

# Work-Life Balance Perceptions of Construction Management and Civil and Environmental Engineering Students

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In the last six decades, work and family responsibilities of employees have changed radically; since then, the work-life balance (WLB) concept has become an integral part of workplaces. Considering that the millennial generation constitutes one of the largest percentages of the construction workforce in the U.S., providing millennial-oriented policies to keep this generation at the workplace is vital. To date, most research has examined work-life conflicts experienced by professionals; however, very little research has been conducted to understand the WLB perceptions of younger generations who are soon to join the workforce. The purpose of this study is to understand the perceptions of construction management (CM) and civil and environmental engineering (CEE) students on WLB and investigate whether there are differences in these two different groups of students' expectations. An online survey instrument was sent to 649 CM and 677 CEE students who were pursuing their undergraduate and graduate degrees at Colorado State University; 53 and 33 responses were collected respectively. Mann-Whitney U-test was conducted to identify whether there are statistically significant differences in students' cognizance of WLB. Results show statistically significant differences between CM and CEE students' perceptions of long working hours, career, turnover intentions, and having a good WLB.

**Keywords:** Construction Management Students, Civil and Environmental Engineering Students, Millennials, Work-life Balance, Construction Industry

## Introduction and Purpose

In the last six decades, work and family responsibilities of employees have changed radically resulting in less dominance of men at work and women at home (Naithani et al., 2009). Many factors including increased participation of women in workforce, long working hours, and aging labor force have influenced this socio-economic shift, and since then, work-life balance (WLB) concept has become an integral part of workplaces (Lingard & Francis 2009).

Given that construction is one of the most demanding industries, WLB issues are not extrinsic to the industry. The research shows that construction workers have the lowest workplace flexibility on arranging their work hours compared to workers in other industries (Executive Office of the President Council of Economics Advisers, 2014). It is believed that long working hours and inflexible work environment cause retention problems across all professional positions in the construction industry (Lingard et al., 2007). Aging labor force and declining recruitment rates also pose a serious threat to the industry due to the fact that skilled workers may be lost when they retire without replacements. Considering that relatively younger and inexperienced employees, known as the millennial generation, constitutes one of the largest percentages of the construction workforce in the U.S., providing millennial-oriented policies to keep this generation at the workplace is vital for shaping the future of the industry (Bureau of Labor Statistics, 2017, Hoover, 2015).

Existing research suggests that the millennial generation differs from other generations in terms of different understanding of organizational support dynamics and unique ways of fitting into organizations (Hershatter et al., 2010). Specifically, it was observed that the millennial generation places more importance on the WLB than their predecessors even in high school and before they have children (Twenge, 2010). Therefore, it is important to

understand this unique generation's needs for the future of the construction industry. Even though the millennial generation at the workplace has been investigated in other disciplines, it has not been the topic of research for the construction industry. Therefore, there is not much information on the traits of young generations who are soon to join the construction workforce.

The purpose of this study is to understand the perceptions of construction management and civil and environmental engineering students on WLB, both groups of which will contribute to the construction industry by engaging in different occupations (i.e., primarily construction and design respectively). Moreover, this study will investigate whether there are statistically significant differences in these two different groups of students' future work and life expectations.

## Literature Review

Although the first WLB initiatives were provided to support working mothers in the 1980s and 1990s, the roots of WLB concept can be traced back to the ancient times (Arenofsky, 2017, Lockwood, 2003). In 350 BC, the philosopher Aristotle first examined the concept of work-life balance using "work and leisure balance" term in his "Nicomachean Ethics" work. He posited that the life is divided into two parts as business and leisure and stated "business for the sake of leisure, things useful and necessary for the sake of things honorable" (Devaney, 2015).

