

# Perceptions of Female Faculty in Construction higher education Programs

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Construction has traditionally been a male dominated industry and the industry has recently been recruiting more females in higher numbers. While there are three times as many male faculty members than females, there are one hundred and seventy one female faculty members in the Associated Schools of Construction. Nearly a third of these faculty members answered the survey conducted in this study. According to the respondents of the survey the average percentage of female faculty in the construction programs is about 25%. This research provides insight into the roles these females have, their experiences, and their expectations and changes for the future for females in higher education positions. The purpose of this research is to highlight the issues surrounding the recruitment and retention of increasing number of female faculty in construction education programs. The results of this research highlight the opinions of these female faculty members and the perceptions they have of their role amongst the male faculty in their departments. The results of this paper reveal the perception of workplace unfairness among female faculty compared to their male counterparts.

**Key Words:** Female, Faculty, Higher Education, Construction

## Introduction

Higher education has traditionally been a male dominated profession. In the 2001-2002 academic year more than 70% of professors at the top research institutions were male (Wilson, 2004). According to the Higher Education Research Institute at the University of California at Los Angeles, the number of women faculty in 2001 across all universities was 38% increasing from 29% in 1989 (Wilson, 2004). This increase represents a change that took over a decade to happen, but does not necessarily reflect the behavior of construction related programs and professions.

The construction industry similar to higher education has historically been a male profession, but in the past decade has become a career choice for more females. According to the Bureau of Women, the average percentage of women in professional positions such as construction and engineering managers was 12.8%, with this average taking into account the 20% of women in the architecture profession. The increase in females in the construction industry can be attributed to the industry realizing the need for diversity and its effort to offer equal opportunities to females, as well as encourage more women to enter the profession (Greed, 2000).

With the research and discussion about the number of females increasing in higher education, as well as the construction industry, there is perhaps an opportunity to improve the numbers of females in construction higher education programs. The goal of this research is to highlight the perceptions of the female faculty currently in ASC schools and to understand their roles, their perception to recruit and retain more female faculty.

Before conducting this research it was important to understand reasons why more females are not in construction higher education programs and incorporate these ideas into the survey. Previous research suggests across the board women are advancing more slowly on tenure track, are paid less, and are dissatisfied as compared to their male colleagues (Wilson 2004). In a recent survey 21 out of 36 women faculty surveyed believe men are perceived as more committed to their work than women (Bingham & Nix, 2010). This perception can be harmful to females looking for tenure and promotion. Research also suggests a difference in pay between males and females. The American Association of University Professors (AAUP) (2010) reported that the average salary for female faculty members is about 80.5 percent of that of male faculty members. Monk-Turner and Fogerty (2010) examined the

relationship between how welcome one feels at work and work productivity. Their study shows how working in an unsupportive environment has detrimental consequences on productivity.

This research also wanted to highlight what can be done to recruit and retain more female faculty. Previous research suggests Administrators need to do more to bring in female faculty (Wilson, 2004). Strategies have been published in previous research on how to retain female construction students (Lopez del Puerto, Guggemos, & Shane 2011). This could serve as a guide for steps that can be taken to do the same with female faculty. Even with recruitment strategies there has to be a strong support network to increase retention of women (Menches & Abraham, 2007).

This research discusses the issues of recruiting and keeping female faculty members in higher education construction programs. The results provide a variety of issues that can be improved to encourage more women to join construction education as a faculty member.

## **Methodology**

In order to research females in construction higher education programs the first step of the research process was to create a database of these females. The Associated Schools of Construction organization served as the source to create this database. The first step in the process was to search each ASC school and compile a list of female faculty members. A spreadsheet was created with name, school, position, and email. The list consisted of 171 female faculty all across the country. As long as the female was part of an ASC school she was considered a qualified candidate for this research, even though many of the programs in the ASC are not specifically construction. It is important to note that there were names of faculty members where the sex could not be confirmed and no picture was available, so there may be women who were not contacted, as well as email addresses that were not valid and prevented an email from being sent.

