inventory (1972). This section has 21 job characteristics under each questions 13 and 14. Question 13 captures the significance of work values or the job characteristics. Survey respondents were asked to rate the 21 work values from a Likert Scale which ranged from 1- not significant to 5- highly significant. Question 14 listed the 21 job characteristics and asked the respondents as to how they perceive these 21 characteristics in their construction career. The respondents were required to record their level of agreement for these 21 characteristics under question 14. The responses were recorded over a Likert Scale which ranged from 1- strongly disagree to 5- strongly agree.

Demographic of the Sample

The demographic questions was significant in giving one a basic understanding of the sample surveyed. A total of 155 student responses was considered. Among the 155 students, 139 students (90%) were male and 16 students (10%) were female. 32 students (20.6%) were below 20 years of age, 105 students (67.7%) were in the age bracket of 20 to 24, 10 students (6.5%) were in the age bracket of 25 to 31 and 8 students preferred not to disclose their age (Table 1). The survey also took the educational stage of the student into consideration. The sample size of 155 students included 21 freshmen, 52 sophomores, 41 juniors, 35 seniors and 6 graduates.

The survey considered the citizenship of the students as descriptive data and also used it for grouping the responses to perform comparative analysis. From the responses obtained, it has been recorded that 151 Students were citizens of the United States and 4 students were citizens of India (Table 1). In addition to that, the race of the students was also used for descriptive presentation, there were 134 Caucasians, 8 African Americans, 4 Spanish / Hispanic / Latino and 4 Asians. 5 students preferred not to reveal their race.

Construction experience was another important aspect that was considered for statistical analysis. From the survey analysis, it could be found that 46 students had construction experience of less than a year, 87 students had construction experience between 1 to 3 years. 22 students had construction experience of more than 3 years. It is also important to know what sector these students prefer in their career, 108 students preferred to work in the private sector, 40 students preferred to work in the public sector,

5 students preferred to work in the military sector and 1 student who wished to undertake non-profit or missionary work.

Table 1: Demographic Profile of Respondents

Variable	n	%
Gender		
male	139	89.7%
female	16	10.3%
Total	155	
Age		
<20 years	32	20.6%
20 to 24 years	105	67.7%
25 to 31 years	10	6.5%
skipped	8	5.2%
Total	155	
Program		
freshman	21	13.5%
sophomore	52	33.5%
junior	41	26.5%
senior	35	22.6%
Graduate	6	3.9%
Total	155	
Citizenship		
US	151	97.4%
Indian	4	2.6%
Total	155	100.0%
Race		
Caucasian	134	86.5%
African American	8	5.2%
Spanish / Hispanic / Latino	4	2.6%
Asian	4	2.6%
skipped	5	3.2%
Total	155	
Construction Experience		
<1 year	46	29.7%
1 to 3 years	87	56.1%
>3 years	22	14.2%
Total	155	
Sector		
Private Sector	108	69.7%
Public Sector	40	25.8%
Military Services	5	3.2%
Other	1	0.6%
Non-Profit or Missionary Work	1	0.6%
Total	155	

The students were also asked which post they would be seeking post-graduation. 48 students were interested to become Field Engineer or Asst. Superintendent, 16 said they would like to be Self-Employed or Partners, 13 responded for Estimating or Pre-Construction, 49 preferred Office or Project Engineer, 31 had not yet decided and 11 chose other posts. The survey also asked as to which type of work the students will be performing post-graduation, for which 3 students chose Owner's Representative, 8 preferred Industrial Builder, 107 were interested in Commercial Builder, 30 in Residential Builder, 5 chose Heavy / Highway / Civil builder, 8 preferred Sub-Contracts, 3 chose Vendor / Supplier and 7 students chose other type of works.

Research Questions

The survey targets students from undergraduate and graduate Construction Science and Management program who are enrolled in the Construction Science and Management program during spring 2016. The survey instrument was framed around these following research questions.

1. What are the work values of construction management students?
2. How do the students of construction management program perceive the construction industry's ability to meet various work values?
3. How do the work values of construction management students relate with their perception about the industry?
4. How do the work values/expectations differ between international and domestic construction management students?

5. How have the work values of construction students changed over time?

(Comparison to Moore's work)

Work Values and Perceptions of Students

Work value can be defined as the importance individuals give to a certain outcome obtained within the work context (Elizur, 1984). Whereas perception in means to be aware or to interpret an idea. These are the criteria that can influence a student's career choices. Question 13 and 14 (refer appendix A) were about the work values and perceptions, Tables 2 and 3 shows the mean, median and standard deviation for the 21 job characteristics.

The work values as rated by the students shows us how significant the following 21 values are for them. Based on the student's responses we can infer that job characteristics such as permitting to work independently (20), satisfying cultural and aesthetic interests (10), requiring to supervise others (17) are least preferred or in other words less significant. On the other hand job security (2), feeling of accomplishment (13) and an opportunity to earn a high income (16) are more preferred by the respondents.

Table 2. Work Values of the Students

Work Values	Min	Max	Median	Mean	SD
1 Permits a regular routine in time and place of work	1	5	4	3.57	0.95
2 Provides job security	2	5	5	4.53	0.65
3 Has clear-cut rules and procedures to follow	2	5	4	3.67	0.8
4 Provides ample leisure time off the job	2	5	3	3.55	0.94
5 Provides comfortable working conditions	1	5	4	3.75	1.01
6 Requires meeting and speaking with many other people	1	5	4	3.52	0.98
7 Intellectually stimulating	1	5	4	3.85	0.8
8 Requires originality and creativity	2	5	4	3.77	0.83
9 Allows me to make a social contribution by the work I do	2	5	4	3.77	0.79
10 Satisfies my cultural and aesthetic interests	1	5	3	3.31	0.98
11 Encourages continued development of knowledge and skills	2	5	4	4.25	0.77
12 Permits me to develop my own methods of doing the work	2	5	4	3.9	0.79
13 Provides a feeling of accomplishment	2	5	5	4.48	0.65
14 Provides change and variety in duties and activities	1	5	4	3.83	0.85
15 Permits advancement to high administrative responsibilities	2	5	4	4.14	0.84
16 Provides the opportunity to earn a high income	2	5	5	4.44	0.76
17 Requires supervising others	1	5	4	3.46	0.9
18 Calls for respect from other people	1	5	4	3.95	0.84
19 Requires working on problems of central importance to the organization	2	5	4	3.77	0.76
20 Permits working independently	1	5	3	3.26	1.05
21 Gives me the responsibility for taking risks	1	5	4	3.65	0.82

Q.14, The Construction Industry as perceived by the students is rated based on their level of agreement to the 21 job characteristics statements. Based on the responses from 155 construction management students, it can be inferred that most of the students agree that a career in construction industry will require them to supervise others (17), provide a feeling of accomplishment (13), and require meeting and speaking with many other people (6).

Figure 1, shows the difference in average rating between work values and perceptions. The scale shows the absolute values of the difference, to give one an idea about how big there is a difference between what the students expect and what they perceive in the industry. Through figure 1, we see that the following job characteristics are the ones where there is a huge difference between work values and perceptions: “6.Require meeting and speaking with many other people, 17.Require me to supervise others, 2.Provide job security, 4.Provide ample leisure time off the job, 5.Provide comfortable working conditions”. The red bars in figure 1 show that the perceptions is greater than work values and the blue bars show that the work values are greater than perceptions.