From the early days of communal living to the present day, the changes in the composition of work and family life have influenced the emergence of the WLB programs. For instance, the Industrial Revolution (1760s) can be considered as a monumental event in the history, which has caused replacement of manual labor with the division of labor system. The idea behind this change was that most of the employers claimed employees are lazy and only motivated by money. In the 1950s, this notion was permanently abandoned when Theory X and Theory Y models were introduced, which advocate worker participation in the decision-making process. Those models were further revised and restructured to introduce the concept of WLB (Arenofsky, 2017). Naithani (2009) reviewed the history of WLB discourse under eight time intervals and presented that the research related to WLB has rapidly increased since the 1950s resulting from the factors that pressure employees' work and family life spheres. Those factors were identified and grouped under three main categories as family/personal life related factors (e.g., increasing participation of women in workforce), work related factors (e.g., long hour culture and unpaid overtime), and others (e.g., ageing population) (Naithani et al., 2009).

Increasing participation of women in the paid workforce has tremendously affected work and family life, since many women occupied factory positions left vacant by men who had been enlisted in the Armed Forces during World War II (1939-1945) (Anitha et al., 2013). In this period, the "traditional" family model was abandoned rapidly as more women started to enter the workforce and became "breadwinners" (Pew Research Center, 2015). The Women's Liberation Movement of the 1960s also brought WLB research into prominence and in the 1980s and 1990s, companies began to provide specific WLB programs (Arenofsky, 2017, Lockwood, 2003). In the 1980s, WLB programs were only available for working women with children; while the policies in the 1990s included women and men with or without children regardless of marital status (Naithani, 2009). Since then, various WLB practices have been offered in the U.S. in order to achieve increased productivity and worker health and decreased turnover and absenteeism in the workplaces; however, more attempts are needed, especially to recover from the adverse effects of the Great Recession (Executive Office of the President Council of Economics Advisers, 2014).

The construction industry, which was hit hardest by the Great Recession, experienced the sharpest decrease in employment during that period. While the employment in the U.S. has fallen by 8.8 million between January 2008 and February 2010, the construction industry has lost 2.2 million jobs (Goodman et al., 2011). Although the construction industry is not expected to reach pre-recession levels anytime soon, it is projected that it will be the largest growing industry in employment from 2004 to 2024 by adding 790,400 jobs (Henderson, 2015). In 2016, there were 214,000 job openings and today more than 10 million people who come from diverse backgrounds are employed in the construction industry. A recent study suggests that employees from five main generations (Traditionalists born between 1927-1945, Baby Boomers born between 1946-1964, Generation X born between 1965-1976, Generation Y or Millennials born between 1977-1995, and Generation Z, iGen or Centennials born 1996 or later) are working side by side in the industry (Rodriguez, 2017). The millennial generation draws attention amongst others because it is the future of any company that plans to maintain its status in the business (FMI Industry

Survey, 2015). An analysis of 2016 U.S. Census Bureau data supports this idea such that the millennial generation already makes up the 30 percent of the construction workforce and this number is expected to increase in the future. Therefore, understanding, preparing, attracting, and retaining younger generations is a necessity for the continuance of the industry (Howell, 2010).

Construction industry is well known for its imbalanced work-life environment due to the demanding nature of the industry. To date, much of the existing literature has profusely investigated the underlying factors that cause conflict between work and personal life of professionals and suggested strategies to provide improvement in those areas (Lingard et al., 2006, Lingard et al., 2012). In an attempt to lessen damaging effects of long and inflexible working hours, alternative scheduling methods have been examined; among others, and the compressed work week approach was found to be effective in improving employees' WLB (Lingard et al., 2007, Lingard et al., 2008). The WLB experiences of the employees were examined based on gender and work locations; and higher levels of work to family conflict, emotional exhaustion, and less payment satisfaction were observed among the male employees who work at site locations than others (Lingard et al., 2004). Considering that the construction is a male-dominated industry, the barriers that women face in the industry, organizational commitment issues and retention strategies have also been a topic of the WLB research (Malone et al., 2012)

Despite the fact that the industry will be driven by the millennial generation in the near future, only a few researchers have focused on the younger generation characteristics in the construction workforce. Sturges (2013) investigated a group of young construction professionals' perceptions on long working hours and found that the participants associated the long working hours with positive attributes despite the general wisdom. Yng Ling, Leow, & Lee (2015) investigated strategies to attract more graduate students to the construction industry and revealed that the students are unlikely to join industry due to low payment, challenging nature of the job, lack of job security and long working hours with an imbalanced work-life. Valdes-Vasquez et al. (2016) found a strong relationship between students' WLB perceptions and their short-term career intentions, while Akalp, Ozbek, & Omur-Ozbek (2017) found that having a successful career and spending quality time with family are both very important issues for the construction management students.

