# Computer Attitude and Anxiety



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## INTRODUCTION

Computers in the workplace are a given. Although the advantages of computers are well-known and proven, many people still try to avoid using them. It is extremely important to find out which factors influence the success of end-user computing. What are the reasons that some people excel on a computer while others have problems and even build up a resistance toward the use of computers?

This chapter provides a literature-based overview of computer attitude and computer anxiety as factors that influence a user's resistance, commitment, and achievement. A graphic model, according to which the interactions between computer attitude and anxiety, their causes, indicators, and impacts may be understood, is proposed. It is put forth that external strategies to deal with anxiety and a negative attitude are imperative to break down a snowballing effect of cause and effect and to ensure effective end-user computing.

## BACKGROUND

### Computer Attitude

Gordon Allport (1935) defined the concept of attitude, in general, as follows: "An attitude is a mental and neural state of readiness, organized through *experience*, exerting a directive or dynamic *influence* upon the individual's *response* to all objects and situations with which it is related" (p. 810). In other words, attitude is determined by experience and impacts upon the individual's behavior.

A person's attitude toward a computer is influenced by a variety of aspects, e.g., the social issues relating to computer use (Popovich et al., 1987), computer liking, computer confidence, computer anxiety or comfort (Delcourt & Kinzie, 1993; Loyd & Gressard, 1984a), achievement (Bandalos & Benson, 1990), usefulness, and value (Francis-Pelton & Pelton, 1996).

### Computer Anxiety

According to Henderson et al. (1995) anxiety is viewed as "a drive that motivates the organism to avoid the stimulus for anxiety" (p. 24). This implies that an individual will avoid the use of a computer in the presence of computer anxiety and if possible.

Kaplan and Sadock (1998) referred to anxiety as "a diffuse, unpleasant, vague sense of apprehension, often accompanied by autonomic symptoms" (p. 581). Specifically, computer anxiety involves an array of emotional reactions, including fear, apprehension, uneasiness, and distrust of computer technology in general (Negron, 1995; Rohner & Simonson, 1981).

Computer anxiety is also influenced by a variety of aspects, e.g., general anxiety and confidence (Harrison & Rainer, 1992), computer liking (Chu & Spires, 1991; Loyd & Gressard, 1984b), impact of computers on society (Raub, 1981), equipment-related anxiety (Marcoulides, 1989), comfort and value (Violato et al., 1989), and corporate pressure.

### The Relationship between Computer Attitude and Computer Anxiety

Computer anxiety is often included as a component of attitude (Delcourt & Kinzie, 1993; Loyd & Gressard, 1984a). Jawahar and Elango (2001) reported, however, that previous studies used the concepts of computer anxiety and negative attitudes toward computers interchangeably. Computer anxiety is, however, not solely responsible for a negative attitude. A person can have a negative attitude toward computers even though he or she is not overly anxious about

using them. This may be because of a negative experience, e.g., an apologizing clerk blaming an erroneous account statement on the computer.

Furthermore, attitude allows for both a negative and a positive grading, whereas anxiety is, by definition, either negative or absent.

## MAIN THRUST OF THE CHAPTER: A MODEL FOR INTERACTION

In order to indicate the various influences on the mental states of computer attitude and computer anxiety and the effect they have on a user's ability to execute computer-related tasks effectively, a model for interaction was developed (Figure 1).

The model shows interaction on three levels of abstraction. The right-hand column resembles a typical flow diagram but with an adapted convention. It shows the sequence of mental and operational events when a user is confronted with a task to be done on the computer. The diamond symbols do not represent conscious decisions but rather indicate general user behavior as determined by the user's current levels of computer attitude, computer anxiety, knowledge, and pressure experienced.

As an example of how to read the flow diagram, consider a user who has to perform a computer task. If his or her level of computer anxiety is not above a specific critical level (*D1*), he or she has a positive attitude toward computer tasks (*D2*). If he or she knows how to perform the task (*D4*), he or she will do the task (*P2*). If the user's knowledge is inadequate, this person will go through a process of learning (*P1*) until he or she can do the task. If the anxiety level is high (*D1*), the user will only use the computer if forced to do so (*D3*), or else he or she will opt out of the task or do it without a computer (*P3*).

The middle column in Figure 1 indicates the user's current levels of computer anxiety and computer attitude. The influence that computer anxiety and computer attitude have on each other as well as their influence on user behavior and the processes of learning and task execution is indicated with curved arrows (*E5–E11*). It is also clear that task execution (computer experience, *P2*) impacts computer attitude and anxiety in return (*E12–E13*).

The left-hand column shows the external processes and factors that influence a user's levels of computer attitude and anxiety.

Further discussion in this chapter serves to substantiate the claimed influences from the literature.

### Factors that Determine Computer Attitude

Several studies have been undertaken to explore potential factors associated with a positive attitude toward computers (Brodt & Stronge, 1986; Scarpa et al., 1992; Sultana, 1990; Schwirian et al., 1989; Bongartz, 1988; Burkes, 1991). Some of the factors that were considered were level of education, years of experience in the work environment, computer experience, age, gender, and job title (*E3* and *E13*). The only factor that was repeatedly, although not consistently, found to have a positive effect on computer attitude, was computer experience (*E13*).

### Causes of Computer Anxiety

According to Torkzadeh and Angulo (1992), there are three perspectives of computer anxiety: psychological (*E1*), sociological (*E1*), and operational (*E1* and *E12*). From a psychological perspective, users may fear that they will damage the computer, feel threatened when having to ask younger workers for help, or feel that they are losing control because computers are perceived as a threat to one's power and influence. From a sociological perspective, people have a need for social contact with other people, and because computers can change existing social patterns, they find the situation unbearable. People may also have a fear of computers replacing them. From an operational point of view, people want to avoid embarrassment connected with their inability to type or to use the keyboard. An initially confident user might be disillusioned with the complexity and sophistication of computer systems and procedures after a first experience (*E12*).

### Effects of a Positive Attitude

According to Ngin et al. (1993), individuals with work excitement express creativity, receptivity to learning, and have the ability to see opportunity in everyday situations. Positive attitudes enhance the learning process (Shneiderman, 1980) (*E9*), specifically the motivation to learn and the ability to retain information in a given situation (Jawahar & Elango, 2001).

A negative attitude may lead to computer resistance (Sheiderman, 1980) (*D2*, *D3*, and *P3*), a phenomenon that can be found among experienced as well as inexperienced users (Negron, 1995). A negative attitude may even lead to defamation or sabotage of computer technology (Gibson & Rose, 1986).

A person's attitude toward computers and related technology could determine his or her performance with the technology and the satisfaction he or she draws from the