Library anxiety among undergraduate students in Greece

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Abstract: Library anxiety is "an uncomfortable feeling or emotional disposition, experienced in a library setting, which has cognitive, affective, physiological, and behavioral ramifications" (Jiao et al., 1996, p. 152) that has been associated with low research and academic performance, amongst others. The purpose of the present study is to assess the levels of library anxiety of students of Greek Tertiary Education Institutions. Library anxiety was measured using the Greek version of the Library Anxiety Scale (G-LAS), in a sample of 279 undergraduate students. Overall, the majority of the students experience low levels of library anxiety (mean 2.4), while male participants reported statistically significant higher levels of anxiety than female. Of the eight dimensions of library anxiety, as measured by the G-LAS, students experience the highest levels of anxiety with rules, followed by library resources, technology and knowledge of library services. Results do not indicate statistically significant differences on anxiety levels among students in different academic years, between those studying Library Science and the remainder or with respect to age. The practical implications of the study findings are discussed.

Keywords: Library Anxiety, Greek Library Anxiety Scale (G-LAS), Undergraduate Students.

1. Introduction

Library anxiety is a type of state anxiety (Mech and Brooks, 1995; Jiao and Onwuegbuzie, 1999) - parallel to other academic-related anxiety types, such as test and math anxiety (Mellon, 1986) - defined as "an uncomfortable feeling or emotional disposition, experienced in a library setting, which has cognitive, affective, physiological, and behavioral ramifications" (Jiao et al., 1996, p. 152). Although information scientists had long been cognizant of the influence that the library environment has on the behavior and emotions of students, it has only been a couple of decades that this phenomenon has been systematically investigated (Jiao and Onwuegbuzie, 1997).

Research interest on library anxiety has been sparked by the seminal work of Mellon (1986), which showed that a significant number of students experience negative affect when coming in contact with the academic library environment and library-related tasks. Subsequent studies have demonstrated several adverse

outcomes of library anxiety, including exhibiting counter-productive behaviors, such as failure to use the library efficiently and effectively and library use avoidance (Carlile, 2007). Moreover, highly library anxious students have been found to have impaired research performance, which in turn negatively affects their academic outcomes, especially at the graduate level (Onwuegbuzie and Jiao, 2004). The importance of these findings is further highlighted by the fact that library anxiety has been established to be an independent condition, unrelated to trait anxiety (Mech and Brooks, 1995; Jiao and Onwuegbuzie, 1999) and research anxiety (Kracker, 2002). Even so, there are still many issues with respect to the nature, causes and outcomes of the phenomenon to be explored (Onwuegbuzie et al., 2004).

The aim of the study is to assess the levels of library anxiety of undergraduate students of Greek tertiary education institutions and its possible association with demographic variables. The current paper is organized as follows: in the "Literature Review" section, the causes and effects of library anxiety are presented, along with a brief discussion on measurement issues. In "Research Methodology", the approach with respect to sampling and data collection is outlined, while in the following sections, the results of the data analysis are presented. Finally, the conclusions and implications of the study are discussed in the last section of the paper.

2. Literature Review

2.1. Library Anxiety Antecedents

The first comprehensive study in the field of library anxiety was undertaken by Constance A. Mellon (1986). The author's two-year long qualitative study of around 6.000 students revealed that about 80% of her study participants had experienced negative feelings when having to use the academic library. These feelings include fear, confusion, helplessness and of a sense of being lost, which stemmed from library size, lack of knowledge regarding the organization of materials, not knowing how to begin and what to do. Mellon's (1986) research also indicated that students tend to perceive their own library skills as insufficient, compared to the skills of others. This perceived inadequacy is deemed shameful, hindering them from asking for help, in fear of being exposed.

In her 1992 research, Bostick proposed five distinct situational library stressors, termed "barriers" - namely "barriers with staff" (approachability and helpfulness of library staff), "affective barriers" (feelings of inadequacy or fear), "comfort with the library" (how welcoming and safe the library environment is perceived to be), "knowledge of the library" (familiarity with the use of the library) and "mechanical barriers" (comfort with using library equipment). Other situational factors associated with library anxiety, as indicated by subsequent studies, include number of library visits, reasons for not using the library, number of library instruction courses attended, learning style, computer attitudes, grade point average etc. (Onwuegbuzie et al., 2004).

