



CORRELATES OF INTERNET ANXIETY AMONG AGRICULTURAL STUDENTS IN ZANJAN UNIVERSITY OF IRAN

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Abstract

Use of technology in general often has unpleasant side effects, which may include strong, negative emotional states (such as Frustration, confusion, anger, anxiety and so on) that arise during interaction with computers. The purpose of this study was to explore the Internet anxiety of agricultural students in Zanjan University of Iran. A survey approach was used in this research. The statistical population was Master of Science agricultural students at Zanjan University who were selected by applying simple random sampling technique. Sample size for students was 118. A questionnaire was developed to interview the subjects of the study of which the validity and reliability were estimated based on opinions of a panel of experts and Cronbach's alpha coefficient respectively. The results indicated that 24.5% of the students had low level, 45.8% had medium level and 29.7% had high level of Internet anxiety. The t-test revealed that there was a significant difference between Internet anxiety of male and female students and female students had higher Internet anxiety than did male students. Furthermore, one sample t-test result showed that there was a significant difference between Internet anxiety of agricultural students and moderate obtainable Internet anxiety score. Correlation analysis indicated that there was a negative significant relationship between Internet anxiety of students and their Internet experience ($p < 0.01$), Internet self-efficacy ($p < 0.01$) and Internet usage ($p < 0.05$). The results of this research could help universities and educational institutions to better understand their students' attitudes toward the Internet and will enable them for promoting Internet use by students.

Key Words: Technology, Anxiety, Student, Agricultural Education.

INTRODUCTION

Rapid developments in information technologies have made a considerable impact upon almost every aspect of society (Gordon et al., 2003). These technologies had a great potential for education and can transform the teaching and learning process (Korobili, Togia & Malliari, 2010). The Internet is an information super highway that connects people, data and other computers (Potosky, 2007). It provides a new communication medium that enables access to vast amounts of information across a wide variety of dimensions (Akman & Mishra, 2010). With the enormous advances in communication and Internet technology, the educational system urgently needs the application of this technology in order to enhance the quality of teaching and learning (Liaw, 2002). The Internet provides useful tools and resources for enhancing students' learning and creates closer contact between students and their professors and fellow classmates. It presents education according to students' interests and their learning style and makes it possible to provide an increasing variety of distance educational opportunities for those who may not be able to attend a university in person. With everyday

development of using Internet in educational systems in different aspects such as research, education, information seeking, communicating and etc, new problems have also been emerged. Internet anxiety is one of such problems. When students want to use the Internet, they may experience emotional states such as frustration, confusion, anger and anxiety that can affect not only their interaction, but also their productivity, learning, social relationships, and etc. Anxiety is a complex network of different elements – cognition, emotion, biology, behavior and environment – which are linked and trigger one another off (Sanders, 2003). There are three types of anxieties: trait, state and concept-specific (Saade & Kira, 2006). Concept-specific is an anxiety that is associated with a specific situation. Internet anxiety is a concept-specific anxiety because it is a feeling that is associated with a students' interaction with the Internet. Therefore, Internet anxiety is a new psychological concept has emerged with introducing Internet in human activities. In this context, the construct of computer anxiety has been studied since the beginnings of the 80's, mostly focusing on the non-cognitive factors such as attitudes, previous experiences with computers, or personality-related factors (Baloglu & Cevik, 2008). There are numerous definitions of computer anxiety in the related literature. For example, according to Beckers, Rikers, and Schmidt (2006) computer anxiety refers to an individuals' fear or apprehension of working directly with a computer or the anticipation of having to work with computers. Bozionelos (2001) defines computer anxiety as a negative emotional state or negative cognition experienced by an individual when he/she is using a computer or computer equipment. Past researches on computer anxiety showed that computer anxiety has negatively related to attitudes toward computer and computer use (Chua, Chen & Wong, 1999; Chou, 2003; Korobili et al., 2010; Smith & Caputi, 2001; Durndell & Haag, 2002; Popovich et al., 2008; Sam, Othman & Nordin, 2005; North & Noyes, 2002), and Internet use (Joiner et al., 2005; Jackson et al., 2001a, 2001b; Durndell & Haag, 2002; Barbiere & Weiss, 2004; Sam et al., 2005). Furthermore, researchers have found out that computer anxiety is the identifier of Internet anxiety (Thatcher et al., 2007) and women suffer greater anxiety over computers than do men (Abdelhamid, 2002; Durndell & Haag, 2002; Mcilroy et al., 2001; Todman, 2000; Tsai, Lin & Tsai, 2001).

Internet anxiety is, of course, closely related to computer anxiety, but the concepts are distinct (Thatcher and Perrewe, 2002). Internet anxiety is the fear or apprehension that individuals experience when using the Internet (Presno, 1998). In other words, Internet anxiety is a feeling or emotion evoked by the use of web-enabled technologies. The Internet may evoke anxiety because it requires users to learn new terminology and understand new applications that may seem strange to them (Thatcher et al., 2007; Macaulay, 2003). For this reason, many students remain uncomfortable using Internet applications and instead use traditional methods to accomplish tasks that could be performed over the Internet. Presno (1998) identifies four areas of Internet anxiety from her qualitative study:

1. Internet terminology anxiety: anxiety produced by an introduction to a host of new vocabulary words and acronyms.
2. Net search anxiety: anxiety produced by searching for information in a mazelike cyberspace.
3. Internet time delay anxiety: anxiety produced by busy signals, time delays, and more and more people clogging the Internet.
4. General fear of Internet failure: a generalized anxiety produced by fear that one will be unable to negotiate the Internet, or complete required work on the Internet.

