

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Library Philosophy and Practice (e-journal)

Libraries at University of Nebraska-Lincoln

February 2016

Information Seeking Anxiety: Effects of Gender, Level of Study and Age

Mohammadamin Erfanmanesh

Shahid Beheshti University, amin.erfanmanesh2@gmail.com

Follow this and additional works at: <http://digitalcommons.unl.edu/libphilprac>



Part of the [Library and Information Science Commons](#)

Erfanmanesh, Mohammadamin, "Information Seeking Anxiety: Effects of Gender, Level of Study and Age" (2016). *Library Philosophy and Practice (e-journal)*. 1317.

<http://digitalcommons.unl.edu/libphilprac/1317>

Information Seeking Anxiety: Effects of Gender, Level of Study and Age

Mohammadamin Erfanmanesh

Assistant Professor, Department of Information Science, Shahid Beheshti University,
Tehran, Iran

Abstract:

This study examined the effects of gender, level of study and age on various dimensions of the information seeking anxiety construct among postgraduate students at a research-intensive university in Kuala Lumpur, Malaysia. The 38-item Information Seeking Anxiety Scale was tested on three hundred and seventy-five ($n=375$) postgraduate students drawn from a population of eleven thousand (11000) students using stratified random sampling method. Gender, level of study and age were found to be antecedents of the information seeking construct using a series of independent sample t-tests, one-way analysis of variance and Pearson product moment correlation coefficient tests. Conversely, the test for interaction of gender and level of study on various dimensions of the information seeking anxiety construct was not statistically significant.

Keywords: Information seeking anxiety, Postgraduate students, Gender, Level of Study, Age.

Introduction:

Anxiety, a general term for several disorders that cause nervousness, fear and apprehension, has been defined as an “affective feeling of fear or uneasiness caused by apprehension or anticipation of negative outcomes” (Burdick, 1995, p. 19). This feeling has been identified as one of the most important barriers in academic environments, which has caused different cognitive, affective, and behavioral effects in students, and affected their educational performance (Erfanmanesh, 2011). Scientific and educational environments may give students the experience of frustration and anxiety called “academic-related anxiety” (Onwuegbuzie, Jiao & Bostick, 2004). To date, several forms of academic-related anxiety have been studied. However, frustration associated with the

search for information resources in libraries or information systems appear to be among the most prevalent anxieties, because most of students are required to conduct a research as part of completing their academic programme which needs an extensive search and use of information resources (Kuhlthau, 1993; Jiao, Onwuegbuzie, 2002; Onwuegbuzie & Jiao, 2004; Onwuegbuzie, Jiao, & Bostick, 2004). The intricacy of higher education research, especially postgraduate research, requires the identification and retrieval of information resources through different sources. Finding a topic for research, writing a research proposal, conducting a review of the related literature, and settling on the research topic may cause or increase feelings of anxiety and frustration in the vast majority of postgraduate students (Van Kampen, 2003; Kohrman, 2003).

Fear and apprehension during the information search process (which has been labeled information seeking anxiety in the current study) is typically experienced when an individual is searching for information in libraries or information systems or even when he is preparing or just thinking to conduct search process. Anxiety experienced during the information seeking process in libraries and information systems has been documented by previous research (Mellon, 1986; Kuhlthau, 1988, 1993; Van Kampen, 2003; Onwuegbuzie, Jiao & Bostick, 2004; Erfanmanesh, Abrizah & Noor, 2012). Dalrymple and Zweizig (1992) found that some of the negative feelings like frustration, anxiety, tension, and confusion were reported by participants during the information seeking process using card and Online Public Access Catalogue catalogs. Branch (2001) found that uncertainty, frustration, doubt, and anxiety to be the common emotions while searching for information resources using the CD-ROM encyclopedias among junior high school students. In another research conducted among undergraduate students by Young and Von Seggern (2001), anxiety has been reported as the most prevalent negative feelings during the information seeking process. Cheng (2004) indicated that negative feelings like anxiety were indeed important factors involved in students' information seeking process.

Consistent across aforementioned studies and other existing literature is the finding that, the anxiety experienced during the information seeking process is a real phenomenon which is prevalent among students and may has “debilitating effects on students' academic achievement” (Jiao, Onwuegbuzie & Waytowich, 2008, p. 949) and their research performance (Onwuegbuzie & Jiao, 2004). As such, the aim of the current study is to

deepen further our understanding of this phenomenon by investigating effects of postgraduate student's gender, level of study and age on various dimensions of the information seeking anxiety construct.