## Research Methodology

The sample population for this study was selected from the students who were pursuing their undergraduate and graduate degrees in the Construction Management (CM) and Civil and Environmental Engineering (CEE) departments at Colorado State University. As the graduates of this institution, CM students engage in construction, while CEE students primarily work in the design occupations once they join the workforce. Architecture students were not included in this study because a School of Architecture does not exist in the authors' institution. A survey instrument, which was previously utilized to investigate the work-life balance perceptions of advertising students in the U.S. was adapted and employed in this study (Fullerton et al., 2014). The survey questions were reviewed and approved by the Institutional Review Board and the recruitment e-mails were provided with a link to the online survey tool, Qualtrics. All of the CM (n=649) and CEE (n=677) students in both departments were contacted via e-mail; and the collected responses were included to conduct statistical analyses. The survey had three sections focusing on (i) demographics, (ii) relationship characteristics and parenthood status, and (iii) different aspects of WLB. This paper reports the findings with respect to the last section. In this last section of the survey, the questions focused on the different aspects of WLB to investigate the students' perceptions. A 7-point Likert scale, which ranges from "Strongly Disagree (1)" to "Strongly Agree (7)", was provided for those questions. The questions in this section are listed below:

- Q1- I am prepared to work 60-80 hour weeks in the construction management (civil and environmental engineering) industry if that's what it takes.
- Q2- Quality of life is very important to me, even in an entry-level job. I don't want to spend excessive numbers of hours at my job.
- Q3- Working hard and having success in my career is important to me.
- Q4- Spending quality time with my children and/or spouse someday is important to me.
- Q5- I believe that if a person gets a college education, he or she has a responsibility to pursue a career.
- Q6- I think society would look down on me if I chose to stay home full-time if I have children.
- Q7- I think society would look down on me if I chose to work full-time if I have children.

Q8- If I have a family including children, I won't work in the construction management (civil and environmental engineering) industry because it is too demanding.

Q9- I feel that at least one parent should try to stay at home with a young child rather than both working out of the home full-time.

Q10- I agree with some people who say that you burn out at a young age in the construction management (civil and environmental engineering) industry.

Q11- I feel that most people who work in the field of construction (civil and environmental engineering) have a good "work/life balance".

Q12- It's financially difficult to support a family on a construction management (civil and environmental engineering) salary.

Considering the nature of the dependent and independent variables used in the study, Mann-Whitney U-test is employed to test statistical significance of two independent groups, namely CM and CEE students. Since the test is considered as non-parametric, the only assumption to conduct the test, which is that the observations are independent, is met in this study. It is worth noting that Mann-Whitney U-test is also suitable to handle ordinal variables, unbalanced data sets and small sample sizes (Schlotzhauer, 2015, Stokes et al., 2000), as are the cases for this study. The statistical analyses were conducted using Statistical Analysis Software (SAS).

## Results and Discussion

A total of 105 responses were collected; and after removing the incomplete responses from the data set, 53 responses from the CM and 33 from the CEE students remained. The frequency of the responses of the CM and CEE students for each question is provided in Table 1 and Table 2, respectively. It is worth mentioning that "Construction Management" and "Civil and Environmental Engineering" terms were used interchangeably in the two separate surveys.