The antecedents of library anxiety may also be dispositional and include self-esteem, self-perception, academic procrastination, perfectionism, study habits, hope and social interaction. Finally, library anxiety has also been linked to several demographic variables (environmental antecedents) including gender, age, year of study, ethnicity and language (Onwuegbuzie et al., 2004). Although not universally supported, several studies have showed that library anxiety tends to decline with age and year of study, while it has been found to be higher among male and foreign students, as well as those whose mother tongue is different from the language of the main library collection (Jacobson, 1991; Mech and Brook, 1995; Jiao et al., 1996;

Jiao and Onwuegbuzie, 1997; Omran, 2001; Shoham and Mizrachi, 2001; Anwar et al., 2004; Song et al., 2014).

2.2. Effects of Library Anxiety

While no causal relationships have been established, library anxiety has been linked to various counter-productive behaviors, including avoid going to the library, avoid searching or asking librarians for help (Carlile, 2007). Moreover, it has been found to interfere with students' ability to process literacy-related information, to apply newly acquired knowledge to information-seeking tasks and to effectively use the information gathered. Studies have also shown that library anxiety negatively impacts academic performance, through its influence on other academic performance predictors and outcomes, such as learning style (Jiao and Onwuegbuzie, 1999; Onwuegbuzie and Jiao, 1998a; 1998b) academic procrastination (Onwuegbuzie and Jiao, 2000), library use (De Jager, 2002; Goodall and Pattern, 2011) and research performance (Onwuegbuzie and Jiao, 2004).

2.3. Measuring Library Anxiety

Following the interest in library anxiety sparked by Mellon's (1986) study, researchers attempted to investigate the phenomenon in quantitative terms. The first published library anxiety scale comprised four items and was developed by Jacobson (1991). However, the scale utilized in almost every quantitative study of library anxiety (Jiao et al. 2004), is that of Bostick (1992). Bostick devised a 43-item Library Anxiety Scale (LAS) grouped into five factors, as previously discussed, to "determine if a quantitative tool could be developed to accurately and adequately measure the construct" (1992, p. 45). Two modifications of Bostick's (1992) LAS can be found in the literature: the Shoham and Mizrachi (2001) Hebrew Library Anxiety Scale (H-LAS) and the Anwar et al. (2004) modified LAS for Kuwaiti students (K-LAS).

In 2004, van Kampen published her 54-item Multidimensional Library Anxiety Scale (MLAS), "...designed to assess six dimensions of an individual's perception of an academic library and the information search process" (p. 28). The dimensions of MLAS are: a) comfort and confidence when using the library, b) information search process and general library anxiety, c) barriers concerning staff, d) importance of understanding how to use the library, e) comfort level with technology and how it applied to the library and f) comfort level while inside the library building. Finally, two more cultural content-specific scales combining items from LAS and MLAS have been developed. These are: a) the Polish Library Anxiety Scale (P-LAS), a 46-statement instrument developed by wigo (2011) comprising six factors and b) the Chinese Library Anxiety Scales (C-LAS), a 36-item scale, grouped into seven factors (Song et al., 2014). Both of these scales expanded the existing instruments to include items measuring the use of electronic resources and remote access to library services. Authors have argued that since culture plays a significant role in library anxiety, it is important to modify LAS when applied to different cultural contexts (Song et al., 2014).

3. Research methodology

3.1. Sampling and Data Collection

As previously noted, the aim of the study was to assess the levels of library anxiety among undergraduate students of Greek tertiary education institutions. As regards sampling, the nonprobability method (convenience sampling) was used, which is often employed in library research (Skowronek and Duerr, 2009). In all, 350 questionnaires in electronic format were administered, of which 279 suitable for analysis were returned (response rate ≈80%). The profile of the final sample is presented in Table 1. It is worth noting that a rather large number of students are low library users, as indicated by their self-report library visits and frequency of electronic services used.

