Exclusion and Inclusion in the Australian AEC Industry and Its Significance for Women and Their Organizations

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Abstract: Based on valuing individual differences and embracing all employees, diversity management is relatively widespread and evident in many organizations. However, discriminatory work practices and lack of support persist in the architecture, engineering, and construction (AEC) industry, with higher turnover for women and lower participation rates still evident. While well-meaning, these diversity strategies and practices are costly. Therefore, it is essential to understand the benefits women and their organizations gain, as well as attributes associated with more diverse and inclusionary workplaces. A theoretical framework based on social exchange theory was used to develop a questionnaire administered to professional women in the AEC industry. The sample was divided into two groups, women who experienced inclusion or exclusion, and comparisons made using a range of statistical tests. While inclusion did not affect women's career advancement, it was associated with increased satisfaction and decreased turnover intent. Inclusive companies had more female employees and leaders and also featured significantly higher mentoring and organizational training levels. The findings demonstrate inclusion to be essential for women's retention and an important management objective for the AEC industry. DOI: 10.1061/(ASCE)/ME.1943-5479.0000929. © 2021 American Society of Civil Engineers.

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1 Introduction

The Architecture, Engineering, and Construction (AEC) industry contributes significantly to most economies and is highly reliant on its people. Attracting and retaining the best workers and staff is essential to having an efficient, profitable sector, but meeting past and current vacancies has proven difficult (CIOB 2019; Kim et al. 2020). Attracting more women into the industry to address these skills shortages has been the impetus for various government and industry initiatives over the past several decades. It has also been the focus of many AEC companies' diversity management plans. However, women's representation in professional and managerial roles in the AEC industry remains low (Hickey and Cui 2020; US Bureau of Labor Statistics 2016).

Traditional work practices in AEC and gendered stereotypes about abilities and homosocial behavior all mitigate against women's inclusion and detract from women's work satisfaction and success (e.g., Dainty et al. 2000; Menches and Abrahams 2007; Ness 2012; Watts 2007). Women's higher turnover has been associated with long hours and family responsibilities (e.g., Menches and Abraham 2007; Ness 2012; Watts 2009). However, Shore et al. (2018) note that while family demands are often used as explanations for women not advancing, it does not account for ongoing gender disparity.

Concerns continue regarding women's lack of career advancement, and the scarcity of supportive work practices, have been the subject of much research (Clarke et al. 2015; Vinnicombe et al. 2018; Francis 2017; Hickey and Cui 2020). Extended and irregular

hours are typical, and the sector has not significantly altered its work practices to meet its employees' changing needs. Compared to their male counterparts, women's higher turnover rates are often associated with these issues as well as concerns regarding work inflexibility, lack of support, and reduced promotion (Lingard and Francis 2009; Glass et al. 2013; Hickey and Cui 2020). The literature in this area repeatedly identifies the need for women to fit in and posits that this and mentors can assist with women's advancement (Greed 2000; Dainty et al. 2007; Rosa et al. 2017).

So despite the adoption of diversity management practices within many AEC organizations, gender diversity within the workforce and lack of inclusion continue to be a problem. Mor Barak (2000) proposes that an organization's culture contributes to feelings of inclusion, which in turn lead to positive individual and organizational outcomes, and Acquavita et al. (2009) confirmed that exclusion was related to lower job satisfaction. Inclusive work cultures respect differences and successfully integrate a diverse range of workers and should provide an ideal environment for women, such as those in the AEC industry, to achieve both work and life success.

The purpose of this research was to understand more about the role of inclusion, the impact of diversity management practices, and how they relate to the work and life experiences of professional women. This issue has not previously been explored within the AEC industry.

Drivers for Managing Gender Diversity and Gender Diversity Effectiveness

Social change and increases in women's labor force participation have accompanied legislative and organizational actions, which have helped workplaces become more diverse and inclusive. Equality and antidiscrimination law is commonplace globally, and emanating from this has been further legislation regarding workplace flexibility and parental leave, which further supports women, especially those with care responsibilities (Davidson and Burke 2016).

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Diversity management is the “management philosophy of recognising and valuing heterogeneity in organisations with a view to improving organisational performance” (Tatli and Özbilgin 2009, p. 244). It relates diversity policy and program development, which is then typically operationalized through human resource (HR) measures such as recruitment, training, and mentoring. Studies have shown that diversity enhances organizational flexibility, recruitment, retention, and engagement, and can provide competitive advantage (Armstrong et al. 2010; Zanoni et al. 2010; Kochan et al. 2003; Østergaard et al. 2011).

Nevertheless, while diversity management has been embraced within many organizations, there are still discrepancies in women’s employment. They continue not to have equal access to jobs, career development opportunities, remuneration, and the “glass ceiling” persists, symbolizing obstacles to career advancement (e.g., Vinnicombe et al. 2018; Hickey and Cui 2020). These impediments have been especially visible in the AEC industry: while female participation has improved, it is still male-dominated, with women lagging in terms of representation and career development (Powell and Sang 2013; WISE 2019; Francis 2017). While there are national differences, female representation in AEC professions is typically low; for instance, the US Bureau of Labor Statistics (2016) identified 7.4% of all architectural and engineering managers as women, with 6.7% being construction managers.

When considering gender diversity in the AEC industry, it is the business case for diversity that typically underlies policies and practices (Ness 2012). Urwin et al. (2013) identified the benefits of these as either external or internal. The internal business benefits include improved company performance, integration of diverse perspectives, lower turnover, enhanced creativity, and better problem-solving. External business benefits include improved talent recruitment, enhanced business insights, more significant market share, and cost-savings related to equality legislation compliance (Urwin et al. 2013). For the AEC industry, the business case for gender diversity has mostly focused on external benefits. These external benefits have been expressed in several ways, such as using the case for the greater recruitment of women to assist businesses in tackling industry skill shortages, or as a way of providing better and more motivated staff, or to improve customer satisfaction (Clarke et al. 2015; UKRC 2005; Dainty et al. 2004; Barnard et al. 2010).

The effectiveness of diversity management practices is still heavily debated (i.e., Noon 2018; Vassilopoulou 2017), with persisting challenges ranging from stagnant gender ratios, recruitment discrimination, pay gaps to progression barriers, harassment, and social network exclusion (Gifford et al. 2019). Even with companies’ promotion of their diversity management strategies, lack of diversity and inclusion continues to be a systemic issue for the sector.

The main explanation postulated for the lack of more tangible outcomes from diversity management strategies is considered to emanate from the underlying business case approach to diversity management in organizations (Noon 2007; Kirton and Greene 2010; Michielsens et al. 2008). This approach, which focuses on generic short-term actions, usually does little to change organizational values and can be perceived as insincere by employees (Nishii et al. 2018).

135 Inclusive Organizations

Inclusion can be defined as “... the degree to which an employee is accepted and treated as an insider by others in a work system” (Pelled et al. 1999, p. 1014). Inclusion is related to how

well-integrated marginalized groups, such as women in the AEC industry, are within their organizational setting and therefore can participate, contribute, and utilize their skills more effectively (Bilimoria et al. 2007; Shore et al. 2018). Li et al. (2019) further identify an inclusive climate as one in which all employees experience respect and belongingness.

Managing diversity and inclusion are linked, but while managing diversity focuses on the representation of variety in the workforce, inclusion is about creating a culture where all involved can participate and influence (Burnett and Kettleborough 2007; Roberson 2006). So while diversity management practices can be present within an organization, inclusion does not always result from these actions. Overall, the main themes appearing in various definitions of inclusion are the notions of acceptance and being a group insider, valuing individualism, and the contributions and talents of all employees (Shore et al. 2011).

Roberson (2006, p. 220), who regards the organization as a social entity, considers inclusion to involve all employees, with a precise aim of “leveraging the positive impact of diversity for organisational competitive business advantage.” The inclusive workplace is “based on a pluralistic value framework that respects all cultural perspectives represented among its employees” (Mor Barak and Daya 2014, p. 394). Different groups support each other to be fully engaged at all levels in the organization (Shore et al. 2018; Roberson 2017).

Inclusion is related to reducing turnover and absenteeism, with individuals more likely to endorse the organization to others as an employer (Dwertmann et al. 2016; Jauhari and Singh 2013). Dwertmann et al. (2016) consider that this is a form of reciprocal action, with positive work attitudes occurring. Women, particularly those underrepresented, receive less supervisor support on a day-to-day basis, demonstrating the level of support does vary (Brown et al. 2018).

Organizational Support and Social Exchange Theory 172

Organizational support theory, developed by Eisenberger et al. (1986, p. 501), holds that “... in order to determine the personified organization’s readiness to reward increased work effort and to meet needs for praise and approval, employees develop global beliefs concerning the extent to which the organization values their contributions and cares about their well-being.” Organizational support will be affected by the organization’s actions that may be beneficial to an individual, such as rewards, promotion, training, and job security. Organizational support is often delivered through HR practices such as participation in decision making, the fairness of rewards, and growth opportunities (Allen et al. 2003; Robertson et al. 2017). Voluntary actions have been found to increase perceived organizational support more than compliance. (Djurkovic et al. 2008). A meta-analysis by Rhoades and Eisenberger (2002) revealed that perceived organizational support was related to improved job satisfaction, positive moods, and a lessening of withdrawal from the organization.

Social exchange theory, one of the most dominant theoretical lenses in the social sciences and management, underpins organizational support theory and explain these reciprocal relationships. It posits that as people interact, they feel the need to reciprocate any assistance provided, and if this occurs, a loyal relationship can develop (Cropanzano and Mitchell 2005). Social exchange theory and organizational support theory have been used in exploring both employer and employee workplace exchanges and the positive effects on employee behavior in the AEC industry. For instance, social exchange theory was utilized recently as the theoretical lens to

Fig. 1. Theoretical framework.

explain female engineers' work experience and retention in the AEC industry, with organizational support theory adopted to explore AEC employees' turnover (Colquitt et al. 2013; Chew et al. 2020; Oyedele 2010).

Theoretical Framework

This paper developed a theoretical framework based on social exchange theory and drew upon organizational support theory and diversity management practices. The model developed is shown in Fig. 1. It proposes that inclusion is a social exchange between the organization and individual employees and is influenced by diversity management effectiveness and perceived organizational support. For inclusion to occur, both successful diversity management and perceived organizational support must be evident. As already discussed, some diversity plans and practices are successful, but some are not, resulting in little change to the companies' gender composition. Their efficacy is related to positive strategies outcomes and acceptance of being genuine by corporate stakeholders (Nishii et al. 2018; Li et al. 2019). This framework recognizes both these aspects and the social exchange necessary between the organization and the individual employee in order for inclusion to exist.