Review of the Literature:

An extensive review of the literature addresses gender, level of study and age effects on academic-related anxiety was conducted. Previous studies have had mixed results as to whether or not anxiety experienced by students during information seeking process in libraries or information systems differed between males and females. Some previous studies have reported higher levels of anxiety in males than females. Jacobson (1991), Jiao, Onwuegbuzie and Lichtenstein (1996), Jiao and Onwuegbuzie (1997b) and Anwar, Al-Kandari and Al-Qallaf (2004) found males to be experiencing higher levels of library anxiety than females. In another study, Brosnan and Lee (1998) found males to be experiencing higher levels of computer anxiety than did females. Another group of research findings has reported higher levels of anxiety in females compared to males. Shoham and Mizrachi (2001), Brown et al. (2004) and Noor and Ansari (2011) found that female students reported to have experienced higher levels of library anxiety than did male students. In another study, Durndell and Haag (2002) reported female students to be experiencing higher levels of computer anxiety than male students. Consistent with this finding, Sigurdsson (1991), Okebukola (1993), Chua, Chen and Wong (1999) and Todman (2000) have found higher computer anxiety scores in females than in males. Some other studies reported no gender differences in levels of anxiety. Neither Bostick (1992) nor Mech and Brooks (1997) found gender differences in levels of library anxiety. Additionally, Onwuegbuzie and Jiao (2000), Ben Omran (2001), Kohrman (2002), Bowers (2010) and Lee's (2011) reported that gender was not a statistically significant contributor to the library anxiety construct. Moreover, Dyck and Smither (1994), Todman and Monaghan (1994) and Scott and Rockwell (1997) found no relationship between computer anxiety and gender.

With regard to the relationship between level of study and academic-related anxiety, research findings have been mixed. Whereas most of researchers have found that library anxiety declines linearly as a function of year of study (Bostick, 1992; Mech & Brooks,

1995; Jiao, Onwuegbuzie & Lichtenstein, 1996; Onwuegbuzie, 1997; Jiao & Onwuegbuzie, 1997b; Onwuegbuzie, Jiao & Bostick, 2004), others have reported no statistically significant differences between levels of study with regard to library anxiety (Shoham & Mizrachi, 2001; Bowers, 2010). Additionally some previous studies found that freshmen experienced higher levels of library anxiety than upperclassmen (Jiao, Onwuegbuzie, Lichtenstein, 1996; Jiao & Onwuegbuzie, 1997b).

Additionally, with regard to the relationship between age and academic-related anxiety, previous studies had mixed results as to whether or not academic-related anxiety differed based on a student's age and whether anxiety was higher in older or younger students. Jiao, Onwuegbuzie and Lichtenstein (1996), Jiao and Onwuegbuzie (1997b), Shoham and Mizrachi (2001) and Kohrman (2002) found an inverse correlation between library anxiety and age. Conversely, Bostick (1992) and Lee (2011) found that students over fifty (50) years old had higher levels of library anxiety than did younger students. In some other studies, no age differences were found in levels of library anxiety and Internet anxiety (Mech & Brooks, 1995; Ben Omran 2001). Moreover, Parker (1990) and Yang, Mohamed and Beyerbach (1999) found no significant differences for computer anxiety according to age.

Hypotheses:

The following four (4) research hypotheses guided data collection and interpretation:

- (a) There are statistically significant mean differences in various dimensions of the information seeking anxiety construct between male and female postgraduate students.
- (b) There are statistically significant mean differences in various dimensions of the information seeking anxiety construct between master's level students and doctoral level students.
- (c) There are statistically significant main and interaction effects of gender and level of study on various dimensions of the information seeking anxiety construct.
- (d) There are statistically significant relationships between various dimensions of the information seeking anxiety construct and postgraduate student's age.

These hypotheses were tested at 0.05 level of significance.

Method:

Population and Sample:

The population of the study comprised eleven thousand (11000) postgraduate students from various faculties at a research intensive university in Kuala Lumpur, Malaysia. Using the “Krejcie-Morgan (1970)” sampling table and to obtain 95% confidence interval (5% error rate), three hundred and seventy-five (n=375) postgraduate students provided the sample for the current study. Applying a stratified random sampling method, a sample was drawn from the targeted population. Of the three hundred and seventy-five (375) participants, one hundred and ninety (50.7%) students were males and one hundred and eighty-five (49.3%) students were females. In terms of level of study, two hundred and sixty-seven (71.2%) participants were master’s level students with the remaining one hundred and eight (28.8%) participant being doctoral level students (See Table 1). Additionally, ages of the participants ranged from twenty-two (22) to fifty-two (52) years old, with a mean age of 30.27 years (SD=5.72).

Table 1: Participant’s Gender and Level of Study Crosstabulation

		Level of Study		
Gender		Master	PhD	Total
Female	Count	137	48	185
	% within Level	74.1%	25.9%	100.0%
	% within Gender	51.3%	44.4%	49.3%
	% of Total	36.5%	12.8%	49.3%
Male	Count	130	60	190
	% within Level	68.4%	31.6%	100.0%
	% within Gender	48.7%	55.6%	50.7%
	% of Total	34.7%	16.0%	50.7%
Total	Count	267	108	375
	% within Level	71.2%	28.8%	100.0%
	% within Gender	100.0%	100.0%	100.0%
	% of Total	71.2%	28.8%	100.0%

Instrument:

