PHOBIC AND STUDENTS' ACADEMIC PERFORMANCE IN STATISTICS RELATED COURSE IN SOCIAL STUDIES

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Abstract

Learning of statistics presents a challenge to Social Studies students whose backgrounds in mathematics are in some cases very poor. The percentage of students who failed Statistics course at the department of Social Studies on annual basis is always alarming and gives one a serious concern. This paper examined the effects of phobia on students' academic performance in statistics related courses in Social Studies. The study adopted a descriptive survey research design. The subject for the study comprises of tertiary institution students from two public tertiary institutions in Ogun State, using a stratified random sampling techniques in selecting 211 two hundred and eleven students for the study. Four research questions were raised to guide the study. One research instrument tagged "Statistics Phobia questionnaire" (STQ) (r = .73) was used to elicit information from the respondents. Data were analysed using descriptive statistics of mean and standard deviation. The finding showed that the students experience different levels of phobia which affects their performance in the statistics class and statistics test; statistics phobia has effects on the performance of students in statistics aspects of Social Studies; lecturer factors also contributed to the attitudes of the students to statistics class and performance in test and examination. Based on the finding it was recommended that statistics class should be made more friendly by the lecturer of the course, individual differences should be considered in planning courses contents and methods adopted by the statistics lecturer and that statistics lecturer should always adopt active strategies (using of video and other e-platform) that will make the students to participate actively in the classroom session.

Keywords: statistics anxiety, academic performance, attitudes, Social Studies students

Introduction

Academic programme in various Social Studies require students to complete research methods including statistics courses or a blended combination thereof. Learning of statistics presents a challenge to Social Studies students whose background in mathematics is not strong (Harris & Muhamad, 2014). The percentage of students who failed Statistics course at the department of Social Studies on annual basis is always alarming and gives one a serious concern. This course requirement poses a dilemma for educators and students because many students perceive statistics as difficult and unpleasant. Some students in most cases continue to struggle in statistics courses as a result of complication of their perception about statistics as well as other intrapersonal factors related to the course.

Today, phobia is a common phenomenon of everyday's life. It plays a major role in human life because all human being experience phobia in different spheres of our life in one way or the other. Phobia is a state-anxiety reaction to any situation in which an individual is confronted with (Onwuegbuzie, DaRos, & Ryan, 1997). Anxiety is a symptom or group of symptoms that is capable of inducing 'worries' and tension and sometimes physiological symptoms like blood pressure increase or in some cases decrease (Kazdin, 2000). Dowbiggin (2009) also viewed anxiety as a known psychological term that is directly influencing human race.

Anxiety as stated by Hartmann (2014) is a subjective state of fear, apprehension, or tension which in the face of a naturally fearful or threatening situation; anxiety is a normal and understandable reaction. Generally, anxiety can either be a trait anxiety or a state anxiety. Trait anxiety is a stable characteristic or trait of the person. State anxiety is one which is aroused by some temporary condition of the environment such as examination, accident, punishment etc. (Mohammad, Akhtar, Saira & Syeda-Uzma, 2012). Academic anxiety is a kind of state anxiety which relates to the impending danger from the environment of the academic institutions including teachers, certain subjects like Statistics, Mathematics, Science, English etc (Rohen Meetei, 2012). Anxiety plays a significant role in academic settings and may prevent some students from realizing their fullest academic potential (Chapell et al., 2005). It also plays significant role in students' learning and academic performance (Tobias, 1979). Reilly and Lewis (1991) are of the opinion that phobia hampers young people's academic achievements. Factors such as changing schools, Parents divorcing or pressure of work, exams and test can all be difficult events for students are strongly linked with causes of anxiety in the students and anxiety is strongly linked with emotional depression.

Statistics phobia is a challenge for both the students and teachers of statistics and this is negatively related to performance in the course (Zare, Rastegar & Hosseini, 2011). Phobic of statistic is also related to fear of failure (Onwuegbuzie, 2004). Statistics anxiety is considered a common problem faced by teachers of statistics courses (Rodarte-Luna & Sherry, 2008).

Statistics requires the students to use analytical reasoning skills, problem solving skills and critical thinking skills. These higher order thinking skills are needed to be developed among university students in order to cope up with their major subjects. Cruise, Cash, and Bolton (1985) defined statistics anxiety as the feelings of anxiety encountered when taking a statistics course or doing statistical analyses: that is, gathering, processing, and interpreting. statistics anxiety is a physiological condition in which people experience extreme stress, anxiety, and discomfort during and/or before taking a statistics test. These responses can drastically hinder an individuals' ability to perform well and negatively affects their social emotional and behavioral development and feelings about themselves and school (Salend, 2012).