Diversity management is now relatively widespread, and Leslie (2019) identified three types of diversity practices at the core of these plans. These include: nondiscriminatory practices that focus on decreasing bias and discrimination, resource practices to increase support and opportunities, and finally, accountability practices focusing on monitoring diversity goals such as gender composition changes. This last practice has a clear focus on the diversity goal outcome, with the other two practices focusing more on the diversity goal progress (Leslie 2019). These practices are identified within the developed framework, located at the organizational level, where they are enacted.

From a corporate perspective, diversity initiatives' intended consequences are that women would become more inclined to stay and succeed (Leslie 2019; Roberson et al. 2017). As women place a high value on both work and personal domains, women's success has been taken to encompass both life and work (Ng et al. 2005; Enache et al. 2011). Career success has objective and subjective components, with men placing a greater value on the objective part, and women valuing both relatively equally (Ng and Feldman 2014; Ng et al. 2005; Powell 2018; Dyke and Murphy 2006). Career advancement is the extrinsic aspect and career satisfaction the intrinsic of career success, both of which are vital to women and the

organizations in which they work (Powell 2018; Ng et al. 2005). Career advancement relates to the upward progressions within the hierarchical ranks of an organization. It typically includes an objective rather than subjective measurement, such as salary or promotions assessed in terms of society's evaluation of achievement (Melamed 1996; Nabi 1999). Career satisfaction is more subjective, related to a person's overall satisfaction with their career. It has increased in importance, particularly amongst women and older workers (Ng and Feldman 2014; Dyke and Murphy 2006). Career success is considered as both a motivator to participation as well as means of retention.

In terms of life success, two main issues have been determined by previous research, namely life satisfaction and work-family conflict. Life satisfaction has significant individual and organizational consequences, because it both a predictor of job performance and turnover, as well as burnout and morality (Erdogan et al. 2012). Work-family balance is often cited as a reason women leave the AEC sector with the inability to balance work and family responsibilities of primary concern. Higher work-family conflict levels are associated with organizational practices such as inflexible work arrangements, inadequate supervisor support, and longer working hours, negatively impacting individuals through higher emotional exhaustion, greater turnover intent, and lower satisfaction (Lingard and Francis 2009). The following sections discuss the framework further and develop specific hypotheses to be explored.

Impact of Inclusion at the Organizational Level

Diversity is championed within organizations through corporate or organizational policies and enacted by HR using strategies such as targeted recruitment, training, mentoring, and team building. (Subeliani and Tsogas 2005; Curtis and Dreachslin 2008). While formal diversity policies are now relatively standard, especially in large organizations, small to medium enterprises often adopt informal diversity policies to ensure recruitment, hiring, and performance appraisal practices acknowledge diversity (Manoharan et al. 2019). As noted, Leslie (2019) categorizes diversity initiatives in three ways: nondiscriminatory practices, resource practices, and accountability practices. Nondiscriminatory practices focus on decreasing bias, which relates to women's recruitment into an organization and women's future success (Leslie 2019). While the recruitment of women could be considered the ratio of new hires by gender, it is the onboarding and continuation of such women that better indicates diversity success. Thus the overall participation of women in the organization and women in leadership roles is considered in the framework.

Resource practices are considered opportunity-based and preferential practices adopted to facilitate an organization's diversity goals (Richard et al. 2007). Within this category, Leslie (2019) includes mentoring and career support for women as resource practices. The offering and uptake of diversity measures such as supportive work practices, including mentoring and training, would also be expected to feature more in inclusive work environments. In this study, mentorship and training, which feature highly within organizational diversity management practices, will be considered.

Accountability or responsibility practices by more closely monitoring outcomes and diversity goals have only more recently been added to diversity management practices (Richard et al. 2007; Leslie 2019). Examples of these could include adding diversity targets and outcomes to managers' individual performance goals or even appointing a diversity manager to report diversity progress (Leslie 2019). Ultimately, the retention of women is at the core

of these requirements, and for this reason, women's turnover intentions were used to represent the accountability practices. It is well known that women leave the industry at higher rates than men, so it would expect women will be less likely to leave an inclusive environment than an exclusive one (Singh et al. 2018).

The link between diversity and inclusion is evident (Burnett and Kettleborough 2007; Roberson 2006), and the framework developed for this study conceptualizes inclusion as a social exchange, requiring effective diversity management. Based on this, hypotheses were developed, one for each of the diversity management practices (Leslie 2019), linking diversity effectiveness and inclusion. They include:

Hypothesis 1 relating to nondiscriminatory practices:

H1(a): There will be a difference in women overall in inclusive and exclusive organizations.

H1(b): There will be a difference in women in leadership positions in inclusive and exclusive organizations.

Hypothesis 2 relating to resource practices:

H2(a): There will be a difference in the level of organizational training in inclusive and exclusive organizations.

H2(b): There will be an association between being mentored and organizational inclusivity.

Hypothesis 3 relating to accountability practices:

H3: There will be a difference in the level of turnover intent in inclusive and exclusive organizations.

Impact of Inclusion at the Individual Level

Inclusion as a social exchange between the organization and the individual also impacts the employee, with success in diversity initiatives and perceived organizational support experienced by individuals (Leslie 2019; Roberson et al. 2017). As previously discussed, women value both work and home domains, so success within both work and life is valuable. Collectively, career advancement and career satisfaction are referred to as career success. Career advancement, the objective element, is an indicator of promotions and progression within the industry, with career satisfaction the subjective aspect of career success (Ng et al. 2005). Based on organizational support theory, those who perceive an environment of inclusion will experience higher career success levels, both in terms of advancement and career satisfaction. This outcome was posited by Bilimoria et al. (2007) and intimated within much of the inclusion and women in management research.

Life success was conceptualized for this study as life satisfaction and work-life balance (or the reduction of work-family conflict). Both have been identified as being valued by women and indicators of life success (Powell 2018; Watts 2009). Life satisfaction also has broader implications in terms of health and well-being, and an environment of inclusion should increase life success. This is grounded within the comprehensive work of scholars such as Ng and Feldman (2014) and the more recent work of Chew et al. (2020) on engineers' happiness. Based on this, further hypotheses were developed and include:

Hypothesis 4 relating to career success:

H4(a): There will be a difference in the level of career advancement in inclusive and exclusive organizations.

H4(b): There will be a difference in the level of career satisfaction in inclusive and exclusive organizations.

Hypothesis 5 relating to life success:

H5(a): There will be a difference in the level of life satisfaction in inclusive and exclusive organizations.

H5(b): There will be a difference in the level of life satisfaction in inclusive and exclusive organizations.

Impact of Inclusion at the AEC Sector Level

Where possible, the study sought to identify organizational characteristics and provide further insights into inclusion within the sector. While larger companies typically have numerically more women (as well as higher female participation rates), they may also be more inclusive as they have greater transparency in recruitment and promotional processes, as well as more defined policies with regard to work practices and policies such as work-life balance (Colgan and McKearney 2011). However, according to organizational stage theory, older and larger companies become more formalized in order to deal with increased complexity and increase reliability in their operations (Aldrich 1999). Therefore, smaller companies may have less formal policies but are known to be more flexible in whom they hire and in the provision, or otherwise, of flexible/informal work practices (Sine et al. 2006). These can benefit women, especially those with family responsibilities. It would seem midsized companies may provide a balance of formal and informal policies that suit women, with formal policies providing an assurance of policy provision and informal providing the flexibility women desire.

With a long history of equity, affirmative action, and legislative requirements, public sector organizations should provide more inclusive work environments. Supportive work practices and stricter adherence to equal opportunity policies also tend to be more compatible with the remit of the public sector (Colgan and McKearney 2011). Due to civic organizations' nature, economic standards of performance differ from that of the private sector, and shareholders who typically oversee larger companies receive more institutional scrutiny (Dolcos and Daley 2009).

Understanding the different subsectors of the AEC industry may provide evidence of how inclusion can work in different project-based built environment companies. The professions within an industry influence its ability to change a company's gender composition, with Ashcraft (2013) identifying that certain cultural norms develop, which relate to how individuals are perceived as appropriate, or otherwise, for a role (Ashcraft 2013). As Muhr and Sløk-Andersen's (2017, p. 368) state in their research regarding women in the military, professions that "culturally read as masculine seem to struggle with including women on equal terms with men." Improving diversity at the organizational level is also multifaceted, which is often unacknowledged. Acker (1990), discussed in Healy et al. (2018), considers that entrenched stereotypes and associated inequity are hard to change, which would also be valid in the AEC industry. Gender parity has been realized within architecture education for several decades, and while participation has increased within engineering, it is still much lower in construction management. Greater female participation is in technical consultancies, such as architectural practices and engineering consultants, than has been achieved in construction contracting.

Based on this, further hypotheses were developed relating to company demographics:

Hypothesis 6 relating to company demographics:

H6(a): The level of inclusion will not be the same in different sized companies.

H6(b): There will be an association between the employment sector and organizational inclusivity.

H6(c): The level of inclusion will not be the same in technical consulting and construction contracting companies.

Research Aims

Research on women's careers in the AEC industry has not yet empirically explored inclusion, diversity management practices, and

professional women's career and life experiences. This research aimed to understand the role of diversity management effectiveness on women's success, utilizing inclusion and exclusion as an exploratory lens. Based on the theoretical model developed for this study, it was hypothesized that diversity management effectiveness and women's success would be more evident in inclusive organizations. In particular, six overall hypotheses, outlined earlier, were explored.

Method

Methodology

Consistent with the research problem, this study used a quantitative, deductive process approach (Neuman 2003). Because the study's purpose was to examine the extent to which variation in inclusion was related to differences in other characteristics, a cross-sectional correlational field study was adopted. An advantage of utilizing this method is collecting data on several independent variables from a large sample.

Participants

Managerial and professional women working within the AEC industry in Australia were surveyed. In particular, female members of four Australian-based AEC professional bodies (namely, the Australian Institute of Building, Australian Institute of Quantity Surveyors, Chartered Institute of Building, and National Association of Women in Construction) were recruited, and female employees of various architectural, engineering, and project management practices. Snowball recruitment was also used, where women forwarded the survey to female colleagues. The total female

membership of all surveyed professional institutions was approximately 915, and female employees of participating organizations approached 120. A total of 463 completed surveys were submitted, representing a response rate of around 44.9% (if snowballing is not considered). This response rate would be regarded as high [for instance, Baruch and Holtom's (2008) metastudy of 49 studies, involving 68 surveys, found a mean response of 39.6%].

