Computers in Human Behavior 26 (2010) 345–352

Contents lists available at ScienceDirect

Computers in Human Behavior

journal homepage: www.elsevier.com/locate/comphumbeh

Computer attitude as a moderator in the relationship between computer anxiety, satisfaction, and stress

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ARTICLE INFO

Article history:
Available online 16 December 2009

Keywords:
Computer anxiety
Attitude towards computers
Job satisfaction
Career satisfaction
Stress

ABSTRACT

The present study empirically examines the relationship between computer anxiety, job satisfaction, career satisfaction, and stress. Based on self-efficacy theory and self-worth theory of achievement-motivation, it is hypothesized that the relationship between computer anxiety and job satisfaction is curvilinear and attitude towards computer moderates such relationship. The relationship between computer anxiety and career satisfaction and job stress were empirically examined in this study. Two hundred and thirty undergraduate students (125 female and 105 male students) at a university in south-western part of Louisiana completed computer anxiety, computer attitude, job satisfaction, career satisfaction and stress surveys. Hierarchical moderated regression results support that the attitude towards computer acts as a moderator in the relationship between (i) computer anxiety and stress, (ii) computer anxiety and job satisfaction, and (iii) computer anxiety and career satisfaction. Implications for management are discussed.

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1. Introduction

Computers have become indispensable component of teaching and learning environment. Escalating use of computers at educational institutions place premium on learning the computer applications and make people more literate through the diffusion of personal computers, productivity software, multimedia, and network resources (Sam, Othman, & Nordin, 2005). Computer literacy and wide variety of applications of computers resulted in emphasizing the computer-based training at both school and college levels. Students, workers, organizations and researchers focus on computer-based training and learning. As a result, researchers attempt to focus on the psychological component of human–computer interface (Bozionelos, 1997; Gilroy & Desai, 1986). With advances in technology, it is felt that educators advocate technology integrating in learning process because it facilitates leaning and prepare students to get ready for facing changes in workplace in the 21st century (Butzin, 2000; Reiser, 2001). The experience of college students right at the freshman level to the graduate level, projects involving computers and computer networks is quite common. Examples include: preparation, course assignments, make study notes, process data for research projects, exchange of information through emails with faculty, peers, access to bulletin boards, listserves, websites of professional organizations etc. Graduate students often need to access electronic library and databases and other academic resources in text, graphics, etc. (Green, 1998). While the benefits of computer learning and applications are abundant, on the negative side of the coin the learning makes the people more stressful. The stress is due to the cognitive as well as psychological factors and is commonly identified as 'computer anxiety' (Cambre & Cook, 1985; Desai & Richards, 1998; Thatcher & Perrewe, 2002). People encounter two types of anxiety: state anxiety and trait anxiety. State anxiety is caused by a current situation whereas trait anxiety is dispositional anxiety experienced by people who constantly worry and fear failure in a situation. Computer anxiety is "concept-specific and covers a wide variety of situations in which people interact with computers (Gilroy & Desai, 1986, p. 711)".

A survey by Nasar (1994) found that there are three computers for every 10 workers in the United States. Though introduction of computers at work places are quite common, managers show real concern as to how individuals react both cognitively and emotionally to the introduction of computers (Torkzadeh & Angulo, 1992). In a recent study it was shown that roughly 30–40% of individuals experience some level of computer anxiety (Buche, Davis, & Vician, 2007). Some feel little difficulty using computers, a majority of the workers experience considerable difficulty learning and adapting to the computer-based work environment. Computer anxiety is a

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0747-5632/$ - see front matter Published by Elsevier Ltd.
doi:10.1016/j.chb.2009.11.005

widely occurring phenomenon that affects the performance and success of workers in organizations. Though computers have been used to enhance performance (Guimaraes & Ramajunam, 1986), people suffer from technophobia (Williams, 1994). People who have the technophobia make limited use of computers mainly because of computer anxiety, negative attitudes towards computers, and lack of adequate computer-based training and learning (Igbaria, Pavri, & Huff, 1989). Craig (1994) boldly concludes that 'computer related anxiety and stress affect millions of workers everyday' (1994, p. 321).

1.1. Computer anxiety

Past theoretical literature on computer anxiety (Rosen & Maquire, 1990; Rosen, Sears, & Weil, 1987), and some studies relating to cognitive-behavioral training (Barlow, 1988; Michelson & Ascher, 1987) provide some background to the construct 'computer anxiety'. Computer anxiety is a negative emotional state or negative cognition experienced by an individual when he/she is using a computer or computer equipment (Bozionelos, 2001). This anxiety encompasses several things such as: competence with computers, handling computer equipment, receiving feedback on computing skills fear, computing self-concept, worry, happiness, distractibility, and some physiological symptoms of anxiety in computing situations (McInerney, Marsh, & McInerney, 1999). Some of the previous research dealt with math anxiety as correlated to computer anxiety (Cambre & Cook, 1985; Igbaria & Parasuraman, 1989; Sievert et al., 1988) and that computer anxiety is similar to test anxiety (Camber & Cook, 1985; Fletcher & Deeds, 1994). Though some researchers argue that there exists a negative relationship between computer anxiety and performance (George, Lankford & Wilson, 1992; Harrington, 1988; Hayek & Stephens, 1989), some scholars found no relationship (Dimock & Cormine, 1991; Ward, 1989). Most interestingly, some researches (Bronson, 1998; Hayek & Stephens, 1989; Vogel, 1994) suggest some intervening variables (such as personality characteristics of introversion and extroversion) influencing the relationship between computer anxiety and performance. For example, extroverts and those with low computer anxiety had negative effects on performance (Vogel, 1994). Some researchers conclude that high and low computer anxiety results in lower level of performance and moderate level of anxiety leads to higher performance (Chua, Chen, & Wong, 1999).