After compiling the database of females it was decided a survey would be the best tool for research. Specifically, an online survey would reach the largest available population, while also allowing the respondents to remain anonymous. The privacy of the respondents was very important because many of the questions might have answers the females would like to keep anonymous. The survey was composed of three categories of questions. The first category contained demographic information about the respondent such as position and number of years in the industry. The second category consisted of statements that asked the females to choose an answer based on the Likert Scale: strongly disagree, disagree, neutral, agree, and strongly agree. This scale was chosen because it served as the most efficient way to gauge the female perceptions. It has been referred to as the “seesaw” scale and serves as a way for respondents to pick one side or the other (McCall, 2001). However, answers falling in the neutral category can be just as valuable, but have often had a wider variety of reasoning behind them. The third category was open-ended questions allowing the respondents an opportunity to personalize answers and fill in answers with topics not specifically covered in the survey questions.

The survey was emailed to all 171 females in the database in the summer of 2011. In the email there was a link to the survey, as well as information describing the goal of the research as being to gauge perceptions of female faculty in construction higher education programs. It also said factors influencing females to take up careers in construction education are also being investigated. Participants were informed all answers would remain confidential and the results would be used for a paper for the ASC Conference. The survey was closed in the fall of 2011 with 50 surveys complete. The response rate was 29%.

During the research process it was recognized by the researchers there are certain limitations that exist with survey research to understand theories and a study that uses data to interpret perceptions. It does not function the same way an interview does and there is no explanation for why a respondent answered a certain way. Attitude and background can have a powerful affect on the way questions are answered in any survey. These issues were not examined in this research and the results include may include some bias based on respondents' individual background. The results describe themes from the survey results and serve as a base point for this research topic.

### *Cross-Tab Survey Analysis*

A cross-tab analysis is a method to use the responses of a survey respondent or a group of respondents with their answers to other questions. In this particular study, the demographics of the respondents were used to conduct

further analysis of the results of the remainder of the survey. As an example the researchers conducted a cross-tab analysis of the survey results using the ‘Title’ of the respondents with the responses to several other questions in the survey. This analysis was useful in understanding perceptions of tenure-track faculty about their perceptions of how much support they received from their respective departments towards attaining tenure and promotion.

## Results

The results of the survey are categorized below into ‘Demographics’, ‘Recruitment’, ‘Leadership’, ‘Comparative Compensation and Job Security’, ‘Tenure and Promotion’, and ‘Other’.

### Demographics

Analyzing the demographics of the respondents allowed the researchers to understand the context of the responses. It is noteworthy that more than a third of respondents to this survey were ‘Assistant Professors’, as shown in figure 2. A third of the respondents were also below 40 years in age, as shown in figure 1. Among those responding with ‘Other’ as the title two were senior lecturers and two were department chairs.