Statistics anxiety was found to be higher among female and minority graduate students in comparison to their male and Caucasian counterparts (Onwuegbuzie and Daley, 1999; Zeidner, 1991). The fear of failure and the perspective of people on statistical related courses and the desire for a high level of achievement puts a lot of pressure on student and this lead to more phobia been developed for statistical related courses. However, experience had showed that instructors of research and statistics courses often encounter students with high levels of statistics anxiety upon their arrival to class (Perney & Ravid, 1991). Also, expressed by Onwuegbuzie, Slate, Paterson, Watson, and Schwartz (2000), 75% to 80% of graduate students in the social sciences appeared to experience high levels of statistics anxiety. Characteristics of the statistics class /test environment such as nature of the task difficulty, atmosphere, time constraints, examiner characteristics, mode of administration, teachers' attitude in the class and physical setting can affect the level of anxiousness felt by the students'. Gal and Gingsburg (1994) reported students often enter statistics courses with negative views or later develop negative feelings regarding the subject matter of statistics.

Therefore, students with high statistics phobia are unable to focus their full attention in the statistic class. Furthermore, anxiousness is evoked when a student believes that the evaluative situation, such as an assessment, exceeds his or her intellectual, motivational and social capabilities (Putwain, Woods & Symes, 2010). According to Perney and Ravid (1991), statistics courses are viewed by most college students as a road block to obtaining their degree. Students often delay taking their statistic courses until the end of their program. Researchers found students' negative attitudes toward statistics is an influencing factor in low student performance in statistics courses (Araki & Schultz, 1995).

This reaction is viewed by Zeidner (1991) as worry, tension and physiological symptoms of stress when students are faced with taking a statistical class. Cruise, Cash, and Bolton (1985) however identifies six components of statistics phobia as

i. worth of statistics,
ii. interpretation anxiety,
iii. test and class anxiety,
iv. computational self-concept,

v. fear of asking for help, and
vi. fear of statistics teachers.

The theory that provides the theoretical background for this study is found in the attentional Control theory popularized by Eysenck and Calvos (1992). The theory focused on anxiety and cognitive performance with the assumption that the effects of anxiety on individual's capacity to choose what they pay attention to and what they ignore are key to understanding the relationship between anxieties on performance. Anxiety impairs efficient functioning of students' attentional system and increases the extent to which processing efficiency depends on attentional control, (Amalu, 2017). Therefore, anxiety may reduce a students' focus to the examination task and instead makes a student focus his or her attention to other things which will distract his attention i.e thought of worry or other distracting aspect which are not relevant to the task.

Al-Hebaish (2012) investigated the correlation between general self-confidence and academic achievement in the oral presentation course among 53 undergraduate female English majors from Taibah University in Saudi Arabia. The results showed that students with higher self-confidence had less anxiety while giving an oral presentation. Kambuga (2016) examined anxiety and academic performance among secondary school pupils in Tanzania, the findings indicated that a considerable number of pupils were affected by anxiety leading to poor performance, the school rules, teachers' practices, and behaviours and corporal punishment as well as pupils' irresponsibility also lead to anxiety disorders experienced by the pupils. Amalu, (2017) studied the cognitive test anxiety as a predictor of academic achievement among secondary school students in Makurdi Metropolis, Benue State, the result showed that cognitive test anxiety predict academic achievement. The result of the students in statistics test and examination are always worrisome which gives one concern about the real reason for the student below average performance in statistics. Many reasons have been accrued for the downward trend in the performance of the students in statistics course in Social Studies. This study therefore examined Phobic and students' academic performance in statistics related course in Social Studies.

One of the prerequisite condition to graduate in the field of Social Studies is to complete research methods with statistics courses. This course requirement poses a dilemma for educators and students because many students perceive statistics as difficult and unpleasant. Some students can struggle in statistics courses as a related complication of this perception as well as other intrapersonal factors related to the course. Researchers have found out various causes of anxiety among the students, factors such as minimal previous math experience, late introduction to quantitative analysis, anti-quantitative bias, lack of appropriation for the significance of analytical models, and lack of mental imagery were factors contributing to statistics anxiety among different levels of students. However, not much has been done in the area of statistical phobia as it related to Social Studies students. Therefore, this work examined effects of phobia on students' academic performance in statistics related courses in Social Studies.

