Professional Practice in IT (PPIT)

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| **Assignment name** | Assignment 3G |
| **Due date** | 10/03/2017 |

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**Student declaration**

I certify that the attached assignment is my own work. Materials drawn from other sources has been appropriately and fully acknowledged as to author/creator, source and other bibliographic details using the Harvard style of referencing. Such referencing may need to meet unit-specific requirements as to format and style.

Signature of student: Tenzin Dendup

Date: 09/03/2017

**DROP IN FEMALE PARTICIPATION RATES IN STEM AND ICT**

# **Abstract**

This report discusses some aspects of the issue of drop in female participation rates in STEM (Science, Technology, Engineering & Mathematics) and ICT (Information & Communication Technology) in Australia. The report starts by looking at a general overview of the reasons for this drop. It then discusses some of its impacts. The report concludes with a discussion on some of the ways to address the issue. Literature, including journal articles and newspaper reports on the topic are referenced.

# **Introduction**

Australia has seen a drop in female participation rates in the fields of STEM (Science, Technology, Engineering & Mathematics) and ICT (Information & Communication Technology) over the last few decades. This drop in female participation is seen both at the workplace as well as in enrolment numbers in universities. Huntington (as cited in Winchester 2017) states that while the rate of female participation in computer science peaked in 1984 at around 30%, there has been a drastic drop ever since. She also points out that in spite of all the hard work put in by universities in the last five years, female enrolment and participation in computer science programs in universities still stands at 15%. The aim of this report is to discuss the various reasons and impacts of the issue and ways to address it.

# **Discussion**

## **Reasons for low rates of female participation in STEM & ICT**

One of the reasons cited often is the work culture of the industry which is considered to be uninviting for women. Berge et al. (as cited in Timms et al. 2008, p.156) paints a picture of ICT industry as exhibiting “boy’s club” environment filled with people who uphold “hacker qualities” of power structure, competition and control. Other aspects of ICT industry work culture highlighted are, belittling skills brought in by women like people and communication skills (Woodfield as cited in Timms et al. 2008, p.156), excluding women from participating in decision making (Timms et al. 2008), offensive attitude towards women’s abilities (Woodfield as cited in Timms et al. 2008, p.156) and expectation of companies for their employees to work long hours which effectively means women have to prioritize work over family commitments (Timms et al. 2008). While the ICT work culture is often cited as the primary culprit, a survey in Australia has shown that most women find ICT careers interesting and did not agree to the stereotype of the industry being filled with geeks (Timms et al. 2008).

The second reason is the negative image associated with the industry. The ICT industry is seen as a place filled with solitary geeks and nerds leading a sedentary and antisocial existence (Fauklner as cited in Timms et al. 2008). This is further exacerbated by the incorrect perception of videos games and internet as platforms of violence, pornography and cyber bullying (Timms et al. 2008).

The third reason is existence of gender pay gap in the ICT industry. A study conducted on gender pay gap in the ICT labour market in UK and New Zealand has shown that women feel they are not paid equal to their male colleagues given similar levels of qualification, experience and technical expertise (Belgorodskiy et al.). The study points out that women are not confident enough to negotiate their promotion and pay raise which results in their salaries being lower than their male counterparts. The findings from the study goes on to state that gender pay gap starts from entry level since women ICT graduates start their careers with lower salaries than male ICT graduates.

Perceptions also play a key role in women deciding to join the ICT industry or enrolling in ESTEM or ICT courses. Waterman (as cited in Winchester 2017) points out that overcoming the perception that STEM and ICT are dominated by males which results in young girls deciding against enrolling in these courses is a challenge. Related to this is the lack of female role models in these two areas of study and work as Huntington (as cited in Winchester 2017) states that

In Australia there are 250,000 qualified professional engineers and fewer than 1000 are women over 50.

## **Impact of low rates of female participation in STEM and ICT**

The immediate and most noticeable impact is women losing the opportunity to take part in an industry which is expected to grow in value and size. The Deloitte Access Economic report found digital technologies will grow by 75 percent from 2014 which would be contributing $139 billion to the Australian economy in four years (Raggat 2015). The report concludes that since women are under-represented, they will miss out on this digital boom.

Another impact would be on the image of the ICT industry. An industry already accused of gender bias may look worse in the future if this trend continues.

## **Ways to address low rates of female participation in STEM and ICT**

A crucial place to start looking at is how science and ICT is taught in schools. McCarthy (as cited in Winchester 2017) states that these subjects need to be taught in a way that includes problem solving skills, creativity and innovation. She points out that these aspects are currently missing in Australian school curriculum. Huntington (as cited in Winchester 2017) lists another approach of offering STEM and ICT sub-disciplines at universities.

Since our analysis highlights ICT and STEM work culture as the primary reason for lower rates of female participation, change in the work culture would contribute towards solving the issue. Some of the changes could be making the industry more welcoming to women, including women in decision making processes and working towards equal pay for both men and women working at similar levels.

Having female roles models to lookup to will also encourage girls to opt for STEM and ICT courses in schools and universities.

# **Conclusion**

This report has looked at the current situation of low rates of female participation in STEM and ICT fields in Australia. Some of the causes often cited are work culture and image of ICT industry, gender pay gap, perception of the industry as being dominated by men and lack of female role models. Other surveys have challenged some of these reasons. Some of the potential measure discussed are changing the ICT work culture and image, bringing changes how science and ICT is taught in schools and minimizing gender pay gap. One of the biggest impact of this issue is women missing out on the booming digital economy.

# **References**

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