

TAKING A BROADER APPROACH TO WOMEN'S RETENTION IN CONSTRUCTION: INCORPORATING THE UNIVERSITY DOMAIN

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Arguably, young professional women commence their transition into the construction industry upon commencement of their university studies. It is possible that women may be exposed to gendered barriers to success both directly and indirectly while at university, which may impact on their intentions of pursuing a career in construction. Construction can be considered as an ecosystem consisting of various interrelated components. This paper aims to extend the 'leaky pipeline' narrative by identifying key actors in the university domain who can influence the retention of young professional women in construction. Faculty can support women in construction through learning and teaching and research activities. A critical reflective approach is used to explore the characteristics of the university learning and teaching environment and the peer-review research process. It is recommended that the university be acknowledged as an integral component of the construction ecosystem. Future research should consider how the university influences and shapes decisions around the retention of women in construction. Without substantial and sustained change across the construction ecosystem, women will remain underrepresented in the construction industry and futile calls for increased participation will continue.

Keywords: faculty; ecosystem; gender; university; women

INTRODUCTION

Women are acknowledged as an underrepresented group in the construction industry. The proportion of women working in construction is low internationally, and little has changed in the past decades (French and Strachan, 2017). The Workplace Gender Equality Agency (2019) reports that in Australia between 1998 and 2018, there was a slight decline in female representation in the construction industry from 13.8% to 12%. The underrepresentation of women in construction has received considerable attention in the literature (e.g., Gale, 1994; Dainty *et al.*, 2004; Rosa *et al.*, 2017) and it has been well established that the barriers faced by women working in construction are the major reasons for consistently low participation rates (Amaratunga *et al.*, 2006). In a review of the literature, Amaratunga *et al.*, (2006) identified the key barriers for women as: The negative image of the industry, lack of career knowledge, hostile and discriminatory culture and working environment, work-family conflict,

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male dominated training courses, and recruitment practices. To respond to the underrepresentation of professional women in construction, formal strategies and policies have been developed by governments and organisations to improve gender diversity, equity and equality in construction (Galea *et al.*, 2015; Lu and Sexton, 2010). Despite these initiatives however, women remain an underrepresented group in construction and continue to face gendered barriers in the workplace.

The experience of women during the early stages of their professional pathway has a critical influence on their subsequent career intentions. Evetts (1996) found that young women's first experience of industrial work clarifies and confirms the career path they subsequently follow, including leaving the industry. Dainty *et al.*, (2000) reported that female professional entrants tend to become disillusioned with their career choices more rapidly than their male counterparts and leave the construction industry early in their careers. The early exit of female professionals from the construction industry has remained unchanged in the past two decades (Morello *et al.*, 2018). Among construction professional women, women in the age group of 18-24 are significantly more likely than those in other age groups to express a desire to leave their construction careers (Morello *et al.*, 2018).

In Australia, women account for 16.2% of professional and management roles in the construction industry (Australian Bureau of Statistics, 2019). Despite the increasing number of females studying built environment courses in higher education, the percentage of female professionals in construction has not had a noticeable increase in the past decade (Naoum *et al.*, 2020). It is important to understand what happens to women once they are exposed to the industry so that the barriers to retention can be removed. In this paper, the 'leaky pipeline' phenomenon refers to the notion that many women in construction are filtered out along the career pipeline, leaving only a few to arrive at the other end (Blickenstaff, 2005). Much of the research on the leaky pipeline in construction has focused on women in full time professional work. However, in construction management university programs in Australia it is common for students to commence their professional roles while concurrently undertaking their university studies (Lingard, 2007; Mills *et al.*, 2012). Furthermore, throughout their program of study, students are exposed to the construction industry through presentations by construction professionals, site visits, as well as undertaking analysis of industry case studies. It is also common that faculty have prior experience of working in the construction industry which can inform their pedagogy and interaction with students. Consequently, rather than only focusing on the factors which shape retention once women enter the industry on a full-time basis, there is merit in extending the focus to include the factors which can shape the experiences of women from the time they enter university. Research, however, has yet to comprehensively explore the university domain and how it may impact on the retention intentions of professional women in construction.