Past researches on Internet anxiety showed that Internet anxiety has negatively related to Internet use (Joiner et al., 2007; Tsai et al., 2001), and women has higher Internet anxiety than do men (Shamo, 2001). In addition, Internet anxiety has negative relationship with Internet self-efficacy (Presno, 1998; Zhang, 2003; Sun, 2008; Ekizoglu & Ozcinar, 2010) and Internet identification (Joiner et al., 2007; Joiner et al., 2005; Bhowan & Cheshta, 2006).

The goal of this research was to explore the Internet anxiety among M.Sc. agricultural students in Zanjan University of Iran. Specific objectives of the study were to:

1. Evaluate students' difference in Internet anxiety with look at gender;
2. Evaluate difference between Internet anxiety of students and moderate obtainable Internet anxiety score; and;
3. Examine the relationship between Internet anxiety of students and their Internet self-efficacy, Internet identification, Internet use and Internet experience.



METHODOLOGY

A descriptive, correlational design was employed in the study. Statistical population for the study consisted of Master of Science agricultural students at Zanzan University. A sample of 118 students was selected by using of simple random sampling method.

A questionnaire was used to collect data for this study. The questionnaire was divided into three sections. The first section was used to collect data for demographical characteristics (i.e., age, gender, major, PC ownership, Internet experience and so on) and Internet use by students. The students were asked to report Internet use based on how many hours per a week they had used an Internet. The second section of the questionnaire was the Internet Anxiety Scale (IAS). An IAS which was developed by Ealy (1998) was used to measure students' anxiety levels towards Internet. Scale having 20 items that measure Internet anxiety on a five-point Likert type scale (1=strongly disagree, 2=disagree, 3=undecided, 4=agree, 5=strongly agree). The score range of IAS changes between 20 and 100 with higher score, indicating more Internet anxiety. The third section was the Internet self-efficacy (students' perceptions about their own abilities toward using the Internet) and Internet identification (the extent to which students' self-concept is bound up with their perceived ability to use the Internet) scales. The scales were developed to measure Internet self-efficacy and Internet identification using modified version scales from previous study (Joiner et al., 2007; Torkzadeh & Dyke, 2001; Tung & Chang, 2008) and students were asked six and ten questions respectively. The scales were based on a five Likert-type response scale.

The instrument was assessed for content and face validities by a panel of experts consisting of faculty members at Tehran university regarding the relevance of the items and the unambiguity of their formulation. The instrument was pilot tested using M.Sc. students (N=30) in Tehran University, the College of Agriculture who were not part of the main study. Cronbach's alpha was estimated for the scales used in the study to ensure internal consistency among the items. The reliability of the scales was 0.86, 0.74 and 0.70 for Internet anxiety, Internet identification and Internet self-efficacy respectively, which is considered to be an acceptable index for field research.

The SPSS statistical package program was used to analyze the data and data were analyzed using frequencies, percentages, means, and standard deviation. The independent samples T-test was used to test for differences if any among students' Internet anxiety. In this manner, one sample t-test was utilized to compare the Internet anxiety score of students with moderate obtainable score. The Pearson product-moment correlation was employed to find a relationship between selected variables with Internet anxiety.

RESULTS

Analyzing the demographic profile of students

Among 118 students, 42 (35.6%) were male and 76 (64.4%) were female. The ages of the participants in this study ranged from 21 to 46 years ($M=24$, $SD=3.07$). In terms of their computer-related background, 89.8% subjects had their own computers at home and 10.2% had not. Students' Internet use ranged 1 to 40 h per week. The average Internet usage was 10 h per week ($SD=7.33$). With regard to the students Internet experience, 17.7% of the students had less than 3 years, 33.1% had between 3 to 5 years, and 49.2% had more than 5 years experience. Regarding their majors, 24.8% subjects were majoring in animal sciences, 18.6% were studying in crop production and breeding, and the rest studied soil sciences, agricultural extension and education, horticulture, agricultural entomology, or Irrigation. The Grade Point Average (GPA) of students was 16.49.

The mean score of the Internet anxiety was 50.61, $SD = 8.98$, and ranged from 26 to 75. The students were divided into three groups according to their Internet anxiety scores. The participants in the low Internet anxiety group had a mean score less than 45 while those in the high Internet anxiety group had a mean score more than 55. The third group mean score (moderate level) was 45 to 55. As a result, according to these findings 24.5% of the students had low level, 45.8% had medium level and 29.7% had high level of Internet anxiety.