Based on the above premises this study therefore examine the level of statistics phobia among Social Studies students; assess the impact of anxiety on the academic performance of Social Studies students in statistics; investigate the roles of statistics lecturer in developing phobia in the students and suggest ways of reducing phobia among the Social Studies students

The following research questions guided the study:

i. What are the levels of statistic phobia among the Social Studies students?
ii. What are the impacts of phobia on the academic performance of Social Studies students in statistics?
iii. What are the roles of statistics lecturers in developing phobia in the students?
iv. What are the ways of reducing statistics phobia among the Social Studies students?

Method and Materials

The study adopted a survey descriptive research design. The sample consisted of 211 participants drawn from Social Studies, 300 level Social Studies students from two tertiary institutions in Ogun state. A purposeful sampling procedure was adopted in selecting schools for the study as the study was meant to examine statistical phobia among the Social Studies students in tertiary institution. A Stratified random sampling procedure was used in selecting the participants for the study. At first, all students offering Social Studies in the two selected institutions

form the population for the study. From this, therefore, portions were selected to form the sample for the study. Four research questions were raised to guide the study. One questionnaire "Statistics phobia questionnaire" was used in collecting data from the respondents. To establish the content and face validity of this instrument copies were given to some experts in the field of education. This was to ascertain the suitability of the instrument in terms of language, presentation, clarity and applicability. Based on their observations necessary modifications were made. Also, a field trial of the instruments was carried on a randomly selected thirty (30) 200level Social Studies students of another institution that are not part of the main study. The reliability index was calculated using split half the value was achieved at the (r=.73) reliability level. Data were analysed using descriptive statistics.

Results and Conclusion

Research Questions 1: What are the levels of statistic phobia among the Social Studies students?

Table 1: Levels of statistic phobia among the Social Studies students.

S/N	Items	N	Mean	SD	Decisions
1	I have visible signs of nervousness before any statistic test.	211	3.27	1.427	Agree
2	I read through the statistics notes and feel that I do not know many parts of the notes.	211	3.63	1.174	Strongly Agree
3	I panic before and during a statistics class.	211	3.45	1.370	Agree
4	My mind goes blank during a statistics test.	209	3.90	1.223	Strongly Agree
5	I have trouble sleeping the night before a statistics examination.	210	3.17	1.534	Agree
6	I make mistakes on easy questions or put answers in the wrong places.	211	3.38	1.116	Agree
7	I have trouble choosing answers.	210	3.59	1.168	Strongly Agree
8	I feel very panicky when I have to take a surprise statistics test.	210	2.91	1.358	Agree
9	During statistics examination, I find myself thinking of the consequences of failing.	211	3.54	1.428	Strongly Agree
10	After important statistics tests, I am frequently so tense that my stomach gets upset.	211	3.82	1.422	Strongly Agree
11	If I were to take a difficult statistics questions I would worry a great deal before taking it.	211	2.98	1.333	Agree
12	I usually get depressed after taking a statistics test.	210	3.35	1.309	Agree
13	I sometimes feel my heart beating very fast during important statistics exams.	208	2.94	1.445	Agree
		211	3.73	1.331	Strongly Agree

The table above shows the levels of statistic phobia among the Social Studies students. The item which states that "my mind goes blank during a statistics test" has the highest mean score of 3.90 (SD= 1.223) this showed that respondents strongly agreed with the assumption raised in the questionnaire, this is followed by item which states that "after important statistics tests, I am frequently so tense that my stomach gets upset" has mean score of 3.82(SD=1.422). In addition, responses to items 2, 7, and 9 shows that the respondents strongly agreed to various forms of statistical phobia experience by Social Studies students'. However, the item which states that "I feel very panicky when I have to take a surprise statistics test" has the lowest mean score of 2.91(SD=1.223). Also, the respondents agree to items 1, 3, 5, 6, 11, 12 and 13 as other forms statistical phobia experienced by Social Studies students. The standard deviation of all the items shows high level of disperse of the scores which shows revealed the homogeneity of scores. It can therefore be stated that all the respondents shows that their

performance in statistics can be ascribed to anxiety which comes in different forms.

Research Questions 2: What are the effects of phobia on the academic performance of Social Studies students in statistics?