Procedure

The survey was deployed using a password-controlled website, which allowed easy access for the sample. Internet-based surveys are frequently used due to their accessibility for participants and cost and time saving for researchers (Van Mol 2017). A tailored approach was adopted to minimize nonresponse, with initial e-mails sent by the professional bodies/employers and followed up with e-mail reminders at two and four weeks (Dillman 2006; Van Mol 2017). The study also adopted snowball recruiting.

Measures

In addition to some demographic and organizational data, such as age and work experience, the survey also included the following variables.

Inclusion

Inclusion, not previously operationalized, was based on Pelled et al.'s (1999) definition regarding insider status and Bilimoria et al. (2007) description regarding acceptance. It was considered a composite measure of four variables: person-organization fit, gender equity, peer support, and supervisor support. These measures and their items are summarised in Table 1.

Table 1. The variables that constitute the inclusion measure

	Measure	Item	Response format	Source	Cronbach Alpha
T1:1	Person-organization fit	1. The things that I value in life are very similar to the things that my organization values.	A 7-point agreement scale, where a higher mean score related to a higher possibility of a person leaving their organization.	Organizational fit scale (Cable and DeRue 2002)	0.92
T1:2		2. My organization's values and culture provide a good fit with the things that I value in life.			
T1:3		3. My personal values match my organization's values and culture.			
T1:4	Gender equity	Wording changed for each item and the scale was anchored at either end at 1 and 5, representing either male or female inequity. Gender neutrality was at the middle point (3). All professional and managerial staff are treated equally in this matter.		Derived from the women workplace Culture scale (Bergman and Hallberg 2002)	0.81
T1:5		1. Considered for promotional opportunities.			
T1:6		2. High organizational support.			
T1:7		3. Allocated roles with lower levels of responsibility.			
T1:8		4. "Fit in" well.			
T1:9	Supervisor support	5. Successful in obtaining fair compensation.	5-point extent scale ranging from 1 (to a very little extent) to 5 (to a very great extent), with a higher score indicative of greater supervisor support.	Supervisory leadership scale (Taylor and Bowers 1972)	0.90
T1:10		1. How friendly and easy to approach is your supervisor?			
T1:11		2. When you talk with your supervisor, to what extent do they pay attention to what you're saying?			
T1:12		3. How much does your supervisor encourage people to give their best effort?			
T1:13		4. To what extent does your supervisor encourage subordinates to take action without waiting for detailed review and approval from them?			
T1:14		5. To what extent does your supervisor show you how to improve your performance?			
T1:15		6. To what extent does your supervisor encourage people who work for them to exchange opinions and ideas?			
T1:16					

Table 1. (Continued.)

T1:17	Measure	Item	Response format	Source	Cronbach Alpha
T1:18	Peer support	1. How friendly or easy to approach are the persons in your work group?	5-point extent scale ranging from 1 (to a very little extent) to 5 (to a very great extent), with a higher score indicative of greater peer support.	Peer leadership scale (Taylor and Bowers 1972)	0.91
T1:19		2. When you talk with persons in your work group to what extent do they pay attention to what you're saying?			
T1:20		3. How much do persons in your work group encourage each other to give their best effort?			
T1:21		4. To what extent do persons in your work group help you find ways to do a better job?			
T1:22		5. To what extent do persons in your work group provide the help you need so that you can plan, organize and schedule work ahead of time?			
T1:23		6. To what extent do persons in your work group exchange opinions and ideas?			

Table 2. Diversity management practices measures

T2:1	Measure	Item	Response format	Source	Cronbach alpha
T2:2	Nondiscriminatory practices				
T2:3	Women overall	1. What percentage of women typically work in your organization?	A response ranging from 0% to 100% used. A higher number was indicative of more women overall.	—	—
T2:4	Women leaders	1. What percentage of women are top decision-makers in your organization?	A response ranging from 0% to 100% used. A higher number was indicative of more women leaders.	—	—
T2:5	Resource practices				
T2:6	Mentoring	1. Many professionals have a colleague they regard as a mentor. Do you have someone you would regard as a mentor?	Yes/no	—	—
T2:7	Organizational training	1. I often participate in training and development activities in my organization.	A 5-point agreement response, where a higher value indicative of more training and development.	—	—
T2:8	Accountability practices				
T2:9	Turnover intent	1. I often think about quitting.	A 7-point agreement response, where a higher score related to a greater possibility of a person leaving their organization.	Michigan Organizational Assessment Questionnaire (Cook et al. 1981)	0.88 (interitem correlation for the two items was 0.784, $p < 0.001$).
T2:10		2. I will probably look for a new job in the next year.			

The Cronbach Alpha for each measure was above the recommended minimum of 0.7, indicating a high level of internal consistency (Pallant 2020). In order to calculate the inclusion values, the variables were standardized by transforming them into z-scores and then summed. By altering the scores for all variables, so they each had an average of 0 and a standard deviation of 1, counteracted the different scoring schemes' effect. The reliability of the inclusion measure was assessed, and the Cronbach Alpha was found to be 0.73. Two groups were formed, with those with inclusion scores above zero classified as "inclusive" and those below zero as "exclusive."

Diversity Management Practices

Diversity management practices were considered through three elements defined by Leslie (2019): nondiscriminatory practices (in terms of recruitment and promotion), resource practices (in terms of mentoring and training), and accountability practices (in terms of retention) (Leslie 2019). These measures and their items are summarised in Table 2.

Recruitment was assessed by respondents indicating what percentage of their workforce overall were women. To represent women's promotion, respondents were asked to identify what percentage of top decision-makers were women, and the term "women leader" was used to describe this variable. Resource practices were assessed using participation in mentoring and organizational training and development. As accountability for diversity is associated with women's retention, turnover intent was adopted in this study.

Women's Success

Career success was measured using two variables, namely career advancement and career satisfaction. Career advancement was measured using a three-item scale and as the survey was lengthy, career satisfaction was measured using a single question. These measures and their items are summarized in Table 3.

Life success was conceptualized using two variables, namely life satisfaction and work-life conflict. The highly regarded Satisfaction with Life Scale (SWLS) (Diener et al. 1985), along

Table 3. Career and life success measures

Measure	Item	Response format	Source	Cronbach Alpha
Career success				
Career advancement	Three-item scale based on their level of responsibility, hierarchical position (to CEO), and salary	A 6-point response, where a higher score was indicative of a high level of career progression.	—	0.82
Career satisfaction	1. What is your overall level of satisfaction with your career?	A 5-point satisfaction response, with a higher score indicative of a greater level of satisfaction.	—	—
Life success				
Life satisfaction	1. In most ways my life is close to my ideal. 2. The conditions of my life are excellent. 3. I am satisfied with my life. 4. So far I have gotten the important things I want in life. 5. If I could live my life over, I would change almost nothing.	A 7-point satisfaction response, with a higher value indicative of greater life satisfaction.	Satisfaction with Life Scale (SWLS) (Diener et al. 1985)	0.9
Work-life conflict	1. The demands of my work interfere with my home and family life. 2. Because of my job, I can't involve myself as much as I would like in maintaining close relations with my family or spouse/partner. 3. Things I want to do at home do not get done because of the demands my job puts on me. 4. I often have to miss important family activities because of my job. 5. There is a conflict between my job and the commitments and responsibilities I have to my family or spouse/partner.	A 7-point agreement response, with a higher value indicative of more work to life conflict.	Boles et al. (2001)	0.9

with the Boles et al. (2001) scale were adopted. These measures and their items are also summarized in Table 3.

Company Demographics

Company sector, type, and size were also measured, and these are summarized in Table 4. Company size categories were based on those defined by the Australian Bureau of Statistics. These are itemized in Table 4.

Data Analysis

Prior to analyzing the data, it was assessed for missing data and outliers. The normality, linearity, and homoscedasticity of the data were then checked. There was no missing data and a few outliers

identified. As many statistical methods assume that the distribution of scores is normal, normality was assessed by consideration of skewness and kurtosis. Muthén and Kaplan (1985) consider variables with univariate skewness and kurtosis in the range of -1 to $+1$ as adequate. Following recommendations by Tabachnick and Fidell (2014) and Field (2017), the values of identified outliers were changed to one unit higher than the next highest score in the data set. This resulted in the univariate skewness and kurtosis of all variables to fall within Muthén and Kaplan's (1985) recommended range of -1 to $+1$. In addition to skewness and kurtosis, the Kolmogorov-Smirnov test was also conducted. The Shapiro-Wilk test was not considered an appropriate method as it is typically recommended for small sample sizes (<50 samples), while the

Table 4. Company demographics

Measure	Item	Response format
Company size	Approximately how many people are directly employed by your organization (within Australia)? 1. 1–4 2. 5–19 3. 20–199 4. 200–999 5. Over 1,000	Company type was one of five groups: micro (1), small (2), medium (3), large (4), and extra-large (5).
Organizational sector	Is your organization within the public or private sector?	2-point categorical response using public sector and private sector as the options.
Company type	How would you classify the company you work for? 1. Construction (head contractor) 2. Construction (subcontractor) 3. Engineering consultancy 4. Architectural practice 5. Project management consultancy 6. Cost management consultancy 7. Education and training 8. Legal 9. Other	9-point categorical response, which was then reclassified into Construction (1 and 2), Technical Consultancy (3, 4, 5, and 6), and Other (7, 8, and 9).

540 Kolmogorov–Smirnov test is used for $n \geq 50$. The Kolmogorov–
541 Smirnov results were significantly nonnormal for each variable,
542 $D(456) = 0.074\text{--}0.316$, $p < 0.005$.

543 Before the total score of the various scales was calculated, those
544 known to contain a single factor were checked for unidimension-
545 ality using a principal components analysis with a varimax rotation
546 (Grayson 2004). Next, the various measures' reliability was deter-
547 mined, with the coefficient Alphas for the different variables were
548 determined (Field 2017). Nunnally (1978) recommends a minimum
549 of 0.7, and this threshold was adopted.

550 As the variables which form part of inclusion were measured
551 using different response formats, they were standardized by trans-
552 forming them into z -scores before summing them. Z -scores trans-
553 form a variable so that its mean is 0 and standard deviation is 1.
554 Each variable was given an equal weighting within the composite
555 scale.

556 To compare groups, participants who scored above zero were
557 considered as inclusive (sample of 258), and those below zero were
558 classified as exclusive (sample of 198).

559 In order to compare the experiences of the different groups of
560 participants, statistical tests were conducted to compare the mean
561 scores for variables between groups of women. Analyses of vari-
562 ance (often abbreviated to ANOVAs) and independent t -tests were
563 used to test for significant differences within parametric data. The
564 independent t -tests to test for differences between two groups
565 and the ANOVAs for differences between more than two groups.
566 Chi-squared tests for independence and Mann-Whitney U tests
567 were used for dichotomous and nonparametric data.