The study subjects were required to fill up the Information Seeking Anxiety Scale (ISAS) which was developed and validated by Erfanmanesh (2012). This instrument contains thirty-eight (38) items, which are measured using a 5-point Likert-type scale anchored by 1=strongly disagree and 5=strongly agree. Scores of the whole scale, which range from

thirty-eight (38) to one hundred and ninety (190), were used as an overall measure of the information seeking anxiety construct, with higher scores on the scale representing greater degree of information seeking anxiety. Additionally, a higher score on any sub-scale of the Information Seeking Anxiety Scale represents higher anxiety as it pertains to that particular sub-dimension. Like many psychological instruments, the Information Seeking Anxiety Scale has both positively and negatively worded statements in order to avoid inserting a bias into the responses. In order to calculate the final score, the scores of positive statements were reversed. The Information Seeking Anxiety Scale comprised seven (7) sub-scales which collectively explained 50.152% of the total variance of the instrument. The first factor of the Information Seeking Anxiety Scale, *barriers associated with libraries*, consisted of ten (10) statements which explained 24.423% of the total variance. This factor represents some aspects of library including policies and procedures, services, furniture, temperature, lighting, library staff as well as library website and OPAC which contribute to students' feeling of anxiety during information seeking process in libraries. The second factor of the Information Seeking Anxiety Scale, *barriers associated with information resources*, contained seven (7) statements that were accounted for 7.315% of the total variance. This factor represents some aspects of information resources including quality of information resources, relevance of information resources, novelty of information resources, familiarity with information resources and information resources ease of use which contributes to students' feeling of anxiety during the information seeking process. Only three (3) items were loaded on the third dimension of the Information Seeking Anxiety Scale, *barriers associated with computers, the Internet and electronic resources*. These items explained 5.150% of the total variance in information seeking anxiety. This sub-scale includes statements related to using computers and the Internet for seeking information resources as well as using electronic resources.

Six (6) items were loaded on the fourth dimension of the Information Seeking Anxiety Scale, *technological barriers*, which explained 4.181% of the total variance. This sub-scale includes statements related to the influence of system malfunction, mechanical issues, computer errors, computer damages and slow downloading of pages and resources during the information seeking process in information systems. Factor five, *Affective barriers*, comprised five (5) statements and accounted for 3.430% of the total variance in

information seeking anxiety. Affective barriers dimension represents some statements associated with negative feelings during the information seeking process. Three (3) statements were loaded on the sixth dimension of the Information Seeking Anxiety Scale, *barriers associated with topic identification*, which explained 2.865% of the total variance. The emphasis of this factor is on determining search terms, selecting general topic and narrowing down the general topic to formulating a focused topic in the process of information seeking. Finally, the seventh dimension of the Information Seeking Anxiety Construct comprised four (4) items and explained only 2.787% of the total variance. The seventh factor includes statements associated with accessibility of information resources. The scale was found to have satisfactory face, content, and construct validity as well as internal reliability (Erfanmanesh, 2012). Table 2 displays description of Information Seeking Anxiety Scale's sub-dimensions.

Table 2: Description of Information Seeking Anxiety Scale's sub-dimensions

Factor	No. of Items	Factor Loadings Range	% of Variance	Eigenvalues	Cronbach's alpha
Barriers Assoc. with Libraries	10	0.441-0.718	24.423	11.479	0.832
Barriers Assoc. with Information Resources	7	0.452-0.698	7.315	3.438	0.783
Barriers Assoc. with Computers, the Internet and Electronic Resources	3	0.442-0.752	5.150	2.421	0.745
Technological Barriers	6	0.421-0.745	4.181	1.965	0.784
Affective Barriers	5	0.525-0.679	3.430	1.612	0.794
Barriers Assoc. with Topic Identification	3	0.642-0.825	2.865	1.347	0.763
Access Barrier	4	0.418-0.774	2.787	1.310	0.730
Information Seeking Anxiety Scale	38	0.418-0.825	50.152	-	0.917

Data Analysis:

After the completed surveys were received, they were reviewed for completeness and usability before being entered into the software for analysis. Eight (8) questionnaires were eliminated from the study due to partial completion, replaced with other questionnaires. Afterwards, the data were input into the Predictive Analysis Software (PASW) for analysis. In order to examine overall information seeking anxiety as well as each of the seven (7) dimensions, mean score anxiety were computed. A series of independent sample t-tests were employed to determine whether any statistically significant mean differences exist between various dimensions of the information seeking anxiety construct and (a) gender and (b) level of study (hypotheses one and two). Additionally, a series of 2×2 factorial ANOVA were performed to test main and interaction effects of gender and level of study on various dimensions of the information seeking anxiety construct (hypotheses three). Furthermore, a series of Pearson Product Moment Correlation tests were performed to test the relationships between student's age and various sub-scales of the information seeking anxiety construct (hypotheses four).

Findings:

Hypotheses (a): There are statistically significant mean differences in various dimensions of the information seeking anxiety construct between male and female postgraduate students.

