Pakistan Journal of Psychological Research, 2012, Vol. 27, No. 2, 265-278

Determinants of Academic Performance of University Students

Nadeem Talib
National University of Modern Languages

Sujit S. Sansgiry
University of Houston

In the present study, factors such as academic competence, test competence, time management, strategic studying, and test anxiety were studied as determinants of academic performance, i.e., Grade Point Average. In addition, these factors may help in identifying high as well as low academic achievers. A sample of 199 undergraduate and graduate university students from Rawalpindi and Islamabad received a survey with the modified version of the Study Management and Academic Results Test (Topman, Kleijn, Ploeg, & Masset, 1992) and the Test Anxiety Inventory (Sarason, 1980). The results indicated that academic competence, test competence, time management, and test anxiety were significantly related to student's academic performance. Results also showed that test competence, academic competence, and test anxiety being the major discriminators among low and high GPA achievers. Developing strategies that help students cope with the rigors of academic life, understand how to study efficiently for exams, and helping them reduce their level of anxiety associated with taking a test would help improve their future performance, these benefits would be seen specifically for students who have a low GPA.

Keywords: academic competence, time management, strategic studying, test anxiety, GPA

Students are potential nation builders who aspire to become engineers, doctors, managers, and scientists and materialize a nation's dreams. Students in every discipline in universities have many

Nadeem Talib, Department of Management Sciences, National University of Modern Languages, Islamabad, Pakistan.

Sujit S. Sansgiry, Division of Pharmacy Administration and Public Health Department of Clinical Sciences and Administration, College of Pharmacy, University of Houston, Texas, USA.

Correspondence concerning this article should be addressed to Nadeem Talib, Department of Management Sciences, National University of Modern Languages, Sector H-9, Islamabad, Pakistan. E-mail: nadeem.talib@numl.edu.pk

obstacles to overcome in order to achieve their endeavor of optimal academic performance. The Grade Point Average (GPA) system as an indicator of academic performance is used by many universities in Pakistan and other parts of the world (Blue, Gilbert, Elam, & Basco, 2000; Burger, 1992; James & Chilvers, 2001; Nguyen, Allen, & Fraccastoro, 2005; Svanum & Zody, 2001). Factors that could reduce hurdles for achieving and maintaining the required GPA needs to be identified and improved by university administrators, faculty members, and students (Womble, 2003). Several factors could act as barriers to students' attaining and maintaining a high GPA that reflect their academic performance during their stay at the university. These factors may be cognitive and learning factors, social activities, job responsibilities, caring for children, and stress (Devadoss & Foltz, 1996; Hatcher, Prus, Englehard, & Farmer, 1991). Cognitive and learning issues such as academic competence, test competence, time management, strategic studying, and test anxiety are some factors that a student may have to balance to be a high achiever (Sansgiry, Bhosle, & Sail, 2006; Womble, 2003). Many studies have reviewed these factors individually (Blue et al., 2000; Eccles, Wigfield, & Schiefele, 1998; Fortier, Vallerand, & Guay, 1995; Macan, Shahani, Dipboye, & Phillips, 1990; McFadden & Dart, 1992), but none have evaluated them collectively and specifically in university students from Pakistan. These factors could be targeted by the university personnel in developing strategies to improve student learning and to improve their academic performance.

According to Kleijn, Ploeg, and Topman (1994), *academic competence* is dependent upon how well the student manages their course load described in their curriculum. Academic competence is also indicative of the extent to which the curriculum is interesting for students to enjoy their classes. There is a significant positive association of academic competence and academic performance (Fortier et al., 1995; Kleijn et al., 1994; Sansgiry et al., 2006). Moreover, better academic competence has been found to be not only pivotal in ensuring better academic performance but also in the likelihood of retaining students in educational institutions (Adelman, 1999; Bean, 1985; Fletcher, 1998; Ishitani & Desjardins, 2002; Tinto, 1975).

Another factor which can be considered as a reflection of appropriate management of study materials by students for their examinations is test competence (Topman et al., 1992). Kleijn et al. (1994) defined *test competence* as student's ability to deal and muddle through the amount of course material for examinations. Further, it refers to difficulties associated with managing the study material as

well as preparing for them for examination (Alvermann & Moore, 1991). Previous research with pharmacy students has indicated that test competence is the factor which discriminates between low and high GPA achievers (Sansgiry et al., 2006).

Time management and strategic studying are invaluable in academic success (Campbell & Svenson, 1992). Lay and Schouwenburg (1993) defined *time management* as clusters of behavioral skill sets that are important in the organization of the study/course load. According to Walker and Siebert (1980), the first step in time management is prioritizing which in turn is giving importance to more important matters. This means that one should remain completely focused on already prioritized issues ignoring all other possible issues which may disturb one's priority. For successful implementation of such a strategy one has to be careful about the planning, scheduling and then seriously following the plan (Sieber, 1980). Time management also calls for making conscious decisions actively in order to better manage the time available (Lay & Schouwenburg, 1993).