This paper aims to contribute to the literature on women's participation in construction by extending the focus of the 'leaky pipeline' phenomenon. By taking a broader approach to the 'leaky pipeline', this paper considers how the university domain can influence and shape the retention of young professional women in construction. At university, faculty typically undertake both teaching and research activities, therefore two research questions are proposed:

1. How does the university learning and teaching environment impact on the retention of women in construction?

2. How does the research process impact on our understanding of women's retention in construction?

The first research question critically reflects on the conditions of the learning and teaching environment and considers the role that faculty may play in introducing and reinforcing conditions which subtly or overtly disfavour females. The second research question critically reflects on research and peer review and considers how faculty may hinder or support the progress and understanding of women's retention.

METHODOLOGY

A critical reflective approach was used to explore the two research questions. Critical reflection as a research methodology focuses on "how assumptions about the connection between oneself and social context/structure can function in powerful ways, so that awareness of these assumptions can provide a platform for transformative action" (Fook, 2015, p.441). Critical reflection can be used as a method for challenging and changing structurally produced power relations and redressing power inequities (Brookfield, 2016; Fook and Gardner, 2007; Morley, 2008). The construction industry operates according to a strong male-based power structure (Galea *et al.*, 2015). In this structure, women experience conscious and unconscious bias and discrimination (Petersen, 2006; Walker, 2019), therefore critical reflection is considered as a suitable lens from which to consider the topic. We draw on the extant literature as well as our own experience as educators and researchers in construction management. We start by reflecting on the experience of women undertaking construction management studies in Australia. We then reflect on a recent publishing experience. We use these two areas to illustrate why the focus of the 'leaky pipeline' should be expanded to include the university domain and the critical role of faculty.

FINDINGS

University and the Learning Environment

Women's participation in construction management programs

One way of increasing women's participation in the construction workforce is to increase the number of women graduating from university. In Australia, university students undertake a three or four-year full-time Construction Management program of study. While there have been calls to increase the number of women undertaking science, technology, engineering and mathematics (STEM) related disciplines in tertiary education, rates remain consistently low (Australian Government, 2019). Girls and women face multiple barriers to STEM participation and as a result, must overcome more challenges than their male counterparts. Factors such as bias and stereotyping, career insecurity, a lack of flexible work arrangements, and lack of female role models have been shown to influence girls and women's decisions to enter and remain in STEM education and careers (Dee and Gershenson, 2017; Professionals Australia, 2018).

The proportion of women entering and graduating from construction management university programs in Australia appears to be reflective of broader graduation rates in STEM-related professions. Oo and Widjaja (2018) report that the percentage of female construction management enrolments at three Australian universities between 2006 and 2015 ranged from 5% to 20%, and these percentages are consistent with global trends (Oo *et al.*, 2018). The authors of this paper used their academic networks to obtain information on the number and percentage of female graduating

students from universities across Australia from 2016-2019, and the information is summarised in Table 1. While the information does not purport to be representative of the Australian context, it provides a snapshot from two large urban universities and one rural university. In 2019, University 1 had the largest graduating female cohort across the three universities during the four-year period (28.3%), and University 2 had the lowest graduating female cohort (2.4%). Across the three universities, female students can be considered as a minority group. This can have detrimental impacts on women, as women in male-dominated programs of study can experience intimidatory behaviour and gender stereotypes as barriers preventing full participation in the classroom (Thurtle *et al.*, 1998). Furthermore, gender minority status over time can have a cumulative, dose-effect, impact on health (Ng *et al.*, 2019).

Table 1: Percentage of women graduating from Australian construction management university degrees

	2016	2017	2018	2019
University 1	10.1 (n=9)	21.1 (n=23)	20.0 (n=21)	28.3 (n=41)
University 2	3.2 (n=5)	3.7 (n=6)	2.4 (n=5)	6.6 (n=15)
University 3	9.0 (n=11)	12.8 (n=14)	11.1 (n=11)	9.1 (n=8)

In further considering the intersecting domains of university and work, women commence university as a gender minority, and this status continues for the duration of their professional life in construction. With the recent low rates of enrolled and graduating females, together with the leaky pipeline phenomenon, it is difficult to see how the number of females in professional and management roles in the construction industry is likely to significantly increase in the foreseeable future. Until then, women will continue to belong to a gender minority and be exposed to conditions impacting on their health as well as their career.

