Chapter 19

The Influence of Experience, Culture and Spatial Visualization Ability on Users’ Attitudes and Anxiety towards Computer Use

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The attitude towards computer-related tasks, computer anxiety, and spatial visualization ability (SVA) of a group of first-year computer science students were measured just before their study commenced. The results were analyzed empirically based on two independent variables, i.e., culture and computer experience. It was found that African and European users generally have the same attitude towards computer use. Users’ attitudes improved after experience with computer-related tasks. African students experienced significantly higher levels of computer anxiety than their European counterparts with the same amount of experience. It was also found that African users generally have a lower SVA than European users. Users with higher SVA generally have a better attitude towards working with computers and experience a lower level of computer anxiety.

INTRODUCTION

Some people dislike or are made anxious by computers; others are attracted to or are eager to use computers. Even people who enjoy using computers may have very different preferences for interaction styles, pace of interaction, graphics versus tabular presentations, dense versus sparse data presentation, step-by-step work versus all-at-once work, and so on (Shneiderman, 1998). A clear under-
standing of personality and cognitive styles can be helpful in designing systems for a specific community of users.

People also differ with regard to how they think and solve problems. Some are better at verbal thinking, others at spatial reasoning (Galitz, 1997). Galitz also asserts that the verbal, analytic, concrete thinker might prefer a textual style of interface, whereas the spatial, intuitive, abstract thinker might feel more at home using a multimedia graphical interface.

Three factors that may influence or determine users' attitudes towards working with computers and the anxiety they experience have been investigated: previous exposure to computer tasks, cultural differences, and spatial visualization ability (SVA).

Instruments to measure the attitude, anxiety, and SVA were applied to a group of first-year computer science students just before their study commenced. The students were grouped according to culture, i.e., European or African, as well as computer experience. Subjects indicated subjectively the number of hours they spent in front of a computer per week for the past year. Users who spent more than 4 hours per week were regarded as experienced users, and all others were regarded as novice users.

This paper also discusses possible ways of dealing with low attitudes, high levels of anxiety and low spatial visualization ability.

ATTITUDE TOWARDS COMPUTER USE

The Effects of Attitude Towards Computer Use

“Attitudes are complex internal states of human beings that affect their choice of action or behavior toward people, objects and events” (Scarpa, et al., 1992)

It is widely accepted that positive attitudes enhance the learning process (Shneiderman, 1980). A positive attitude generally enhances the motivation to learn and to retain information in a given situation; conversely, a negative attitude may impede learning and retention of new information. A negative attitude may also lead to computer resistance. Negron (1995) argues that resistance to computer technology can lead to resistance to learning, using, and/or change.

Ngin, Simms & Erbin-Roesemann (1993) define the aspect of work excitement (positive attitude for that matter) as an individual’s personal enthusiasm and interest in his/her work. The level of work excitement is conceptualized as influenced by personal and environmental factors. Individuals with work excitement express creativity, receptivity to learning, and have the ability to see opportunity in everyday situations.

This strongly suggests that a first step in successfully introducing a computer system is assessment of users’ attitudes toward computers.
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