Table 2: Effects of phobia on the academic performance of Social Studies students in statistics

S/N	Items	N	Mean	SD	Decisions
1	During statistics examination I frequently get so nervous that I forget facts that i already know.	211	3.38	1.257	Agree
2	If I knew I was going to take a very difficult statistics questions, I would feel confident and relaxed beforehand.	211	3.15	1.418	Agree
3	I have an uneasy, upset feeling before taking statistics examination	209	3.55	1.337	Strongly Agree
4	For the fear of statistics, I made mistakes a lot	211	3.28	1.307	Agree
5	Nature of statistics made me to forget a lot of things in statistics	211	3.58	1.294	Strongly Agree
6	The formula in statistics arouse my fear in statistics	209	3.35	1.444	Agree
7	I develop fear whenever statistics exam/test are announced	208	3.24	1.468	Agree
8	My interest in the course is low	197	3.54	1.448	Strongly Agree
	Total	211	3.34	1.371	Agree

The table 2 above shows the impacts of phobia on the academic performance of Social Studies students in statistics. The item which states that 'nature of statistics made me to forget a lot of things in statistics' has the highest mean score of 3.58 (SD=1.294), followed by the item that states 'I have an uneasy, upset feeling before taking statistics examination' with the mean score of 3.55 (SD=1.337) and 'my interest in the course is low' with mean score of 3.54 (SD=1.448). However, the lowest mean score of 3.15 (SD=1.418) was recorded in the item which states that 'if I knew I was going to take a very difficult statistics questions, I would feel confident and relaxed beforehand'. This shows that statistics phobia have a lot of impact on the performance of students in the statistics related courses in Social Studies as total average decisions shows that participants agreed on the effects of anxiety on their performance in statistics.

Research Questions 3: What are the roles of statistics lecturers in developing phobia in the students?

Table 3: Roles of statistics lecturers in developing phobia in the students.

S/N	Items	N	Mean	SD	Decisions
1	Always in fear during statistics class	209	3.78	1.296	Strongly Agree
2	Always in discomfort during statistics class	207	4.16	1.231	Strongly Agree
3	I sit at the back of the class because I fear being asked question	210	3.40	1.384	Agree
4	Find it boring in statistics class because of the strategies adopted by statistics teachers.	210	3.08	1.456	Agree
5	Statistics teacher mostly do not assist the students in developing interest in the subject.	209	4.22	1.237	Strongly Agree
6	I prefer copying notes than attending statistics classroom	209	4.04	1.282	Strongly Agree
7	I avoid meeting statistics teacher	208	3.84	1.373	Strongly Agree
8	If possible I prefer staying away from taken statistics test/exam	206	3.13	1.339	Agree
9	Statistics teacher are not considerate.	208	3.11	1.386	Agree
10	Statistics teachers do not Students consider intellectual difference in the students.	211	2.90	1.354	Agree
	Total		3.91	1.334	Strongly

					Agree

The table 3 above shows the roles of statistics lecturers in developing phobia in the students. The heist mean score of 4.22(SD=1.237) was recorded by the item which states that 'statistics teacher mostly do not assist the students in developing interest in the subject' , this is followed by the item that states that 'always in discomfort during statistics class' with the mean score of 4.16(SD=1.231) and I prefer copying notes than attending statistics classroom with the mean score of 4.04(1.282). However, the lowest mean score of 2.90(SD=1.354) was recorded by the item which states that 'statistics teachers do not Students consider intellectual difference in the students' . The standard deviation shows high level of disperse among the set of the item scores. It can therefore be concluded that lecturers' factors also contributes to the students' disposition and phobia for statistics in Social Studies.

Research Question 4: What are the ways of reducing statistics phobia among the Social Studies students?

Table 4: Ways of reducing statistics phobia among the Social Studies students.