Table 1. Response Evaluations of The CM Students

	Q1 (%)	Q2 (%)	Q3 (%)	Q4 (%)	Q5 (%)	Q6 (%)	Q7 (%)	Q8 (%)	Q9 (%)	Q10 (%)	Q11 (%)	Q12 (%)
Strongly Disagree	5.7	3.8	-	-	3.8	9.4	17.0	22.6	3.8	7.5	3.8	24.5
Disagree	7.5	-	-	-	7.5	15.1	24.5	43.4	7.5	20.8	22.6	34.0
Somewhat Disagree	13.1	5.7	-	-	11.3	13.2	28.3	13.2	7.5	13.2	22.6	15.1
Neither Agree nor Disagree	1.9	9.4	-	5.7	18.9	32.1	13.2	7.5	7.5	24.5	17.0	17.0
Somewhat Agree	18.9	17.0	1.9	5.7	17.0	17.0	5.7	9.5	26.4	20.8	20.8	5.6
Agree	32.1	35.8	24.5	26.3	17.0	9.4	9.4	-	32.2	11.3	9.4	1.9
Strongly Agree	20.8	28.3	73.6	62.3	24.5	3.8	1.9	3.8	15.1	1.9	3.8	1.9

Table 2. Response Evaluations of The CEE Students

	Q1 (%)	Q2 (%)	Q3 (%)	Q4 (%)	Q5 (%)	Q6 (%)	Q7 (%)	Q8 (%)	Q9 (%)	Q10 (%)	Q11 (%)	Q12 (%)
Strongly Disagree	12.1	3.0	-	-	9.1	6.1	18.2	36.4	6.1	15.2	-	18.2
Disagree	18.2	-	-	-	12.1	9.1	27.3	42.2	21.2	21.2	9.1	51.5
Somewhat Disagree	21.2	12.1	-	3.0	9.1	12.1	9.1	12.3	27.2	9.1	15.2	12.1
Neither Agree nor Disagree	9.1	6.1	-	3.0	15.2	18.2	3.0	9.1	9.1	39.3	30.3	9.1
Somewhat Agree	21.2	21.2	3.0	3.0	18.1	33.3	27.3	-	9.1	9.1	24.2	9.1
Agree	6.1	36.4	48.5	33.4	21.2	18.2	12.1	-	18.2	6.1	21.2	-
Strongly Agree	12.1	21.2	48.5	57.6	15.2	3.0	3.0	-	9.1	-	-	-

The hypotheses were constructed to test if there are differences between the work-life balance perceptions of the students in the CM and CEE departments. For this purpose, Mann Whitney U-Test was conducted. The mean rankings for each group and for each question as well as the resulting p-values were estimated. The significance level for the tests was set at 0.05, and estimated p-values were compared to this value. The estimated p-values are provided in Table 3.

Table 3. Estimated p-values based on Mann Whitney U-Test

Survey Question Number	p-values (n=86)	Mean Ranking (CM)	Mean Ranking (CEE)
Q1	<b>0.0031</b>	49.62	33.66
Q2	0.4508	45.05	41.00
Q3	<b>0.0202</b>	47.61	36.89
Q4	0.7357	44.10	42.53
Q5	0.3546	45.45	40.36
Q6	0.0793	39.83	49.37
Q7	0.4672	41.97	45.95
Q8	0.0796	47.03	37.81
Q9	<b>0.0051</b>	49.30	34.18
Q10	0.1674	46.37	38.87
Q11	<b>0.0484</b>	39.38	50.10
Q12	0.6972	44.30	42.21

*\*The bold cells show the p-values that are less than 0.05.*

The results show that there are statistically significant differences in the responses given to questions 1, 3, 9, and 11 by two groups of students (CM and CEE). Question 1 results showed that the CM students' mean ranking (49.62) is statistically significantly higher than the CEE students' value (33.66), which can be interpreted as CM students showing more enthusiasm for working 60-80 hour weeks than the CEE students. Statistically significant differences between the two groups were also identified in Question 3. CM students showed statistically significantly higher agreement (with a mean ranking of 47.61) with the statement of "Working hard and having success in my career is important to me." than the CEE students (with a mean ranking of 36.89). This finding can be elucidated as working hard and having success in the students' career are important, more for the CM students. However, it might also be supported by the Sturges' (2013) findings suggesting that the CM students might ascribe positive meanings to working hard and having a successful life. Strong evidence was also observed (p-value= 0.0051) for Question 9. The results showed that the CM students indicated statistically significantly higher agreement than CEE students with the statement of "I feel that at least one parent should try to stay at home with a young child rather than both working out of the home full-time." For this question, it should be noted that the gender imbalances in the study groups might be influential on the results. Finally, for Question 11, it was found that the CEE students' agreement with the statement "I feel that most people who work in the field of civil and environmental engineering have a good "work/life balance"." is statistically significantly higher than that of CM students. The result for this question indicates that CEE students feel they will have better WLB than CM students.