Table 1. Respondents Profile

Measure	Items	n	%
Gender	Male	108	39
	Female	171	61
Age	Mean: 22 years	-	-
	Standard Deviation: 4		
School Year	1st	89	32
	2nd	17	6
	3rd	46	16.5
	4th	85	30.5
	5th	42	15
Schools	Library Science	108	38.7
	Other	171	61.3
Frequency of library visits	More than once a week	53	19.1
	Once every 2-3 weeks	55	19.9
	Once a month	46	16.6
	Once every 2-3 months	57	20.6
	Once every 6 months	66	23.8
Frequency of electronic services use	More than once a week	47	17.0
	Once every 2-3 weeks	53	19.1
	Once a month	44	15.9
	Once every 2-3 months	53	19.1
	Once every 6 months	80	28.9

3.2. Measurement

Library anxiety was assessed using the Greek Library Anxiety Scale (G-LAS) (Doris et al., 2015), comprising eight constructs, namely "Barriers with Staff", "Affective Barriers", "Technological Barriers", "Knowledge of Library Organization Barriers", "Knowledge of Library Services Barriers", "Library Comfort Barriers", "Resources Barriers", and "Rules Barriers", measured by 32 items in total. The G-LAS was compiled using items from previously published scales (Bostick, 1992; van Kampen, 2004; wigo , 2011; Song et al., 2014). The instrument validation procedures indicated that the G-LAS has good psychometric properties, with   values ranging from .931 to .703 for "Barriers with Staff" and "Rules Barriers", respectively (for more details see Doris et al., 2015).

4. Data Analysis and Results

4.1. Library Anxiety Levels

Library anxiety levels of the study's population have a mean ($\bar{x}$) score of 2.4 and a standard deviation (SD) of 0.6. These data were used to form anxiety level groups, following the methodology proposed in previous studies (Anwar et al., 2004; Song et al., 2014). Initially, the distribution of the anxiety mean scores was tested for normality, using the Kolmogorov-Smirnov (KS) test; the results indicated that mean scores are most probably normally distributed (see Figure A and Table A, in Appendix). Based on the normality assumption, five anxiety level groups were formulated, namely no, low, mild, moderate and severe anxiety. A person with an average score that falls with the range of values of $\bar{x}\pm$SD, is considered to have mild library anxiety, while a person whose mean score falls within the rage of $\bar{x}$-2SD has low anxiety. Proportionally, a person whose mean score falls within the rage of $\bar{x}$+2SD has moderate anxiety. Finally, if a respondent's mean score is $< \bar{x}$-2SD or $> \bar{x}$+2SD, this would indicate no or severe library anxiety, respectively. Proposed library anxiety level groups and value ranges of the present study, along with mean scores and value ranges of the Anwar et al. (2004) and the Song et al. (2014) studies are presented in Table 2. Noteworthy differences in mean scores and library anxiety level value ranges among the three studies are depicted.

Mean scores per library anxiety facet was also calculated (Table 3). Analysis indicates that the major causes of library anxiety are rules, followed by technology, resources and knowledge of library services.

Table 2. Library Anxiety Level Groups

	Value Ranges		
Library Anxiety Levels	Current Study*	Anwar et al. (2004)	Song et al. (2014)
Mean Score (SD)	2.4 (.6)	3.1 (.44)	2.78 (.39)
No anxiety	0.00 – 1.23 (1)	0.00–2.21	0.00–1.99
Low anxiety	1.24 – 1.83 (54)	2.22–2.65	2.00–2.38
Mild anxiety	1.84 – 3.04 (180)	2.66–3.54	2.39–3.17
Moderate anxiety	3.05 – 3.64 (37)	3.55–3.98	3.18–3.56
Severe anxiety	3.65 – 5.00 (7)	3.99–5.00	3.57–5.00

*Numbers in parentheses indicate the number of students ranking in each of the library anxiety level group

Table 3. Anxiety Facets Mean Scores

	Mean	SD
Library Anxiety	2.4	.6
Barriers with Staff	2.4	1
Affective Barriers	1.8	.9
Technological Barriers	2.7	1
Knowledge of Library Organization Barriers	2.3	.9
Knowledge of Library Services Barriers	2.7	1.2
Library Comfort	2.1	.9

Resources Barriers		2.7	.8
Rules Barriers		2.8	.8

4.2. Library Anxiety Levels and Demographic Factors

Regarding gender differences, t-test (Table 4) showed that male participants experience higher levels of anxiety than females. Examining mean score differences by library anxiety facet, gender differences can only be found for the "Knowledge of Library Services Barriers" and "Resources Barriers" aspects of library anxiety.