568 To compare differences in perceptions, experiences, and organi-
569 zational attributes within the two work environments, independent
570 t -tests were used to compare career advancement, life satisfaction,
571 career satisfaction, turnover intent, work-family conflict, and
572 organizational training. Mann-Whitney U tests were used to com-
573 pare women overall and women in leadership. Chi-squared tests for
574 independence were used for the organizational sector and being
575 mentored. One-way ANOVAs were used to company type and
576 company size (Pallant 2020).

577 Results

578 Sample

579 The final sample consisted of 456 women. Their average age was
580 35, and women had worked just over 10 years on average in AEC
581 related roles. The average weekly working hours was 47, with
582 nearly 90% working over 40 h/week. Most respondents worked
583 in an office situation, with 75.4% working in a head or regional
584 office and 24.6% site-based. The sample had women who had
585 worked in the AEC industry from 1 year to over 40 years, with
586 the average work experience being 10.2 years ($SD = 7.48$). The
587 largest percentage of participants, 51.5% worked in technical con-
588 sultancies (architecture $n = 69$, engineering $n = 76$, project and
589 cost management $n = 90$), 37.5% worked for a construction con-
590 tractor, and the rest of the sample (10.9%) worked in a variety of
591 organizational settings ranging from legal firms to property con-
592 sultancy. Around 81% worked in the private sector, and the major-
593 ity of the sample (58.5%) worked in a large organization (200 or
594 more employees). Each of the six overall hypotheses is considered
595 in turn.

596 Hypothesis 1 Relating to Nondiscriminatory Practices

597 $H1(a)$: There will be a difference in women overall in inclusive
598 and exclusive organizations.

$H1(b)$: There will be a difference in women in leadership po- 599
sitions in inclusive and exclusive organizations. 600
Nonparametric tests, namely the Mann-Whitney U tests, were used 601
as the women overall, and women leader variables, while being 602
continuous, were not normally distributed. A statistically signifi- 603
cant difference between the women overall in exclusive ($M =$ 604
 24.26% , $SD = 15.74$, and $n = 198$) and inclusive ($M = 31.35\%$, 605
 $SD = 21.69$, and $n = 258$; $U = 21,080$, $z = -3.212$, $p < 0.001$) 606
work environments was found. Furthermore, a significant differ- 607
ence in women leaders in exclusive ($M = 5.27\%$, $SD = 12.02$, 608
and $n = 198$) and inclusive ($M = 13.36\%$, $SD = 23.191$, $n =$ 609
 258 ; $U = 18,647$, $z = -4.99$, and $p < 0.001$) work environments 610
was also established. These results support Hypothesis 1(a) and 611
1(b) and indicate that nondiscriminatory practices such as higher 612
recruitment of women and more women in leadership positions 613
are a feature of inclusive work environments. 614

Hypothesis 2 Relating to Resource Practices 615

$H2(a)$: There will be a difference in the level of organizational 616
training in inclusive and exclusive organizations. 617

$H2(b)$: There will be an association between being mentored 618
and organizational inclusivity. 619

An independent t -test explored differences in organizational train- 620
ing. Participation in organizational training was also significantly 621
lower in more exclusionary environments ($M = 3.18$, $SD = 1.07$) 622
than settings in which women felt included [$M = 3.83$, $SD = 0.88$; 623
 $t(454) = -7.172$, $p < 0.001$]. A chi-squared test for independence 624
(with Yates Continuity Correction due to 2-by-2 table) was under- 625
taken to see if an association between being mentored and inclusive 626
work environments existed. A significant association was found 627
in relation to mentoring [$\chi^2 = (1, n = 456) = 12.12$, $p < 0.001$, 628
 $\phi = 0.16$]. These results support Hypothesis 2(a) and 2(b). These 629
results indicate that higher levels of resource practices, such as 630
training and mentoring, and a more inclusive work environment, 631
are associated. 632

Hypothesis 3 Relating to Accountability Practices 633

$H3$: There will be a difference in the level of turnover intent in 634
inclusive and exclusive organizations. 635

Turnover intent was significantly higher in the exclusive work envi- 636
ronment ($M = 4.16$, $SD = 1.76$) than in inclusive work environ- 637
ments [$M = 2.61$, $SD = 1.48$; $t(383.2) = 10.208$, $p < 0.001$]. 638
These results support Hypothesis 3, indicating that women in 639
work environments that are more exclusionary (than inclusive) 640
may have lower retention rates as they indicate a higher level of 641
turnover intent. This demonstrates inclusion and accountability 642
practices to be related. 643

Hypothesis 4 Relating to Career Success 644

$H4(a)$: There will be a difference in the level of career advance- 645
ment in inclusive and exclusive organizations. 646

$H4(b)$: There will be a difference in the level of career satisfac- 647
tion in inclusive and exclusive organizations. 648

An independent t -test was undertaken to compare the career ad- 649
vancement and career satisfaction for AEC female managers and 650
professionals employed in work environments, which were per- 651
ceived as more or less inclusive (Pallant 2020). No significant dif- 652
ference in the scores for career advancement in the inclusive work 653
environments ($M = 3.44$, $SD = 1.21$) and exclusive work environ- 654
ments ($M = 3.33$, $SD = 1.13$; $p = 0.31$) was found. This result 655
was contrary to the hypothesis. However, there were highly signifi- 656
cant differences in the scores for career satisfaction. In the exclusive 657

work environment, career satisfaction was significantly lower ($M = 3.36$, $SD = 0.930$) than in Inclusive work environments [$M = 4.09$, $SD = 0.71$; $t(454) = -9.571$, $p < 0.001$]. These results support Hypothesis 4(b), but not 4(a), and indicate that while women in work environments that are more inclusive do not advance more in their careers, they do have greater career satisfaction than women who feel excluded.

665 Hypothesis 5 Relating to Life Success

666 H5(a): There will be a difference in the level of life satisfaction
667 in inclusive and exclusive organizations.

668 H5(b): There will be a difference in the level of life satisfaction
669 in inclusive and exclusive organizations.

670 An independent t -test was conducted to compare work-family conflict and life satisfaction of AEC women in more inclusive work environments. Life satisfaction was significantly higher in more inclusive environments ($M = 5.31$, $SD = 1.07$) than settings in which women felt excluded [$M = 4.46$, $SD = 1.21$; $t(454) = 7.879$, $p < 0.001$]. A highly significant difference in the scores for work-family conflict in the exclusive work environments ($M = 4.45$, $SD = 1.32$) and inclusive work environments [$M = 3.79$, $SD = 1.37$; $t(454) = 5.211$, $p < 0.001$] was also found. These results support Hypothesis 5(a) and 5(b) and demonstrate the role of inclusion in women's life success. They indicate that women have lower life satisfaction and experience higher work-family conflict in work environments in which women experience exclusion compared to inclusion.

684 Hypothesis 6 Relating to Company Demographics

685 H6(a): The level of inclusion will not be the same in different
686 sized companies.

687 A one-way ANOVAs was used to explore differences by level of
688 inclusive and organizational size (Pallant 2020). In this case, the
689 inclusion variable was considered a continuous standardized variable with five groups: micro, small, medium, large, and extra-large, compared. The five categories were based on the Australian Bureau of Statistics (ABS) company size classifications. The large company category (over 200 people) was further divided, so those with greater than 1,000 employees could be considered. Most women were employed in large companies ($n = 142$ for large; $n = 125$ for very large), with 41 people working in small organizations, 134 in medium-sized organizations, and only 14 women in microbusinesses.

699 There was a statistically significant difference at the $p < 0.05$
700 level in the inclusion values for the different organizational groups
701 [$F(4, 451) = 2.77$, $p = 0.027$]. Post hoc comparisons using the
702 Tukey HSD test indicated that only the mean score of inclusion
703 for the microcompanies was significantly different from that of
704 the medium-sized company ($p < 0.046$). Based on the inclusion
705 and exclusion groups, smaller companies were represented at a
706 higher rate than medium and larger companies, with microcompanies having the highest inclusion level. These results, therefore, support Hypothesis 6(a) that inclusion and organization size are associated, but it is the very small work environments that provide women with greater levels of inclusion.

711 H6(b): There will be an association between the employment
712 sector and organizational inclusivity.

713 Respondents were asked to indicate the sector in which their
714 company operated. Two options were provided, namely the private
715 sector and public (government-owned and operated). A more significant number of women worked within the private sector ($n = 368$ versus $n = 88$), which reflects employment in general

within the AEC industry. A chi-squared test for independence (with Yates Continuity Correction due to 2 by 2 table) was employed to investigate if an association between the sector and inclusive work environments existed. While more women in the public sector versus the private sector perceived their organization to be inclusive (57.1%) than exclusive (54.5%), no significant difference was found. Hypothesis 6(b) was, therefore, not supported.

H6(c): The level of inclusion will not be the same in technical consulting and construction contracting companies.

The relationship between inclusion and the organizational type was also explored using a one-way ANOVA. Inclusion again was considered as the continuous standardized variable with three groups compared, based around common usage in the AEC sector, namely technical consulting (architecture $n = 69$, engineering $n = 76$, project and cost management $n = 90$), construction contracting ($n = 171$, head and subcontractors), and other ($n = 50$, law, etc.). There was a statistically significant difference at the $p < 0.05$ level in the inclusion scores for the three different organizational types [$F(2, 453) = 4.77$, $p = 0.009$]. Post hoc comparisons using the Tukey HSD test indicated that the mean score of inclusion for technical consulting was significantly higher than that of the construction contracting ($p < 0.008$), supporting Hypothesis 6(c). There were no other statistically significant differences between different groups.

Discussion

In this research, a model of inclusion, based on social exchange theory, investigated diversity management effectiveness and women's success using a sample of nearly 500 AEC professional women. Six overall hypotheses were developed and explored, and while the majority of these were supported, some were not. The results are discussed below.

Impact of Inclusion at the Organizational Level

The results demonstrate that when inclusion was evident, organizational diversity strategies were effective. In particular, three types of diversity strategies, defined by Leslie (2019), were considered, namely, nondiscriminatory, resource, and accountability practices. When considering nondiscriminatory practices in terms of recruitment and retention, not only were there significantly more women overall but more women in leadership in inclusive work environments. Organizations with higher representation of women are considered to have more equitable recruitment processes, so they may also have other equitable employment practices in place (e.g., flexible work), which Guillaume et al. (2013) consider to affect the emergence of an inclusive organizational culture. Also, feelings of identity and inclusion increase when individuals are part of groups in which they are demographically similar (Tajfel and Turner 2004; Chattopadhyay et al. 2004). So the presence of women themselves may well positively affect the perception of inclusion. Finally, a strong association between the presence of senior female managers and younger women professionals has been previously identified, underscoring the longer-term importance of women leaders fostering and supporting younger female cohorts (Goodman et al. 2003).