A series of independent sample t-tests were employed to determine if there were any gender differences in the mean anxiety of various sub-dimensions of the information seeking anxiety. Female postgraduate students were found to have experienced higher levels of information seeking anxiety associated with five (5) out of seven (7) dimensions of the ISAS than their male counterparts. Statistically significant differences in anxiety levels were found between male and female postgraduate students in the “barriers associated with information resources” and “access barriers” dimensions, that is, female students were found to experience statistically significantly higher levels of information seeking anxiety with regard to these two (2) dimensions than male students. The differences found between female and male postgraduate students in mean anxiety values of other five (5) sub-scales of the information seeking anxiety construct were not statistically significant (See Table 3).

Table 3: Means and Standard Deviations for Information Seeking Anxiety Dimensions as a Function of Gender

Sub-scales	Male		Female		P value
	Mean	SD	Mean	SD	
Barriers Associated with Libraries	23.372	6.615	23.147	5.959	0.730
Barriers Associated with Information Resources	20.911	4.108	22.188	4.109	0.003 *
Barriers Associated with Computers, the Internet and Electronic Resources	7.275	2.912	7.013	2.423	0.346
Technological Barriers	14.472	4.110	15.168	4.008	0.098
Affective Barriers	12.086	3.349	12.610	3.555	0.142
Barriers Associated with Topic Identification	7.556	2.089	7.565	2.198	0.998
Access Barriers	11.181	2.715	11.845	2.475	0.014 *

* $p < 0.05$

Hypotheses (b): There are statistically significant mean differences in various dimensions of the information seeking anxiety construct between master's level students and doctoral level students.

In order to investigate whether any statistically significant mean differences exist in the various dimensions of the information seeking anxiety construct between master's level and doctoral level students, a series of independent sample t-tests were employed. The results of study revealed that master's level students experienced higher level of information seeking associated with all seven (7) dimensions of the ISAS, than their doctoral level counterparts. Statistically significant differences in anxiety levels were found between master's level and doctoral level students in the "barriers associated with computers, the Internet and electronic resources" and "affective barriers" dimensions, that is, master's level students were found to experience statistically significantly higher levels of information seeking anxiety related to these two (2) dimensions than did doctoral level students. The differences found in mean anxiety values of other five (5) sub-scales of information seeking anxiety between master's level and doctoral level students were not statistically significant (See Table 4).

Table 4: Means and Standard Deviations for Information Seeking Anxiety Dimensions as a Function of Level of Study

Sub-scales	Master		PhD		P value
	Mean	SD	Mean	SD	
Barriers Associated with Libraries	23.645	6.301	22.310	6.198	0.063
Barriers Associated with Information Resources	21.792	4.196	20.919	3.996	0.065
Barriers Associated with Computers, the Internet and Electronic Resources	7.345	2.631	6.652	2.755	0.023 *
Technological Barriers	15.016	3.890	14.319	4.464	0.133
Affective Barriers	12.707	3.415	11.448	3.415	0.001 *
Barriers Associated with Topic Identification	7.665	2.139	7.287	2.131	0.121
Access Barriers	11.570	2.603	11.358	2.660	0.480

* $p < 0.05$

Hypotheses (c): There are statistically significant main and interaction effects of gender and level of study on various dimensions of the information seeking anxiety construct.

The results of running a series of 2×2 factorial ANOVA tests revealed a statistically significant main effect for gender on “barriers associated with information resources” dimension of the information seeking anxiety. Additionally, the results revealed statistically significant main effects for level of study on “barriers associated with computers, the Internet and electronic resources” and “affective barriers” dimensions of the information seeking anxiety construct. The test for interaction of gender and level of study on various dimensions of the information seeking anxiety construct was not statistically significant. In other words, there were no statistically significant differences in the effect of gender on information seeking anxiety for students studying at the master’s level and those who studying at the doctoral level (See Table 5).

Table 5: Main and Interaction Effects of Gender and Level of Study on “Barriers Associated with Information Resources” and “Barriers Associated with Computers” and “Affective Barriers” Dimension

Barriers Assoc. with Information Resources	df	MS	F	Sig.
Main Effect of Gender	1	140.886	8.370	0.004 *
Main Effect of Level of Study	1	44.910	2.668	0.103
Gender \times Level of Study	1	6.687	0.397	0.529
Within-Cells Error	371	16.831		
Barriers Assoc. with Computers	df	MS	F	Sig.
Main Effect of Gender	1	6.078	0.852	0.357
Main Effect of Level of Study	1	38.437	5.390	0.021 *
Gender \times Level of Study	1	.154	0.022	0.883
Within-Cells Error	371	7.131		
Affective Barriers	df	MS	F	Sig.
Main Effect of Gender	1	11.159	0.956	0.329
Main Effect of Level of Study	1	117.288	10.052	0.002 *
Gender \times Level of Study	1	2.185	0.187	0.665
Within-Cells Error	371	11.668		

* $p < 0.05$

Hypotheses (d): There are statistically significant relationships between various dimensions of the information seeking anxiety construct and postgraduate student's age.