Challenges in the learning environment

It has been suggested that both male and female faculty members behave in ways that subtly favour males in STEM disciplines. For example, faculty members are more likely to spend time mentoring males (Moss-Racusin *et al.*, 2012), responding to emails from males (Milkman *et al.*, 2015), and calling on males in class (Eddy *et al.*, 2014). Bevan and Gatrell (2017) argue that in science, men are positioned as dominant, and women are positioned as 'different' and do not fit into the masculine ideal. Consistent with this view of being 'different', females undertaking STEM degrees can experience gender bias and feelings of marginalisation, and report being subjected to a chilly climate for learning (Ceci *et al.*, 2014). Learning occurs when students take risks or step outside of their comfort zone. If the learning environment is unsafe, students learning is compromised (Anderson and Carta-Falsa, 2002). Female students undertaking STEM programs also report experiencing growing environmental barriers and lessening self-confidence as they progress through each successive year of their degree (Brainard and Carlin, 1998). Scott-Young *et al.*, (2020) contend that the construction classroom may be privileging male students and operating as a microcosm of the cultural environment faced by women in the construction industry, with its macho culture filtering back into the learning environment at university. Scott-Young *et al.*, (2020) suggest that this may be due to several factors: Students undertaking professional roles in the construction industry

bring the male-dominated industry culture back into the classroom; faculty impart their past work experience in the construction industry to the classroom; and the numerical dominance of male faculty and the relative lack of female academic role models.

Emerging from the literature, it appears that women undertaking studies in construction management begin their socialisation into the culture of the construction industry in the early years of their undergraduate studies. It is possible that the various gender-related challenges experienced by young female students while at university may inadvertently contribute to their decision to exit the industry. It is therefore imperative that future research examining the leaky pipeline considers the impact of the university learning environment on women's construction career intentions.

Supporting Young Women Through Research

Importance of research in supporting women in construction

Research plays an integral role in supporting the retention of women in construction. Research can help to understand the barriers and supportive factors which contribute to the retention of women at all stages of their career. Research findings can be used to guide policy and practice to bring about positive change. Along with their role in learning and teaching, faculty also play an important role as researchers in construction management. Critically reflecting on faculty's role in the research process is important in the context of impartiality (Helmer *et al.*, 2018).

Reflecting on the peer-review process

The peer review process is described as the expert assessment of materials submitted for publication in scientific and technical journals. Peer review is intended to serve two primary purposes: Assist the board of editors to accept or reject a paper and help to improve submitted manuscripts by eliminating major flaws and gaps. As reviewers play an important role in publication decisions, they are described as the gatekeepers of science (Hojat *et al.*, 2003; Haffar *et al.*, 2019). Peer review outcomes "influence the very nature and direction of future scientific research" (Hojat *et al.*, 2003, p.76), and the peer review process can affect society when a social policy implication is suggested or inferred from the published manuscript. While a critical review of the peer-review process is beyond the scope of this paper, it has been acknowledged to be imperfect (e.g., Hojat *et al.*, 2003; Haffar *et al.*, 2019).

In the context of progressing our understanding and support of young women in construction, a recent publishing experience by the authors is explored. As way of background, the authors submitted a manuscript on early career women in construction to an Architecture/Engineering/Construction journal and received feedback from three reviewers through a double-blind review process. Several issues were raised by the reviewers which prompted reflection and constructive discussion by the research team and their wider academic network. Reflections about the content of the manuscript and the reviewers' comments merit wider consideration and exploration in relation to women in construction. Of note was the emergence of neurosexism and the use of gender-based solutions to address a deeply entrenched cultural problem. To highlight the key issues raised through the review process as they relate to young women undertaking studies in construction, we have used illustrative quotes to provide the context. Importantly, we make no claims that the issues raised in this section represent common practice. We believe however, the issues warrant critical reflection by researchers in the field of engineering and

construction management, as conscious and unconscious bias can inadvertently impact on the experience of young professional women in construction.

Neurosexism

Neurosexism refers to “the practice of claiming that there are fixed differences between female and male brains, which can explain women’s inferiority or unsuitability for certain roles” (Rippon, 2016). According to Fine (2010), neurosexism reflects and reinforces cultural beliefs about gender, and it may do so in a particularly powerful way. Fine (2010, p.xxviii) further contends that neurosexism is damaging, as “dubious 'brain facts' about the sexes become part of the cultural lore”. In support of Rippon (2016) and Fine (2010) for example, Else-Quest *et al.*, (2013) found that male and female adolescents earned similar end-of-year grades in math and science. Neurosexism can perpetuate gender-based stereotypes which specify what is considered “men’s” and “women’s” work. This belief functions to repress the opportunity of women to enter industries or professions considered as the realm of males. Similarly, it represses the opportunity for men to enter industries or professions considered as the realm of females.

