



# Computer anxiety: the role of psychological gender

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## Abstract

A relationship between computer anxiety (CA) and gender has been found in a number of studies, with females generally scoring higher than males. Findings are variable, however, and biological gender does not adequately account for this variability. It is possible that psychological gender, in conjunction with the concept of masculinisation, may provide a more satisfactory account. Measures of CA and psychological gender were obtained for 138 first year undergraduate students in two departments, one in the Arts and Social Sciences faculty and one in the Science and Engineering faculty. Partial correlations revealed that psychological gender predicted CA with biological gender and faculty controlled, whereas biological gender failed to predict CA with psychological gender and faculty controlled. Results were discussed in relation to Bem's theory of psychological gender.

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## 1. Introduction

A sizeable minority of the population suffers from a condition known as “computerphobia”, which has been defined by [Rosen and Weil \(1990\)](#) in terms of a combination of affective (anxiety) and cognitive (attitudinal and worry) components. The anxiety component is generally labelled computer anxiety (CA) and has been described as the main constituent of computerphobia ([Brosnan, 1998](#)). About 20% to 35% of those tested,

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including university students, generally display symptoms of mild computerphobia (Brosnan & Davidson, 1994; Rosen, Sears, & Weil, 1987; Rosen & Maguire, 1990; Weil & Rosen, 1995), with about 5% of these classed as severe (Todman, 2000). Attempts to devise computer systems that will provoke less anxiety in vulnerable individuals are most likely to be successful if characteristics of at-risk groups have been identified.

One variable that has appeared to predict high levels of CA is gender. A number of studies have found higher CA scores in females than in males (e.g., Chua, Chen, & Wong, 1999; Colley, Gale, & Harris, 1994; Temple & Lipps, 1989; Todman, 2000). Other studies, however, have found no CA differences between males and females (Brosnan & Davidson, 1996; North & Noyes, 2002; Todman & Monaghan, 1994), and one study that was based in Hong Kong (Brosnan & Lee, 1998) found a difference favouring females. The Hong Kong study raises the possibility of there being cultural differences in the relationship between gender and CA, and this suggestion receives additional support from a study by Durndell, Cameron, Knox, Stocks, and Haag (1997), in which higher CA scores were found for female students in Scotland but not in Romania. Although meta-analyses tend to show a relationship between gender and CA (Chua et al., 1999; Maurer, 1994), it would be premature to disregard the conflicting evidence.

Rosen et al. (1987) suggested that discrepant findings regarding the relationship between biological gender and CA could be accounted for using the concept of psychological gender. Although their result was not replicated in a subsequent study by Colley et al. (1994), Rosen et al. found that femininity (a tendency to show a preponderance of stereotypical feminine characteristics) correlated positively with CA and suggested that varying degrees of masculinity and femininity among the participants of previous studies could account for variation in the findings for biological gender. A specific example would be the suggestion made by Todman and Monaghan (1994) to explain their failure to find a biological gender effect among psychology students. They suggested that for courses, such as Psychology, which attract a preponderance of females, males who are attracted to that course may be more similar to typical females in their responses to technology than to males who are attracted to male-dominated courses.

Bem's (1974) theory of psychological androgeny provided a scale, the Bem Sex Role Inventory (BSRI), for measuring an individual's level of masculinity and femininity. The scale allows an individual to be classified as "sex-typed", "cross sex-typed" or "androgenous". A sex-typed individual is one who displays high values on the scale pertaining to their biological gender and low values on the scale pertaining to the other biological gender. Thus, a sex-typed male would display high masculinity values and low femininity values, and vice versa for a sex-typed female. A cross sex-typed individual would display the opposite values to those of a sex-typed individual. That is, they would display high values on the scale not pertaining to their biological gender and low values on the scale pertaining to their biological gender. An androgenous individual would display little difference between values on the masculinity and femininity scales.

Although the BSRI has been criticised for not capturing the factorial complexity of the masculinity and femininity constructs (Choi & Fuqua, 2003), it has been widely used in research and is probably the best operationalisation of the constructs currently available. Furthermore, the internal consistencies for the two subscales ( $\alpha$ 's  $\geq 0.8$ ), suggest that it may be reasonable to treat masculinity and femininity as unitary constructs, at least until multi-faceted measures that do justice to the complexity of their factorial compositions have been developed.

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