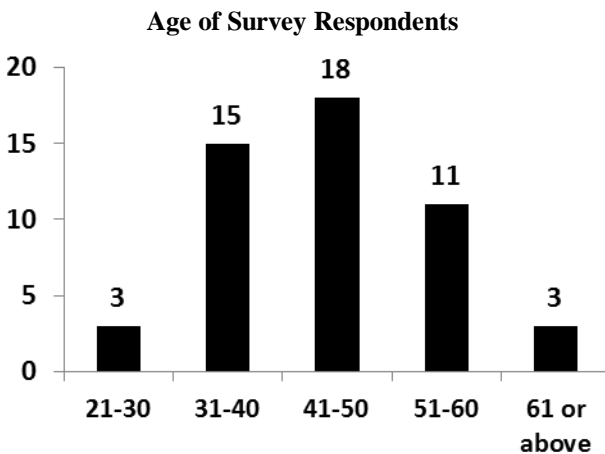


Figure 1: Age of Respondents

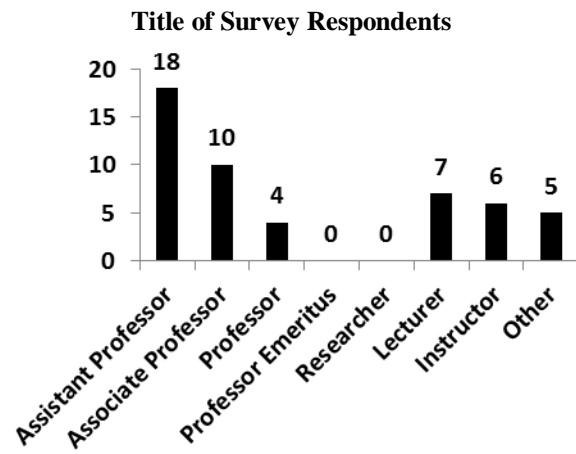


Figure 2: Title of Respondents

About thirty five percent of the respondents had less than 5 years of construction industry experience and an additional thirty five percent had less than 10 years of construction industry experience, as shown in figure 3. Thirty five of the fifty respondents had been teaching for less than 10 years, as shown in figure 4.

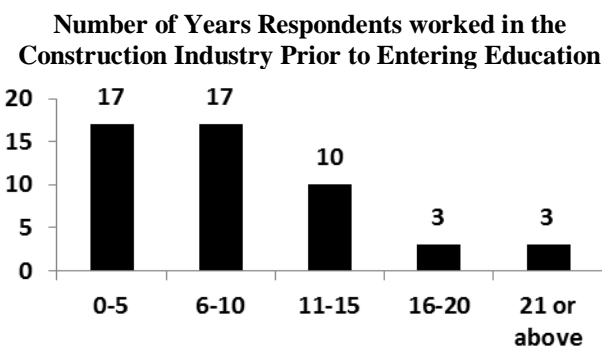


Figure 3: Number of Years Construction Industry Experience

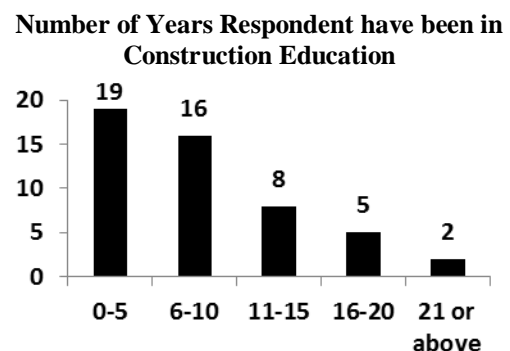


Figure 4: Number of Years Respondents have been in Construction Education

Participants of the study were asked to choose all the reasons they chose to join the teaching profession. The results presented in figure 5 indicate that almost half of the respondents wanted a flexible schedule and a balance between professional and personal life. Also, almost half of the respondents indicated that they love to teach and more than a third indicated that they were always interested in higher education. A cross tab analysis of the results further revealed that half of the assistant professors indicated they ‘love to teach’, 61% indicated that they have always thought of teaching and half of them also indicated they were looking for a balance between professional and personal lives. Among the instructors and lecturers, 62% indicated that they loved to teach and all of them said that they liked the flexible schedule of teaching.