S/N	Suggestions	N	%
1	The statistics lecturer should take care of the individual differences in the students by not rushing the students.	32	15.17
2	The statistics lecturer should try to breakdown the topics to the level all the students can benefit maximally. Teaching from simple to complex.	16	7.58
3	Statistics should make the class interesting so that the students will always want to attend his class.	24	11.0
4	The lecturer should not always dominate the class but most time allows the student to participate actively in the classroom interaction.	20	10
5	The statistics lecturer should always adopt active strategies that will make his students to participate.	36	17.06
6	Lecturers should always encourage the students as this will develop their interest in the course	40	18.96
7	The lecturer should be friendly with the students and not always strict.	20	10
8	The statistics lecturer should give the students more examples and assignments to enhance their level of understanding of the course	32	15.16

The result of the table 4 above shows the respondents suggestions on how phobia can be reduced among the Social Studies students. 18.96% of the students suggested that lecturer should always encourage the students to develop their interest in the subject. This can be due to the fact that most of the students have developed fear for mathematics from their primary school days, they therefore needs to be encouraged to reduced that fear in them. This is follows by the item 5 which has 17.06% of respondents that suggested that statistics lecturer should always adopt active strategies in teaching statistics. This may be due to the fact that the level of understanding of the students can also be affected by the strategies adopted as most statistics teacher always concentrate on working, giving examples and not involving their students in classroom activities. Also, 32% of the respondents were of the opinion that the statistics lecturer should take care of the individual differences in the students by not rushing them and that the statistics lecturer should try to give the students examples and assignment to enhance their level of understanding of the subject.

Conclusion

The study examined the effects of statistical phobia on the student's academic performance in the statistical related courses in Social Studies. The finding of the study shows that the students experience different levels of phobia which affects their performance in the statistics class and statistics test. This corroborates the findings of Onwuegbuzie, Slate, Paterson, Watson, and Schwartz (2000), 75% to 80% of graduate students in the social sciences appeared to experience high levels of statistics anxiety. This might be due to pre-empted perception of how statistics is viewed as a very difficult subjects and assumptions that statistics lecturers are always tough.

Also, the finding also shows that statistics phobia has effects on the performance of students in statistics aspects of Social Studies. This also supported the work of Chapell et al., (2005) who are of the opinion that anxiety plays a significant role in academic settings and may prevent some students from realizing their fullest academic potential. This can be attributed to the fact that fear of statistics made some students to make unnecessary mistakes in the examination.

In addition the findings of research questions three shows that the lecturer factors also contributed to the attitudes of the students to statistics class and performance in test and examination. Also, suggestions offered by the respondents shows that statistics phobia can be reduced if the statistics lecturers are more friendly, involved the students actively in their classroom session and always encourage the students to develop their interest in the course.

Phobia was found to have effects on students' performance in statistic in Social Studies. This suggests that phobia contributed greatly to the performance of Social Studies students in statistics. It was also found out that students performance in the statistic examination are as a result of nervousness about the course and the lecturer taken the course before the examination period. This suggests that the interest of the students in the course is very low and this are as a result of anxiety they have for the course which also affects their performance in the statistics examination. Lecturers factors such as not been considerate of students that have phobia for statistics and students statistical intellectual differences was also found to be a factor that made students to fear statistics. This suggests that lecturer factors affect students' attendants in statistics class and the interest of students' in the course.

Recommendation

Based on the findings drawn from this study, the following recommendations are put forward.

1. Statistics class should be made more friendly by the lecturer of the course so as to reduce the fear that students have for the course and also help them to develop interest in the course.
2. Statistics lecturers should be mindful of individual differences while planning the course contents and methods adopted by the statistics lecturer should be interactive in nature, through this students will be free with the lecturers taken the course. Lecturers can introduce also video in the teaching of the course.
3. Statistics lecturer should always encourage and motivate the students so as to develop their interest in the subject.
4. Statistics lecturers should give students more examples and assignments to enhance their level of understanding of the course.

References

Al-Hebaish, S. M. (2012). The correlation between general self confidence and academic achievement. *Theory and Practice in Language Studies, 2*(1). 60-65. doi:10.4304/tpls.2.1.60-65

Amalu, M. N. (2017). Cognitive test anxiety as a predictor of academic achievement among secondary school students in Makurdi Metropolis, Benue State. *International Journal of Scientific Research in Education, 10*(4), 362-372.

Araki, L. T., & Shultz, K. S. (1995, April). *Students attitudes toward statistics and their retention of statistical concepts.* Paper presented at the annual meeting of the Western Psychological Association, Los Angeles.

Chapell, M. S., Blanding, Z. B., Silverstein, M. E., Takahashi, M., Newman, B., Gubi, A., &

McCann, N. (2005). Test anxiety and academic performance in undergraduate and graduate students. *Journal of Educational Psychology, 97*(2), 268-274. doi:

10.1037/0022-0663.97.2.268

Cruise, R., Cash, R., & Bolton, D. (1985). *Development and validation of an instrument to measure statistical anxiety*. Paper presented at the annual meeting of the American Statistical Association Statistics Education Section. Las Vegas, NV.