Strategic studying refers to knowledge and application of effective study skills by student (Kirschenbaum & Perri, 1982) whereas time management refers to set of behavioral skills that are very important in organizing and tackling the study load (Alvermann & Moore, 1991; Kleijn et al., 1994; Walker & Siebert, 1980). Strategic studying may help a student to achieve a high GPA especially when the course load is high (Sansgiry et al., 2006). There are many efficient study strategies that could be used by students based on the learning environment (Alvermann & Moore, 1991; Anderson & Armbruster, 1984). These strategies may include Know-Want-Learn (Ogle, 1986), Survey-Question-Read-Recite-Review (Robinson, 1970), summarizing and note-taking using graphics, and self-questioning (Alvermann & Moore, 1991; Anderson & Armbruster, 1984; Brown & Day, 1983; Deshler et al., 2001).

According to Sieber (1980), *test anxiety* is defined as the reaction to stimuli that are associated with the individual's experience of testing or evaluating situations. Academic performance and test anxiety were found negatively associated (Hembree, 1998; Sarason, 1980; Seipp, 1991; Sieber, 1980). According to Zeidner (1990), there is broad agreement in the literature that test anxiety is responsible for lower academic performance. Hill and Wigfield (1984) reported that test anxiety has affected about 25% American students at primary and secondary levels. Seipp (1991) meta-analyzed 126 American and European studies and found negative correlation between academic performance and anxiety. This means that students with low test

anxiety level would outscore high test anxious students by almost half a standard deviation and that only 39% of the low test anxious would fail, whereas 61% of high test anxious students would fail. A study conducted at the Lahore University in Pakistan reported that university students specifically women have test anxiety which affects their GPA (Khalid & Hasan, 2009). Apart from a few studies (Akram & Mahmood, 2010), there is not much research on how students in developing nations cope with anxiety to achieve better academic performance.

There is no evidence of conduction of any research on the effects of academic competence, time management, strategic studying, and test anxiety on students' academic performance with reference to developing countries especially Pakistan. Hence, this study is focusing on multiple factors to indentify which factors help in discriminating and predicting academic performance of university students in Pakistan.

The main objective of the present study was to evaluate the relationship between academic competence, test competence, time management, strategic studying, test anxiety, and students' academic performance. Further, the study's other goal was to identify and explain variability among low and high academic achiever with respect to academic competence, test competence, time management, strategic studying, and test anxiety.

Method

Sample

The sample consisted of 199 students (graduate and undergraduate) enrolled in three public and four private universities as per criteria of Higher Education Commission of Pakistan (HEC) located in twin cities of Rawalpindi and Islamabad. Respondents constituted 123(62%) men and 76(38%) women who were classified into two age groups, 117(59%) of 18-21 years and 82(41%) of 22-30 years of age. GPA statistics indicated that slightly more than half of the students 104 (52.2%) had a GPA of 3.00 or higher and 55(27.6%) achieved a GPA 3.5 and higher. Forty (20%) students had a GPA less than 2.00 providing an adequate representation of all achievers. The majority of the students 101(51%) were enrolled in business administration (BBA and MBA) degree programs, whereas 87(44%) were doing their degrees in engineering programs (Electrical/ Telecommunication/Software Engineering); while the remaining 11 (5%) were enrolled in MS or M.Phil. programs.

Instruments

The following measures were used to assess the variables of the study.

Study Management and Academic Results Test (SMART). The modified version of SMART (Topman et al., 1992) was used to measure students' study and examination related cognitions: Test Competence, Academic Competence, Strategic Studying, and Time Management. The modifications by Sansgiry et al. (2006) were adopted in this study which was based on the context and student population relevance. SMART is 20 items self-reported scale with five items for each of the subscale. These items can be viewed in the previously published article (Sansgiry et al., 2006) and were measured using 5-point Likert scale ranging from *strongly agree* (1) to *strongly disagree* (5). Students indicated their level of agreement or disagreement with each of the statements. Scores on items were combined to provide an average score for each factor which ranged from 1(low) to 5 (high). A high score indicated that the student was competent in the respective factor.

To acquire the composite scores for each domain, the following number of items were reverse coded that is, 4 items for measuring Academic Competence, 3 items for measuring Test Competence, 2 items used for measuring Time Management, and 4 items for measuring Strategic Studying. None of the items was reverse scored to measure Test Anxiety. Consistency of response was checked using Cronbach alpha. In the present study, the reliability coefficients were found adequate for Academic Competence (.70), Test Competence (.70), Time Management (.68), and Strategic Studying (.75) as compare to previous, .70, .80, .70, and .70, respectively (Sansgiry et al., 2006). It may be noted that in behavioral research Cronbach alpha of .60 or higher is acceptable and indicates the reliability of the scale used (Kerlinger & Lee, 2000).

