E.P.I. AND ANXIETY TOWARD COMPUTERS

F. Fariña
R. Arce
J. Sobral

Department of Social Psychology
UNIVERSIDAD OF SANTIAGO DE COMPOSTELA (SPAIN).

INTRODUCTION

"Anxiety toward computers is a generalised phenomenon that has important impact in schools, businesses, government offices and other organisations using computers" (Dukes, Discenza and Couger, 1989, pag. 195). It forms a significant obstacle to be faced by the management of organisations introducing new technology into the company or modifying existing systems (Fariña, Sobral and Arce, 1990); looking for its causes in order to treat or prevent this anxiety is, therefore, important. Much has been published about anxiety toward computers over the last few years, most of them studies using the variables sex and anxiety toward mathematics (Chen, 1986; Vasil, Hesketh and Pod, 1987; Cambell, 1988; Glass and Knight, 1988; Levib and Gordon, 1989; Krendl, Broihier and Fleetwood, 1989; Fariña, Sobral and Arce, 1990); there are some studies on other variables, however (Raub, 1981; Weinberg, 1980; Weinberg and English, 1983; Howard, 1986; Fariña, 1990; Fariña, Sobral, Arce and Caramés, in press). In this study we aimed to

confirm or otherwise a correlation between anxiety toward computers and the personality variables introversion/extroversion and neuroticism.

Introversion/extroversion was postulated by Eysenck (1947) as a personality dimension, and fits into his multitrait theory of personality, which tries to pinpoint the set of features that make up the personality and construct instruments to measure them (Hampson, 1982, 1986; García-Merita, 1989).

"The concept of introversion/extroversion is a dimension that goes from one extreme to the other, passing through an intermediate region where individuals are neither one nor the other" (Eysenck, 1983, pag. 72). The typical extrovert is described as: sociable, with many friends, needing somebody to talk with, disliking studying and reading on their own, attracted by the crowd, acting spontaneously and without forethought and, generally, an impulsive person, prefering to be on the go, not able to perform the same task for long periods and when obliged to work for long periods of time needing breaks and involuntary pauses, tending to be aggressive, and losing their heads relatively easily (Eysenck, 1965, 1983).

The typical introvert is: calm and withdrawn, introspective, likes reading more than interacting with others, reserved and distant except with friends, tends to plan life (making them very ordered), controls feelings and reactions very well, can perform the same task for a long time without breaks, and puts a lot of emphasis on ethical values (Eysenck, 1965, 1983). Extroverts and introverts hold different views, above all, in political and social issues. Introverts tend to hold more flexible, modern views than extroverts, who are characterised by hard, inflexible attitudes (Eysenck, 1965, 1983). Introverts do tend to be more anxious than extroverts. "There are so many tests showing this to actually be the case -that introversion, conditioning and anxiety, phobias, obsessions, occur together in the same person-, that we feel justified in not documenting this point." (Eysenck, 1983, pag. 102).

This last paragraph implies that introverts tend to be more anxious than extroverts, leading to the hypothesis that introverts will feel more anxiety toward computers than extroverts. However, upon studying the other characteristics of introverts and extroverts more closely we could draw the opposite conclusion; while Eysenck affirms that introversion and anxiety usually occur together, he also says that extroverts are more impulsive and need constant human interaction, and that introverts are more methodical, organised and controlled, resist routine and monotony better, and concentrate more easily. Perhaps the characteristics defining introverts make them more suited to working with computers than extroverts, given that interaction with computers is methodical and requires concentration, and attention must be paid to the keyboard and screen. Whether introverts or extroverts will feel more anxiety toward computers seems difficult to say, which is perhaps the reason why there are no other studies in this field that consider this variable. We think, nevertheless, that those with most problems when interacting with computers, and therefore most anxiety toward computers, will be extroverts.

Neuroticism as a dimension of personality is as well known as the dimension introversion/extroversion. It too was postulated by Eysenck (1947) and forms a continuum going from an extreme called neuroticism to an extreme called stability; a subject can occupy any point in the continuum. The typical neurotic can be described as emotionally unstable, hyperactive, emotionally hypersensitive, recovering with difficulty from an emotional situation, and, frequently, exhibiting states of anxiety, depression, worry and other unpleasant feelings (Eysenck, 1965, 1983). These persons also tend to develop neurotic problems in situations of stress.

Agervold and Kristensen (1986) found that levels of psychological pressure and tension have risen considerably in bank employees and, given that persons scoring higher in neuroticism tend to show neurotic problems in stressful situations, and neurotic people suffer from anxiety, we may suppose that persons scoring high in neuroticism will suffer greater anxiety toward computers than those with low scores.

METHOD

Sample

The sample comprised 421 bank employees in Galicia, working for Caixa Galicia.

Instruments and Procedure

All data were collected in the offices of Caixa Galicia in Galicia, for which we had a letter of permission from Head Office. The subjects, who were all voluntarily participating, each received a booklet of questionnaires, one of which was Raub's (1981) ATC scales: a)appreciation and desire to learn more about them; b) computer usage anxiety; c) fears about the computer's negative impact on society. For this study we only considered the second of these. Test-retest reliability is a Crombach's alpha of .90 (Howard, 1986). Eysenck's personality inventory (EPI) was also included, which, since it is so well known, will not be described here.

RESULTS

Analysis of variance (BMDP.P1V) using first and fourth quarters of the introversion/extroversion distribution with anxiety toward computers as the dependent variable did not show any significant differences between the two groups. ($F_{1,183} = 2.5121$; MS = 102.0907; p = .1147).

Another analysis of variance performed with the same dependent variable using first and fourth quarters of the neuroticism distribution gave a significant correlation in the sense that the subjects scoring higher in neuroticism have greater anxiety toward computers. ($F_{1,242}$ = 10.3413; MS = 410.2102; p = .0015).

DISCUSSION

We thought that introverts would suffer less anxiety toward computers than extroverts. No significant differences have been revealed in this respect by the analysis of variance; in the sample introverts do not suffer more anxiety toward computers than extroverts. Introverts are more anxious than extroverts, and introversion and anxiety usually occur together (Eysenck, 1983); it appears, therefore, that introverts will suffer more anxiety toward computers, since persons with a tendency toward anxiety are usually anxious in particular situations, like the one being considered. Eysenck (1983) also stated, however, that introverts are more methodical and organised, withstand monotony and routine better, and are better able to concentrate; which could be used to reason that introverts suffer less anxiety toward computers, since interaction with a computer requires concentration, and that attention is paid to the keyboard and screen, and in our sample, to the clients. It seems that the effects might compensate each other resulting in no significant differences between introverts and extroverts in our sample. Given that these variables have not been considered in previous studies of anxiety toward computers we cannot compare our results with those of other authors and should be cautious about generalising from them.

We found that persons scoring high in neuroticism suffer more anxiety than those scoring low in this variable. This variable had not been used in this field before, making the results more interesting; on one hand, they can help predict the bank employees that are in the group at risk of suffering anxiety toward computers; and on the other, we suggest that this variable should be studied systematically in this field.

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