Even though a statistically significant difference was not identified between the groups in Question 10, the CEE students' higher disagreement (when compared to the CM students) on the given statement might suggest that less number of CEE students are expecting to burnout at a young age in the industry when compared to CM students. A contradiction was also observed in the CM students' responses given to Question 1 and Question 2. In Question 1, the CM students showed their agreement that they are ready to work 60-80 hour weeks in the industry, while they also posited that the quality of life is important for them. This idea might be related to the findings of Sturges' (2013) research; in which she found that young professionals associated long working hours with enjoyment, being professional and being part of a work family. Similar to Question 9, the effects of gender imbalances could be seen on Question 7 results. This statement questions that if society looks down on him/her if he/she chooses to work full-time when he/she has children. Even though a statistically significant result was not noticed in this question, most of the CM students disagree that the society would look down on them if they chose to work full-time when they have children. Lastly, regardless of the departments, the students strongly agreed that spending good quality time with their family is important to them.

## Conclusions

In this study, the work-life balance perceptions of two student groups, who will primarily contribute to the different aspects (i.e., construction and design) of the construction industry when they graduate, are compared and statistically tested. The findings of this study suggest that there are statistically significant differences between the CEE and CM students' perceptions in terms of work-life balance. Overall, it was found that the CEE students have more positive expectations of their future WLB than the CM students.

This study has important implications for human resources management departments of companies. The results suggest that CEE students have higher expectations of their future WLB than the CM students. Additionally, the responses of the CM graduates should be analyzed closely given that most of the students stated they are prepared to work 60-80 hour weeks in the industry. It is worth mentioning that burnout among professionals in the construction industry has been interrelated with work-life conflict and has major impacts on the well-being of the employees (Lingard et al., 2009). That being the case, the underlying factors that affect the CM students' long working hour preferences should be investigated in the future studies.

This study has some limitations. Unbalanced data sets and limited sample size might be influential on the results. Additionally, the results also might be affected by variances in the demographics. The results of this study are not representative of the whole CM and CEE student population across different institutions, but only representative of the sample, which was selected from two separate departments at Colorado State University. To achieve more generalizable outcomes, more data points could be included in the sample size in future studies. A sampling procedure was not followed in this study; and thus inferences cannot be made about the whole CM and CEE student population. Notwithstanding this, even with the small sample size, the results of this preliminary study provide evidence that differences do exist between construction management and civil and environmental engineering students' perceptions of WLB; and thus points out the need for further research.

## References

- Akalp, D., Ozbek, M. E., & Omur-Ozbek, P. (2017). *Construction Management Students' Perceptions on Work-Life Balance*. Paper presented at the Proceedings of the ISEC-9 Conference: Resilient Structures and Sustainable Construction, Valencia, Spain.
- Anitha, S., & Pearson, R. (2013). World war II: 1939-1945. URL <http://www.striking-women.org/module/women-and-work/world-war-ii-1939-1945>
- Arenofsky, J. (2017). *Work-life balance*. California: Greenwood.
- Bureau of Labor Statistics. (2017). Labor force statistics from the current population survey, Household data annual averages. URL <https://www.bls.gov/cps/cpsaat18b.htm>
- Devaney, E. (2015). Should you strive for work/life balance? The history of the personal & professional divide. URL <https://blog.hubspot.com/marketing/work-life-balance#sm.0000mr44oqhevebarr02pzkym4f4>
- Executive Office of the President Council of Economics Advisers. (2014). Work-life balance and the economics of workplace flexibility. URL [https://obamawhitehouse.archives.gov/sites/default/files/docs/updated\\_workplace\\_flex\\_report\\_final\\_0.pdf](https://obamawhitehouse.archives.gov/sites/default/files/docs/updated_workplace_flex_report_final_0.pdf)
- FMI Industry Survey. (2015). Talent development in the construction industry.
- Fullerton, J. A., & Kendrick, A. (2014). Perceptions of work/life balance among U.S. advertising students: A study of gender differences. *Advertising & Society Review*, 14 (4).
- Goodman, C. J., & Mance, S. M. (2011). Employment loss and the 2007–09 recession: an overview. *Monthly Labor Review*.