The possible association between age and library anxiety levels, as well as between the later and frequency of library use were examined, using correlation analysis (Table 5). Results suggest no statistically significant correlation between age and library anxiety or its facets, with the exception of resources (r=.205, p<.05). As regards frequency of library use, both factors (i.e. frequency visits to the library and frequency of electronic services use[1]) were found to be significantly positively correlated with library anxiety, although correlations are not particularly strong. This result indicates that individuals with higher library anxiety levels tend to visit the library less often and make less frequent use of the electronic services it provides. Examining the association between the aforementioned factors and library anxiety facets, the analysis suggests that both frequency of visits and frequency of electronic services used are related to the knowledge of library organization (r=.140, p<.05, r=.138, p<.05) and knowledge of library services r=.217, p<.05, r=.203, p<.05). Frequency of onsite visits was also found to be significantly related to affect (r=.183, p<.05) and comfort (r=.183, p<.05), while frequency of electronic services use is also significantly related to technology (r=.157, p<.05). Finally, the two measures of library usage frequency are strongly correlated (r=.613, p<.05).

Table 4. Independent Samples Test for Gender

	Gender	Mean	SD	t	p
Library Anxiety	Male	2.54	.56	2.321	.021
	Female	2.37	.62		
Barriers with Staff	Male	2.42	.99	-.259	.796
	Female	2.46	1.03		
Affective Barriers	Male	1.73	.86	-.430	.668
	Female	1.77	.86		
Technological Barriers	Male	2.85	1.02	1.449	.149
	Female	2.67	1.03		
Knowledge of Library Organization Barriers	Male	2.35	.88	1.386	.167
	Female	2.19	.92		
Knowledge of Library Services Barriers	Male	3.01	1.14	3.894	.000
	Female	2.47	1.12		
Comfort Barriers	Male	2.14	.90	1.234	.218
	Female	2.00	.88		
Resources Barriers	Male	2.90	.72	2.646	.009
	Female	2.64	.83		
Rules Barriers	Male	2.91	.85	1.711	.088
	Female	2.73	.84		

[1] Both frequency indicators were measured in a 5-point scale, where 1 indicates frequent and 5 infrequent use (see also Table 1).

Table 5: Correlations among Anxiety Levels, Age and Frequency of Library Use

		1	2	3	4	5	6	7	8	9	10	11
1 Library Anxiety	r	1										
	p											
2 Affective Barriers	r	.638(**)	1									
	p	.000										
3 Barriers with Staff	r	.541(**)	.144(*)	1								
	p	.000	.019									
4 Technological Barriers	r	.681(**)	.379(**)	.128(*)	1							
	p	.000	.000	.035								
5 Knowledge of Library Organization Barriers	r	.732(**)	.526(**)	.204(**)	.551(**)	1						
	p	.000	.000	.001	.000							
6 Knowledge of Library Services Barriers	r	.766(**)	.429(**)	.230(**)	.627(**)	.593(**)	1					
	p	.000	.000	.000	.000	.000						
7 Comfort Barriers	r	.651(**)	.353(**)	.452(**)	.206(**)	.342(**)	.359(**)	1				
	p	.000	.000	.000	.001	.000	.000					
8 Resources Barriers	r	.465(**)	.159(**)	.318(**)	.085	.141(*)	.169(**)	.361(**)	1			
	p	.000	.009	.000	.165	.020	.005	.000				
9 Rules Barriers	r	.625(**)	.321(**)	.266(**)	.369(**)	.357(**)	.350(**)	.319(**)	.306(**)	1		
	p	.000	.000	.000	.000	.000	.000	.000	.000			
10 Age	r	.096	.104	.049	-.048	.061	.032	.116	.205(**)	.037	1	
	p	.109	.090	.418	.426	.313	.595	.055	.001	.541		
11 Frequency of library visits	r	.204(**)	.183(**)	.053	.110	.140(*)	.217(**)	.183(**)	.082	.094	.011	1
	p	.001	.003	.382	.069	.020	.000	.002	.179	.119	.852	
12 Frequency of electronic services use	r	.189(**)	.110	.105	.157(**)	.138(*)	.203(**)	.117	.008	.099	.021	.613(**)
	P	.002	.072	.084	.009	.022	.001	.053	.898	.100	.732	.000

** Correlation is significant at the 0.01 level (2-tailed).   * Correlation is significant at the 0.05 level (2-tailed).

Possible differences among students at different academic years and library anxiety was also tested, using One-Way ANOVA analysis (Table 6). Findings do not indicate that there is a statistically significant difference among participants with respect to library anxiety levels, with the exception of "Barriers with Staff". Post hoc testing, using the Bonferroni correction, indicates that there is a statistically significant difference between 1st and 4th year students, with respect to the staff facet (see Table B, in Appendix).

