



# Computer anxiety: A cross-cultural comparative study of Dutch and Turkish university students

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## Abstract

The purpose of this study is to determine Dutch and Turkish university students' computer anxiety levels and to find out whether their computer anxiety levels differ according to their culture, gender and computer experience (i.e., personal computer (PC) ownership, computer usage frequency, computer usage level). A total of 106 university students (30 Dutch female, 22 Dutch male, 26 Turkish female, 28 Turkish male) participated in this research. The data were collected through computer anxiety rating scale (CARS) validated by Heinssen et al. [Heinssen, R. K., Glass, C. R., & Knight, L. A. (1987). Assessing computer anxiety: Development and validation of the computer anxiety rating scale. *Computers in Human Behavior*, 3, 49–59]. The data were analyzed by *t*-test and one-way-analysis of variance (ANOVA). The results indicated that the Turkish students have significantly higher computer anxiety levels than the Dutch students. The students' computer anxiety levels do not differ depending on gender. However, post-hoc analysis revealed that the Turkish female students have significantly higher computer anxiety levels than the Dutch female and Dutch male students. Also, results indicated that while the students' computer experience increase their computer anxiety levels decrease significantly.

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## 1. Introduction

According to Sanders (2003), “anxiety is a complex network of different elements – cognition, emotion, biology, behavior and environment – which are linked and trigger one another off” (p. 4). For instance, “thoughts, feelings, physiology, behavior and environment interact with each other in many different ways, each playing varying roles in the different anxiety problems” (Sanders, 2003, p. 5) such as computer anxiety.

There are numerous definitions of computer anxiety in the related literature. For instance, according to Desai and Richards (1998) computer anxiety refers to the stress due to cognitive as well as psychological factors invoked by the use of computers. Hakkinen (1994) defines computer anxiety as fears and suspicions of people unfamiliar with computers. According to Heinssen, Glass, and Knight (1987), computer anxiety refers to negative emotions evoked in actual or anticipated interaction with computers. Rohner and Simonson (1981) consider computer anxiety as a mixture of feelings such as fear and worry people experience when they plan to interact with a computer or when they interact with it. When we analyze the definitions, we see that all of them point out negative feelings such as fear, stress, worry aroused by use or anticipated use of computers. Also, the behavioral indicators of computer anxiety include avoidance of use of computers and minimization of necessary interaction with computers (Deane, Henderson, Barrelle, Saliba, & Mahar, 1995; Maurer & Simonson, 1984).

According to the related studies (e.g., Bozionelos, 2001; Brosnan & Davidson, 1994; Rosen & Maguire, 1990; Weil & Rosen, 1995) computer anxiety is an important problem in many societies since many people carry negative feelings toward computers and avoid using computers despite the big infusion of computers in every part of life. Studies on computer anxiety have increased in recent years focusing on reasons behind the computer anxiety.

The purpose of this study is to investigate computer anxiety levels of university students from two different countries, Netherlands and Turkey, and then to bring out whether the Dutch and Turkish students' computer anxiety levels differ depending on the culture, gender and computer experiences (i.e., personal computer (PC) ownership, usage frequency, usage level).

### 1.1. Country profiles

According to The World Bank Group's (2005) world development indicators database there are notable differences between Netherlands and Turkey's demographic and economic statistics (see Table 1). The population of Turkey (71.7 million) is bigger than population of Netherlands (16.3 million), but gross national income (GNI per capita) in Netherlands (31,700 US \$) is higher than GNI per capita in Turkey (3750 US \$). Also, PC penetration rate per 1000 people in Netherlands (467) is higher than the PC penetration rate in Turkey (45), according to the statistics in 2002. Similarly, Internet user rate per 1000 people in Netherlands (522) is higher than the user rates in Turkey (85) in 2003 (The World Bank Group, 2005). Also, while percentage of all households with access to a home computer is 69.19% in Netherlands in 2003, it is 10.25% in Turkey in 2004, according to the data obtained from information and communication technology database of Organization for Economic Co-operation and Development (OECD) (2005). These statistics indicate that Netherlands has considerably higher computer penetration rates than Turkey.

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