1.2. Purpose of study

In the present-day technology-based learning environment, studies on computer anxiety and its outcomes are very important. Extant research on computer anxiety suggests that there are interrelationships between computer use, ease of use and perceived usefulness and behavioral intentions (Hsu, Wang, & Chiu, 2009). While some studies focus on computer attitudes and utilization (Al-Khaldi & Al-Jabri, 1998), others stressed on testing the effects of self-efficacy and competence on computer anxiety and computer use (Shih, 2006). For instance, in one study it was revealed that the attitudes (anxiety, confidence, liking and usefulness) of students towards computers are significant determinants of behavior that may influence computer utilization (Al-Khaldi & Al-Jabri, 1998). In another study of 715 Turkish high school students it was revealed that the significant covariate effects of trait anxiety, and use of computers have effect on computer anxiety (Baloglu & Cevik, 2008). Additionally, in an online environment too, computer anxiety plays a greater role. For example, some researchers found that subjects with computer anxiety viewed high price as indicative of high value as those with less computer anxiety who evaluated the low price as better value (Suri, Lee, Manchanda, & Monroe, 2003).

While the previous studies are scattered, there is a gap in the literature as to the impact of computer anxiety on satisfaction (job satisfaction and career satisfaction) of the individuals. Sparse available empirical evidence suggests that job satisfaction and career satisfaction are separate constructs (Bader & Sams, 2007). A survey of 367 IT-related senior undergraduate students by Shih (2006) found that computer competence was found to affect individual satisfaction with computer use. In another study by Girard, Choi, Dickey, Dickerson, and Bloom (2005), career satisfaction and emotional states between primary care and speciality residents were examined. The study revealed that compared to primary care physicians, speciality residents had higher levels of career satisfaction and lower levels of inferiority and fatigue particularly because of training experience they had. In a study by Ferguson (2009) of 157 accountants in Australia, it was found that job satisfaction of professional accountants is directly affected by their attitude towards using microcomputers and microcomputer use itself (Ferguson, 2009). Thus, most of the previous studies focused on effect self-efficacy beliefs on computer anxiety and anger and other behavioral outcomes. Research focusing on the effect of computer anxiety on job satisfaction, career satisfaction and stress is sparse. In addition, little research is done on the relationship between computer anxiety and stress an individual experiences. Further, the influence of one of the most important personality variable i.e. attitude towards computers, is not studied in relationship to the anxiety and its effect on outcome variables. The present study aims at filling this gap and adding to both theoretical and empirical literature. Most importantly, the purpose of the present study is to unfold the relationship between computer anxiety, job satisfaction, career satisfaction and stress. The role of attitude towards computers as a moderator in the relationship between computer anxiety and outcomes is a major contribution of the present research. Further, curvilinear relationship between computer anxiety and outcomes were never tested before in literature which represents added contribution to the existing literature.

2. Theoretical background and development of hypotheses

The present research uses self-efficacy theory (Bandura, 1977, 1997) and self-worth theory (Covington, 1984) as the foundations for studying computer anxiety and related outcomes. According to self-efficacy theory, an individual's behavior is predicted by the beliefs they hold about their capabilities, rather than their actual capabilities. Bandura argues that individual's level of 'motivation, affective states, and actions are based more on what they believe than on what is objectively true' (Bandura, 1997, p. 2). Self-efficacy judgments with respect to some specific tasks such as computer anxiety may elicit some emotional reactions in terms of their ability to perform such tasks, which in turn, influence their emotional states. The link between ability, effort, performance and self-worth as explained by Covington (1984), further provides an extended theoretical platform for explaining the relationships between computer anxiety, job and career satisfaction as well as stress. The individual's physiological or emotional states influence self-efficacy judgments with respect to specific tasks. Emotional reactions to such tasks (e.g. anxiety) can lead to negative judgments of one's ability to complete the tasks. Thatcher and Perrewe (2002) distinguish between computer anxiety and computer self-efficacy. While computer anxiety refers to the implications of computer use such as loss of important data or fear of other possible mistakes, computer self-efficacy refers to 'individual's judgment of their capabilities to use computers in diverse situations' (Thatcher & Perrewe, 2002, p. 383). In their study, Thatcher and Perrewe (2002) found that computer anxiety is significantly negatively related to computer self-efficacy and this is consistent with the social learning theory (Bandura, 1977, 1997).