**Motivation of Survey Respondents to join Construction Education**

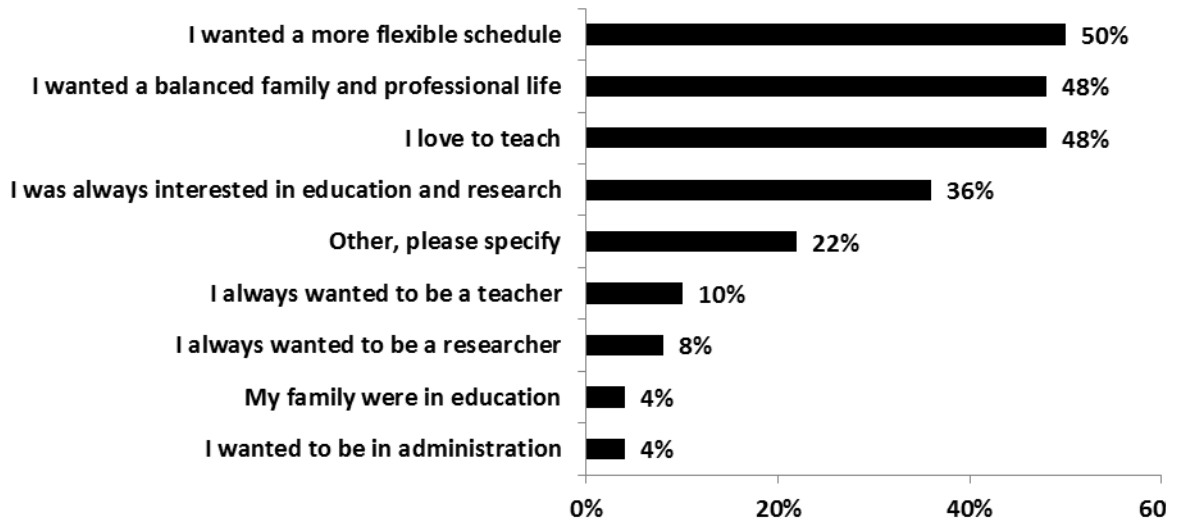


Figure 5: Respondents Motivation for Joining Construction Education

*Recruitment*

The researchers wanted to better understand the involvement of construction education programs in recruiting and keeping female faculty members. About a third of the responses indicate female faculty members perceive that construction education programs do not make an extra effort to recruit and keep female faculty members, as shown in figure 6. A third of the respondents believe that fewer female faculty members enter construction education since there are fewer females to begin with. However fifty-six percent of the respondents indicate that there is no correlation between female students and female faculty members in construction education, as shown in figure 7.

**Construction education programs actively seek to hire and keep female faculty members.**

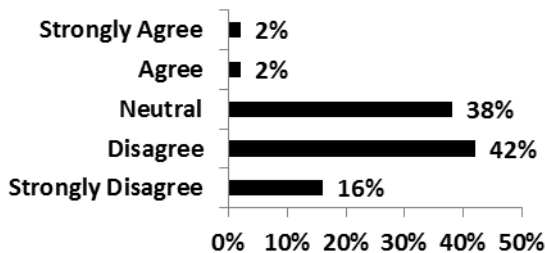


Figure 6: Respondents perception to construction programs actively hiring and keeping female faculty

**Fewer females join construction education, as there are fewer female students in these programs.**

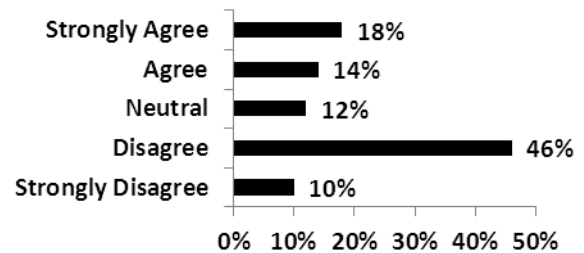
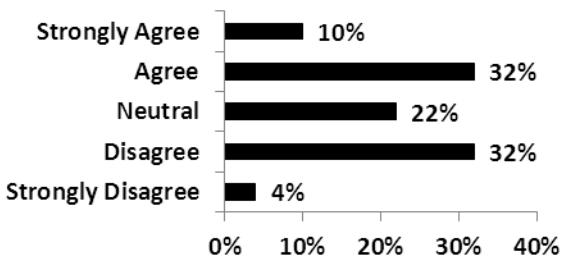


Figure 7: Perception about correlation between female students and female faculty recruitment

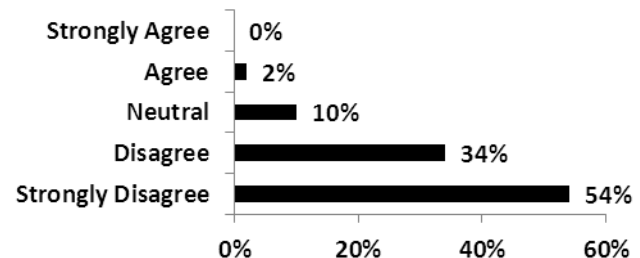
Participants were asked if recruiting more female students would encourage more female faculty members to join construction education programs. The data presented in figure 8 reveals that forty-two participants agreed or strongly agreed with this premise whereas thirty-six percent disagreed or strongly disagreed with the same. A cross tab analysis of the results revealed that among assistant professors, 9 members agreed that recruiting female students would encourage more females to join construction education. However, 6 assistant professors disagreed with that point of view. The participants were also asked if they thought females would join construction education programs to make more money than in the construction industry. As shown in figure 9, a majority of them disagreed with that premise.