Resource practices typically provided through Human Resource Management (HRM) were also evident in organizations that women perceived to be more inclusive, with more mentoring and organizationally provided training evident in inclusive work environments. Both mentoring and training have been identified as necessary for women's careers, attracting considerable attention within AEC women's research (e.g., Worrall et al. 2010). Chan and

778 Dainty (2007) assert that supportive HRM practices are necessary
 779 to attract and retain AEC women.
 780 Turnover was considered in this research to represent account-
 781 ability practices, also referred to as responsibility practices. These
 782 practices aim to monitor diversity outcomes, with a focus on the
 783 overall goal of diversity rather than diversity processes (Leslie
 784 2019). The research found that the turnover intent of women
 785 who perceived their workplaces to exclude them was statistically
 786 higher. Reducing turnover is imperative for organizations, particu-
 787 larly when costs associated with lower work performance, retrain-
 788 ing, and further recruitment are considered (e.g., Hancock et al.
 789 2013). Mor Barak (2000) also identified that perceived inclusion
 790 positively affected retention so that inclusion can act as a preventa-
 791 tive strategy for women's turnover in the AEC sector (Davies
 792 et al. 2019).

793 **Impact of Inclusion at the Individual Level**

794 In this study, success was assessed in two ways: career success by
 795 considering career satisfaction and career advancement; and life
 796 success by considering life satisfaction and work-family conflict.
 797 Both aspects of success are known to be important to women
 798 (Erdogan et al. 2012). In this research, career satisfaction was sig-
 799 nificantly higher in the inclusive group. Career satisfaction is
 800 known to have significant organizational implications as the bene-
 801 fits spread beyond that of an individual employee. For instance, job
 802 satisfaction, which is closely linked with career satisfaction, is a
 803 known predictor for coworker support (LePine et al. 2002).

804 Interestingly, inclusion was not associated with women's career
 805 advancement. So despite the presence of mentors, along with more
 806 active recruitment of women and the presence of women leaders in
 807 an inclusive work environment, there was no difference in women's
 808 career advancement. The inclusion environment may hold the same
 809 underlying perceptions and subtle norms as the more exclusionary
 810 environment have about who is (and who is not) suitable for spe-
 811 cific roles (Ashcraft 2013). Perhaps, women leaders may not have
 812 as much organizational influence to affect change, or simply they
 813 do not support other women advancing (aka Queen Bee syndrome)
 814 (Funk 2004; Baumgartner and Schneider 2010).

815 Life success was conceptualized as life satisfaction and work-
 816 life balance. In more inclusive workplace environments, women
 817 had statistically higher levels of life satisfaction. This result is
 818 notable as life satisfaction is closely linked to many aspects of
 819 physical and mental health, demonstrating exclusionary contexts
 820 may have a severe impact on women's lives. Reduced life satisfac-
 821 tion has been found to relate to decreased mortality, heart disease,
 822 burnout, and sleeping disorders, and is also a better predictor of job
 823 performance than job satisfaction (Erdogan et al. 2012). Better life
 824 satisfaction is also related to higher career satisfaction, lower turn-
 825 over, increased helpfulness to subordinates, and higher productivity
 826 (Erdogan et al. 2012). Life satisfaction and happiness, while not
 827 synonymous, are intimately linked, and Chew et al. (2020) identi-
 828 fied happiness in engineers to be related to supervisor support. Life
 829 satisfaction is a valuable and positive attribute of employees and for
 830 any organization.

831 Work-family conflict was statistically higher in exclusionary
 832 environments and may explain the higher level of turnover intent.
 833 Women's departure from the AEC sector has been linked to work-
 834 family issues, but it has been demonstrated that organizational sup-
 835 port mechanisms reduce work-family conflict (Lingard and Francis
 836 2009). Work-family conflict in the AEC industry has been associ-
 837 ated with demanding roles, and it would seem that inclusive work
 838 environments do support workers with family commitments.

Impact of Inclusion at the AEC Sector Level

840 Finally, this research also identified some AEC sector level char-
 841 acteristics of inclusive workplaces. Microsized companies, rather
 842 than larger, medium, or small companies, had significantly higher
 843 levels of inclusion. Considering more formal diversity programs are
 844 often found in larger organizations, this finding does appear
 845 counterintuitive. However, it is not just the formal policies that as-
 846 sist employees, but also the informal accommodations, such as un-
 847 scheduled time off, altered schedules, etc., which may be more
 848 forthcoming in smaller organizations (Behson 2002). While it
 849 was considered that midsized firms might provide that balance
 850 of formal and informal policies and thereby be more inclusive, this
 851 research found that very small organizations appear to facilitate in-
 852 clusion more readily. It may be that informal policy and practices
 853 have a more significant effect on inclusion as they are more closely
 854 related to a microsized firm's norms. Within these very small or-
 855 ganizations, accommodations and support linked with inclusion
 856 may be a more natural part of the way work is conducted. Research
 857 by Adkins et al. (2013) also suggests that ownership characteristics
 858 in terms of gender and family affect the work-family culture and
 859 work flexibility within smaller organizations.

860 As an area with a historically lower number of women, perhaps
 861 unsurprisingly, construction contracting had significantly higher
 862 exclusion levels than technical consultancies. Interestingly, it
 863 was found that architecture, which has had gender parity within
 864 education for several decades, had a lower percentage of inclusive
 865 organizations than engineering and other professional consultan-
 866 cies. Stead (2016) notes that architecture's culture is one of excep-
 867 tionalism, differing from all other professions. Perhaps this and the
 868 fact that the female architect's image is not so clear cut (Stead 2016)
 869 make them more outsiders than women who have gone into engi-
 870 neering, which focuses more on practical tasks and problem-
 871 solving within a strong norm of professionalism and ethics.

872 No differences in inclusion by organizational sector were found,
 873 which was unexpected. With their long association with diversity
 874 programs, public sector institutions did not embrace inclusion more
 875 than the private sector. Work-family conflict has been found to be
 876 higher for private sector AEC employees, but this was in a predomi-
 877 nantly male sample (Francis et al. 2013). Perhaps the formal pro-
 878 visions for child care, part-time work options, etc., within the
 879 public sector improve the work-family balance of public sector em-
 880 ployees, but not the underlying perceived organizational support
 881 needed for inclusion. However, these results can also be considered
 882 another way and may indicate that private sector companies are
 883 starting to taking the lead in the diversity area. This is good news
 884 for women wanting private sector work experience but concerned
 885 about managing work and family responsibilities.

Conclusions

887 Significant changes have occurred within women's employment
 888 conditions, with the most notable being the equal opportunity legis-
 889 lation enacted within most western economies since the 1970s.
 890 Diversity has since replaced the term equality to highlight the value
 891 of individual differences in improving organizational performance
 892 (Cox 2001; Mor Barak 2016; Özbilgin and Tatli 2011; Robertson
 893 et al. 2017). More recently, the term inclusion has been embraced
 894 and is regarded as more participatory and proactive (Kossek and
 895 Pichler 2006). There is now a widespread understanding of the ben-
 896 efits of a diverse workforce and the role inclusion has to play, out-
 897 lined within both industry and academic literature (Michielsens
 898 et al. 2008; Wright et al. 2014). However, it has been challenging
 899 to identify specific effects because of the intricacy of organizational

processes (Hamdani and Buckley 2011; Fischer 2009). Evidence on the business impact remains unclear (e.g., Guillaume et al. 2013).

Based on organizational support theory, which is grounded in social reciprocity, this research postulated inclusion to be a product of diversity management effectiveness and organizational support. The study found that diversity management alone is not enough, and the critical role organizational intent has to play. The study sought to understand the effect of inclusion on AEC women and their organizations and provided much needed empirical evidence in the area. Inclusion does matter to AEC women and their organizations.

From this work, it is apparent that AEC companies are not all the same, with companies having different inclusion levels. The research has also identified organizational and personal benefits from diversity and inclusion, which may help address the ability to attract and retain women within the AEC industry. However, it also highlights that many women in the industry continue to suffer in exclusionary environments.

An inclusive work culture that values differences and successfully integrates a diverse range of workers does provide an ideal environment for AEC women to achieve both work and life success. Women in these environments experienced higher levels of career and life satisfaction and lower level of work-family conflict. Women's lack of career advancement has long been associated with a lack of support, mentors, and challenging work practices, with women required to fit in if they want to remain and succeed (e.g., Dainty et al. 2000; Worrall et al. 2010; Francis 2017). More inclusive environments do address some of these issues, but in this research, it was found that women's inclusion did not impact women's career progression despite access to mentoring and support. This is a significant finding as much of the prior research has indicated their absence be the cause of women's lack of advancement.

The effectiveness of diversity programs in the inclusive group was also confirmed with statistically greater numbers of women overall, more women in leadership, and the presence of supportive organizational practice such as training and mentoring. The positive effect of inclusion for organizations was demonstrated through the women's higher career and life satisfaction, reduced work-family conflict, and lower turnover intent. These factors are not only beneficial for women but are related to better work performance and reduced costs. When considering the variables used to measure inclusion, it is also apparent that it is an achievable characteristic and should be a vital business objective. However, as this research demonstrates, these efforts must be genuine. Inclusion stems from organizational support that is nonmandatory compared to diversity, which is legislated or mandated (Shore et al. 2018). Leslie (2019) identifies that an absence of an ethical climate (and associated behaviors) can result in a diversity backfire, with the representation of women actually decreasing.

When examining the inclusive environment's attributes, it was apparent that inclusion did differ by organizational size and type, but not the organizational sector. It would appear in the inclusive group AEC women are at least accepted, demonstrating progress from earlier research. While they may still face career progression challenges, they are still in a much better position than women who experience exclusionary workplaces. Exclusion has some very concerning features that could be deemed as an OH&S issue. With their more negative features, exclusionary workplaces may be indicative of damaging and unethical workplaces that affect more than just female employees. Investigating diversity and inclusion may help illuminate sections of the AEC industry in need of urgent reform.

Future Research

These findings indicate that further research is required to understand the evolution and benefits of more inclusive work environments in the AEC industry. Qualitative longitudinal research during the implementation of a new diversity management plan could provide insights not gained through cross-sectional quantitative methods. The discovery that women's career advancement was not affected by inclusion requires further exploration. Various researchers previously identified mentoring and support as explanations for women's career progression issues; however, women's advancement was unaffected even when they are present. Also, this research sheds light on AEC work environments that could improve the work and life of employees. Understanding these and their effect on male and female employees should be explored. Finally, more qualitative research involving microsize companies and engineering consultancies should be undertaken to understand why they are more inclusive than larger companies and architectural practices.