A series of Pearson product moment correlation tests were employed to determine if there were any statistically significant relationships between postgraduate student's age and mean anxiety of various dimensions of the information seeking anxiety construct. Conducting Pearson product moment correlation tests between age and information seeking anxiety sub-scales revealed:

1. A statistically significant but weak negative relationship between age and "barriers associated with libraries" subscale of the information seeking anxiety construct $r = -0.135$, $p = 0.009$;
2. A statistically significant but weak negative relationship between age and "barriers associated with information resources" subscale of the information seeking anxiety construct $r = -0.123$, $p = 0.017$; and
3. A statistically significant but weak negative relationship between age and "affective barriers" subscale of the information seeking anxiety construct $r = -0.103$, $p = 0.047$.

No statistically significant relationships were found between postgraduate student's age and information seeking anxiety associated with the other four (4) sub-scales of the Information Seeking Anxiety Scale (See Table 6).

Table 6: Correlation between Age and Seven Dimensions of the Information Seeking Anxiety Scale

Correlations		
		Age
Barriers Associated with Libraries	Pearson Correlation	-0.135 *
	Sig. (2-tailed)	0.009
	N	375
Barriers Associated with Information Resources	Pearson Correlation	-0.123 **
	Sig. (2-tailed)	0.017
	N	375
Barriers Associated with Computers, The Internet and Electronic Resources	Pearson Correlation	-0.071
	Sig. (2-tailed)	0.169
	N	375
Technological Barriers	Pearson Correlation	-0.088
	Sig. (2-tailed)	0.090
	N	375
Affective Barriers	Pearson Correlation	-0.103 **
	Sig. (2-tailed)	0.047
	N	375
Barriers Associated with Topic Identification	Pearson Correlation	-0.100
	Sig. (2-tailed)	0.054
	N	375
Access Barriers	Pearson Correlation	-0.089
	Sig. (2-tailed)	0.086
	N	375

* Correlation is significant at the 0.01 level (2-tailed).

** Correlation is significant at the 0.05 level (2-tailed).

Discussion:

The purpose of the study was to find out whether antecedent variables such as gender, level of study and age would affect the seven (7) dimensions of the information seeking

anxiety construct. Three types of inferential analytic techniques were employed to test four (4) non-directional hypotheses: the independent sample t-test, 2×2 factorial ANOVA and Pearson product moment correlation tests. According to the results of the study, gender has been found to have effect on the information seeking anxiety construct. The results of running an independent sample t-test revealed that female students were found to have reported statistically significantly higher levels of information seeking anxiety related to “barriers associated with information resources” and “access barriers” dimensions than did male students. The finding that female students were found to have experienced statistically significantly higher levels of information seeking anxiety stemming from “barriers associated with information resources” than male students is consistent with the finding of Shoham and Mizrachi (2001) who found that females to be experiencing higher levels of library anxiety associated with “resources barriers” dimension than did male students. Additionally, Onwuegbuzie (1997) found resources anxiety to be one of the most prevalent dimensions of library anxiety. Accordingly, students who were unable to obtain required information resources found in a library search, were more likely to experience higher levels of anxiety than others.

Moreover, the results of running a 2×2 factorial ANOVA to test main and interaction effects of gender and level of study on various dimensions of the information seeking anxiety construct revealed gender to be having main effects on the information seeking anxiety dimension “barriers associated with information resources”. This finding indicated that there was a statistically significant difference in information seeking anxiety by gender. This result is in contrast to that of Bostick (1992), Mech and Brooks (1995), Onwuegbuzie and Jiao (2000), Ben Omran (2001) and Kohrman (2002) who found no gender differences in levels of library anxiety.

The finding that female postgraduate students reported to have experienced statistically significantly higher levels of information seeking anxiety associated with two (2) out of seven (7) sub-dimensions, might be explained by the fact that female sample of the study were found to have used the university library less frequently than their male counterparts. An earlier studies by Jiao, Onwuegbuzie and Lichtenstein (1996), Jiao and Onwuegbuzie (1997b) and Onwuegbuzie, Jiao and Bostick (2004) found a negative relationship between frequency of library use and levels of library anxiety. Additionally, Onwuegbuzie, Jiao and

Onwuegbuzie (2004) found that “high anxious students are approximately two-and-a-half times less likely to visit the library than the low anxious students”.

The results of running an independent sample t-test revealed that level of study had effect on information seeking anxiety construct. In other words, master’s level students were found to experience statistically significantly higher levels of information seeking anxiety related to “barriers associated with computers, the Internet and electronic resources” and “affective barriers” dimensions than did doctoral level students. The results of running a 2×2 factorial ANOVA to test main and interaction effects of gender and level of study on various dimensions of the information seeking anxiety construct revealed the same results. This indicated that there was a statistically significant difference in information seeking anxiety by level of study. This finding somewhat supports that of Bostick (1992), Mech and Brooks (1995), Jiao, Onwuegbuzie and Lichtenstein (1996), Onwuegbuzie (1997) and Jiao and Onwuegbuzie (1997b) who found level of study has an effect on various dimensions of the library anxiety construct.