**Recruiting more female students will encourage more female faculty to join construction programs.**



*Figure 8: Perception about correlation between female students and female faculty recruitment*

**Females join construction education because they can make more money than in the construction industry.**

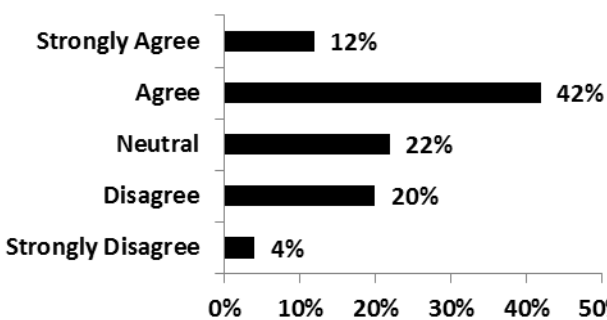


*Figure 9: Respondents perception on compensation in construction education vs construction industry*

*Comparative Compensation and Job Security*

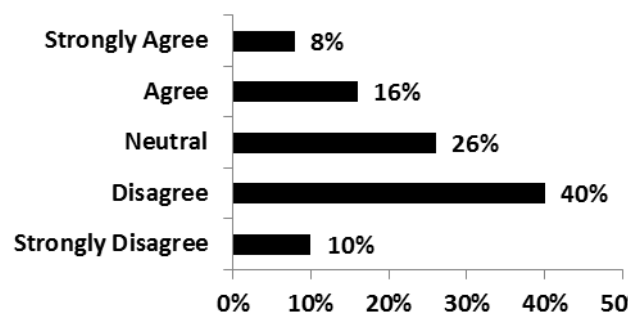
The researchers of the study wanted to understand the perceptions of female faculty members when it comes to wages and job-security as compared to their male colleagues. Fifty-four percent of the respondents believe that their wages are lower than their male counterparts whereas twenty-four percent of the respondents disagreed with that notion, as shown in figure 10.

**As compared to male faculty, female faculty members have lower average salaries.**



*Figure 10: Respondents perception of comparative female and male salaries*

**Females in construction education have less job security as compared to male faculty.**



*Figure 11: Respondents perception of comparative job security with male colleagues*

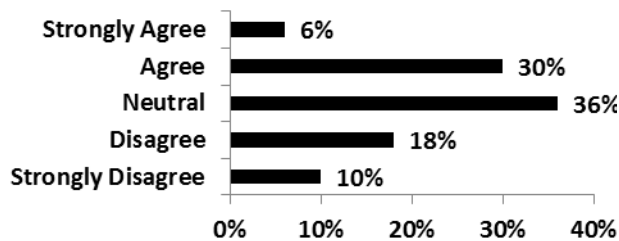
Fifty percent of the respondents disagreed that they have less job-security than their male counterparts whereas twenty percent of the participants felt like they did indeed have less job security than their male counterparts, as shown in figure 11. A cross tab survey of the results indicated that four of the ten associate professors disagreed that they make less money than their male colleagues, whereas five associate professors agreed with that statement.

Except for the associate professors, a majority of all other ranks of female faculty members felt that they were paid less than their male colleagues.

### Leadership

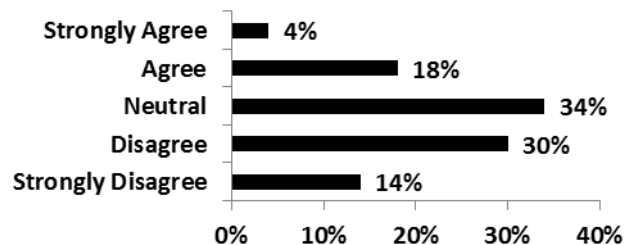
The results in figure 12 indicate that more female faculty think they are encouraged to take on leadership roles with their programs, than those that don't think that. 36% of the respondents did not have any opinion on the matter. However 44% of the respondents indicated that construction programs do not promote and support females in administrative roles, as shown in figure 13.