Table 3. Perceptions of Students

	Perceptions	Min	Max	Median	Mean	SD
1	Permit a regular routine in time and place of work	1	5	3	3.25	1.02
2	Provide job security	2	5	4	3.77	0.8
3	Have clear-cut rules and procedures to follow	1	5	4	3.59	0.94
4	Provide ample leisure time off the job	1	5	3	2.85	0.88
5	Provide comfortable working conditions	1	5	3	3.26	0.9
6	Require meeting and speaking with many other people	2	5	5	4.46	0.65
7	Be intellectually stimulating	2	5	4	4.1	0.76
8	Require originality and creativity	2	5	4	4.01	0.79
9	Allow me to make a social contribution by the work I do	2	5	4	3.93	0.78
10	Satisfy my cultural and aesthetic interests	1	5	3	3.4	0.98
11	Encourage continued development of knowledge and skills	3	5	4	4.26	0.67
12	Permit me to develop my own methods of doing the work	2	5	4	3.75	0.81
13	Provide a feeling of accomplishment	2	5	5	4.41	0.68
14	Provide change and variety in duties and activities	1	5	4	4.11	0.84
15	Permit me to advance to high administrative responsibilities	2	5	4	4.01	0.69
16	Provide me the opportunity to earn a high income	3	5	4	4.2	0.61
17	Require me to supervise others	2	5	4	4.26	0.72
18	Make me feel respected by other people	2	5	4	3.88	0.79
19	Require work on problems of central importance to the organization	1	5	4	3.9	0.74
20	Will permit me to work independently	1	5	3	3.02	1.05
21	Will give me the responsibility for taking risks	2	5	4	4.08	0.71



Figure 1. Difference in Average Rating between Work Values and Perceptions

Work Values vs. Construction Experience

Research question 1 asks what are the work values of construction management students. To further investigate into how the work values are influenced by construction experience, a two tailed t-test was done by grouping the responses based on the student's construction experience. There were three groups involved:

- Group A - Construction experience of less than 1 year.
- Group B - Construction experience of 1 – 3 years.
- Group C - Construction experience greater than 3 years.

Group A vs. Group B

The findings showed that there was a statistically significant difference between group A and B for the work value “17. Requires supervising others” ($p= 0.02$).

Group B vs. Group C

The findings showed that there was a statistically significant difference between group B and C for the work value “21. Gives me the responsibility for taking risks” ($p= 0.03$).

Group C vs. Group A

The findings showed that there was a statistically significant difference between group B and C for the work value “18. Calls for respect from other people” ($p= 0.02$).

Work Values vs. Construction Program Classification

The student's responses were grouped based on their program classification as freshman, sophomore, junior, senior and graduate. A single factor ANOVA was done to see if there are any differences in the work values with variables as varied as construction

program classification (table 4). There was a statistically significant difference between the different program classifications for 2 of the 21 work values. Firstly for the job characteristic “3. Has clear-cut rules and procedures to follow” (p=0.007), a post-hoc t test was done amongst the variables and statistically significant differences were found between freshman and sophomore (p=0.01), freshman and senior (p=0.006), junior and senior (p=0.03), and senior and grad (p=0.04).

*Table 4: Anova test for work value “Has clear-cut rules and procedures to follow”
Anova: Single Factor 3*

SUMMARY						
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
freshman	21	84	4	0.5		
sophomore	52	183	3.519231	0.685897		
junior	41	156	3.804878	0.610976		
senior	35	120	3.428571	0.546218		
graduate	6	26	4.333333	0.666667		

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between						
Groups	8.894799	4	2.2237	3.652413	0.00719	2.431965
Within Groups	91.32456	150	0.60883			
Total	100.2194	154				

Significant at the 0.05 level

Another significant difference was found between the different program classifications for the work value “9. Allows me to make a social contribution by the work I do” (p=0.01) (table 5). A post-hoc t test was done amongst the variables and statistically

significant differences were found between freshman and sophomore ($p=0.007$), freshman and junior ($p=0.007$), freshman and grad ($p=0.003$), and senior and grad ($p=0.01$).

Table 5: Anova test for work value “Allows me to make a social contribution by the work I do” Anova: Single Factor 9

SUMMARY						
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
freshman	21	71	3.380952	0.447619		
sophomore	52	202	3.884615	0.535445		
junior	41	161	3.926829	0.669512		
senior	35	125	3.571429	0.722689		
graduate	6	26	4.333333	0.266667		

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	8.151451	4	2.037863	3.436712	0.010162	2.431965
Within Groups	88.94532	150	0.592969			
Total	97.09677	154				

Significant at the 0.05 level

Perceptions vs. Construction Program Classification

A single factor ANOVA was done for the 21 job characteristics to see if there are any differences in the perceptions with variables as varied as construction program classification. There was a statistically significant difference between the different construction program classifications for the following job characteristics: 1. Permit a regular routine in time and place of work, 4. Provide ample leisure time off the job, 6. Require meeting and speaking with many other people, 7. Be intellectually stimulating, 10. Satisfy my cultural and aesthetic interests, 16. Provide me the opportunity to earn a high

income, 17. Require me to supervise others, 20. Will permit me to work independently.

Tables 6 through 13 show the ANOVA test for the 21 job characteristics.

Table 6. Anova test for job characteristic “1. Permit a regular routine in time and place of work” Anova: Single Factor 1

SUMMARY						
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
freshman	20	79	3.95	0.576316		
sophomore	52	160	3.076923	0.699849		
junior	41	146	3.560976	1.052439		
senior	35	95	2.714286	1.151261		
graduate	6	19	3.166667	1.766667		

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	25.39433	4	6.348583	6.919003	3.89E-05	2.432374
Within Groups	136.7161	149	0.917557			
Total	162.1104	153				

Significant at the 0.05 level

Table 7: Anova test for job characteristic “4. Permit a regular routine in time and place of work” Anova: Single Factor 4

SUMMARY						
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
freshman	20	65	3.25	0.723684		
sophomore	52	158	3.038462	0.704374		
junior	41	118	2.878049	0.709756		
senior	35	82	2.342857	0.52605		
graduate	6	16	2.666667	1.866667		

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	14.28257	4	3.570642	5.053321	0.000758	2.432374
Within Groups	105.2824	149	0.706593			
Total	119.5649	153				

Significant at the 0.05 level

Table 8: Anova test for job characteristic “6. Require meeting and speaking with many other people” Anova: Single Factor 6

SUMMARY						
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
freshman	20	83	4.15	0.660526		
sophomore	52	235	4.519231	0.254525		
junior	41	179	4.365854	0.537805		
senior	35	163	4.657143	0.34958		
graduate	6	28	4.666667	0.266667		

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	4.07565	4	1.018913	2.519298	0.043645	2.432374
Within Groups	60.26201	149	0.404443			
Total	64.33766	153				

Significant at the 0.05 level

Table 9: Anova test for job characteristic “7. Be intellectually stimulating” Anova: Single Factor: 7

SUMMARY						
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
freshman	20	73	3.65	0.765789		
sophomore	52	221	4.25	0.426471		
junior	41	173	4.219512	0.52561		
senior	35	142	4.057143	0.584874		
graduate	6	22	3.666667	1.066667		

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	6.995523	4	1.748881	3.156923	0.015914	2.432374
Within Groups	82.54344	149	0.553983			
Total	89.53896	153				

Significant at the 0.05 level

Table 10: Anova test for job characteristic “10. Satisfy my cultural and aesthetic interests”
 Anova: Single Factor 10

SUMMARY						
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
freshman	20	60	3	1.473684		
sophomore	52	192	3.692308	0.726998		
junior	41	141	3.439024	0.952439		
senior	35	109	3.114286	0.810084		
graduate	6	22	3.666667	1.466667		

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	10.98829	4	2.747072	2.964952	0.0216	2.432374
Within Groups	138.0507	149	0.926515			
Total	149.039	153				

Significant at the 0.05 level

Table 11: Anova test for job characteristic “16. Provide me the opportunity to earn a high income” Anova: Single Factor 16

SUMMARY						
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
freshman	20	81	4.05	0.576316		
sophomore	52	211	4.057692	0.369155		
junior	41	174	4.243902	0.289024		
senior	35	156	4.457143	0.314286		
graduate	6	25	4.166667	0.166667		

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	3.902794	4	0.975698	2.750425	0.030341	2.432374
Within Groups	52.85695	149	0.354745			
Total	56.75974	153				