Limitations

While the cross-sectional correlational field study method is widely adopted, it has some limitations, particularly regarding causality (Field 2017). Also, the sample was mainly women in the AEC industry who were members of AEC professional bodies. While snowball sampling was encouraged, the research cannot claim that the sample was random, and some bias may exist. Being a professional association member may indicate an increased career focus and/or compliance with professional norms. However, the sample did represent women of all ages, work experiences, and family situations.

The questionnaire was web-based, which can result in responses from nontargeted groups; however, a password-controlled site was used and would have mitigated against this. It was quite long, and the use of a single item for some variables (e.g., career satisfaction) was not ideal. Inherent in all studies involving people's perceptions are a range of issues; individuals respond about how they feel at one specific time. Also, individuals can be unwilling to reveal true feelings; social desirability bias may have played a part in their responses. However, having a particular website for the study, a large sample, assuring anonymity, and not linking the study back to their workplaces should have minimized these issues. Finally, in this study, the conceptualization of inclusion was based on the description by Bilimoria et al. (2007) and others. Standardized variables were used, and the sample of professional women was split into two. Inclusion was classified as above one and exclusion below one. It is acknowledged that inclusion is on a continuum, and the random allocation was used to identify those experiencing higher and lower inclusion rather than define where inclusion begins and ends.

Data Availability Statement

Some or all data that support the findings of this study may be available from the corresponding author upon reasonable request.

References

- Acquavita, S. P., J. Pittman, M. Gibbons, and K. Castellanos-Brown. 2009. "Personal and organizational diversity factors' impact on social workers' job satisfaction: Results from a national internet-based survey."

- Administration Social Work 33 (2): 151–166. <https://doi.org/10.1080/03643100902768824>.
- Adkins, C. L., S. A. Samaras, S. W. Gilfillan, and W. E. McWee. 2013. "The relationship between owner characteristics, company size, and the work-family culture and policies of women-owned businesses." *J. Small Bus. Manage.* 51 (2): 196–214. <https://doi.org/10.1111/jsbm.12014>.
- Aldrich, H. E. 1999. *Organizations evolving*. London: SAGE.
- Allen, D. G., L. M. Shore, and R. W. Griffeth. 2003. "The role of perceived organizational support and supportive human resource practices in the turnover process." *J. Manage.* 29 (1): 99–118. <https://doi.org/10.1177/014920630302900107>.
- Armstrong, C., P. C. Flood, J. P. Guthrie, W. Liu, S. MacCurtain, and T. Mkamwa. 2010. "The impact of diversity and equality management on firm performance: Beyond high performance work systems." *Hum. Resour. Manage.* 49 (6): 977–998. <https://doi.org/10.1002/hrm.20391>.
- Ashcraft, K. L. 2013. "The glass slipper: Incorporating occupational identity in management studies." *Acad. Manage. Rev.* 38 (1): 6–31. <https://doi.org/10.5465/amr.2010.0219>.
- Barnard, S., A. Powell, B. Bagilhole, and A. Dainty. 2010. "Researching UK women professionals in SET: A critical review of current approaches." *Int. J. Gender Sci. Technol.* 2 (3).
- Baruch, Y., and B. C. Holtom. 2008. "Survey response rate levels and trends in organizational research." *Hum. Relat.* 61 (8): 1139–1160. <https://doi.org/10.1177/0018726708094863>.
- Baumgartner, M. S., and D. E. Schneider. 2010. "Perceptions of women in management: A thematic analysis of razing the glass ceiling." *J. Career Dev.* 37 (2): 559–576. <https://doi.org/10.1177/0894845309352242>.
- Behson, S. J. 2002. "Coping with family-to-work conflict: The role of informal work accommodations to family." *J. Occup. Health Psychol.* 7 (4): 324–341. <https://doi.org/10.1037/1076-8998.7.4.324>.
- Bergman, B., and L. R. M. Hallberg. 2002. "Women in a male-dominated industry: Factor analysis of a women workplace culture questionnaire based on a grounded theory model." *Sex Roles* 46 (9–10): 311–322. <https://doi.org/10.1023/A:102076529726>.
- Bilimoria, D., L. Godwin, and D. D. Zelechowski. 2007. "Influence and inclusion: A framework for researching women's advancement in organizations." In *Handbook on women in business and management*, edited by D. Bilimoria and S. K. Piderit, 232–253. Glos, UK: Edward Elgar Publishing.
- Boles, J. S., W. G. Howard, and H. H. Donofrio. 2001. "An investigation into the inter-relationships of work-family conflict, family-work conflict and work satisfaction." *J. Managerial Issues* 13 (3): 376–390.
- Brown, S. M., et al. 2018. "The practice of respect in the ICU." *Am. J. Respir. Crit. Care Med.* 197 (11): 1389–1395. <https://doi.org/10.1164/rccm.201708-1676CP>.
- Burnett, T., and S. Kettleborough. 2007. "New frontiers for diversity and inclusion." In *Diversity*, 102–110. London: Palgrave Macmillan.
- Cable, D. M., and D. S. DeRue. 2002. "The convergent and discriminant validity of subjective fit perceptions." *J. Appl. Psychol.* 87 (5): 875–884. <https://doi.org/10.1037/0021-9010.87.5.875>.
- Chan, P. W., and A. R. Dainty. 2007. "Resolving the UK construction skills crisis: A critical perspective on the research and policy agenda." *Constr. Manage. Econ.* 25 (4): 375–386. <https://doi.org/10.1080/01446190600863152>.
- Chattopadhyay, P., M. Tluchowska, and E. George. 2004. "Identifying the ingroup: A closer look at the influence of demographic dissimilarity on employee social identity." *Acad. Manage. Rev.* 29 (2): 180–202. <https://doi.org/10.5465/amr.2004.12736071>.
- Chew, Y. T. E., E. Atay, and S. Bayraktaroglu. 2020. "Female engineers' happiness and productivity in organizations with paternalistic culture." *J. Constr. Eng. Manage.* 146 (6): 05020005. [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001834](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001834).
- CIOB. 2019. "Shortage occupations in construction: A cross-industry research report." Accessed August 10, 2020. <https://policy.cio.org/wp-content/uploads/2019/01/Shortage-Occupations-in-Construction-A-cross-industry-research-report-January-2019.pdf>.
- Clarke, L., E. Michielsens, S. Snijders, and C. Wall. 2015. *No more softly, softly: Review of women in the construction workforce*. London: Univ. of Westminster, ProBE Publication.
- Colgan, F., and A. McKearney. 2011. "Equality, diversity and corporate responsibility." *Equality Diversity Inclusion Int. J.* 30 (8): 719–734. <https://doi.org/10.1108/02610151111183225>.
- Colquitt, J. A., B. A. Scott, J. B. Rodell, D. M. Long, C. P. Zapata, D. E. Conlon, and M. J. Wesson. 2013. "Justice at the millennium, a decade later: A meta-analytic test of social exchange and affect-based perspectives." *J. Appl. Psychol.* 98 (2): 199–236. <https://doi.org/10.1037/a0031757>.
- Cook, J. D., S. J. Hepworth, T. D. Wall, and P. B. Warr. 1981. *The experience of work: A compendium and review of 249 measures and their use*. New York: Academic Press.
- Cox, T., Jr. 2001. *Creating the multicultural organization: A strategy for capturing the power of diversity*. San Francisco: Jossey-Bass.
- Cropanzano, R., and M. S. Mitchell. 2005. "Social exchange theory: An interdisciplinary review." *J. Manage.* 31 (6): 874–900. <https://doi.org/10.1177/0149206305279602>.
- Curtis, F. E., and J. L. Dreachslin. 2008. "Integrative literature review: Diversity management interventions and organizational performance: A synthesis of current literature." *Hum. Resour. Dev. Rev.* 7 (1): 107–134. <https://doi.org/10.1177/1534484307311700>.
- Dainty, A., S. Green, and B. Bagilhole. 2007. *People and culture in construction: A reader*. London: Spon.
- Dainty, A. R. J., B. M. Bagilhole, and R. H. Neale. 2004. "A grounded theory of women's career under-achievement in large UK construction companies." *Constr. Manage. Econ.* 18 (3): 239–250.
- Dainty, A. R. J., R. H. Neale, and B. M. Bagilhole. 2000. "A comparison of men's and women's careers in UK construction industry." *J. Prof. Issues Eng. Educ. Pract.* 126 (3): 110–115. [https://doi.org/10.1061/\(ASCE\)1052-3928\(2000\)126:3\(110\)](https://doi.org/10.1061/(ASCE)1052-3928(2000)126:3(110)).
- Davidson, M. J., and R. J. Burke. 2016. "Women in management worldwide: Progress and prospects—An overview." In *Women in management worldwide*, 19–36.
- Davies, S. E., S. Stoermer, and F. J. Froese. 2019. "When the going gets tough: The influence of expatriate resilience and perceived organizational inclusion climate on work adjustment and turnover intentions." *Int. J. Hum. Resour. Manage.* 30 (8): 1393–1417. <https://doi.org/10.1080/09585192.2018.1528558>.
- Diener, E. D., R. A. Emmons, R. J. Larsen, and S. Griffin. 1985. "The satisfaction with life scale." *J. Personality Assess.* 49 (1): 71–75. https://doi.org/10.1207/s15327752jpa4901_13.
- Dillman, D. A. 2006. *Mail and internet surveys: The tailored design method*. 2nd ed. Hoboken, NJ: Wiley.
- Djurkovic, N., D. McCormack, and G. Casimir. 2008. "Workplace bullying and intention to leave: The moderating effect of perceived organizational support." *Hum. Resour. Manage. J.* 18 (4): 405–422. <https://doi.org/10.1111/j.1748-8583.2008.00081.x>.
- Dolcos, S. M., and D. Daley. 2009. "Work pressure, workplace social resources, and work-family conflict: The tale of two sectors." *Int. J. Stress Manage.* 16 (4): 291–311. <https://doi.org/10.1037/a0017319>.
- Dwertmann, D. J., L. H. Nishii, and D. Van Knippenberg. 2016. "Disentangling the fairness & discrimination and synergy perspectives on diversity climate: Moving the field forward." *J. Manage.* 42 (5): 1136–1168. <https://doi.org/10.1177/0149206316630380>.
- Dyke, L., and S. Murphy. 2006. "How we define success: A qualitative study of what matters most to women and men." *Sex Roles* 55 (5–6): 357–371. <https://doi.org/10.1007/s11199-006-9091-2>.
- Eisenberger, R., R. Huntington, S. Hutchison, and D. Sowa. 1986. "Perceived organizational support." *J. Appl. Psychol.* 71 (3): 500–507. <https://doi.org/10.1037/0021-9010.71.3.500>.
- Enache, M., J. M. Sallan, P. Simo, and V. Fernandez. 2011. "Career attitudes and subjective career success: Tackling gender differences." *Gender Manage. Int. J.* 26 (3): 234–250. <https://doi.org/10.1108/17542411111130990>.
- Erdogan, B., T. N. Bauer, D. M. Truxillo, and L. R. Mansfield. 2012. "Whistle while you work: A review of the life satisfaction literature." *J. Manage.* 38 (4): 1038–1083. <https://doi.org/10.1177/0149206311429379>.
- Field, A. 2017. *Discovering statistics using IBM SPSS statistics*. 5th ed. London: SAGE.