Table 6: One-Way ANOVA Analysis for School Year

		Sum of Squares	df	Mean Square	F	p
Library Anxiety	Between Groups	.114	4	.028	.077	.989
	Within Groups	100.396	273	.368		
	Total	100.510	277			
Barriers with Staff	Between Groups	11.885	4	2.971	2.977	.020
	Within Groups	267.467	268	.998		
	Total	279.352	272			
Affective Barriers	Between Groups	1.761	4	.440	.591	.670
	Within Groups	196.774	264	.745		
	Total	198.535	268			
Technological Barriers	Between Groups	5.735	4	1.434	1.364	.247
	Within Groups	283.757	270	1.051		
	Total	289.492	274			
Knowledge of Library Organization Barriers	Between Groups	4.340	4	1.085	1.324	.261
	Within Groups	222.021	271	.819		
	Total	226.361	275			
Knowledge of Library Services Barriers	Between Groups	.894	4	.224	.165	.956
	Within Groups	364.975	269	1.357		
	Total	365.869	273			
Comfort Barriers	Between Groups	1.385	4	.346	.435	.783
	Within Groups	214.814	270	.796		
	Total	216.199	274			
Resources Barriers	Between Groups	3.673	4	.918	1.454	.217
	Within Groups	169.306	268	.632		
	Total	172.979	272			
Rules Barriers	Between Groups	3.082	4	.771	1.072	.371
	Within Groups	195.548	272	.719		
	Total	198.630	276			

Finally, since a number of the research participants are Library Science students, the possible differences in mean anxiety score between these students and the ones attending other departments was examined. The results of the analysis do not point to any statistically significant differences in the mean score for library anxiety (see Table 7). No statistically significant differences were also found for library anxiety facets, except for the "Knowledge of Library Services Barriers" construct.

Table 7: Independent Samples Test for Schools

Construct	Department	Mean	SD	t	p
Library Anxiety	Library	2.3522	.58410	-1.837	.067
	Non-library	2.4876	.60959		
Barriers with Staff	Library	2.3926	1.07108	-.657	.512
	Non-library	2.4755	.97531		
Affective Barriers	Library	1.6926	.86153	-.916	.360
	Non-library	1.7914	.86093		
Technological Barriers	Library	2.6887	.98489	-.690	.491
	Non-library	2.7765	1.05298		
Knowledge of Library Organization Barriers	Library	2.1415	.91888	-1.629	.104
	Non-library	2.3236	.89474		
Knowledge of Library Services Barriers	Library	2.4984	1.10276	-2.031	.043
	Non-library	2.7882	1.17764		
Comfort Barriers	Library	2.0234	.96001	-.499	.618
	Non-library	2.0784	.84656		
Resources Barriers	Library	2.6635	.82106	-1.307	.192
	Non-library	2.7929	.78164		
Rules Barriers	Library	2.7103	.76353	-1.426	.155
	Non-library	2.8538	.89520		

5. Discussion and Conclusions

The majority of the current study participants experiences relatively low levels of library anxiety, with lower mean scores than that reported in previous research (e.g. Anwar et al., 2004; Song et al., 2014). Moreover, findings suggest that the main library stressors are the regulations imposed by the library, followed by technology, resources and knowledge of library services; to past studies, have indicated library resources as the major library stressor (e.g. wigo , 2011; Song et al., 2014).

As previously noted, the study participants are low library users, as designated by their self-report library visits and library e-resources use frequency. This finding is consistent with past research in the Greek context, which revealed that the percentage of students using library e-resources is low (Korobili and Tilikidou, 2005). Studies on information seeking behavior have also shown that undergraduate students prefer to use Google and other search engines for conducting research for coursework assignments (e.g. Griffiths and Brophy, 2005; Martin, 2008; Colón-Aguirre and Fleming-May, 2012). Low library resources use can be partially attributed to low motivation provision by the faculty (Korobili and Tilikidou, 2005). Analysis also showed that both library use frequency measures positively correlated with library anxiety, supporting past research findings signifying that library anxious students display library avoidance behaviors (e.g. Jiao et al., 1996; Jiao and Onwuegbuzie, 1997; Onwuegbuzie and Jiao, 2001). Further, findings showed that students who make little use of the library, either onsite or electronically, are less familiar with how the library is organized and the services it provides. Moreover, participants who feel less at ease in the library (affective and comfort barriers) tend to exhibit library avoidance behaviors. Finally, students with higher levels of anxiety,

as measured by the technology facet, are inclined to make less use of the electronic services.