Significant at the 0.05 level

Table 12: Anova test for job characteristic “17. Require me to supervise others”
 Anova: Single Factor 17

SUMMARY						
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
freshman	20	76	3.8	0.905263		
sophomore	52	219	4.211538	0.366139		
junior	41	175	4.268293	0.60122		
senior	35	159	4.542857	0.314286		
graduate	6	27	4.5	0.3		

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	7.502818	4	1.875704	3.875875	0.00503	2.432374
Within Groups	72.10757	149	0.483943			
Total	79.61039	153				

Significant at the 0.05 level

Table 13: Anova test for job characteristic “20. Will permit me to work independently”
 Anova: Single Factor 20

SUMMARY						
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
freshman	20	74	3.7	1.273684		
sophomore	52	153	2.942308	0.800528		
junior	41	122	2.97561	0.82439		
senior	35	103	2.942857	1.643697		
graduate	6	14	2.333333	0.666667		

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	12.67452	4	3.168631	3.002934	0.020335	2.432374
Within Groups	157.2216	149	1.055178			
Total	169.8961	153				

Significant at the 0.05 level

Comparison of Work Values and Perceptions

Research Question 3 addressed the comparison between work values and perceptions. The objective is to find if there is a difference between what the students hold as values and what they perceive about the industry. Since the same students responded to both groups of questions under work values and perception, a paired t test was used for this statistical approach. The means for work values and perception was checked for significant difference for each of the 21 job characteristics. Tables 14 to 27 shows that there was a statistically significant difference between work values and perceptions for 14 of the job characteristics.

Table 14: *t* test for job characteristic “1. Permits a regular routine in time and place of work” *t*-Test: Paired Two Sample for Means

	13.1	14.1
Mean	3.567742	3.245161
Variance	0.909342	1.056389
Observations	155	155
Pearson Correlation	0.473215	
Hypothesized Mean Difference	0	
df	154	
t Stat	3.941665	
P(T<=t) one-tail	6.12E-05	
t Critical one-tail	1.654808	
P(T<=t) two-tail	0.000122	
t Critical two-tail	1.975488	

Significant at the 0.05 level

Table 15: *t* test for job characteristic “2. Provides job security” *t*-Test: Paired Two Sample for Means

	13.2	14.2
Mean	4.529032	3.76129
Variance	0.419606	0.65044
Observations	155	155
Pearson Correlation	0.094144	
Hypothesized Mean Difference	0	
df	154	
t Stat	9.6966	
P(T<=t) one-tail	5.97E-18	
t Critical one-tail	1.654808	
P(T<=t) two-tail	1.19E-17	
t Critical two-tail	1.975488	

Significant at the 0.05 level

Table 16: *t* test for job characteristic “4. Provides ample leisure time off the job”
t-Test: Paired Two Sample for Means

	13.4	14.4
Mean	3.548387	2.851613
Variance	0.88563	0.77654
Observations	155	155
Pearson Correlation	0.310176	
Hypothesized Mean Difference	0	
df	154	
t Stat	8.097306	
P(T<=t) one-tail	7.96E-14	
t Critical one-tail	1.654808	
P(T<=t) two-tail	1.59E-13	
t Critical two-tail	1.975488	

Significant at the 0.05 level

Table 17: *t* test for job characteristic “5. Provides comfortable working conditions”
t-Test: Paired Two Sample for Means

	13.5	14.5
Mean	3.741935	3.251613
Variance	1.023879	0.82589
Observations	155	155
Pearson Correlation	0.45945	
Hypothesized Mean Difference	0	
df	154	
t Stat	6.089942	
P(T<=t) one-tail	4.32E-09	
t Critical one-tail	1.654808	
P(T<=t) two-tail	8.65E-09	
t Critical two-tail	1.975488	

Significant at the 0.05 level

Table 18: *t* test for job characteristic “6. Requires meeting and speaking with many other people” *t*-Test: Paired Two Sample for Means

	13.6	14.6
Mean	3.516129	4.464516
Variance	0.965647	0.419187
Observations	155	155
Pearson Correlation	0.09021	
Hypothesized Mean Difference	0	
df	154	
t Stat	-10.4771	
P(T<=t) one-tail	4.99E-20	
t Critical one-tail	1.654808	
P(T<=t) two-tail	9.97E-20	
t Critical two-tail	1.975488	

Significant at the 0.05 level

Table 19: *t* test for job characteristic “7. Intellectually stimulating” *t*-Test: Paired Two Sample for Means

	13.7	14.7
Mean	3.851613	4.096774
Variance	0.646669	0.581483
Observations	155	155
Pearson Correlation	0.298893	
Hypothesized Mean Difference	0	
df	154	
t Stat	-3.28828	
P(T<=t) one-tail	0.000625	
t Critical one-tail	1.654808	
P(T<=t) two-tail	0.001249	
t Critical two-tail	1.975488	

Significant at the 0.05 level

Table 20: t test for job characteristic “8. Requires originality and creativity” t-Test: Paired Two Sample for Means

	13.8	14.8
Mean	3.767742	4.012903
Variance	0.685966	0.623209
Observations	155	155
Pearson Correlation	0.352213	
Hypothesized Mean Difference	0	
df	154	
t Stat	-3.31335	
P(T<=t) one-tail	0.000575	
t Critical one-tail	1.654808	
P(T<=t) two-tail	0.001149	
t Critical two-tail	1.975488	

Significant at the 0.05 level

Table 21: t test for job characteristic “9. Allows me to make a social contribution by the work I do” t-Test: Paired Two Sample for Means

	13.9	14.9
Mean	3.774194	3.922581
Variance	0.630499	0.617344
Observations	155	155
Pearson Correlation	0.336083	
Hypothesized Mean Difference	0	
df	154	
t Stat	-2.02964	
P(T<=t) one-tail	0.022057	
t Critical one-tail	1.654808	
P(T<=t) two-tail	0.044115	
t Critical two-tail	1.975488	

Significant at the 0.05 level

Table 22: *t* test for job characteristic “12. Permits me to develop my own methods of doing the work” *t*-Test: Paired Two Sample for Means

	13.12	14.12
Mean	3.896774	3.754839
Variance	0.625639	0.666778
Observations	155	155
Pearson Correlation	0.433088	
Hypothesized Mean Difference	0	
df	154	
t Stat	2.064019	
P(T<=t) one-tail	0.020347	
t Critical one-tail	1.654808	
P(T<=t) two-tail	0.040694	
t Critical two-tail	1.975488	

Significant at the 0.05 level

Table 23: *t* test for job characteristic “14. Provides change and variety in duties and activities” *t*-Test: Paired Two Sample for Means

	13.14	14.14
Mean	3.825806	4.103226
Variance	0.7292	0.716548
Observations	155	155
Pearson Correlation	0.213685	
Hypothesized Mean Difference	0	
df	154	
t Stat	-3.23934	
P(T<=t) one-tail	0.000734	
t Critical one-tail	1.654808	
P(T<=t) two-tail	0.001468	
t Critical two-tail	1.975488	

Significant at the 0.05 level

Table 24: *t* test for job characteristic “16. Provides the opportunity to earn a high income”
t-Test: Paired Two Sample for Means

	13.16	14.16
Mean	4.43871	4.2
Variance	0.585505	0.368831
Observations	155	155
Pearson Correlation	0.215189	
Hypothesized Mean Difference	0	
df	154	
t Stat	3.421791	
P(T<=t) one-tail	0.000398	
t Critical one-tail	1.654808	
P(T<=t) two-tail	0.000797	
t Critical two-tail	1.975488	

Significant at the 0.05 level

Table 25: *t* test for job characteristic “17. Requires supervising others” *t*-Test: Paired Two Sample for Means