- 1156 Fischer, M. 2009. "Diversity management and the business case." In *Equal*
1157 *opportunities and ethnic inequality in European labour markets*,
1158 edited by K. Kraal, J. Roosblad, and J. Wrench, 95–118. Amsterdam,
1159 Netherlands: Amsterdam University Press.
- 1160 Francis, V. 2017. "What influences professional women's career advance-
1161 ment in construction?" *Constr. Manage. Econ.* 35 (5): 254–275. <https://doi.org/10.1080/01446193.2016.1277026>.
- 1162 Francis, V., H. Lingard, A. Prosser, and M. Turner. 2013. "Work-family
1163 and construction: Public and private sector differences." *J. Manage.*
1164 *Eng.* 29 (4): 392–399. [https://doi.org/10.1061/\(ASCE\)ME.1943-5479](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000154)
1165 .0000154.
- 1166 Funk, C. 2004. "Female leaders in educational administration: Sabotage
1167 within our own ranks." Accessed July 19, 2020. [http://www](http://www.advancingwomen.com/aw/winter2004/Funk.html)
1168 [advancingwomen.com/aw/winter2004/Funk.html](http://www.advancingwomen.com/aw/winter2004/Funk.html).
- 1169 Gifford, J., M. Green, J. Young, and P. Urwin. 2019. "Diversity manage-
1170 ment that work: An evidence-based view." [https://www.cipd.co.uk](https://www.cipd.co.uk/Images/7926-diversity-and-inclusion-report-revised_tcm18-65334.pdf)
1171 [/Images/7926-diversity-and-inclusion-report-revised_tcm18-65334.pdf](https://www.cipd.co.uk/Images/7926-diversity-and-inclusion-report-revised_tcm18-65334.pdf).
- 1172 17 Glass, J. L., S. Sassler, Y. Levitte, and K. M. Micheltmore. 2013. "What's so
1173 special about STEM? A comparison of women's retention in STEM and
1174 professional occupations." *Social Forces* 92 (2): 723–756. [https://doi](https://doi.org/10.1093/sf/sot092)
1175 [.org/10.1093/sf/sot092](https://doi.org/10.1093/sf/sot092).
- 1176 Goodman, J. S., D. L. Fields, and Y. C. Blum. 2003. "Cracks in the glass
1177 ceiling: In what kinds of organizations do women make it to the top?"
1178 *Group Organ. Manage.* 28 (4): 475–501. [https://doi.org/10.1177](https://doi.org/10.1177/1059601103251232)
1179 [/1059601103251232](https://doi.org/10.1177/1059601103251232).
- 1180 Grayson, D. 2004. "Some myths and legends in quantitative psychology." *Understanding Stat.* 3 (2): 101–134. [https://doi.org/10.1207](https://doi.org/10.1207/s15328031us0302_3)
1181 [/s15328031us0302_3](https://doi.org/10.1207/s15328031us0302_3).
- 1182 Greed, C. 2000. "Women in the construction professions: Achieving critical
1183 mass." *Gender Work Organ.* 7 (3): 181–196. [https://doi.org/10.1111](https://doi.org/10.1111/1468-0432.00106)
1184 [/1468-0432.00106](https://doi.org/10.1111/1468-0432.00106).
- 1185 Guillaume, Y. R., J. F. Dawson, S. A. Woods, C. A. Sacramento, and M. A.
1186 West. 2013. "Getting diversity at work to work: What we know and
1187 what we still don't know." *J. Occup. Organ. Psychol.* 86 (2): 123–
1188 141. <https://doi.org/10.1111/joop.12009>.
- 1189 Hamdani, M. R., and M. R. Buckley. 2011. "Diversity goals: Reframing the
1190 debate and enabling a fair evaluation." *Bus. Horiz.* 54 (1): 33–40.
1191 <https://doi.org/10.1016/j.bushor.2010.07.007>.
- 1192 Hancock, J. I., D. G. F. A. K. R. AllenBoscoMcDaniel, F. A. Bosco, K. R.
1193 McDaniel, and C. A. Pierce. 2013. "Meta-analytic review of employee
1194 turnover as a predictor of firm performance." *J. Manage.* 39 (3): 573–
1195 603. <https://doi.org/10.1177/0149206311424943>.
- 1196 Healy, G., A. Tatli, G. Ipek, M. Öztürk, C. Seierstad, and T. Wright. 2018.
1197 "In the steps of Joan Acker: A journey in researching inequality regimes
1198 and intersectional inequalities." *Gender Work Organ.* 26 (12): 1749–
1199 1762. <https://doi.org/10.1111/gwao.12252>.
- 1200 Hickey, P. J., and Q. Cui. 2020. "Gender diversity in US construction in-
1201 dustry leaders." *J. Manage. Eng.* 36 (5): 04020069. [https://doi.org/10.1061](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000838)
1202 [/\(ASCE\)ME.1943-5479.0000838](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000838).
- 1203 Jauhari, H., and S. Singh. 2013. "Perceived diversity climate and employ-
1204 ees' organizational loyalty." *Equality Diversity Inclusion* 32 (3): 262–
1205 276. <https://doi.org/10.1108/EDI-12-2012-0119>.
- 1206 Kim, S., S. Chang, and D. Castro-Lacouture. 2020. "Dynamic modeling for
1207 analyzing impacts of skilled labor shortage on construction project
1208 management." *J. Manage. Eng.* 36 (1): 04019035. [https://doi.org/10.1061](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000720)
1209 [/\(ASCE\)ME.1943-5479.0000720](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000720).
- 1210 Kirton, G., and A. M. Greene. 2010. "What does diversity management
1211 mean for the gender equality project in the United Kingdom? Views
1212 and experiences of organizational 'actors'." *Can. J. Administrative Sci.* 27 (3): 249–262. <https://doi.org/10.1002/cjas.168>.
- 1213 Kochan, T., K. Bezrukova, R. Ely, S. Jackson, A. Joshi, K. Jehn, and D.
1214 Thomas. 2003. "The effects of diversity on business performance: Report of the diversity research network." *Hum. Resour. Manage.* 42 (1): 3–21. <https://doi.org/10.1002/hrm.10061>.
- 1215 Kossek, E. E., and S. Pichler. 2006. "EEO and the management of diver-
1216 sity." In *Handbook of human resource management*, edited by P. Boxall, J. Purcell, and P. Wright, 251–272. Oxford, UK: Oxford University Press.
- 1217 LePine, J. A., A. Erez, and D. E. Johnson. 2002. "The nature and dimen-
1218 sionality of organizational citizenship behavior: A critical review and
1219 meta-analysis." *J. Appl. Psychol.* 87 (1): 52–65. <https://doi.org/10.1037/0021-9010.87.1.52>.
- 1220 Leslie, L. M. 2019. "Diversity initiative effectiveness: A typological theory
1221 of unintended consequences." *Acad. Manage. Rev.* 44 (3): 538–563.
1222 <https://doi.org/10.5465/amr.2017.0087>.
- 1223 Li, Y., S. Perera, C. T. Kulik, and I. Metz. 2019. "Inclusion climate: A
1224 multilevel investigation of its antecedents and consequences." *Hum. Re-
1225 sour. Manage.* 58 (4): 353–369. <https://doi.org/10.1002/hrm.21956>.
- 1226 Lingard, H., and V. Francis. 2009. *Managing work-life balance in construc-
1227 tion*. Spon Press.
- 1228 Manoharan, A., S. R. Sardeshmukh, and M. J. Gross. 2019. "Informal di-
1229 versity management practices and their effectiveness: In the context of
1230 ethnically diverse employees in hotels." *Int. J. Hospitality Manage.* 82 (Sep): 181–190. <https://doi.org/10.1016/j.ijhm.2019.05.003>.
- 1231 Melamed, T. 1996. "Career success: An assessment of a gender-specific
1232 model." *J. Occup. Organ. Psychol.* 69 (3): 217–242. <https://doi.org/10.1111/j.2044-8325.1996.tb00612.x>.
- 1233 Menches, C. L., and D. L. Abraham. 2007. "Women in construction:
1234 Tapping the untapped resource to meet future demands." *J. Constr. Eng. Manage.* 133 (9): 701–707. [https://doi.org/10.1061/\(ASCE\)0733-9364\(2007\)133:9\(701\)](https://doi.org/10.1061/(ASCE)0733-9364(2007)133:9(701)).
- 1235 Michielsens, E., C. Bingham, L. Clarke, S. Miller, P. J. Urwin, B. Siara, and V. Karuk. 2008. *Implementing diversity employment policies: Examples from large London companies*. Project Rep. London: London First and WBS Diversity, Univ. of Westminster.
- 1236 Mor Barak, M. E. 2000. "Beyond affirmative action: Towards a model of diversity and organizational inclusion." *Administration Social Work* 23 (3–4): 47–68.
- 1237 Mor Barak, M. E. 2016. *Managing diversity: Toward a globally inclusive workplace*. Thousand Oaks, CA: SAGE.
- 1238 Mor Barak, M. E., and P. Daya. 2014. "Fostering inclusion from the inside out to create an inclusive workplace." In *Diversity at work: The practice of inclusion*, edited by B. M. Ferdman and B. R. Deane, 391–413. San Francisco: Jossey-Bass.
- 1239 Muhr, S. L., and B. Sløk-Andersen. 2017. "Exclusion and inclusion in the Danish Military: A historical analysis of the construction and consequences of a gendered organizational narrative." *J. Organ. Change Manage.* 30 (3): 367–379. <https://doi.org/10.1108/JOCM-10-2016-0195>.
- 1240 Muthén, B., and D. Kaplan. 1985. "A comparison of some methodologies for the factor analysis of non-normal Likert variables." *Br. J. Math. Stat. Psychol. Soc.* 38 (2): 171–189. <https://doi.org/10.1111/j.2044-8317.1985.tb00832.x>.
- 1241 Nabi, G. R. 1999. "An investigation into the differential profile of predictors of objective and subjective career success." *Career Dev. Int.* 4 (4): 212–225. <https://doi.org/10.1108/13620439910270599>.
- 1242 Ness, K. 2012. "Constructing masculinity in the building trades: 'most jobs in the construction industry can be done by women'." *Gender Work Organ.* 19 (6): 654–676. <https://doi.org/10.1111/j.1468-0432.2010.00551.x>.
- 1243 Ng, T. W., and D. C. Feldman. 2014. "Subjective career success: A meta-analytic review." *J. Vocational Behav.* 85 (2): 169–179. <https://doi.org/10.1016/j.jvb.2014.06.001>.
- 1244 Ng, T. W. H., L. T. Eby, K. L. Sorensen, and D. C. Feldman. 2005. "Predictors of objective and subjective career success: A meta-analysis." *Personnel Psychol.* 58 (2): 367–408. <https://doi.org/10.1111/j.1744-6570.2005.00515.x>.
- 1245 Nishii, L. H., J. Khattab, M. Shemla, and R. M. Paluch. 2018. "A multi-level process model for understanding diversity practice effectiveness." *Acad. Manage. Annals* 12 (1): 37–82. <https://doi.org/10.5465/annals.2016.0044>.
- 1246 Noon, M. 2007. "The fatal flaws of diversity and the business case for ethnic minorities." *Work Employment Soc.* 21 (4): 773–784. <https://doi.org/10.1177/0950017007082886>.
- 1247 Noon, M. 2018. "Pointless diversity training: Unconscious bias, new racism and agency." *Work Employment Soc.* 32 (1): 198–209. <https://doi.org/10.1177/0950017017719841>.
- 1248 Nunnally, J. C. 1978. *Psychometric theory*. New York, NY: McGraw-Hill.