It appears that neurosexism emerged in the peer-review of our manuscript. Reviewer [X] provided the following feedback: "What is considered underrepresentation in construction? What is the ideal percentage? By thinking that the distribution should be 50-50 (men-women) or any other percentage, one would be undermining or ignoring that the brain by gender could be wired differently? That given the option, women would still not choose engineering. Is there research that presents what this percentage would be / should be?". In response to Reviewer [X], the authors raised the issue of neurosexism to rebut the view that "the brain by gender could be wired differently".

The paper went through a second revision, and Reviewer [Y] commented on the remarks made by Reviewer [X]: "I commend the authors' response to Reviewer [X's] comment related to neurosexism. To slightly expand, while women have a choice to pursue engineering, many do not because of the barriers uncovered by the research. Just last week, we had a student leave our A/E/C [Architecture / Engineering / Construction] major because of sexual harassment during an internship. She left the major because of how she was treated on-site, not because her brain was "wired" in such a way that she wasn't able to do the work or that the work didn't appeal to her. Through publication, your work will help us to better understand these kinds of barriers specifically for early career professionals so that anyone with passion, interest and aptitude for A/E/C work will be unhindered in pursuit of their career goals". While Reviewers [Y] and [Z] were satisfied with the revision, the editor rejected the manuscript, and the paper was not published. It is possible that gender bias around women's place in construction informed the decision on publication. Subsequent discussions by the authors and their academic network reflected on the importance of impartiality in the peer-review process, reflecting on possible blind spots, and for calling out bias.

Gender-based solution to a context-based problem

The barriers facing women in construction are known to be contextual and arise due to the male-dominated norms of the industry (e.g., Gale, 1994; Dainty *et al.*, 2004; Rosa *et al.*, 2017) and this was categorically reflected in the literature of the submitted manuscript. Contrary to this, Reviewer [X] suggested a gender-based solution rather than a context-based solution to the problem of women's participation in construction:

"I would like to suggest the authors to look into psychological type, as defined by the MBTI [Myer-Briggs Type Indicator] test and how it also relates to the choice of career.....the MBTI type is relevant to how to teach engineering students, as it affects the learning preferences / model. I think that would also apply to the way young professionals are guided through the early parts of professional learning. Is it men-women with different needs for guidance and mentoring to progress, is it confidence, or personality / way to see and react to the world around us?". As discussed in the previous section, women undertaking STEM programs at university and women in full time professional roles must contend with gendered challenges (e.g., Thurtle *et al.*, 1998; Amaratunga *et al.*, 2006; Scott-Young *et al.*, 2020). Rather than focusing on brains wired differently or gender-based capabilities, the narrative must focus on removing the barriers and challenges for success which emerge from the university and work environments. The peer-review process should play a critical role in supporting research which focuses on changing the context for women in construction rather than individualising the problem.

CONCLUSION

The leaky pipeline concept focuses on the factors which contribute to the exit of women in various stages of their construction career. By considering construction as an ecosystem, this paper recommends the expansion of the leaky pipeline to include the university domain. Faculty play an integral role in creating a learning and teaching environment which supports all students, irrespective of gender.

Furthermore, faculty play an integral role in conducting and peer-reviewing research which seeks to better understand the barriers and supportive factors which can impact on women's retention. It is recommended that faculty be aware of neurosexism, conscious and unconscious gender bias and critically reflect on their own practice as educators, researchers and peer reviewers. It is also recommended that faculty reflect on the way in which the learning environment operates to introduce and socialise students into the culture of the construction industry. This is important, as it's likely that current practice is perpetuating the male-based power structure which disfavors females. Research could usefully explore how the university learning environment influences and shapes decisions around the retention of women in construction. In doing so, consideration must be given to the small number of women undertaking studies in construction management and how this may impact on research design and sample size. Finally, impartiality in the peer-review process continues to be critical in progressing this important field of research. Journal editors and advisory boards play an important role in putting processes in place which seek to counter bias and subjectivity and promote impartiality in peer-review.

It is acknowledged that critical reflection is an examination of our own practice in relation to a specific context, therefore the content of this paper does not purport to be representative of the Australian context or the wider construction management academic community. Notwithstanding these limitations, the paper outlines some important considerations for progressing the retention of women in construction.

