# Gender Diversity in Computing: An Environmental Perspective

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## Abstract

Previous research conducted by the author investigated the socio-political backgrounds of two groups of female students studying computer-related university programmes. They came from distinctly different backgrounds and were enrolled at two institutions with very different legacies. The author found that socio-political factors, in particular the role of a dominant female household head and aggressive governmental affirmative action, had a significant effect on the girls' levels of confidence and subsequently on their decision to study computer-related courses. Based on this insight, the researcher undertook to look further into gender diversity with respect to self-perceived general computer confidence and self-perceived ability to program a computer. A sample of both female and male Information Technology students from very similar disadvantaged socio-economic backgrounds was surveyed. The sample of 204 students was drawn from all three years of the National Diploma in Information Technology. The author considered the following research questions:

(i) Do males and females studying computer-related courses have differing computer self-efficacy levels?

(ii) Do males and females studying computer programming have differing attitudes towards their ability to program?

(iii) Do males and females differ in their attitudes towards the programming learning environment?

The research instrument used in the study consisted of a questionnaire that comprised questions that tested the students' computing and programming self-efficacy as well as their attitude to gender stereotyping with respect to computer programming. The results of the survey indicate that there were more gender similarities than differences in the students' general computer self-efficacy and their confidence in their programming ability. However, there were very significant differences in the female and male students' perceptions of computing gender stereotyping. The female students supported the stereotypes that depicted females in a favourable light and rejected those that did not whilst the male students did just the opposite. It could be said therefore that the students generally had not been exposed to such typical stereotypes or, more importantly, if they had, they had rejected their validity within their own socio-cultural experience. The fact that more than 50% of both male and female students came from homes that were either headed by a female or had a female as the main breadwinner was a significant finding. The dominance of the female role in the upbringing of many of both the female and male students in this study cannot be ignored when examining the results of the computer self-efficacy scale and the students' attitude to computer programming.

**Keywords:** Computer self-efficacy, gender and computing, computer programming, gender stereotyping

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