- 1294 Oyedele, L. O. 2010. "Sustaining architects' and engineers' motivation in
1295 design firms." *Eng. Constr. Archit. Manage.* 17 (2): 180–196. <https://doi.org/10.1108/09699981011024687>.
- 1296 Özbilgin, M., and A. Tatli. 2011. "Mapping out the field of equality and
1297 diversity: Rise of individualism and voluntarism." *Hum. Relat.* 64 (9):
1298 1229–1253. <https://doi.org/10.1177/0018726711413620>.
- 1299 Pallant, J. 2020. *SPSS survival manual*. 7th ed. Crow's Nest, Australia:
1300 Allen and Unwin.
- 1301 Pelled, L. H., G. E. Ledford, and S. A. Mohrmon. 1999. "Demographic
1302 dissimilarity and workplace inclusion." *J. Manage. Stud.* 36 (7):
1303 1013–1031. <https://doi.org/10.1111/1467-6486.00168>.
- 1304 Powell, A., and K. J. Sang. 2013. "Equality, diversity and inclusion in the
1305 construction industry." *Constr. Manage. Econ.* 31 (8): 795–801. <https://doi.org/10.1080/01446193.2013.837263>.
- 1306 Powell, G. N. 2018. *Women and men in management*. Thousand Oaks,
1307 CA: SAGE.
- 1308 Rhoades, L., and R. Eisenberger. 2002. "Perceived organizational support:
1309 A review of the literature." *J. Appl. Psychol.* 87 (4): 698–714. <https://doi.org/10.1037/0021-9010.87.4.698>.
- 1310 Richard, O. C., B. S. Murthi, and K. Ismail. 2007. "The impact of racial
1311 diversity on intermediate and long-term performance: The moderating
1312 role of environmental context." *Strategic Manage. J.* 28 (12): 1213–
1313 1233. <https://doi.org/10.1002/smj.633>.
- 1314 Roberson, Q., A. M. Ryan, and B. R. Ragins. 2017. "The evolution and
1315 future of diversity at work." *J. Appl. Psychol.* 102 (3): 483–499.
1316 <https://doi.org/10.1037/apl0000161>.
- 1317 Roberson, Q. M. 2006. "Disentangling the meanings of diversity and
1318 inclusion in organizations." *Group Organ. Manage.* 31 (2): 212–236.
1319 <https://doi.org/10.1177/1059601104273064>.
- 1320 Rosa, J. E., C. K. Hon, B. Xia, and F. Lamari. 2017. "Challenges, success
1321 factors and strategies for women's career development in the Australian
1322 construction industry." *Constr. Econ. Build.* 17 (3): 27–46. <https://doi.org/10.5130/AJCEB.v17i3.5520>.
- 1323 Shore, L. M., J. N. Cleveland, and D. Sanchez. 2018. "Inclusive workplac-
1324 es: A review and model." *Hum. Resour. Manage. Rev.* 28 (2): 176–
1325 189. <https://doi.org/10.1016/j.hrmr.2017.07.003>.
- 1326 Shore, L. M., A. E. Randel, B. G. Chung, M. A. Dean, K. Holcombe
1327 Ehrhart, and G. Singh. 2011. "Inclusion and diversity in work groups:
1328 A review and model for future research." *J. Manage.* 37 (4): 1262–
1329 1289. <https://doi.org/10.1177/0149206310385943>.
- 1330 Sine, W. D., H. Mitsuhashi, and D. A. Kirsch. 2006. "Revisiting Burns and
1331 Stalker: Formal structure and new venture performance in emerging
1332 economic sectors." *Acad. Manage. J.* 49 (1): 121–132. <https://doi.org/10.5465/amj.2006.20785590>.
- 1333 Singh, R., Y. Zhang, M. Wan, and N. A. Fouad. 2018. "Why do women
1334 engineers leave the engineering profession? The roles of work–family
1335 conflict, occupational commitment, and perceived organizational sup-
1336 port." *Hum. Resour. Manage.* 57 (4): 901–914.
- 1337 Stead, N. 2016. *Women, practice, architecture: 'Resigned accommodation'
1338 and 'usurpatory practice'*. Oxon, UK: Routledge.
- 1339 Østergaard, C. R., B. Timmermans, and K. Kristinsson. 2011. "Does a
1340 different view create something new? The effect of employee diversity
1341 on innovation." *Res. Policy* 40 (3): 500–509. <https://doi.org/10.1016/j.respol.2010.11.004>.
- 1342 Subeliani, D., and G. Tsogas. 2005. "Managing diversity in the
1343 Netherlands: A case study of Rabobank." *Int. J. Hum. Resour. Manage.*
1344 16 (5): 831–851. <https://doi.org/10.1080/09585190500083392>.
- 1345 Tabachnick, B. G., and L. S. Fidell. 2014. *Using multivariate statistics*.
1346 Essex, UK: Pearson Education.
- 1347 Tajfel, H., and J. C. Turner. 2004. "The social identity theory of intergroup
1348 behavior." In *Psychology of intergroup relations*, edited by S. Worchel
1349 and W. G. Austin. 2nd ed., 7–24. Chicago: Nelson-Hall.
- 1350 Tatli, A., and M. F. Özbilgin. 2009. "Understanding diversity managers role
1351 in organizational change: Towards a conceptual framework." *Can. J.*
1352 *Administrative Sci.* 26 (3): 244–258.
- 1353 Taylor, J. C., and D. G. Bowers. 1972. *Survey of organizations: A machine-
1354 scored standardized questionnaire instrument*. Oxford, UK: Univ. of
1355 Michigan.
- 1356 UKRC. 2005. *Gender equality in SET: The business case: Good practice
1357 guide*. Bradford, UK: Resource Centre for Women in Science,
1358 Engineering and Technology.
- 1359 Urwin, P., E. Parry, I. Dodds, V. Karuk, and A. David. 2013. *The business
1360 case for equality and diversity: A survey of the academic literature*. BIS
1361 Occasional Paper No. 4. Government Equalities Office and Department
1362 for Business Innovation and Skills.
- 1363 US Bureau of Labor Statistics. 2016. "TED: The economics daily." Accessed October 16, 2020. <https://www.bls.gov/opub/ted/2016/39-percent-of-managers-in-2015-were-women.htm>.
- 1364 Van Mol, C. 2017. "Improving web survey efficiency: The impact of an
1365 extra reminder and reminder content on web survey response." *Int. J. Social Res. Methodol.* 20 (4): 317–327. <https://doi.org/10.1080/13645579.2016.1185255>.
- 1366 Vassilopoulou, J. 2017. "Diversity management as window dressing? A
1367 company case study of a diversity charta member in Germany." In
1368 Vol. 3 of *Proc., Management and Diversity: Perspectives from Different
1369 National Contexts Int. Perspectives on Equality, Diversity and Inclu-
1370 sion*, 281–307.
- 1371 Vinnicombe, S., E. Doldor, and R. Sealy. 2018. "The female FTSE
1372 board report 2018 busy going nowhere with the female executive
1373 pipeline." http://business-school.exeter.ac.uk/media/universityofexeter/businessschool/documents/research/Female_FTSE_Report_2018.pdf.
- 1374 Watts, J. H. 2007. "Porn, pride and pessimism: Experiences of women
1375 working in professional construction roles." *Work Employment Soc.*
1376 21 (2): 299–316. <https://doi.org/10.1177/0950017007076641>.
- 1377 Watts, J. H. 2009. "Allowed into a man's world' meanings of work-life
1378 balance: Perspectives of women civil engineers as 'minority' workers
1379 in construction." *Gender Work Organ.* 16 (1): 37–57. <https://doi.org/10.1111/j.1468-0432.2007.00352.x>.
- 1380 WISE. 2019. "Women in STEM workforce 2019." <https://www.wisecampaign.org.uk/statistics/2019-workforce-statistics-one-million-women-in-stem-in-the-uk/>.
- 1381 Worrall, L., K. Harris, R. Stewart, A. Thomas, and P. McDermott. 2010. "Barriers to women in the UK construction industry." *Eng. Constr. Archit. Manage.* 17 (3): 268–281. <https://doi.org/10.1108/09699981011038060>.
- 1382 Wright, A., L. Clarke, L. Kumarappan, E. Michielsens, P. Urwin, and M. Williamson. 2014. Diversity in STEM: Establishing a business case—Report of research by the University of Westminster for the Royal Society's diversity programme 'Leading the way: Increasing diversity in the scientific workforce', June 2014, London: WBS Diversity (University of Westminster) and Royal Society. <https://royalsociety.org/~media/policy/projects/leading-the-way/diversity-business-case-june-2014.pdf>.
- 1383 Zannoni, P., M. Janssens, Y. Benschop, and S. Nkomo. 2010. "Guest editorial: Unpacking diversity, grasping inequality: Rethinking difference through critical perspectives." *Organization* 17 (1): 9–29. <https://doi.org/10.1177/1350508409350344>.

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