Introduction

This FACTBase Bulletin reports on the findings of the ‘Hands Up for Gender Equality’ study, the aim of which was to examine gender differences in overall self-confidence, self-confidence development and career interests.

The study was initiated based on findings from the Filling the Pool report (Fitzsimmons & Callan, 2015), which identified the critical role of confidence in the career progression of women and the origins of self-confidence in childhood and adolescence through the stories of the managers and executives interviewed for that study.

The Role of Confidence in Workplace Gender Equality

The issue of women’s confidence is hotly contested, with debate raging regarding the degree to which women are personally responsible for their failure to progress into senior leadership roles versus the role played by structural inequalities in organisations and societal norms generally (Fox, 2017; Sandberg, 2014; Sandler, 2014). At the centre of the notion that women are personally responsible, is the idea that they fail to ‘lean in’ and apply for more senior roles because they lack confidence, are plagued with self-doubt or simply just don’t want to (Orbach, 2017; Sandberg, 2014). From this view, it is women who need to be ‘fixed’ (Nixdorf & Rosen, 2010). Backing this position is extensive literature that supports the idea that men possess greater self-confidence than women in most, though not all, achievement situations (Hackett, 1995; Steinmayr & Spinath, 2009).

Summary of Key Findings

• This study of 10,076 adolescent boys and girls in years 7-11 from 13 top-matriculating single-sex schools in Queensland identified no significant differences between boys and girls in overall self-confidence.
• Boys and girls derive equal amounts of self-confidence from the same activities. The three activities which generate the most self-confidence are travel, team sport and participation in leadership roles/leadership development activities.
• Unsupervised activities are greater producers of confidence development than supervised ones.
• Girls are spending more time per week studying than boys at all ages.
• Boys are being given significantly more outdoor chores than girls and are spending more time overall on outdoor activities compared to girls.
• Having a part-time job is a significant contributor to the development of self-confidence.
• The top 3 reasons for wanting to work are identical for girls and boys. They were ‘Having a secure job and income’; ‘Enjoying the tasks I work on’; and ‘Using my talents’.
• Girls expressed significantly more enthusiasm for their reasons for wanting to work and their career interests compared to boys.
• Girls and boys significantly differ in their career interests upon entering high school and these remain robust and largely unchanged through high school years.
• Awareness of parents’ careers and qualifications begins earlier for boys and remains greater than girls throughout high school.
• In terms of high matriculation single-sex schools, boys benefit from 1.5 times the amount of campus space within the immediate school grounds compared to girls and with 3 times the amount of space for outdoor play compared to girls.
What is most concerning is that these sex differences begin in childhood and remain in favour of males for the remainder of a lifespan (Robins et al, 2002; Robins & Trzesniewski, 2005), see Figure 1 below. Additionally, levels of confidence derived in adolescence remain fairly robust once they are formed (Bandura, 1997; Robins & Trzesniewski, 2005). Further, cross cultural studies have confirmed the existence of this gender disparity across 48 different countries, including both developed and under-developed economies (Bleidorn et al., 2016). However, the effect size and timing of the life stage of self-efficacy differences varies widely by country and are influenced by socio-economic, sociodemographic and cultural belief patterns, indicating that context plays a significant role in explaining gender differences in confidence, while also effectively ruling out biological explanations (Bleidorn et al., 2016).