Dowbiggin I.R. (2009) High anxieties: the social construction of anxiety disorders. *Canadian Journal of Psychiatry*. *54*(7):429-36.

Eysenck, M. W., & Calvo, M. G. (1992). Anxiety and performance: the processing efficiency theory. *Cognition & Emotion*, *6*, 409-434.

Gal, I., & Ginsburg, L. (1994). The role of beliefs and attitudes in learning statistics: Towards an assessment framework. *Journal of Statistics Education, 14*(3). Retrieved on 8 September, 2018,

from http://www.amstat.org/ publications /jse/v14n3/vanhoof.html.

Harris S.A. and Muhamad K.S. (2014). Statistics Anxiety and Achievement in a Statistics Course among Psychology Students. *International Journal of Behavioral Science*, *9*(1), 55-66.

Hartmann, P. M. (2014). Anxiety. *Magill'S Medical Guide (Online Edition)*, https://libproxy.lamar.edu/login?url=http://search.ebscohost.com/login.aspx?direct

Kambuga, Y. (2016). Anxiety and academic performance among secondary school pupils in Tanzania. *British Journal of Education, Society & Behavioural Science, 14(3), 1-7.*

Kazdin , A.E. (2000). *Psychotherapy for children and adolescents: Direction for research and practice*. New York: Oxford University Press

Mohammad N., Akhtar A., Saira M. and Syeda Uzma Z.(2012). Impact of Anxiety on the Academic Achievement of Students Having Different Mental Abilities at University level in Bahawalpur (Southern Punjab) Pakistan. *International Online Journal of Educational Sciences*, *4* (3), 519-528.

Onwuegbuzie, A. J., DaRos, D., & Ryan, J. M. (1997). The components of statistics anxiety: a phenomenological study. *Focus on Learning Problems in Mathematics*, 19, 11–35.

Onwuegbuzie, A., & Daley, C. (1999). Perfectionism and statistics anxiety. *Personality and Individual Differences*, 26, 1089–1102.

Onwuegbuzie, A. J., Slate, J. R., Paterson, F., Watson, M. H., & Schwartz, R. A. (2000). Factors associated with achievement in educational research courses, *Research in Schools*, *7*, 53–65.

Onwuegbuzie, A. J. (2004). Academic procrastination and statistics anxiety. *Assessment & Evaluation in Higer Education*, *29*, 3–19.

Perney, J & Ravid, R. (1990). *The relationship between attitudes towards statistics, math self-concepts, test anxiety and graduate students' achievement in an introductory statistics course*. Paper presented at the annual meeting of the America Educational Research Association, Boston.

Putwain, D.W., Woods, K.A., Symes, W. (2010). Personal and situational predictors of test anxiety of students in post compulsory education. *British Journal of Educational Psychology*, 80,137-160.

Rezvan, K & Kumer, P.D. (2017). Analyzing international students' study anxiety in higher education. *Journal of International Students, 7*(2), 311-328

Rodarte-Luna, B., & Sherry, A. (2008). Sex differences in the relation between statistics anxiety and cognitive/learning strategies. *Contemporary Educational Psychology*, *33*(2), 327–344.

Rohen M. (2012). A ciritical study of impact of academic anxiety on academic achievement of class sixth students. http://www.scribd.com/doc/23767970/A-Ciritical-Study-of-Impact-of-Academic-Anxiety-on-Academic-Achievement-of-Class-Ixth-Students-Bareilly.

Reilly, R.R. and Lewis, E.L. (1991). Educational psychology. Newyork:Laural Tanner Macmillan Company Inc.

Salend, S.J. (2012). Teaching students not to sweat the test. *Phi Delta Kappan*, *93*(6),20-25.

Tobias, S. (1979). Anxiety research in educational psychology. Journal of Education Psychology, *71*. 573-582.

Zare, H., Rastegar, A., & Hosseini, S. M. D. (2011). The relation among achievement goals and academic achievement in statistics: the mediating role of statistics anxiety and statistics self-efficacy. *Procedia - Social and Behavioral Sciences*, *30*, 1166–1172.

Zeidner, M. (1991). Statistics and mathematics anxiety in social science students: some interesting parallels. *British Journal of Educational Psychology*, *61*, 319–328.