	13.17	14.17
Mean	3.464516	4.258065
Variance	0.808798	0.517386
Observations	155	155
Pearson Correlation	0.325429	
Hypothesized Mean Difference	0	
df	154	
t Stat	-10.3843	
P(T<=t) one-tail	8.84E-20	
t Critical one-tail	1.654808	
P(T<=t) two-tail	1.77E-19	
t Critical two-tail	1.975488	

Significant at the 0.05 level

Table 26: *t* test for job characteristic “20. Permits working independently” *t*-Test: Paired Two Sample for Means

	13.20	14.20
Mean	3.258065	3.019355
Variance	1.101801	1.110013
Observations	155	155
Pearson Correlation	0.388858	
Hypothesized Mean Difference	0	
df	154	
t Stat	2.556169	
P(T<=t) one-tail	0.005776	
t Critical one-tail	1.654808	
P(T<=t) two-tail	0.011551	
t Critical two-tail	1.975488	

Significant at the 0.05 level

Table 27: *t* test for job characteristic “21. Gives me the responsibility for taking risks” *t*-Test: Paired Two Sample for Means

	13.21	14.21
Mean	3.651613	4.083871
Variance	0.670046	0.505907
Observations	155	155
Pearson Correlation	0.22896	
Hypothesized Mean Difference	0	
df	154	
t Stat	-5.64346	
P(T<=t) one-tail	3.9E-08	
t Critical one-tail	1.654808	
P(T<=t) two-tail	7.79E-08	
t Critical two-tail	1.975488	

Significant at the 0.05 level

Comparison of Work Values between Internationals and Domestic Students

Survey question 4 groups the responses into international and domestic criteria, then a t test was performed to check if the job characteristics for work values of international students differ significantly when compared with domestic students. A two tailed t test was performed and there was no statistically significant difference between the international students (n=4) and domestic students (n=151) for all of the 21 job characteristics.

Comparison over Time (with Moore's Work)

There is approximately eight years difference in time between Dr. Moore's study and this particular study, which suggests that students' values might have changed. To test if there is a difference in work values between these two samples from different time frame, we used Dr. Moore's sample's n, mean, SD (2008) and compared with the job characteristics under question 13 (refer appendix A). A t test was performed for each of the 21 job characteristics to check if there is any significant difference between Dr. Moore's sample mean and this study's sample mean. It was found that there was a statistically significant difference between Dr. Moore's sample mean and this study's sample mean for the following job characteristics:

3. Has clear-cut rules and procedures to follow (p=0.04)
4. Provides ample leisure time off the job (p=8.39E-11)
5. Provides comfortable working conditions (p=4.83E-06)
6. Requires meeting and speaking with many other people (p=0.03)
7. Intellectually stimulating (p=1.51E-05)

8. Requires originality and creativity (p=5.14E-05)
12. Permits me to develop my own methods of doing the work (p=1.52E-05)
14. Provides change and variety in duties and activities (p=3.71E-07)
15. Permits advancement to high administrative responsibilities (p=0.04)
17. Requires supervising others (p=1.58E-05)
18. Calls for respect from other people (p=0.0001)
19. Requires working on problems of central importance to the organization (p=6.3292E-05)
20. Permits working independently (p=3.39E-09)
21. Gives me the responsibility for taking risks (p=2.16E-08)

Summary

The survey was instrumental in understanding the work values and perceptions of the construction management students. By grouping the survey responses into various demographic criteria, an effort was made to understand the effect of construction experience and college year on work values and perceptions. It was also a curious case to find how the student's work values and perception about the industry fared against each other. One of the most significant findings is the number of job characteristics which the students felt differs as a work value for themselves in comparison with their perception about the industry. A total of 14 job characteristics out of 21 were identified as differences between work values and perceptions. This indicates that most of the job characteristics which the students valued for themselves seems to differ when they perceive them for a construction career.

A comparison of work values between internationals and domestic students was done, although the analysis didn't provide any significant findings, it would be a good focus for future research works. This research study was inspired by Dr. Moore's work on entering construction professionals, it was also a suggestion made by her in her research work, which churned this idea of comparing work values between two different sample groups at two different times. The findings of this comparison showed that there was a difference in 14 job characteristics. The general inference is that job characteristics such as – “following procedures, time off job, comfortable working conditions, interaction with other people, intellectually stimulating, creativity & originality, own methods at work, changes in duty or activities, advancement to administrative responsibilities, supervising others, respect from others, requiring to work on central important problems, working independently and responsibility to take risks” have changed over time.

CHAPTER FIVE

CONCLUSION

Summary of the Study

It is found that Millennials have surpassed Baby Boomers as the nation's largest living generation, according to population estimates released by the U.S. Census Bureau (Pew research centre, 2016). Millennials, whom we define as those ages 18-34 in 2015, now make up to 34% of the nation's workforce. With immigrants adding more numbers to this group than any other, the millennials' numbers are projected to peak in the next two decades. This is a significant consideration for companies that now have to attract, retain and develop these largely misunderstood talents (Hoover, *Managing your Millennials*, 2015).

Adding to this problem is that the construction industry has an industry-wide problem with 'image', which according to Fielden (2000) makes both men and women reluctant or uninterested in the industry. He further explains that this problem is compounded by a general lack of knowledge and information about the industry, the career opportunities it offers and what qualifications are required by the industry (Fielden, 2000). The Bureau of Labor Statistics shows that the number of employees involved in construction between July 2005 and July 2015 has decreased by approximately 1 million. The underlying cause of the worker shortage, is the traditional view the construction industry holds of human resource management (Moore, 2011). Competitive pressures, both in domestic and in global markets has shifted the desired outcomes in the management of the employment relationship away from compliance and quiescence in employee behavior

towards customer and business requirements (Druker, 1996). It is based on these problems that one can say that there is a need for the employers to understand their employees.

The purpose of this research is to identify and compare the work values and perceptions of construction management students. To compete in an industry which is diverse and has high personal risk, it is necessary for those using HRM strategies to be aware of the work values and perception of the students towards the industry. Based on the problems that influences employment in the construction industry, 5 research questions guided the scope of this particular study:

1. What are the work values of construction management students?
2. How do the students of construction management program perceive the construction industry's ability to meet various work values?
3. How do the work values of construction management students relate with their perception about the industry?
4. How do the work values/expectations differ between international and domestic construction management students?
5. How have the work values of construction students changed over time?
(Comparison to Moore's work)

A survey questionnaire was developed based on literatures on Human Resource Managements, Employment, work values and job characteristics. Previous research works in work values were used in the field of psychology and organizational behavior. Manhardt 1972 and Meyer et al, 1998 are two major researches that has been followed by researchers in this particular scope. However, the measure used in this study consists of 21 job

characteristics developed by Manhardt (1972). One of the recent researches on job characteristics in Construction Management students is done by Moore (2011), whose study remains as an inspiration to this particular research.

The population selected was construction science and management students from Clemson University. Sampling frame for this research is taken from a student population from the Construction Science and Management program in Clemson University. This student population is presumably representative or typical of the larger population entering the construction industry. All the students surveyed are enrolled in either Undergraduate or Graduate Construction Management Program. There were 155 responses collected from a total of 180 student population, giving us a response rate of 86%.

Summary of Findings

This research intended to provide a demographic profile about the students surveyed. This can provide one with information as to who are these aspiring professionals and what are their motives in a construction career. Among the 155 students, 139 students (90%) were male and 16 students (10%) were female. 32 students (20.6%) were below 20 years and majority 105 students (67.7%) were in the age bracket of 20 to 24. The average age of all the 155 respondents is approximately 21 years. The collegiate program classification showed that there were 21 freshmen, 52 sophomores, 41 juniors, 35 seniors and 6 graduates.

From the responses obtained, it has been recorded that 151 Students were citizens of the United States and 4 students were citizens of India. Adding to that, there were 134 students (89%) identified themselves as Caucasians. Construction experience was another

important aspect that was considered for statistical analysis. From the survey analysis, it was found that 46 students (29%) had an experience of less than a year, 87 students (56%) had an experience between 1 to 3 years. It is also important to know what sector these students prefer in their career, in which most of them preferred either a private (108 responses) or a public sector (40 responses).

