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Differences that do matter: A dialectic analysis of individual characteristics and personality dimensions contributing to computer anxiety

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Abstract

Computer anxiety, as defined and operationalized in the human–computer studies literature, has been synonymous with negative thoughts and attitudes about the use of computers. This approach, together with correlational analyses that have formed the mainstay of research on computer anxiety, invokes two important points. First, it can be argued that computer anxiety, by definition, implies an attitude that is indicative of an extremity of thoughts and dispositions. Second, if one were to reject the strictly clinical definition of computer anxiety and adopt the more traditional measurements as well as the attendant statistical analyses based on the full sample, there is the clear possibility of dilution of statistically significant relations by observations in the middle range.

This paper adopts Weil and Rosen's [Weil, M. M., & Rosen, L. D. (1995). The psychological impact of technology from a global perspective: a study of technological sophistication and computer anxiety in university students from twenty-three countries. *Computers in Human Behavior, 11*(1), 95–133] definition of computer anxiety in terms of anxiety about interactions with computers and negative global attitudes, and "negative cognitions" or "self-critical internal dialogs". Using data from a study of 242 graduate and undergraduate students at a small private university in Western New York, the sample is segmented into high and low computer anxiety groups. These groups are then tested for significant differences in individual characteristics, including the Big Five personality dimensions, computer experience, math and verbal skills, and cognitive orientation. It is found that three of the personality dimensions (Neuroticism, Openness, and Agreeableness), one aspect of cognitive orientation (Flexibility), and verbal skills show statistically significant differences between the two groups. The evidence with respect to math skills and computer experience is mixed.

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Interpretation of results is presented. Limitations, delimitations, and potential directions for future research are discussed.

Keywords: Computer anxiety; Computer stress; Technophobia; Personality

1. Introduction

The PC revolution has dramatically increased the role and pervasiveness of technology in everyday life. While the embracing of technology and the cheerleading of its rapid advances into new and uncharted areas proceeds at a rapid pace, negative attitudes toward use of technology have also been on the rise. As some authors have argued (e.g., Walker & White, 2002), computer technology, like all major upheavals, inspires both hope and fear – with technophiles representing the former and technophobes representing the latter.

That there is a significant element of computer anxiety within the population does not seem to hold water at first blush. Today's college students have, after all, witnessed the computer revolution as high school students; many of them probably cut their teeth on video games and early versions of home computers. This seemingly commonsense argument does not, however, bear the scrutiny of empirical research, nor does it address the question of relative differences in comfort levels with computers which prompt the technophobic students to adopt extensive avoidance strategies to satisfy graduation requirements with as minimal exposure to technology as possible.

A recent survey in *The Atlanta Journal and Constitution* reports that many young girls disdain computer careers because they find them to be ''boring and lonely'' (Mollison, 2000). According to Pamela Haag, Director of Research for the American Association of University Women (AAUW) Educational Foundation, girls in middle school and high school who participated in this survey tended to ''imagine that computer professionals live in a solitary, antisocial and sedentary world'', and have opted out ''from acquiring skills that are key to our economy and will be key to our culture''.

Studies of computer anxiety have mostly employed cognitive, contextual, and personality variables at the individual user level as explanatory variables, some examples being age, gender, personality variables, computer experience, computer training, locus of control, learning styles (see Bozionelos, 2001; Choi, Ligon, & Ward, 2002; Chua, Chen, & Wong, 1999). Other variables – technological sophistication (Weil & Rosen, 1995), self-efficacy (Brosnan, 1999), culture (Brosnan & Lee, 1998), nature of tasks (Bernt, Bugbee, & Arceo, 1990), and personality dimensions (Korukonda, 2005), to name a few – and conceptual approaches such as organizational change and force field analysis (Desai, 2001) and the uses and Gratifications model (Finn & Korukonda, 2004), have been used in the study of computer anxiety. Together, these studies typically employ whole sample analyses and explore the question of whether computer anxiety is significantly correlated with individual characteristics. The author has no quarrel with this approach and indeed believes that individual characteristics represent a particularly important approach to studying computer anxiety. Yet there exists a need to put these studies and statistical analyses in perspective, especially with respect to potential dilution of relationships caused by aggregation across the whole sample. The bulk of the respondents in the middle range