The finding that doctoral level students reported to have experienced lower levels of information seeking anxiety associate with all seven (7) dimensions of the information seeking anxiety than did their master’s level counterparts, might be explained by the fact that doctoral level students have more experience in conducting postgraduate level research. The explanation for this could be that most, if not all, of doctoral level students have conducted a postgraduate level research in their master’s level study. They have experience of searching topics for research, seeking for related information resources, conducting a literature review, writing a research proposal and eventually settling on the dissertation topic. Conversely, although master’s level students have used the library and online resources for research purposes in their undergraduate level study, they have probably never needed to use as many resources and services as they may need at the master’s level research. The intricacy of graduate level research requires searching beyond the Internet and information systems for resources, and students find the need to learn research skills, some truly for the first time (Kohrman, 2002). Consequently, many of the master’s level students who are unprepared for conducting postgraduate-level research face high levels of anxiety. These students discover their research and information seeking skills are inadequate for conducting a postgraduate level research and that’s why they show

evidence of high levels of information seeking anxiety associated with “affective barriers” dimension.

Moreover, a possible explanation for the finding that doctoral level students were reported to have experienced statistically significantly lower levels of information seeking anxiety related to “barriers associated with computers” than did master’s level students, might be that doctoral students may have on average more experience and use of computers and the Internet than master’s level students. Consistent with this explanation, Bessiere et al. (2002) found that people with higher levels of experience with computing were the least often frustrated and anxious by the Internet. Additionally, Ben Omran (2001) found a relationship between Internet experience and Internet anxiety.

The results of running a Pearson product moment correlation test revealed statistically significant but weak negative relationships between age and “barriers associated with libraries”, “barriers associated with information resources” and “affective barriers” dimensions of the information seeking anxiety. Accordingly, as the postgraduate student’s age increased, levels of information seeking anxiety related to three (3) aforementioned dimensions decreased. The finding that older students were reported to experienced less anxiety with regard to three (3) dimensions of the information seeking anxiety construct than did younger students, was in contrast to some previous studies which suggested that older people may have more difficulty in using computer and information technologies to perform information search and retrieval tasks than younger people (Rousseau et al., 1998; Czaja et al., 2001). Westerman et al. (1995) found that older students were slower than the younger students in retrieving information resources. In another study, Stronge, Rogers and Fisk (2006) found that older students were less successful and had more difficulty than younger students when searching for information on the web. Moreover, Chin, Fu and Kannampallil (2009) reported that older students performed worse in web search tasks than did younger students.

A possible explanation for the finding that older students were reported to have experienced lower levels of information seeking anxiety related to “barriers associated with libraries” than did younger students, is that these students accumulated more experience of information seeking in libraries as they became older which decreased their information seeking anxiety levels. Additionally, Gorman (1984), Jiao, Onwuegbuzie and Lichtenstein

(1996) and Jiao and Onwuegbuzie (1997a) found a positive relationship between age and frequency of library visit. This relationship also may reflect library experience, since a positive relationship was also found to exist between age and the number of library instruction courses taken (Jiao & Onwuegbuzie, 1997a). Dholakia and Bagozzi (2001) found that individuals with minimal prior knowledge and experience are likely to exhibit high levels of frustration during information search tasks. Additionally Coupey et al. (1998) found that experienced students perform more efficient information searches because they know what is important and useful and where to get it. However, postgraduate student's age was not statistically significantly correlated with frequency of library use and frequency on the Internet use. Finally, the finding that older students were reported to have experienced lower levels of information seeking anxiety related to "barriers associated with information resources" than did their younger counterparts, might be explained by the finding of Jiao and Onwuegbuzie (1997a) who reported that older students utilize the library resources more extensively than younger students.

Conclusion:

The study employed the Information Seeking Anxiety Scale in order to examine the effects of gender, level of study and age on various dimensions of the information seeking anxiety construct. The results of the study revealed that gender has statistically significant effect on two (2) dimensions of the information seeking anxiety construct. Additionally, level of study was an antecedent of the information seeking anxiety construct. However, the test for interaction of gender and level of study on various dimensions of the information seeking anxiety construct was not statistically significant. In other words, there were no statistically significant differences in the effect of gender on information seeking anxiety for students studying at the master's level and those who studying at the doctoral level. Finally, age was found to have statistically significant effect on three (3) dimensions of the information seeking anxiety construct. Future studies should investigate the nature of the relationship between levels of information seeking anxiety and other personal, educational, and psychological variables.