REFERENCES

- Amaratunga, D, Haigh, R, Lee, A, Shanmugam, M and Elvitigala, G (2006) Construction industry and women: A review of the barriers, *In: Proceedings of the 3rd International SCRI Research Symposium*, Delft, Netherlands.
- Anderson, L E and Carta-Falsa, J (2002) Factors that make faculty and student relationships effective, *College Teaching*, **50**(4), 134-138.

- Australian Bureau of Statistics (2019) *Labour Force, Australia, Detailed, Quarterly, Cat No 6291.0.55.003*, Canberra: Australian Bureau of Statistics
- Australian Government (2019) *Advancing Women in STEM Strategy*, Canberra: Department of Industry, Science, Energy and Resources, Available from: <https://www.industry.gov.au/data-and-publications/advancing-women-in-stem-strategy/snapshot-of-disparity-in-stem> [Accessed 13 March 2021].
- Bevan, V and Gatrell, C (2017) *Knowing Her Place: Positioning Women in Science*, Northampton, UK: Edward Elgar Publishing.
- Blickenstaff, J C (2005) Women and science careers: Leaky pipeline or gender filter? *Gender and Education*, **17**(4), 369-386.
- Brainard, S G and Carlin, L (1998) A six-year longitudinal study of undergraduate women in engineering and science, *Journal of Engineering Education*, **87**(4), 369-375.
- Brookfield, S (2016) So what exactly is critical about critical reflection? In: J Fook, V Collington, F Ross, G Ruch and L West (Eds.) *Researching Critical Reflection: Multidisciplinary Perspectives*, London: Routledge, 11-22.
- Ceci, S J, Ginther, D K, Kahn, S and Williams, W M (2014) Women in academic science: A changing landscape, *Psychological Science in the Public Interest*, **15**(3), 75-141.
- Dainty, A R J, Bagilhole, B M, Ansari, K H and Jackson, J (2004) Creating equality in the construction industry: An agenda for change for women and ethnic minorities, *Journal of Construction Research*, **5**(01), 75-86.
- Dainty, A R J, Bagilhole, B M and Neale, R H (2000) A grounded theory of women's career under-achievement in large UK construction companies, *Construction Management and Economics*, **18**(2), 239-250.
- Dee, T and Gershenson, S (2017) *Unconscious Bias in the Classroom: Evidence and Opportunities*, Mountain View, CA: Google, Available from: <https://goo.gl/O6Btqi> [Accessed 15 March 2021].
- Eddy, S L, Brownell, S E and Wenderoth, M P (2014) Gender gaps in achievement and participation in multiple introductory biology classrooms, *CBE-Life Sciences Education*, **13**(3), 478-492.
- Else-Quest, N, Mineo, C and Higgins, A (2013) Math and science attitudes and achievement at the intersection of gender and ethnicity, *Psychology of Women Quarterly*, **37**, 293-309.
- Evetts, J (1996) *Gender and Career in Science and Engineering*, London: Taylor and Francis.
- Fine, C (2010) *Delusions of Gender: The Real Science Behind Sex Differences*, London: Icon.
- Fook, J (2015) Reflective practice and critical reflection, In: J Lishman (Ed.) *Handbook for Practice Learning in Social Work and Social Care: Knowledge and Theory 3rd Edition*, London: Jessica Kingsley Publishers, 440-455.
- Fook, J and Gardner, F (2007) *Practising Critical Reflection: A Resource Handbook*, Buckingham, UK: McGraw-Hill Education.
- French, E and Strachan, G (2017) Women in the construction industry: Still the outsiders, In: F Emuze and J Smallwood (Eds) *Valuing People in Construction*, Abingdon, UK: Taylor and Francis, 151-171
- Gale, A (1994) Women in non-traditional occupations: The construction industry, *Women in Management Review*, **9**(2), 3-14.