Test Anxiety Inventory (TAI). It was originally developed by Sarason (1980) and modifications reported by Sansgiry et al. (2006) was used as a self-reported scale due to its high reliability scores (.90) and simplicity in administration. This inventory consisted of 10 statements. Responses were elicited on a 5-point scale that is ranging from *not at all typical of me* (1) to *very much typical of me* (5). The respondents indicated how often students experienced the feelings described in each item of the scale. A high score indicated that the student is feeling much anxiety. The Cronbach alpha analysis yielded satisfactory internal consistencies (.78) for the current sample.

Grade Point Average (GPA). Student's cumulative GPA (a measure of academic performance) was obtained using an open-ended question requesting their GPA at the time they completed the questionnaire on a scale ranging from 0 to 4. The GPA was self-reported, which was later counter checked with the examination branch (which is responsible for keeping all the records/statistics of results of all evaluation tests of students) for accuracy. Moreover, for discriminant analysis, student's academic performance was categorized as high GPA achiever group with GPA 3 and above, whereas those with GPA below 3 were categorized as low GPA group.

Procedure

Graduate and undergraduate students were approached during their class periods from different disciplines in consultation with program coordinators of respective departments. Moreover, this process was executed with the permission of the respective class professors. Students were invited to participate after the consent document was recited to each class. Participation was voluntary and the survey responses were coded in SPSS 16 for analyses. All participants were asked to read the instructions carefully and encircle the option how they generally felt and how well each statement described their situation. The self-administered surveys were provided in English.

Results

Descriptive analyses, correlation analyses, and stepwise discriminate analyses were used to evaluate the study objectives. Students' academic performance was categorized as high GPA achiever group with GPA 3 and above, whereas those with GPA below 3 were categorized as low GPA group. Based on this criteria students were categorized in the low GPA group (n = 95) and in the high GPA group (n = 104).

Table 1 indicates that the low and high GPA achiever differ significantly on academic competence, test competence, time management, and test anxiety variables. Moreover, there is nonsignificant difference found on strategic studying techniques between two groups.

Table 1

t-analysis of Low and High GPA Group on Study Variables (N = 199)

	Low GPA (n = 95)	High GPA (n = 104)		95% CI		
Variables	*M(SD)*	*M(SD)*	*t*(196)	LL	UL	Cohen's *D*
AC	3.1(0.6)	3.3(0.7)	2.49*	0.43	0.05	.35
TC	3.0(0.6)	3.3(0.7)	3.1*	0.49	0.11	.45
TM	2.8(0.5)	3.0(0.6)	2.4*	0.39	0.04	.35
SS	3.3(0.7)	3.3(0.8)	0.4	0.26	0.16	.06
TA	2.7(0.6)	2.4(0.7)	2.8*	0.09	0.51	.45

Note. CI = Confidence Interval; LL = Lower Limit; UL = Upper Limit; AC = Academic Compétence; TC = Test Compétence; TM = Time Management; SS = Strategic Study; TA = Test Anxiety.
*$p < .05$.

Table 2 shows that academic competence has highest significant positive correlation with GPA which indicates that students are comfortable with their course material/content and put efforts to the best of their ability to comprehend the material. Further, there is positive association between academic competence and test competence. Test competence is positively associated with time management and test anxiety. There is also a negative, but significant association of time management with test anxiety.

Table 2

Means, Standard Deviations, and Correlations of GPA with Academic Competence, Test Competence, Time Management, Study Strategy, and Test Anxiety

Variables	*M(SD)*	1	2	3	4	5	6
1. AC	3.2(0.6)	-	.26*	.07	.05	-.15	.26*
2. TC	3.1(0.6)		-	.39**	.00	.45**	.24*
3. TM	2.9(0.6)			-	.15	-.23**	.17*
4. SS	3.3(0.6)				-	-.01	.08
5. TA	2.5(0.7)					-	-.23**
6. GPA	2.5(1.1)						-

Note. CI = Confidence Interval; LL = Lower Limit; UL = Upper Limit; AC = Academic Compétence; TC = Test Compétence; TM = Time Management; SS = Strategic Study; TA = Test Anxiety; GPA = Grade Point Average.
*$p < .05$. **$p < .01$.

Table 2 further reveals that academic performance of students is significantly associated with academic competence, test competence, and time management. Test anxiety is significantly, but negatively correlated with students' academic performance, however, strategic study is not significantly associated with academic performance.