References:

- Anwar, M. A., Al-Kandari, N. M. & Al-Qallaf, C. L. (2004). Use of Bostick's Library Anxiety Scale on undergraduate Biological Sciences students of Kuwait University. *Library & Information Science Research*, 26, 266-283.
- Battle, J. C. (2004). *The effect of information literacy instruction on library anxiety among international students*. PhD dissertation, University of North Texas, Denton, Texas.
- Ben Omran, A. I. (2001). *Library anxiety and internet anxiety among graduate students of a major research university*. PhD dissertation, University of Pittsburgh, Pittsburgh, Pennsylvania.
- Bessiere, K., Ceaparu, I., Lazar, J., Robinson, J. & Shneiderman, B. (2002). *Understanding computer user frustration: Measuring and modeling the disruption from poor designs*. Submitted for publication, University of Maryland, CS Technical Report, 4409.
- Bostick, S. L. (1992). *The development and validation of the Library Anxiety Scale*. PhD dissertation, Wayne State University, Michigan.
- Bowers, S. L. (2010). *Library anxiety of law students: A study utilizing the Multidimensional Library Anxiety Scale*. PhD dissertation, University of Denver, Denver, Colorado.
- Branch, J. L. (2001). Information seeking process of junior high school students: A case study of CD-ROM encyclopedia use. *School Libraries Worldwide*, 7(1), 11-27.
- Brosnan, M., & Lee, W. (1998). A cross-cultural comparison of gender differences in computer attitudes and anxiety: The UK and Hong Kong. *Computers in Human Behavior*, 14(4), 559-577.
- Brown, A. G., Weingart, S., Johnson, J. R. J. & Dance, B. (2004). Librarians don't bite: Assessing library orientation for freshmen. *Reference Services Review*, 32(4), 394-403.
- Burdick, T. (1995). *Gender in the information search process: An exploratory study of student experience*. PhD dissertation, Florida State University, Tallahassee, Florida.
- Chua, S. L., Chen, D. & Wong, A. F. L. (1999). Computer anxiety and its correlates: A meta-analysis. *Computers in Human Behavior*, 15, 609-623.
- Cheng, Y. (2004). *Thoughts, feelings, and actions: Quantitative comparisons of interactions and relationship among three factors in college students' information seeking*. PhD dissertation, Indiana University, Indiana.
- Chin J., Fu W. & Kannampallil T. (2009). *Adaptive information search: Age-dependent interactions between cognitive profiles and strategies*. Proceedings of the 27th International Conference on Human Factors in Computing Systems. Boston, MA: Association for Computing Machinery.
- Coupey, E., Irwin, R. & Payne, J. (1998). Product category familiarity and preference construction. *Journal of Consumer Research*, 24, 459-468.
- Czaja, S. J., Sharit, J., Ownby, R., Roth, D. L., & Nair, S. (2001). Examining age differences in performance of a complex information search and retrieval task. *Psychology & Aging*, 16(4), 564-579.
- Dalrymple, P. W. & Zweizig, D. L. (1992). Users' experience of information retrieval systems: An exploration of the relationship between search experience and affective measures. *Library & Information Science Research*, 14(2), 167-181.
- Dholakia, U. & Bagozzi, R. P. (2001). *Consumer behavior in digital environments*. in Digital Marketing, Eds. Jerry Wind and Vijay Mahajan, John Wiley & Sons, Inc.

- Durndell, A., & Haag, Z. (2002). Computer self-efficacy, computer anxiety, attitudes towards the Internet and reported experience with the Internet by gender in an East European sample. *Computers in Human Behavior*, 18, 521-535.
- Dyck, J. L., & Smither, J. A. (1994). Age differences in computer anxiety: The role of computer experiences, gender, and education. *Journal of Educational Computing Research*, 10(3), 239-248.
- Erfanmanesh, M. (2011). Use of Multidimensional Library Anxiety Scale on education and psychology students in Iran. *Library Philosophy & Practice*, 9, 1-10.
- Erfanmanesh, M. (2012). *Investigating information seeking anxiety among postgraduate students: Development and validation of a multidimensional scale*. PhD dissertation, University of Malaya, Kuala Lumpur.
- Erfanmanesh, M., Abrizah, A. & Noor, H. A. K. (2012). Development and validation of the Information Seeking Anxiety Scale. *Malaysian Journal of Library & Information Science*. 17(1), 21-39.
- Gorman, K.L. (1984). *Use of the University of Minnesota's Walter Library: A follow-up survey of student users*. Minnesota University.
- Jacobsen, T. F. (1991). Gender differences in attitudes toward using computers in libraries: An exploratory study. *Library & Information Science Research*, 13(3), 269-279.
- Jiao, Q. C., Onwuegbuzie, A. J. & Lichtenstein, A. A. (1996). Library anxiety: Characteristics of at-risk college students. *Library & Information Science Research*, 18(2), 151-163.
- Jiao, Q. C. & Onwuegbuzie, A. J. (1997a). Prevalence and reasons for university library usage. *Library Review*, 46(6), 411-420.
- Jiao, Q. C. & Onwuegbuzie, A. J. (1997b). Antecedents of library anxiety. *Library Quarterly*, 67, 372-389.
- Jiao, Q. C. & Onwuegbuzie, A. J. (2002). *Anxiety-Expectation Mediation model of library anxiety*. Paper presented at the annual meeting of the Mid-south Educational Research Association, Chattanooga, United States.
- Jiao, Q. C., Onwuegbuzie, A. J. & Waytowich, V. L. (2008). The relationship between citation errors and library anxiety: An empirical study of doctoral students in education. *Information processing & management*, 44(2), 948-956.
- Kohrman, R. A. (2002). *When you aren't in Kansas any more: Computer, research and library anxieties of graduate education students*. Master thesis, Grand Valley State University, Allendale, Michigan.
- Kohrman, R. A. (2003). *Computer anxiety in the 21st century: When you are not in Kansas any more*. Paper presented at the eleventh Association of College & Research Libraries conference, Charlotte, United States.
- Kuhlthau, C. C. (1988). *The information search process of high, middle, and low achieving high school seniors*. Paper presented at the research forum of the American Association of School Librarians, New Orleans, Louisiana.
- Kuhlthau, C. C. (1993). *Seeking meaning: A process approach to library and information services*. Norwood, NJ: Ablex.
- Lee, S. W. (2011). *An exploratory case study of library anxiety and basic skills English students in a California Community College district*. PhD dissertation, University of California, Los Angeles, California.