However, Bandura (1997:423) also suggested that the issues of less women undertaking science, technology, engineering and mathematics (STEM) subjects and careers, women's propensity to undertake support roles and women not actively seeking promotions are all linked, since gender stereotyping of these pursuits and behaviours leads to suggestions that this is simply 'what is expected of women'. These societal expectations alone are sufficient to undermine women's judgements of their personal efficacy in relation to these pathways or behaviours. As highlighted in the Filling the Pool report, economies such as Queensland and Western Australia are underpinned by mining, energy and construction, industries where 90% of roles are occupied by men. Given that these industries are among the most influential in the Australian economy and also the best paid, the lack of women undertaking STEM roles is of great concern, both in terms of industry growth and profitability as well as gender diversity. In other words, social expectations about gender roles, including women's perceived aptitude to STEM careers cause women to not enter certain fields, rather than a lack of general self-confidence. Likewise, the same can be said of the idea of 'think manager, think male' and its effect on seeking promotion. Bandura (1982:140) also cautions us not to confuse outcome beliefs with a lack of self-efficacy, indicating that women's progression may be hindered by structural barriers informed by cultural stereotypes, rather than a lack of general self-efficacy. He infers that a form of informed pragmatism, whereby women are not willing to play the game when they know that the deck is stacked against them, may also offer reasons why women do not 'lean-in'. Nonetheless, it is impossible to ignore the raft of research which confirms that there are gender differences in workplace confidence and these must also be playing a role in women not 'leaning in'.

Robins and Trzesniewski (2005:161) note that although the literature has 'generated a laundry list of possible reasons' as to why confidence may drop during adolescence (and why this might be particularly true for girls), there is no integrative model of how various proposed processes work to shape confidence development. Reasons given in the literature for gender differences in self-efficacy include:

- The tendency of girls to be more concerned about interpersonal relationships than boys, including early relationships with boys (Bandura, 1995:179);
- Gender bias in classrooms, with teachers’ academic expectations of girls...
being lower than boys and behavioural expectations of boys being lower than girls (Bandura, 1995:431);
• Parental expectations in relation to academic achievement of girls, especially in relation to STEM subjects, are lower (Usher & Pajares, 2008:787);
• The prevailing cultural modelling of gender stereotypical roles casts women in more limited non-achieving roles (Hackett, 1995:236);
• Lack of female role models and mentors relative to men (Propst & Koesler, 1998:323) and competition for leadership roles and voice in co-educational schools (Nixdorff & Rosen, 2010:81);
• Sex-typing of career aspirations and occupations in the media and through parental and teacher modelling (Gorrell & Shaw, 1988:197); and
• Physical changes in puberty that may be more apparent for girls than boys, with boys accentuating social and physical comparisons between girls (Robins et al., 2002:430) in mixed sex environments.

Similarly, Nixdorff and Rosen (2010:81) suggested that the issue of female self-efficacy may be ‘reflective of systemic problems with our educational system (and in fact society in general)’. They suggested that single sex education may act to shield adolescent women from nearly all of the issues enumerated above. Single sex schools therefore represent an environment in which the deleterious effects upon women’s self-efficacy development may be mediated or even eliminated.

**Study Objectives**

A key question posed by this study was whether gender differences in self-efficacy arise in adolescence under all conditions. If this is not the case, it provides evidence that the observed differences in adulthood between men and women’s self-confidence can be at least partly attributed to interactions with organisational and societal structures which act to undermine women’s confidence, rather than women themselves being innately less self-confident. Similarly, if single sex schools are an environment where these societal/organisational effects are strongly mediated or eliminated altogether, then what can we learn from this? Finally, what if any, links are there between self-confidence and career interests?

There are subtle differences between each of the states in terms of the delivery of secondary education and significant differences in economic focus, and hence we would expect that the results might differ by state, as was highlighted in the *Filling the Pool* report. However, Queensland and Western Australia, given similarities in their respective economies, would likely stand the best chance of producing similar results. Nonetheless, a national study aimed at examining the effect of geographical differences in education, societal attitudes to gender equality and particularly socio-economic differences within each capital city would need to be undertaken to verify this.

**Sample**

The original sample comprised of 10,076 adolescent boys and girls in years 7-11 from 13 top-matriculating single-sex boys’ and girls’ schools throughout south east Queensland. The age range of the students was 13-17 years old. Students were recruited from middle and senior schools: Year 7 (23.7%), Year 8 (22.3%), Year 9 (18.3%), Year 10 (18.2%) and Year 11 (17.5%). Schools were invited to participate in the study based upon their relative position as a top 20 school for university matriculation. Data was collected through two surveys using SurveyMonkey software.