The students were also asked which post they will be seeking post-graduation, in which the majority of them considered to be a part of field or office experience. 48 students were interested to become Field Engineer or Assistant Superintendent, 49 preferred Office or Project Engineer. The study also reveals that there is an inclination towards commercial builders and residential builders for these future professionals - 107 were interested in Commercial Builder and 30 in Residential Builder.

Based upon Manhardt's (1972) Work Values Inventory participants were asked to rank 21 job characteristics on a scale of 1 (not significant) to 5 (highly significant). The work values as rated by the students shows one how significant the following 21 values are for them. Based on the student's responses one can infer that job characteristics such as permitting to work independently (20), satisfying cultural and aesthetic interests (10), requiring to supervise others (17) are least preferred or in other words less significant. On the other hand job security (2), feeling of accomplishment (13) and an opportunity to earn a high income (16) are most preferred by the respondents (Table 28). It is also essential to understand that the standard deviation is phenomenal in this work value setting and it remains a limitation of this study.

Table 28: Work Values of the Students (sorted by highest to lowest mean)

	Work Values	Mean	SD
2	Provides job security	4.53	0.65
13	Provides a feeling of accomplishment	4.48	0.65
16	Provides the opportunity to earn a high income	4.44	0.76
11	Encourages continued development of knowledge and skills	4.25	0.77
15	Permits advancement to high administrative responsibilities	4.14	0.84
18	Calls for respect from other people	3.95	0.84
12	Permits me to develop my own methods of doing the work	3.9	0.79
7	Intellectually stimulating	3.85	0.8
14	Provides change and variety in duties and activities	3.83	0.85
8	Requires originality and creativity	3.77	0.83
9	Allows me to make a social contribution by the work I do	3.77	0.79
19	Requires working on problems of central importance to the organization	3.77	0.76
5	Provides comfortable working conditions	3.75	1.01
3	Has clear-cut rules and procedures to follow	3.67	0.8
21	Gives me the responsibility for taking risks	3.65	0.82
1	Permits a regular routine in time and place of work	3.57	0.95
4	Provides ample leisure time off the job	3.55	0.94
6	Requires meeting and speaking with many other people	3.52	0.98
17	Requires supervising others	3.46	0.9
10	Satisfies my cultural and aesthetic interests	3.31	0.98
20	Permits working independently	3.26	1.05

This survey reworked the 21 job characteristics and quizzed the students as to how they perceive these job characteristics in a construction career. The Construction Industry as perceived by the students is rated based on their level of agreement to the 21 job characteristics statements. Based on the responses from 155 construction management students, it can be inferred that most of the students agree that a career in construction industry will require them to supervise others (17), provide a feeling of accomplishment (13), and require meeting, speaking with many other people (6). However there is lesser level of agreement to job characteristics such as - Provide comfortable working conditions

(5), Permit a regular routine in time and place of work (1), Will permit me to work independently (20), provide ample leisure time off the job (4) (Table 29). It is also essential to understand that the standard deviation is phenomenal in this perception setting and it remains a limitation of this study.

Table 29: Work Values of the Students (sorted by highest to lowest mean)

	Perceptions	Mean	SD
6	Require meeting and speaking with many other people	4.46	0.65
13	Provide a feeling of accomplishment	4.41	0.68
11	Encourage continued development of knowledge and skills	4.26	0.67
17	Require me to supervise others	4.26	0.72
16	Provide me the opportunity to earn a high income	4.2	0.61
14	Provide change and variety in duties and activities	4.11	0.84
7	Be intellectually stimulating	4.1	0.76
21	Will give me the responsibility for taking risks	4.08	0.71
8	Require originality and creativity	4.01	0.79
15	Permit me to advance to high administrative responsibilities	4.01	0.69
9	Allow me to make a social contribution by the work I do	3.93	0.78
19	Require work on problems of central importance to the organization	3.9	0.74
18	Make me feel respected by other people	3.88	0.79
2	Provide job security	3.77	0.8
12	Permit me to develop my own methods of doing the work	3.75	0.81
3	Have clear-cut rules and procedures to follow	3.59	0.94
10	Satisfy my cultural and aesthetic interests	3.4	0.98
5	Provide comfortable working conditions	3.26	0.9
1	Permit a regular routine in time and place of work	3.25	1.02
20	Will permit me to work independently	3.02	1.05
4	Provide ample leisure time off the job	2.85	0.88

It is intriguing to know the trends that may lie in these work values based on the construction experience. To draw this comparison, the responses were collected and grouped into 3 different groups – group A (<1 year), group B (1-3 years) and group C (>3 years). Based on the statistical analysis, there can't be any trend wise conclusion drawn. Listed below are the findings that showed significant differences in work values between the different groups.

Group A vs. Group B

The findings showed that there was a statistically significant difference between group A and B for the work value “17. Requires supervising others” (p= 0.02).

Group B vs. Group C

The findings showed that there was a statistically significant difference between group B and C for the work value “21. Gives me the responsibility for taking risks” (p= 0.03).

Group C vs. Group A

The findings showed that there was a statistically significant difference between group B and C for the work value “18. Calls for respect from other people” (p= 0.02).

The comparison between work values and years of study in college showed that the student's rating of the work value – “3. Have clear cut rules and procedures to follow” and “9. Allows me to make a social contribution by the work I do”, differs with years of study in college (freshman, sophomore, junior, senior and graduate).

Table 30: Difference in mean rating between different years of study in college.

Work values	Fresh	Soph	Junior	Senior	Fr- soph	soph – Jr	Jr - Sr
1	3.95	3.38	3.68	3.49	0.57	-0.30	0.20
2	4.52	4.52	4.59	4.57	0.00	-0.07	0.01
3	4.00	3.52	3.80	3.43	0.48	-0.29	0.38
4	3.71	3.54	3.56	3.43	0.18	-0.02	0.13
5	3.95	3.69	3.63	3.71	0.26	0.06	-0.08
6	3.57	3.40	3.41	3.71	0.17	-0.01	-0.30
7	3.71	3.85	3.88	3.94	-0.13	-0.03	-0.06
8	3.43	3.83	3.88	3.71	-0.40	-0.05	0.16
9	3.38	3.88	3.93	3.57	-0.50	-0.04	0.36
10	3.00	3.33	3.59	3.09	-0.33	-0.26	0.50
11	4.10	4.17	4.27	4.37	-0.08	-0.10	-0.10
12	3.90	3.77	3.98	4.03	0.14	-0.21	-0.05
13	4.38	4.50	4.59	4.34	-0.12	-0.09	0.24
14	3.86	3.83	3.88	3.77	0.03	-0.05	0.11
15	4.10	4.15	4.24	4.06	-0.06	-0.09	0.19
16	4.62	4.37	4.39	4.43	0.25	-0.02	-0.04
17	3.43	3.50	3.63	3.20	-0.07	-0.13	0.43
18	4.00	3.85	4.22	3.74	0.15	-0.37	0.48
19	3.48	3.81	3.88	3.66	-0.33	-0.07	0.22
20	3.48	3.13	3.22	3.37	0.34	-0.08	-0.15
21	3.76	3.46	3.78	3.69	0.30	-0.32	0.09

The study looked into any trend in the work values based on the years of study in college, although there couldn't be any strong conclusion drawn as to how these work values are differing among different years of study in college, the average mean rating of the responses could give some explanation as to how these work values are rated by students under different years of study in college (table 30). Table 30 shows the difference in mean rating between different years of study in college. It can be inferred that the difference between sophomore and junior in most of the work values (20/21) is negative.

In other words, juniors rated these 20 out of 21 work values to be more significant to them as compared to sophomores. Looking further, we can infer that only 7 out of 21 work values are considered by seniors as more significant as compared to juniors. This difference in the average rating of work values at the later stages of college years might be due to increase in construction experience and gaining of knowledge as the courses progress. The average construction experience for juniors (2.56years) and seniors (2.16 years) are greater than sophomore (1.2 years) and freshman (1.27 years).