- Mech, T. F. & Brooks, C. I. (1995). *Library anxiety among college students: An exploratory study*. Paper presented at the 7th National Conference of the Association of College and Research Libraries, Pittsburgh, United States.
- Mech, T. F. & Brooks, C. I. (1997). Anxiety and confidence in using a library by college freshmen and seniors. *Psychological Reports*, 81(3), 929-930.
- Mellon, C. A. (1986). Library anxiety: A grounded theory and its development. *College & Research Libraries*, 47, 160-165.
- Noor, H. A. K. & Ansari, N. (2011). Examining the effects of gender, nationality and bibliographic instruction on library anxiety. *Malaysian Journal of Library & Information Science*, 16(2), 141-154.
- Okebukola, P. A. (1993). The gender factor in computer anxiety and interest among some Australian high school. *Educational Research*, 35(2), 181-189.
- Onwuegbuzie, A. J. (1997). Writing a research proposal: The role of library anxiety, statistics anxiety and composition anxiety. *Library & Information Science Research*, 19(1), 5-33.
- Onwuegbuzie, A. J. & Jiao, Q. C. (2000). I'll go to the library later: The relationship between academic procrastination and library anxiety. *College & Research Libraries*, 6(1), 45-54.
- Onwuegbuzie, A. J. & Jiao, Q. C. (2004). Information search performance and research achievement: An empirical test of the anxiety-expectation mediation (AEM) model of library anxiety. *Journal of American Society for Information Science & Technology*, 55 (1), 41-54.
- Onwuegbuzie, A. J., Jiao, Q. C. & Bostick, S. L. (2004). *Library anxiety: Theory, research, and applications*. Lanham, Md.; Oxford: Scarecrow Press.
- Parker, J. (1990). *Computer anxiety as it relates to age, gender, and Myers Bnggs Personality Type*. Unpublished Thesis, Wright State University. USA.
- Rousseau G., Jamieson B., Rogers W., Mead S. & Sit R. (1998). Assessing the usability of on-line library systems. *Behavioral & Information Technology*, 17, 274-281.
- Scott, C. R. & Rockwell, S. C. (1997). The effect of communication, writing and technology apprehension on likelihood to use new communication technologies. *Communication Education*, 46, 44-62.
- Shoham, S. & Mizrachi, D. (2001). Library anxiety among undergraduates: A study of Israeli B. Ed. Students. *Journal of Academic Librarianship*, 27(4), 305-319.
- Sigurdsson, J. F. (1991) Computer experience, attitudes toward computers and personality characteristics in Psychology undergraduates. *Personality & Individual Differences*, 12, 617-624.
- Stronge, A., Rogers, W. & Fisk, A. (2006). Web-based information search and retrieval: Effects of strategy use and age on search success. *Human Factors*, 48(3), 434-446.
- Todman, J. & Monaghan, E. (1994). Qualitative differences in computer experience, computer anxiety, and students' use of computers: A path model. *Computer Human Behavior*, 10(4), 529-539.
- Todman, J. (2000). Gender differences in computer anxiety among university entrants since 1992. *Computers & Education*, 34, 27-35.
- Van Kampen, D. J. (2003). *Library anxiety, the information search process and doctoral use of the library*. PhD dissertation, University of Central Florida, Orlando, Florida.

- Westerman, S., Davies, D., Glendon, A., Stammers, R. & Matthews, G. (1995). Age and cognitive ability as predictors of computerised information retrieval. *Behaviour & Information Technology*, 14, 107-20.
- Yang, H. H., Mohamed, D., & Beyerbach, B. (1999) An investigation of computer anxiety among vocational technical teachers. *Journal of Industrial Teacher Education*, 37(1), 64–82.
- Young, N. J. & Von Seggern, M. (2001). General information seeking in changing times: A focus group study. *Reference & Users Services Quarterly*, 41(2), 159-169.