The independent variables comprised of activities noted in the literature as having an impact upon self-efficacy development. Additional activities, pastimes and interests were identified and added to the surveys through focus groups conducted with students and teachers in order to develop a list that would encompass all potential activities. Students were gathered by year level into their respective school halls under exam conditions in order to complete both surveys. Completion of the surveys took 70 minutes on average.
Findings

**Self-confidence**
In terms of overall self-confidence, the study found that there were no significant differences between boys and girls overall. With the exception of a small difference in Year 10, which was corrected in Year 11, the same was true of each age group. The study demonstrates that at least under one set of conditions, girls and boys in single-sex schools, there is absolutely no gender difference in this important workplace entry attribute.

**Activities that predict self-confidence**
The study examined over 20 activities that adolescents engage in to identify which of these activities are responsible for producing the greatest levels of self-confidence and whether these differed by gender. The study found that boys and girls derive equal amounts of self-confidence from the same activities. The three activities which generated the most self-confidence, in order of level of contribution were:
- Travel
- Team sport
- Participation in leadership roles/leadership development activities

Overall, computer gaming and social media usage were identified as the greatest detractors from the development of self-confidence.

**Unsupervised activities are greater predictors of confidence development**
The study found that unsupervised activities are a significantly greater source of self-confidence than those which are directly supervised. This is not to say that there is a complete absence of adult involvement in these activities – adults still play a role in framing activities, for example. However, the confidence boost comes from implementing or engaging in the activity, or significant proportions of the activity, without direct adult oversight. Adults also play a role in helping students to debrief or process what they may have gained from the experience.

**Hours spent on study per week differs by age and gender**
Girls are spending more time per week studying than boys at all ages. The amount of time spent on study by boys and girls increases with age, with the most study time spent in Year 11. For example, girls spend on average 15 hours per week on study at home in Year 11 whereas boys spend 11 hours.

**Self-confidence declines by age**
The study found that levels of self-confidence decline for both girls and boys as they get older. This effect has already been identified in earlier studies and can be seen in Figure 1.

**Doing chores (Indoor/Outdoor)**
The study measured gender differences in the activities of boys and girls outside of school. There was a significant difference between the types of chores undertaken by boys and girls. Boys were more likely to engage in outdoor chores compared to girls. This finding is similar to what emerged from the Westpac ‘Kids and Money’ Report (2016). When combined with the findings of previous studies related to the differential amounts of pocket money received by girls and boys, it would seem to indicate that outdoor chores are more valued by parents in terms of remuneration than indoor chores. It was also found that children who undertake chores have increased levels of self-confidence, though the effect declines beyond 6 hours of chores per week.

**Outdoor and indoor activities**
In line with the theme identified for chores, boys are also spending a lot more time, relative to girls, on outdoor activities and team sports in particular. Team sport, of all of the activities measured, produced the second highest overall contribution to self-confidence.

**Clear benefit of having a part-time job on social self-confidence**
The study found that most high school students in this study did not have part-time jobs. Even by Year 11, there were more boys and girls without part-time jobs than those with part-time jobs. However, those who did have a part-time job showed significantly greater levels of self-confidence than those without. Boys and girls held part-time jobs in the same proportions.

**Travel contributes to overall self-confidence**
Travel was the most significant factor in predicting greater self-confidence. However, the three types of travel measured: intrastate, interstate and international, showed different effects. The greatest influence on confidence was for local and interstate travel and the least effect size was international travel. In addition, the effect size relates to the level of adult supervision. Local travel on holidays, for example, is likely to allow for children to spend more unsupervised time away from adults relative to trips either interstate or overseas.