Another analysis that was made is to study the effect of years of study in college in the perceptions the students hold towards the industry. The findings were that there was statistically significant differences between the different construction program classifications for the 8 out of 21 job characteristics: 1. Permit a regular routine in time and place of work, 4. Provide ample leisure time off the job, 6. Require meeting and speaking with many other people, 7. Be intellectually stimulating, 10. Satisfy my cultural and aesthetic interests, 16. Provide me the opportunity to earn a high income, 17. Require me to supervise others, 20. Will permit me to work independently. Once again, based on the post-hoc t test, no strong conclusions can be drawn when it comes to how these rating of perception are different and which way they are trending. But when we look at the average ratings for the 21 job characteristics, it is found that sophomores perceived 14 of 21 job characteristics with a higher level of agreement when compared to freshman (Table 31). Similarly between sophomore and juniors, juniors perceived 9 job characteristics with higher agreement than the sophomores. Finally, the seniors perceived 8 job characteristics

with higher agreement than the juniors. It can be argued that most of the job characteristics (14/21) are perceived positively at the early stages of years of study in college.

Table 31: Difference in mean rating between different years of study in college.

Perceptions	Fresh	Soph	Junior	Senior	Fr- soph	soph – Jr	Jr - Sr
1	3.95	3.08	3.56	2.71	0.87	-0.48	0.85
2	3.80	3.83	3.88	3.51	-0.03	-0.05	0.36
3	3.75	3.67	3.59	3.31	0.08	0.09	0.27
4	3.25	3.04	2.88	2.34	0.21	0.16	0.54
5	3.45	3.33	3.32	3.00	0.12	0.01	0.32
							-
6	4.15	4.52	4.37	4.66	-0.37	0.15	0.29
7	3.65	4.25	4.22	4.06	-0.60	0.03	0.16
8	3.80	4.12	4.17	3.91	-0.32	-0.06	0.26
9	3.75	4.10	3.90	3.80	-0.35	0.19	0.10
10	3.00	3.69	3.44	3.11	-0.69	0.25	0.32
							-
11	3.90	4.33	4.24	4.43	-0.43	0.08	0.18
							-
12	3.40	3.69	3.88	3.91	-0.29	-0.19	0.04
							-
13	4.25	4.48	4.39	4.40	-0.23	0.09	0.01
14	3.80	4.23	4.15	4.11	-0.43	0.08	0.03
							-
15	4.00	4.00	3.98	4.11	0.00	0.02	0.14
							-
16	4.05	4.06	4.24	4.46	-0.01	-0.19	0.21
							-
17	3.80	4.21	4.27	4.54	-0.41	-0.06	0.27
18	3.80	3.81	3.93	3.91	-0.01	-0.12	0.01
19	3.65	3.87	4.00	3.83	-0.22	-0.13	0.17
20	3.70	2.94	2.98	2.94	0.76	-0.03	0.03
							-
21	4.10	4.06	4.02	4.23	0.04	0.03	0.20

It is essential to investigate how the students value their perceptions and work values differently. For example consider job characteristic 6 - Require meeting and speaking with many other people, there is a difference in how the students least expect this job characteristic but still perceive that a construction career will require them to meet and speak with many other people (refer to Tables 28 and 29). This takes us to research question no. 3 as to how the work values and perceptions of the students relate. It was found that there was a statistically significant difference between work values and perceptions for 14 of the job characteristics:

1. Permits a regular routine in time and place of work
2. Provides job security
22. Provides ample leisure time off the job
23. Provides comfortable working conditions
24. Requires meeting and speaking with many other people
25. Intellectually stimulating
26. Requires originality and creativity
27. Allows me to make a social contribution by the work I do
12. Permits me to develop my own methods of doing the work
14. Provides change and variety in duties and activities
16. Provides the opportunity to earn a high income
17. Requires supervising others
20. Permits working independently
21. Gives me responsibility for taking risks

Table 32 shows the mean and standard deviation for both work values and perception groups. The sample size is a constant 155 and Confidence interval for work values and perceptions are captured at a 95% confidence level.

Table 32: Work Values vs. Perception

Job Characteristics	work values			perceptions			work value Vs Perception	Significance
	mean	std.dev	C.I	mean	std.dev	C.I	P value	
1	3.57	0.95	0.15	3.25	1.03	0.16	0.000122	yes
2	4.53	0.65	0.10	3.76	0.81	0.13	1.19E-17	yes
3	3.67	0.81	0.13	3.59	0.94	0.15	0.281754	no
4	3.55	0.94	0.15	2.85	0.88	0.14	1.59E-13	yes
5	3.74	1.01	0.16	3.25	0.91	0.14	8.65E-09	yes
6	3.52	0.98	0.15	4.46	0.65	0.10	9.97E-20	yes
7	3.85	0.80	0.13	4.10	0.76	0.12	0.001249	yes
8	3.77	0.83	0.13	4.01	0.79	0.12	0.001149	yes
9	3.77	0.79	0.13	3.92	0.79	0.12	0.044115	yes
10	3.31	0.98	0.15	3.40	0.98	0.15	0.269759	no
11	4.25	0.77	0.12	4.26	0.67	0.11	0.924061	no
12	3.90	0.79	0.12	3.75	0.82	0.13	0.040694	yes
13	4.48	0.65	0.10	4.41	0.68	0.11	0.28232	no
14	3.83	0.85	0.13	4.10	0.85	0.13	0.001468	yes
15	4.14	0.84	0.13	4.01	0.69	0.11	0.073779	no
16	4.44	0.77	0.12	4.20	0.61	0.10	0.000797	yes
17	3.46	0.90	0.14	4.26	0.72	0.11	1.77E-19	yes
18	3.95	0.84	0.13	3.87	0.80	0.13	0.331999	no
19	3.77	0.76	0.12	3.88	0.76	0.12	0.143987	no
20	3.26	1.05	0.17	3.02	1.05	0.17	0.011551	yes
21	3.65	0.82	0.13	4.08	0.71	0.11	7.79E-08	yes

Significant at the 0.05 level

Based upon Manhardt's (1972) Work Values Inventory and as with Rokeach's (1973) scale, the 21 items included within Work Values Inventory can be grouped into separate constructs (Moore, 2011). In those studies, the values were broken into the

constructs of comfort and security (5 items), competence and growth (9 items), and status and independence (7 items) (Fields, 2002; Manhardt, 1972). The following are the ways the different job characteristics are grouped into separate constructs.

Comfort and security:

- Permits a regular routine in time and place of work
- Provides job security
- Has clear-cut rules and procedures to follow
- Provides ample leisure time off the job
- Provides comfortable working conditions

Competence and growth:

- Requires meeting and speaking with many other people
- Is intellectually stimulating
- Requires originality and creativeness
- Makes a social contribution by the work you do
- Satisfies your cultural and aesthetic interests
- Encourages continued development of knowledge and skills
- Permits you to develop your own methods of doing the work
- Provides a feeling of accomplishment
- Provides change and variety in duties and activities

Status and independence:

- Permits advancement to high administrative responsibility
- Provides the opportunity to earn a high income
- Requires supervising others
- Permits working independently
- Is respected by other people
- Requires working on problems of central importance to the organization
- Gives you the responsibility for taking risks

When one looks into these job characteristics that are statistically different, one can infer that a difference in work values and perception is more prone to happen on job characteristics that related to comfort and security (4/5), and competence and growth (6/9) than on status and independence (4/7).

This study addressed research question no.4 by grouping the responses into international and domestic criteria, then a t test is performed to check if the job characteristics for work values of international students differ significantly when compared with domestic students. A two tailed t test was performed and there was no statistically significant difference between the international students (n=4) and domestic students (n=151) for all of the 21 job characteristics. Although, the sample size for internationals and domestic students cannot be compared favorably and there can't be any conclusions drawn, it would be an interesting topic for future research works.

