Chapter 1
A Comparison Between Australia and Chile of Factors Facing Women Engineers and ICT Professionals in Their Careers

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ABSTRACT
Is this a man’s world? Surprisingly the 21st century is still struggling with gender discrimination issues in many countries and in many professions. This chapter presents an analysis of the situation facing women professionals working in a developed country, Australia, and in a developing country, Chile, in the engineering/ICT sectors. The approach taken emphasizes the continued existence of inequality in these male-dominated professions based on existing research that shows what continues to be an underrepresentation of women in engineering/ICT. It is expected that the overview of this significant problem of underrepresentation will identify a number of factors at play here and that solutions to the problem will be similar in different countries.

INTRODUCTION
The chapter offers a literature review on issues focusing on women engineers and ICT professionals in two countries, Australia and Chile. It critiques the construction of the engineering and ICT profession from a gendered perspective to establish if the ‘image’ of the profession adds to the difficulties in overcoming the underrepresentation of women within its ranks (Comunidad Mujer, 2016; Hitschfeld & Martinez, 2016; Puri, 2017). It also examines how the various traditional factors such as harassment, DOI: 10.4018/978-1-5225-7068-4.ch001
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gender discrimination, managing long hours and trying to balance family commitments, a lack of support and mentoring from male managers, and the lack of transparency regarding their careers paths and pay, when combined, give rise to a lack of role confidence for women as engineers and ICT professionals. Existing research appears to include an individual’s lack of role confidence as a separate factor contributing to women leaving the engineering profession; however, it is argued that this can arise from the traditional deterrents women face when entering the profession.

Gender equity is lacking at all stages of an engineering career and there are moves internationally to rectify this issue because of the loss of talent to the profession and to society and, specific to Australia and Chile, a shortage of mining engineers. Both the inequality and the moves to rectify it begin with tertiary education engineering degree programs (Global Engineering Deans Council (GEDC), 2017). In comparing possible disadvantage for female engineers and ICT professionals in Australia and Chile, factors common to both countries have emerged from the literature. This chapter identifies these factors and analyzes possible solutions for overcoming the disadvantage which shapes and limits career opportunities for women in these professions. A simple comparison shows that both countries have economies with a heavy dependence on mining (Banco Central de Chile, 2017), both are southern hemisphere countries, and both have a similar population size. In terms of differences, there are obviously cultural and language differences. Similarities in the engineering and ICT professions can be found in the knowledge and skills within the professions, including hard skills such as advanced mathematics, and the challenges faced in educating girls from a young age on how engineering is about problem-solving and being creative and innovative and that technology is easy to use and easy to develop; for example, writing computer code, building a 3D printer to design 3D objects, and building apps should be seen as something interesting, useful, creative, and fairly easy to do irrespective of gender. Therefore, it is worth considering the image of the profession and how this is constructed, and in doing so, recognize that any study of gender in these professions may perhaps be divisive along gender lines but will raise necessary public debate which can alter attitudes and professions to achieve greater equality. The authors relied on published research from the last three decades, which includes academic sources and industry and government reports to support our arguments.

BACKGROUND

Gender stereotyping evolving from long held perception and biases means that possible future career paths in STEM are jeopardized for women from childhood (Broadley, 2015; Mills, 2011). When high school students are in their last years, it is essential to decide what career path they will follow; however, often female students have already made choices about math and science subjects in primary school which will limit their subsequent tertiary study and career choices (Heaverlo, 2011; Puri, 2017). Where female students want to pursue careers in engineering or ICT, they soon realize that most of their colleagues will be males. Pursuing a career in engineering or ICT can be considered an excellent choice for students due to employment possibilities after graduation and further opportunities for career progression. Additionally, these jobs are well remunerated and considered prestigious right from entry into university because of the high tertiary entrance marks required (Cipriano, 2008; Hoerning, 1940).

However, once women graduate and become the new professional engineers, their career paths to gain full professional acknowledgement from their male peers will not always be uniform and nor will they be co-operative (Edwards, Pearce, Perkins, & Brown, 2014). Further, women graduates have found that