Table 1: Frequency and percentage of major, gender, Internet experience, and Internet anxiety

Demographic profile		f	%
Major	Animal Science	28	24.8
	Crop Production	21	18.6
	Others	69	56.6
Gender	Male	42	35.6
	Female	76	64.4
Internet experience	Less than 3 year	21	17.7
	3-5 years	39	33.1
	More than 5 years	58	49.2
Internet Anxiety	Low	29	24.5
	Medium	54	45.8
	High	35	29.7

Student differences in Internet anxiety

An independent-samples t-test was conducted to compare the Internet anxiety scores for males and females (table 2). The results indicated that there was a significant difference between the scores of males ($M=48.24$, $SD=8.81$) and females [$M=51.92$, $SD=8.86$; $t(116)=-2.167$, $p=0.0325$], in which females had a higher scores than males. The magnitude of the differences in the means was small ($\eta^2=0.036$). This claim is made based on the index proposed by Cohen who identified $\eta^2=.01$ as indicating small effect, $\eta^2=.06$ for moderate effect, and $\eta^2=.14$ for large effect (Pallant, 2007).

Table 2: T-Test result for Internet anxiety examined by gender

Variable	t	df	sig	η^2
Internet Anxiety	-2.167	116	0.032*	0.036

*: statistically significant at 5% significance level

Difference between Internet anxiety score and moderate obtainable score

According to Internet anxiety scale, the maximal and minimal obtainable score were 100 and 20 respectively. Thus, moderate score that students can obtain from the scale was 60. In this research, one sample t-test was used to compare the Internet anxiety score of students with moderate obtainable score. As table 3 indicates, there was a significance difference between the Internet anxiety score of students and the moderate obtainable score. The mean difference was -9.389. This meant that Internet anxiety of agricultural students was less than moderate level.

Table 3: One sample t-test for Internet anxiety of students and moderate obtainable score

Variable	t	df	sig	Mean Diff
Internet Anxiety	-11.359	117	0.000**	-9.389

** : statistically significant at 1% significance level

Relationships between selected variables and students' Internet anxiety

A Pearson product-moment correlation matrix was created to determine if there is any relationship between students' Internet self-efficacy, Internet identification, Internet experience, Internet use and their Internet anxiety. Table 4 displays Pearson correlation analysis between students' scores on Internet self-efficacy, Internet identification, Internet experience, Internet use and their Internet anxiety. It was found that students' Internet anxiety and their scores on Internet self-efficacy ($r=-0.388$, $n=118$, $sig=.000$) was negatively significantly correlated. That is, students with higher level of Internet self-efficacy had lower level of Internet

anxiety and vice versa. On the other hand, students' Internet use was negatively significantly related to their Internet anxiety ($r=-0.182$, $n=118$, $sig=.014$). This meant that students who used Internet more often showed lower levels of Internet anxiety compared to those who used Internet less frequently. The results also showed that there was a negative significant relationship between Internet experience of students and their Internet anxiety ($r=-0.242$, $n=118$, $sig=008$). That is, students who had high level Internet experience showed low level of Internet anxiety compared to those who had low level Internet experience.

Table 4: Relationship between selected variables with students' Internet anxiety

Random variable-1	Random variable-2	Correlation coefficient
Internet Self-efficacy	Internet Anxiety	-0.388**
Internet Identification	Internet Anxiety	0.179
Internet experience	Internet Anxiety	-0.242**
Internet use	Internet Anxiety	-0.182*

*: statistically significant at 5% significance level

** : statistically significant at 1% significance level

CONCLUSION

The overall aim of this study was to explore the Internet anxiety of agricultural students in Zanjan University of Iran. According to results, there was a moderate negative and statistically significant correlation between students' Internet anxiety and their Internet self-efficacy. The finding was in line with results of other researches (Presno, 1998; Zhang, 2003; Sun, 2008). It means that students with high level Internet self-efficacy were more confident about using the Internet and will experience low level Internet anxiety. Hence, encouraging students to engage in Internet activities and providing useful experience for them are the ways for creating self-efficacy in students. Social persuasion is another way of raising students' Internet self-efficacy. Students' beliefs about their ability to master a situation (i.e. Internet) are influenced by what they hear from their teachers, parents, classmates, and friends. Students who receive strong messages that they have the skills and capabilities to handle a situation are more likely to put in greater effort and to persist in the face of setback.

This study found that there was a small negative and statistically significant relationship between students' Internet anxiety and their Internet use. This finding was consistent with previous research (Joiner et al., 2007; Tsai et al., 2001). That is, students who were more anxious about using the Internet used the Internet less. Training students in Internet skills is useful way to increase students' familiarity with the Internet, and may thus decrease their Internet anxiety.

According to results, there was a small negative and statistically significant correlation between students' Internet anxiety and their prior Internet experience. It means that students' prior technical skills in using the Internet may decrease their Internet anxiety. Thus, increasing students' prior Internet experience will results in lowering their level of Internet anxiety.

It was also found that women show higher levels of Internet anxiety than men. Similar findings were reported by other researchers (Shamo, 2001). The results of this research could help planners and managers of higher education institutions to better understand their students' attitudes toward the Internet and will enable them for decreasing their anxiety and increasing Internet use in educational activities.

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