Dr. Moore's study involved a similar approach to work values and this research study was inspired by Dr. Moore's work on entering construction professionals, it was also

a suggestion made by her in her research work, which churned this idea of comparing work values between two different sample groups at two different times. There is approximately 8 years difference in time between Dr. Moore's study and this particular study, a question arises as to how students' values might have changed over the years. To test this idea, Dr. Moore's sample's n, mean, SD was used and compared with the job characteristics under question 13 (refer appendix A). It was found that there was a statistically significant difference between Dr. Moore's sample mean and this study's sample mean for the following job characteristics (specific number identifiers before each characteristic):

Comfort and security:

3. Has clear-cut rules and procedures to follow (p=0.04)
4. Provides ample leisure time off the job (p=8.39E-11)
5. Provides comfortable working conditions (p=4.83E-06)

Competence and growth:

6. Requires meeting and speaking with many other people (p=0.03)
7. Intellectually stimulating (p=1.51E-05)
8. Requires originality and creativity (p=5.14E-05)
12. Permits me to develop my own methods of doing the work (p=1.52E-05)
14. Provides change and variety in duties and activities (p=3.71E-07)

Status and independence:

15. Permits advancement to high administrative responsibilities (p=0.04)
17. Requires supervising others (p=1.58E-05)
18. Calls for respect from other people (p=0.0001)

19. Requires working on problems of central importance to the organization
($p=6.3292E-05$)
20. Permits working independently ($p=3.39E-09$)
21. Gives me the responsibility for taking risks ($p=2.16E-08$)

When we look at addressing this research question, we see that between the two time frames, there is more difference in job characteristics relating to status and independence (6/7) when compared to competence and growth (5/9), and comfort and security (3/5). It is also essential to understand the limitation which is that although these group of samples are taken at two different time, they differ by region, program and University. The work values might have few other influencing factors that is beyond the scope of this study.

Conclusion

This study attempted to answer 5 specific questions related to construction management students personal work values and their perceptions of the construction industry. Several important conclusions can be drawn from the study and are organized in by individual research question below.

What are the work values of construction management students?

The study helped in understanding the work values and perceptions that the construction students hold towards a construction career. A trend wise conclusion cannot be drawn on work values based on the construction years. The study looked into any trend in the work values based on the years of study in college, although there was no strong conclusions drawn as to how these work values are differing among different years of study

in college, the difference in the average rating of work values at the later stages of college years suggested that it might be due to increase in construction experience and gaining of knowledge as the courses progress. In this study we see that job characteristics such as permitting to work independently (20), satisfying cultural and aesthetic interests (10), requiring to supervise others (17), requires meeting and speaking with many other people(6) and provides ample leisure time off the job (4) are least preferred or in other words less significant. On the other hand job security (2), feeling of accomplishment (13), an opportunity to earn a high income (16), encourages continued development of knowledge and skills (11) and permits advancement to high administrative responsibilities (15) are most preferred by the respondents.

How do the students of construction management program perceive the construction industry's ability to meet various work values?

A statistical analysis was done to study the effect of years of study in college on the perceptions, students hold towards the industry. The findings were that there was statistically significant differences between the different years of study in college for 8 out of 21 job characteristics. Based on the statistical analysis, no strong conclusions can be drawn when it comes to how these rating of perception are different and which way they are trending. A look into the average rating shows that most of the job characteristics (14/21) are perceived positively at the early stages of years of study in college (freshman, sophomore).

Through this study one can find the job characteristics that are perceived with a higher level of agreement. On an average, Most of the students agree that a career in

construction industry will require them to supervise others (17), provide a feeling of accomplishment (13), and require meeting and speaking with many other people (6), Require me to supervise others (17) and provide me the opportunity to earn a high income (16). Similarly those job characteristics that recorded a poor level of agreement about the construction industry are: “Satisfy my cultural and aesthetic interests (10), Provide comfortable working conditions (5), Permit a regular routine in time and place of work (1), Will permit me to work independently (20) and Provide ample leisure time off the job (4)”.

How do the work values of construction management students relate with their perception about the industry?

To further investigate how the students value their perceptions and work values differently, the study used paired two tailed t tests and found that there was a statistically significant difference between work values and perceptions for 14 of the job characteristics. When we look into these job characteristics that are statistically differing, we can infer that a difference in work values and perception is more prone to happen on job characteristics that related to comfort and security (4/5), and competence and growth (6/9) than on status and independence (4/7). Figure 2 shows the top 5 job characteristics were the difference in average rating between the work values and perceptions was maximum. The red bars in figure 1 show that the perceptions is greater than work values and the blue bars show that the work values are greater than perceptions.

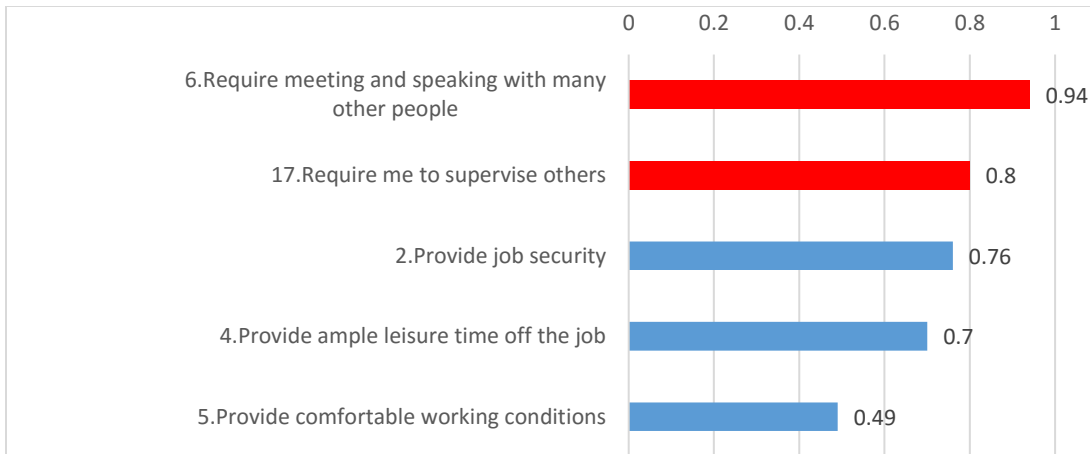


Figure 2. Difference in average rating between work values and perceptions – top 5

How do the work values/expectations differ between international and domestic construction management students?

The sample size for international students was a limitation and no statistical conclusions are drawn. However, a suggestion had been made for future research works in this particular topic.

How have the work values of construction students changed over time?

(Comparison to Moore’s work)

A Comparison of work values of students representing two different time frame was done. The study found that there was a statistically significant difference Dr.Moore’s sample and this study’s sample for 14 job characteristics. It can be inferred that there is more difference in job characteristics relating to status and independence (6/7) when compared to competence and growth (5/9), and comfort and security (3/5). In other words job characteristics relating to status and independence are more prone to change over time

when compared with other job characteristics relating to comfort and security, and competence and growth.

Recommendations

For Construction Companies

Different Construction companies are different in their approach towards the way they manage their employees. Although the companies face serious challenges in employee satisfaction, turnover, strategic partnership, branding and compliance, it is necessary for them to address this human capital needs. Human resource shortage, necessity for strategic approach and misunderstanding values of millennials has already been emphasized through the literature search. So the first step would be for construction companies to have a strategic HRM approach. Recent research on human capital trends, show that only 5% of companies rate their HR performance as “excellent” (Hoover 2015). Companies should work on changing their views on HRM and promote towards a strategic approach than a traditional one. Since the baby boomers approach retirement, HR leaders should know more about the demographics of the current workforce and understand the gap between what the current students expect and what they perceive about the industry.