Results with respect to gender differences are consistent with past studies indicating that male students exhibit higher levels of library anxiety (e.g. Jacobson, 1991; Jiao et al., 1996; Jiao and Onwuegbuzie, 1997; Jerabek et al., 2001; Veal, 2002; Erfanmanesh, 2011). However, none of the other environmental factors examined in the current study confirm past research findings. More specifically, age was not found to be significantly associated with anxiety levels, except for the resources facet, suggesting that older students perceive library materials as less useful. Also, no noteworthy association between library anxiety and year of study was depicted. More interestingly and contrary to expectations, Library Science students did not report lower levels of library anxiety, compared to students attending other departments, with the exception of the "Knowledge of Library Services" facet. This finding indicates that Library Science students are more knowledgeable of the services offered by the academic library.

Overall, results suggest that students in Greek tertiary education institutions experience low levels of library anxiety. This finding, however, may be somewhat biased, because participants might have underreported their anxiety levels. This can be partially attributed to socially desirable responding or to students' inclination to overestimate information literacy skills, as exhibited by past research. In fact, studies have consistently shown that students believe they know more about using the library and conducting research than what is proved actually when put to the test (e.g. Maughan, 2001; Chatzilia, and Sylaiou, 2013). Whichever the case, library anxiety is a phenomenon existent among Greek undergraduate students, calling for actions aiming at reducing anxiety and increasing library usage. As regards students, they need to be provided with the appropriate motivation to use their institution's library, coupled with the necessary training, through library instruction and information literacy courses. Moreover, students should be informed that library anxiety is not uncommon among their peers; acknowledging the normality of the phenomenon has been advocated to reduce library anxiety (Mellon, 1989; Carlile, 2007). Librarians and faculty should also be made aware of the phenomenon (Onwuegbuzie and Jiao, 1996; Jiao and Onwuegbuzie, 1998). This way, librarians will become more sensitive and proactive in helping students that seem less at ease when entering the library. In addition, along with faculty support, they should devise the appropriate library training strategies (Carlile, 2007). Positive library experiences have been proposed to alleviate library anxiety, by creating positive attitudes towards librarians and the library.

Future studies in the Greek context should further assess library anxiety levels using a larger, randomly selected sample. Moreover, the relationship of library anxiety with such factors as information literacy skills, number of library courses attended, research performance, grade point average etc. should also be investigated. Finally, steps should be taken towards establishing the causality between library anxiety and the factors it is known to be associated with. This would provide academics and practitioners with the necessary insights for formulating strategies, which would effectively counteract the emergence and negative effects of this phenomenon.

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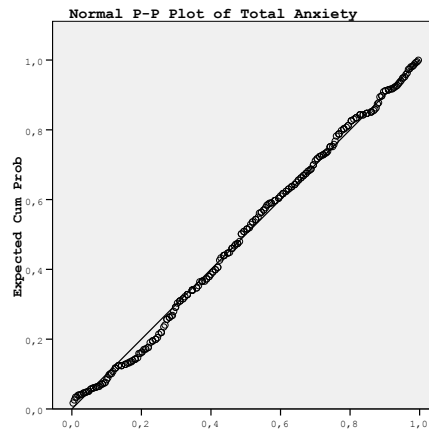
Appendix

Figure A: P-P Plot for Library Anxiety

Table A: One-Sample Kolmogorov-Smirnov Test

		Library Anxiety
N		279
Normal Parameters [a,b]	Mean	2.4352
	Std. Deviation	.60243
Most Extreme Differences	Absolute	.046
	Positive	.046
	Negative	-.027
Kolmogorov-Smirnov Z		.768
Asymp. Sig. (2-tailed)		.596
a Test distribution is Normal.		
b Calculated from data.		

Table B: Mean Differences for Staff per School Year (Bonferroni correction)

(I) Year	(J) Year	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound	Lower Bound
1st	2nd	-.20172	.27224	1.000	-.9723	.5689
	3rd	-.23342	.18286	1.000	-.7510	.2842
	4th	-.51156(*)	.14953	.007	-.9348	-.0883
	5th	-.19651	.20719	1.000	-.7830	.3899

* The mean difference is significant at the .05 level.