- Henderson, R. (2015). Industry employment and output projections to 2024. *Monthly Labor Review*.
- Hershatter, A., & Epstein, M. (2010). Millennials and the world of work: An organization and management perspective. *Journal of Business and Psychology*, 25 (2), 211–223.
- Hoover, S. (2015). Five reasons why millennials are great for the construction industry. URL <https://www.fminet.com/fmi-quarterly/article/2015/12/five-reasons-why-millennials-are-great-for-the-construction-industry/>
- Howell, S. (2010). The Millennials. *Construction Innovator*.
- Lingard, H., Brown, K., Bradley, L., Bailey, C., & Townsend, K. (2007). Improving employees' work-life balance in the construction industry: Project alliance case study. *Journal of Construction Engineering and Management*, 133 (10), 807-815.
- Lingard, H., & Francis, V. (2004). The work-life experiences of office and site-based employees in the Australian construction industry. *Construction Management and Economics*, 22 (9), 991-1002.
- Lingard, H., & Francis, V. (2006). Does a supportive work environment moderate the relationship between work-family conflict and burnout among construction professionals? *Construction Management and Economics*, 24 (2), 185-196.
- Lingard, H., & Francis, V. (2009). *Managing work-life balance in construction*. New York: Taylor & Francis.
- Lingard, H., Francis, V., & Turner, M. (2012). Work-life strategies in the Australian construction industry: implementation issues in a dynamic project-based work environment. *International Journal of Project Management*, 30 (3), 282-295.
- Lingard, H., Townsend, K., Bradley, L., & Brown, K. (2008). Alternative work schedule interventions in the Australian construction industry: a comparative case study analysis. *Construction Management and Economics*, 26 (10), 1101-1112.
- Lockwood, N. R. (2003). Work/life balance, challenges and solutions. *Research Quarterly, Society for Human Resource Management*.
- Malone, E. K., & Issa, R. R. (2012). Work-life balance and organizational commitment of women in the U.S. construction industry. *Journal of Professional Issues in Engineering Education and Practice*, 139 (2), 87-98.
- Naithani, P. (2009). Overview of work-life balance discourse and its relevance in current economic scenario. *Asian Social Science*, 6 (6).
- Naithani, P., & Jha, A. (2009). An empirical study of work and family life spheres and emergence of work-life balance initiatives under uncertain economic scenario. *Growth-Journal of the Management Training Institute*, 37 (1), 69-73.
- Pew Research Center. (2015). The American family today. URL <http://www.pewsocialtrends.org/2015/12/17/1-the-american-family-today/>
- Rodriguez, J. (2017). Managing five generations at the construction site. URL <https://www.thebalance.com/managing-different-generations-in-construction-4137829>
- Schlotzhauer, S. D. (2015). *Elementary statistics using SAS*. North Carolina: SAS Institute.
- Stokes, M. E., Davis, C. S., & Koch, G. G. (2000). *Categorical data analysis using the SAS system*. North Carolina: SAS Institute.

Sturges, J. (2013). A matter of time: Young professionals' experiences of long work hours. *Work, employment and society*, 27 (2), 343-359.

Twenge, J. M. (2010). A review of the empirical evidence on generational differences in work attitudes. *Journal of Business and Psychology*, 25 (2), 201-210.

Valdes-Vasquez, R., Nobe, M. C., Gillaspie, M., & Akalp, D. (2016). *Work-life balance perceptions of young project engineers in the US: Linking their career intentions with their supervisor's role*. Paper presented at the Construction Research Congress 2016.

Yng Ling, F. Y., Leow, X. X., & Lee, K. C. (2015). Strategies for attracting more construction-trained graduates to take professional jobs in the construction industry. *Journal of Professional Issues in Engineering Education and Practice*, 142 (1), 04015009.