Although the millennials have the capability to encompass their knowledge and skills to fulfill their goals. It is necessary for them to be effectively managed and retained. Through our study we see that a difference between perceptions and work values is more prone to happen on job characteristics that related to comfort and security, and competence and growth than on status and independence. The difference in work values and perceptions

reported in this study can help to inform employers on how to attract and engage the next generation of skilled workers.

In our study we see that the following are the top 5 significant work values as rated by the students:

- Provide Job security
- Provide a feeling of accomplishment
- Provides an opportunity to earn a high income
- Encourage continued development of knowledge and skills
- Permit advancement to high administrative responsibilities

HR leaders can focus on fulfilling these top 5 expectations of students so that they can attract or advertise their company's values to these soon to be professionals. Providing the workers with responsibility, accountability, growth opportunity, technology, involvement in decisions, and pay for performances are all better ways to attract and retain skilled individuals. Employers must understand what employees want. Flexibility in career development and compensation improves retention. Creating an environment where employees can feel involved, contributing to the success of the company is significant in modern times (Moore, 2011; Hedley, 2001; Wahl, 2004).

For Students

Just like how companies should align their values by considering the employees (or soon to be employees), it is also essential for Students to understand what a company is capable of providing. It is necessary for current students to understand the Construction Industry and the values that it has to offer. There is a good chance that not all of their values

will be satisfied by any particular industry generally. But still the students must be clear on what values they expect the most and what values they can compromise to have a promising career.

Limitations

While this study focuses on soon-to-be construction professionals from the Construction Science and Management program, a limitation is that all participants were from the same university and the survey itself was taken at one instance. As such, the data collected from this research does not necessarily generalize to all entering construction professionals nor can the results be assumed to be constant for years to come. Still, this data provides a detailed description of the work values this sample holds and a comparison of the perception and work values of soon-to-be construction professionals.

The Survey Instrument created does not include information regarding the locations where the students come from or where they would prefer working, this remains a limitation as there might be a difference in work values between people from different geography.

Another limitation is the 21 Job characteristics that was used in the Survey Instrument. It was originally created by Manhardt in 1972 and further used by other researchers (Moore, 2011; Meyer et al 1998). This is a limitation as there is a repeated usage of this work values inventory for the past four decades.

Suggestions for Future Research

Through this study, it is found that the sample size for internationals was not sufficient for providing any statistical inference. It is an interesting topic to look into how

the work values change between international and domestic students, which remains as one of the suggestion for future works. This study as such is performed during a time frame when there is a significant shift in the workforce and when the industry is losing out its employees. It will be interesting to repeat this survey few years later and compare how the work values and perceptions have changed.

Another suggestion would be to have repetitive data collection from the same sample. In this study we surveyed freshmen, it would be interesting to see if they take the same survey on work values and perceptions as their years of study in college proceed and see if their work values and perception about the industry change over their years of study in college.

APPENDICES

Appendix A

Survey Instrument for Construction Science and Management Students

VALUE SYSTEMS OF CONSTRUCTION MANAGEMENT STUDENTS
DEMOGRAPHICS
<p>* 1. Gender</p> <p><input type="radio"/> Male</p> <p><input type="radio"/> Female</p>
<p>2. Age</p> <input type="text"/>
<p>* 3. What is your current CSM Program classification?</p> <p><input type="radio"/> Freshmen</p> <p><input type="radio"/> Sophomore</p> <p><input type="radio"/> Junior</p> <p><input type="radio"/> Senior</p> <p><input type="radio"/> Other (please specify)</p> <input type="text"/>
<p>* 4. Which program are you currently enrolled in?</p> <p><input type="radio"/> Under-Graduate</p> <p><input type="radio"/> Graduate</p>
<p>* 5. Are you a US Citizen?</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p>
<p>6. If you answered no to question #5, what is your nationality?</p> <input type="text"/>

7. Please identify your race

- Caucasian
- Pacific Islander
- Asian American
- African American
- Spanish / Hispanic / Latino
- Native American
- Asian
- Other (please specify)

VALUE SYSTEMS OF CONSTRUCTION MANAGEMENT STUDENTS

Career Path

* 8. How much experience do you have in the Construction Industry? (number of years)

* 9. What position are you seeking after graduation? (please select one)

- Field Engineer or Asst. Superintendent
- Self-Employed or Partnership
- Estimating or Pre-Construction
- Office or Project Engineer
- Not decided yet
- Other (please specify)

* 10. Which of the following categories best describes the type of work you are seeking immediately after graduation? (please select one)

- Owner's Representative
- Architect
- Engineer
- Industrial Builder
- Commercial Builder
- Residential Builder
- Heavy / Highway / Civil builder
- Sub-Contractor
- Vendor / Supplier
- Other (please specify)

* 11. What sector do you anticipate working in after graduation? (please select one)

- Private Sector
- Public Sector
- Military Services
- Non-Profit or Missionary Work
- Other (please specify)

12. What career path are you seeking? (select all that apply)

- Superintendent
- Architectural Design
- Engineering Design
- Project Management
- Estimating or Pre-Construction
- Self-Employed or Partnership
- Not decided yet
- Other (please specify)

VALUE SYSTEMS OF CONSTRUCTION MANAGEMENT STUDENTS

Personal Values

13. Listed below are possible job characteristics, please rate how significant each characteristic is to you in your future career.

	Not Significant	Less Significant	Somewhat Significant	Significant	Highly Significant
Permits a regular routine in time and place of work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provides job security	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has clear-cut rules and procedures to follow	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provides ample leisure time off the job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provides comfortable working conditions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Requires meeting and speaking with many other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Intellectually stimulating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Requires originality and creativity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Allows me to make a social contribution by the work I do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Satisfies my cultural and aesthetic interests	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Encourages continued development of knowledge and skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Permits me to develop my own methods of doing the work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provides a feeling of accomplishment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provides change and variety in duties and activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Permits advancement to high administrative responsibilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provides the opportunity to earn a high income	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Requires supervising others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Calls for respect from other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Requires working on problems of central importance to the organization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Permits working independently	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gives me the responsibility for taking risks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

VALUE SYSTEMS OF CONSTRUCTION MANAGEMENT STUDENTS

Construction Industry Perceptions

14. Listed below are statements describing the construction industry. Please indicate your level of agreement or disagreement with the following statements:

"A career in construction will ... "

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Permit a regular routine in time and place of work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide job security	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have clear-cut rules and procedures to follow	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide ample leisure time off the job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide comfortable working conditions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Require meeting and speaking with many other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Be intellectually stimulating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Require originality and creativity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Allow me to make a social contribution by the work I do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Satisfy my cultural and aesthetic interests	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Encourage continued development of knowledge and skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Permit me to develop my own methods of doing the work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide a feeling of accomplishment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide change and variety in duties and activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Permit me to advance to high administrative responsibilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide me the opportunity to earn a high income	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Require me to supervise others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Make me feel respected by other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Require work on problems of central importance to the organization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Will permit me to work independently	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Will give me the responsibility for taking risks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix B

Cover Letter

Dear Fellow Student,

By now you are all familiar with the amazing career opportunities in the Construction industry. What are your expectations of your Construction career? Deciding who to work for will be an exercise in matching your expectations and values to a company's culture and mission. In this way, your work values and career expectations are a significant factor in your job search. We are asking you to take some time to answer these survey questions for your own understanding, and so the industry will have a better understanding of aspiring professionals. The best jobs are those that are mutually beneficial for the employer and the employee.

If you are willing to be a participant in this study, please complete this survey. It will only take approximately 5 to 10 minutes of your time and your responses will be anonymous. The study is completely voluntary and there are no known risks or benefits related to your participation aside from those benefits mentioned above. If you have any questions or concerns regarding this project, please feel free to contact Avinash Venugopal (NASH) at apvenug@clemson.edu, or the Clemson University Office of Research Compliance at (864) 656-6460.

Thank you for your participation in this study.

Go Tigers!

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