**Construction education programs encourage female faculty to take on leadership roles.**



*Figure 12: Reception about leadership positions*

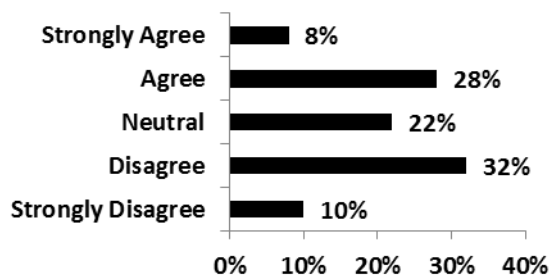
**Construction education programs promote and support female faculty in administrative positions.**



*Figure 13: Perception about administrative positions*

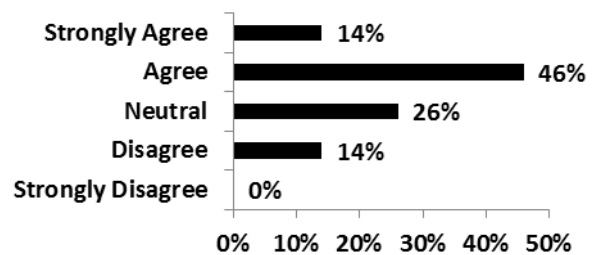
Figure 14 indicates that opinion is largely split about whether female faculty receive less support than their male colleagues. Sixty percent of the survey respondents felt that promoting females into leadership and administrative roles will encourage more women to consider construction education as a career choice, as shown in figure 15.

**Female faculty members receive less cooperation and support as compared to their male colleagues.**



*Figure 14: Respondents perception of cooperation, as compared to their male colleagues*

**Promoting females in leadership roles will encourage more females to join construction education.**



*Figure 15: Respondents perception about recruitment and females in administrative positions*

### Tenure and Promotion

Figure 16 reveals that 58% of the respondents believe that construction education programs do not make an extra effort to help female faculty members gain tenure and promotion. Validating this point of view, figure 17 shows that 56% of the participants agreed that construction education programs do not make an extra effort to help female faculty gain tenure and promotion. It must be noted that the results presented in figure 16 and figure 17 were not consecutive questions within the survey. They are merely being presented together since they address the same topic.

**Construction education programs make an extra effort to help female faculty gain tenure and promotion.**

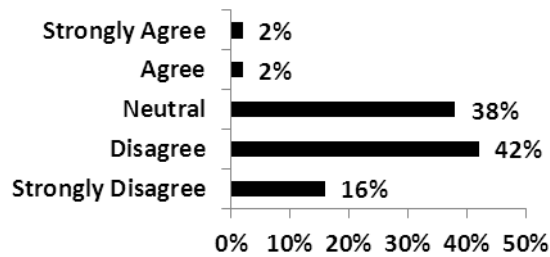


Figure 16: Respondents perception regarding helping females gain tenure and promotion

**Construction education programs do not make an extra effort to help female faculty gain tenure and promotion.**

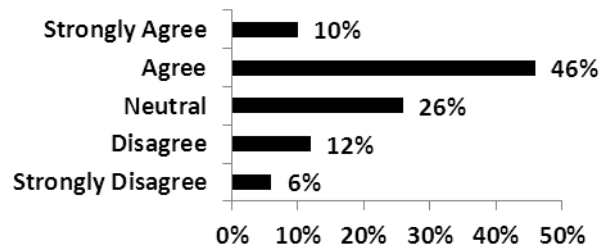


Figure 17: Respondents perception regarding helping females gain tenure and promotion

A crosstab analysis of the results revealed that almost all of the assistant professors felt that construction programs are not making an extra effort to help female gain tenure and promotion. The opinion among associate professors was found to match those from the results of the assistant professors.