**Leadership roles and leadership development increases self-confidence**
Students who had previously held or currently hold a leadership role, such as school prefect or through being captain of a sporting team, enjoyed significantly higher levels of self-confidence relative to those who had no leadership experience.
Also, those who had participated in leadership development courses also had higher confidence. Notably, leadership experiences produced similar effects at all age levels, meaning that leadership roles and courses offer students positive benefits to their overall self-confidence equally, regardless of age.

Top 5 Reasons for wanting to work are identical for boys and girls (with one critical exception)

The study measured the reasons why boys and girls would want to pursue a career. Based on persistent claims that men and women have differing reasons for wanting to work, the study asked the students to rank 14 reasons for wanting to work. The study found that in terms of both ranking and proportion by boys’ and girls’, the top three reasons for wanting to work were identical, as were the top five reasons, with one critical exception. Girls ranked the need to help others as fourth in their reasons for wanting to work whereas this reason ranked much lower for boys. The top three reasons were ‘Having a secure job and income’; ‘Enjoying the tasks I work on’; and ‘Using my talents’.

Strength of reasons for wanting to work

Girls had significantly stronger responses to the reasons for wanting to work on nearly all of the fourteen reasons compared to boys. Likewise, girls expressed more enthusiasm for wanting to undertake each of their top ten activities related to career choices relative to the boys.

Boys and girls differ in career domain preferences upon entering high school and these remain robust

Aware of past research into women’s STEM career decisions and how these may change during high school, the study examined whether decisions regarding activities related to differing career types, including science and technology, changed by gender over time. The study found a significant difference by gender in preferences for activities related to particular career domains and the career domains themselves. These domains were highly gendered and had already been formed prior to entry to high school. While some individual activity preferences changed by age, overall career domain preferences remained robust and unchanged from Year 7 through to Year 11. Girls showed the strongest preference for social services and healthcare, whereas boys showed a clear preference for science and technology. See Figure 2.

Awareness of parents’ careers and qualifications begins earlier for boys

Boys had a greater and earlier understanding of their mother’s and particularly their father’s occupations. Whereas only 6% of boys did not know their father’s occupation. Girls in Year 11 still stood at 9% not knowing their parents’ occupations. Similarly, boys had a greater and earlier understanding of their mother’s and particularly their father’s qualifications.

Boys have both greater campus size and play space at school

In terms of high matriculation single-sex schools, boys benefit from 1.5 times the amount of campus space within the immediate school grounds compared to girls and with 3 times the amount of space for outdoor play within the immediate school grounds compared to girls. This did not impact upon confidence levels between boys and girls, but may have some influence on indoor/outdoor career orientation.

Girls

Boys
Implications and Future Research

While it is impossible to claim that all of the factors identified as being potential contributors to the undermining of self-efficacy in adolescent women are controlled by single sex education, the findings show that at least under this condition, levels of self-efficacy are the same for boys and girls. This clearly demonstrates that there is no genetic or biological reason for gender differences in self-efficacy and that such differences in the workplace are a product of context, including organisational structural barriers and societal expectations placed upon women both prior to and upon entry to the workplace.

In line with Nixdorff and Rosen’s (2010) reasons why single sex education may offer an environment in which girls’ self-efficacy can equal boys, it was a feature of the girl schools participating in the research that the great majority of teachers were female and all significant school leadership positions, (principal, deputy principal, registrar, discipline leaders) were held by women. Therefore, all role models and mentors were women, alleviating the issues identified as potentially undermining girls self-efficacy identified by Gorrell and Shaw (1988), Hackett (1995) and Propst and Koesler (1998).

Likewise, the issues of classroom bias raised by Bandura (1996) between boys and girls are moot in the single-sex classroom. By definition all student leadership positions were held by girls and there were no classroom interactions with boys, thereby eliminating the gender comparison concerns that can potentially undermine girl’s self-efficacy, particularly in the physical education and team sport contexts (Nixdorff & Rosen, 2010; Robins et al., 2002).