- Galea, N, Powell, A, Loosemore, M and Chappell, L (2015) Designing robust and revisable policies for gender equality: Lessons from the Australian construction industry, *Construction Management and Economics*, **33**(5-6), 375-389.
- Haffar, S, Bazerbachi, F and Murad, M H (2019) Peer review bias: A critical review, *Mayo Clinic Proceedings*, **94**(4), 670-676.
- Helmer, M, Schottdorf, M, Neef, A and Battaglia, D (2017) Gender bias in scholarly peer review, *eLife*, **6**, 1-18.
- Hojat, M, Gonnella, J S and Caelleigh, A S (2003) Impartial judgment by the gatekeepers of science: Fallibility and accountability in the peer review process, *Advances in Health Sciences Education*, **8**(1), 75-96.
- Lingard, H (2007) Conflict between paid work and study: Does it impact upon students' burnout and satisfaction with university life? *Journal for Education in the Built Environment*, **2**(1), 90-109.
- Lu, S L and Sexton, M (2010) Career journeys and turning points of senior female managers in small construction firms, *Construction Management and Economics*, **28**(2), 125-139.
- Milkman, K L, Akinola, M and Chugh, D (2015) What happens before? A field experiment exploring how pay and representation differentially shape bias on the pathway into organizations, *Journal of Applied Psychology*, **100**(6), 1678-1712.
- Mills, A, Lingard, H, McLaughlin, P and Iyer-Raniga, U (2012) Pathways to industry: Work practices of undergraduate students in construction programs in Australia, *International Journal of Construction Education and Research*, **8**(3), 159-170.
- Morello, A, Issa Raja, R A and Franz, B (2018) Exploratory study of recruitment and retention of women in the construction industry, *Journal of Professional Issues in Engineering Education and Practice*, **144**(2), 04018001.
- Morley, C (2008) Using critical reflection as a research methodology, *In: P Liamputtong and J Rumbold (Eds.) Knowing Differently: An Introduction to Experiential and Arts-Based Research Methods*, New York: Nova Science Publishers, 265-280
- Moss-Racusin, C A, Dovidio, J F, Brescoll, V L, Graham, M J and Handelsman, J (2012) Science faculty's subtle gender biases favour male students, *Proceedings of the National Academy of Sciences*, **109**(41), 16474-16479.
- Naoum, S G, Harris, J, Rizzuto, J and Egbu, C (2020) Gender in the construction industry: Literature review and comparative survey of men's and women's perceptions in UK construction consultancies, *Journal of Management in Engineering*, **36**(2), 04019042.
- Ng, J H, Ward, L M, Shea, M, Hart, L, Guerino, P and Scholle, S H (2019) Explaining the relationship between minority group status and health disparities: A review of selected concepts, *Health Equity*, **3**(1), 47-60.
- Oo, B L and Widjaja, E C (2018) Female student enrolments in Construction Management programs, *In: Proceedings of the 21st International Symposium on Advancement of Construction Management and Real Estate*, Singapore.
- Oo, B L, Li, S and Zhang, L (2018) Understanding female students' choice of a construction management undergraduate degree program: Case study at an Australian university, *Journal of Professional Issues in Engineering Education and Practice*, **144**(3), 05018004.
- Petersen, T (2006) Motive and cognition: Conscious and unconscious processes in employment discrimination, *In: J Elster, O Gjelsvik, A Hylland and K Moene (Eds.), Understanding Choice, Explaining Behaviour: Essays in Honour of Ole-Jorgen Skog*, Oslo, Norway: Academic Press, 225-248

- Professionals Australia (2018) *All Talk: Gap Between Policy and Practice a Key Obstacle to Gender Equity in STEM: 2018 Women in STEM Professions Survey Report*, Melbourne: Professionals Australia.
- Rippon, G (2016) How 'Neurosexism' Is Holding Back Gender Equality - And Science Itself, The Conversation, Available from: <https://theconversation.com/how-neurosexism-is-holding-back-gender-equality-and-science-itself-67597> [Accessed 16 March 2021].
- Rosa, J, Hon, C and Lamari, F (2017) Challenges, success factors and strategies for women's career development in the Australian construction industry, *Construction Economics and Building*, **17**(3), 27-46.
- Scott-Young, C M, Turner, M and Holdsworth, S (2020) Male and female mental health differences in built environment undergraduates, *Construction Management and Economics*, **38**(9), 789-806.
- Thurtle, V, Hammond, S and Jennings, P (1998) The experience of students in a gender minority on courses at a college of higher and further education, *Journal of Vocational Education and Training*, **50**(4), 629-645.
- Walker, M (2019) Implicit bias: Root cause of discrimination against women in construction, In: P Paoloni (Ed) *International Conference on Gender Research*, Rome, 646-656
- Workplace Gender Equality Agency (2019) Gender segregation in Australia's workforce, Available from: www.wgea.gov.au/sites/default/files/Gender%20composition-of-the-workforce-by-industry.pdf [Accessed 17 February 2021].