*Other*

Among other questions, opinion is split among respondents about whether construction education programs make an effort to help female faculty maintain a balance between family and professional lives, as shown in figure 18. Some female faculty felt that creating a subgroup of female faculty within the ASC would promote female faculty, as shown in figure 19.

**Construction education programs are flexible, in an effort to help female faculty maintain a balance between the family and professional lives.**

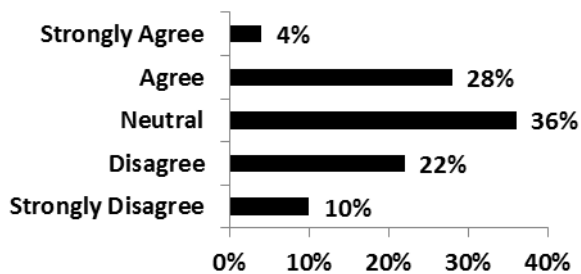


Figure 18: Repondents perception about maintaining a balance between family and work

**Creating a subgroup for female faculty among the ASC schools will provide opportunities to interact with each other and promote female faculty.**

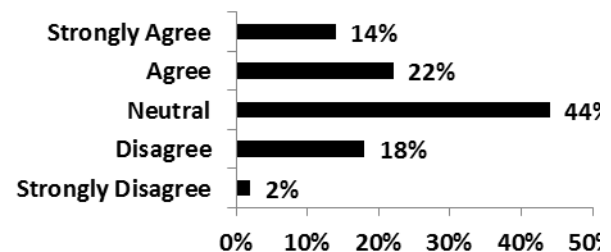


Figure 19: Respondents perception about creating a subgroup in the ASC for female faculty

*Open Ended Questions*

Participants were asked two open ended questions, allowing them to express their opinions to recruit more females to construction education. The participants were asked why more females do not join construction education. The results to that question are summarized in table 1. Comments that were repeated multiple times are presented in the results. It must be remembered that out of the 50 respondents to the survey, 44 of them chose to share their opinion about the question. This indicates that the respondents understood the importance of this study to encourage women to join construction education.

Table 1

***Responses to why more females do not join construction education***

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**Why do you think there are not more female faculty members in construction higher education and research?**

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1. There are fewer females overall in construction industry.
  2. There are not enough women with the required educational background.
  3. There is a lack of interest among women about the construction industry.
  4. Women have a lot of misconceptions about the construction profession.
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Participants were also asked to provide suggestions for recruiting more women to join construction education. 45 of the 50 participants provided comments for this question. Common themes among their responses are presented in table 2.

Table 2

***Responses to encourage more women to join construction education***

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**What can construction education programs do to encourage more females to pursue careers in higher education and research?**

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1. Change the image of the construction industry and make it more appealing for women.
  2. Provide more flexibility for faculty to maintain a balance between family and work.
  3. Get more female students and encourage them to think about educational positions.
  4. Actively recruit females to construction education.
  5. Provide an equal work environment for women and men
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**Conclusions and Recommendations**

The results of the survey revealed some valuable issues that can be easily fixed to encourage more female faculty members to join construction education. For instance it is important to female faculty members to maintain a balance between their work and their family life. A majority of the survey respondents perceive that they are paid less than their male colleagues and some also believe that they are not supported as well as their male colleagues. They do not feel that construction programs provide any additional help to female faculty to attain tenure and promotion. The respondents believe that having more women in administrative positions would encourage more women to pursue careers in construction education.

This research is a valuable starting point for the topic of increasing female faculty in construction higher education programs. Further studies should be conducted to involve more in depth interviews with female faculty, as well as the department and program chairs of these construction programs. It would also be very valuable to conduct the same survey with the male faculty members and compare the responses to those of the female faculty. The results presented here provide insight into these females and do not necessarily represent the entire female faculty population. Further researcher and a larger response rate would be needed to make more concrete generalizations. The researchers believe that the image of the construction industry can be improved by having more female participation in all areas, including construction education.



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