In terms of career interests and preferences, the research was a sobering reminder that gender stereotypical role modelling occurs early, with career interests already entrenched upon entry into high school. The implication is that interventions regarding girls STEM interests and career intentions need to be targeted in primary and perhaps even infants’ school. Likewise, the finding that career conversations are happening earlier and more often with boys than girls, perhaps indicates that the male bread winner model is still not entirely a thing of the past and that parents should discuss careers with children equally and early.

Secondly, findings surrounding the gendered nature of indoor versus outdoor activity in terms of chores, hobbies, pastimes and even the physical space available for play are contributing to the establishment of the outdoors as a ‘male’ domain and indoors as a ‘female’ domain. This has implications for the attraction of women into careers with an outdoor focus such as mining, energy, construction, trades and the like. By implication, parents and schools alike need to consider the long-term impact of the gendering of chores and activities upon career choice.

It should come as no surprise that effects felt in the workplace around stereotypes and gender congeniality for certain roles do not begin or end in the workplace but start from the moment we are born. Simple things such as conversations between parents and children, the assignment of chores or differentiated play space all play a role in forming gendered attitudes to work and career. Hence many of the recommendations from this report echo those from the Filling the Pool report, particularly those with regard to developing self-confidence in the workplace.

The UQ Centre for Workplace Gender Equality is aiming to replicate the study at a national level in Sydney, Melbourne, Perth and Brisbane with 160,000 single sex and co-educational school children in both high and low socio-economic areas, to test and expand upon the findings of this study.
References


About FACTBase
FACTBase is a collaborative research project between the Committee for Perth and The University of Western Australia to benchmark the liveability of Perth and its global connectedness through an examination of Perth’s economic, social, demographic and political character.

The FACTBase team of academics and researchers condense a plethora of existing information and databases on the major themes, map what is happening in Perth in pictures as well as words, and examine how Perth compares with, and connects to, other cities around the world.

The Committee for Perth is a member-funded organisation and we acknowledge our Gold Members:

A complete list of current members is available at www.committeeforperth.com.au

Committee for Perth Disclaimer
The information contained in this publication is provided for information purposes only and is not intended to address the circumstances of a particular individual or entity. Unless otherwise stated, the information has been drawn from a number of sources current as at the date of this publication. To the extent this publication contains any statement as to a future matter, that statement is provided based on the information available to the Committee as at the date of this publication. The Committee is not under any obligation to update any information contained in this publication. No representation or warranty, express or implied, is made by the Committee as to the completeness, accuracy, reliability, currency or correctness of the information. While the Committee has made all reasonable efforts to ensure the accuracy of the information, to the maximum extent permitted by law, the Committee and any party involved in creating or producing this publication and each of their officers, directors, employees, agents and advisers expressly disclaim any responsibility for the accuracy or completeness of the material in this publication and exclude all liability (however caused, including by negligence) for any loss or damage arising from any use of or reliance on the information, including any error or omission therefrom, or otherwise arising in connection with it. No one should rely on this information as a substitute for professional advice.

Copyright
This paper is the copyright of The University of Western Australia and the Committee for Perth. While we encourage its use, it should be referenced as:


About the author
Dr Terrance Fitzsimmons is a Senior Lecturer with the University of Queensland Business School and a Chartered Accountant with over 30 years of practice. He is the director of the AIBE Centre for Gender Equality in the Workplace and MD of the Australian Gender Equality Council (AGEC), whose members comprise of peak national bodies representing women across Australia.

His PhD in Leadership examined attributes of CEOs and differing pathways to CEO roles for men and women. In 2015, Dr Fitzsimmons, Professor Callan and the Committee for Perth, released Filling the Pool, a major report into gender inequality in Western Australia.

Dr Fitzsimmons has worked with many of Australia’s largest firms on their diversity programs and speaks regularly in Australia and overseas in the area of gender equality and inclusion. He has served as national and state presidents of not for profit bodies as well as a being a director on boards of Listed Public Companies in Australia and overseas.