Table 2 also shows overall mean score for Test Competence positively indicating that students are managing their course materials moderately well and are able to cope with examination tension. However, the overall Time Management score is found to be below 3, demonstrating that students found difficulty in managing their study and leisure time efficiently. The overall mean for strategic studying is above 3 showing that students use different study strategies for examination like guessing questions, reviewing, summarizing the course material in advance, and having group study or taking mock tests/examinations before the final examination for obtaining better grades. Low score for Test Anxiety indicates that students in general do not panic and are not demoralized before examination. Moreover, results indicate that students do not suffer from examination phobia (with symptoms as perspiring, or physical problems like stomach ache, high heart beat, etc.) and, were not anxious about the exam as they prepared for the exam fairly well.

A stepwise discriminant analyses is performed to understand which variables are able to discriminate between the low and high GPA achievers. Variables such as academic competence, test competence, test anxiety, strategic study, and time management are included in the model. Table 3 provides the Canonical Discriminant Coefficients, the respective Wilk's Lambda statistics, and the significance value for those variables that are significant (see Table 3).

Table 3
Canonical, Standardized Canonical Discriminant, Structure Matrix Coefficients, and Wilk's Lambda for Discriminant Analysis for the Low and High GPA Achievers (N = 199)

Variables	ψ	ϕ	γ	λ	p
TC	.48	.73	.76	.96	.01
AC	.47	.67	.62	.94	.01
TA	-.45	-.67	-.73	.93	.02

Note. ψ = Standardized Canonical Discriminant Coefficient; ϕ =Canonical Discriminant function coefficient; γ = Structure matrix coefficient; λ = Wilk's Lambda ; TC = Test Compétence; AC = Academic Compétence; TA = Test Anxiety.

Table 3 reveals stepwise discriminant analyses for both groups indicating test competence, academic competence, and test anxiety as the strongest predictors of academic performance. As expected test anxiety has a negative relationship with academic performance. The structure matrix (γ values) provides another way of indicating the relative importance of these predictors. To understand what these discriminant function score means, we calculate group centriod for both group i.e. low and high GPA category in the present study. The centriod value was found -.28 and .229 for low GPA and high GPA group, respectively. It means that if any score on the discriminant function closer to -.28 then those answers would probably belong to the low GPA students. On the other hand a discriminant function closer to .229 would mean the data belonged to a high GPA student. Further, we calculated the cutoff score (-.023) which is the average of the two centriods found above and indicates that any student's score using test competence, academic competence and anxiety score in the discriminant function is below the cutoff point then that student belongs to the low GPA group, otherwise, the student will be in the high GPA group.

Discussion

The present study focuses on effect of the factors such as academic competence, test competence, time management, strategic studying, and test anxiety on the academic performance of university students in Pakistan. A stepwise discriminant analysis provided a good model fit to understand the difference among low and high academic achiever. Test competence was the single most important factor that may help distinguish students with academic performance. Moreover, test anxiety and academic competence were also important and significant factor for distinguishing student's academic performance. Academic competence scores were found slightly better in the present sample demonstrating that students found course material/contents interesting and enjoying their classes. There could also be a tendency of the teachers to provide more information to students. Academic competence was significantly positively correlated with academic performance. So better the academic competence the better will be student performance (Adelman, 1999; Bean, 1985; Fletcher, 1998; Ishitani & Desjardins, 2002; Tinto, 1975). This means that students who have less test and academic competence, but have high test anxiety will not perform well on examinations which may lead to lower GPA. The results of this study are consistent with previous studies (Chapell et al., 2005; Eum & Rice, 2010; Sansgiry et al., 2006;

Seipp, 1991). Time management and test anxiety were found significantly related with the student's academic performance previously. The significant negative correlation between test anxiety and academic performance indicates that test anxiety is associated with reduction in GPA. These findings are consistent with the study conducted by Hill and Wigfield (1984). The results of this study also supported conclusion that academic performance and anxiety are inversely proportional (Hembree, 1998; Khalid & Hasan 2009; Seipp, 1991). Moreover, the test anxiety scores were also low which indicate that students in general do not get panic, less anxious about the exams. Additionally students did not feel any physical problems thus perform better in examination. These findings are consistent with the study conducted by Chapell et al. (2005) which conclude that students with low test anxiety perform better in the examination. It may be noted that majority of the students in the present study have GPA 3 and above.

Time management techniques are the best ways for managing course material e.g. group study method (Gloe, 1999). Through this method students can have discussions, exchange ideas on certain topic, thus, memorizing key points which help them to do better in examination. For present study, time management is significantly associated with GPA. However, the mean score for time management is bit low indicating that students found difficulty in managing the study and leisure time. Though the correlation was weak and may not help discriminate between low and high GPA achievers, it can be concluded that better time management strategies would result in increased academic performance. The results of significant correlation between time management and academic performance are consistent with previous studies (Britton & Tesser, 1991; Macan et al., 1990; Sansgiry et al., 2006; West & Sadoski, 2011).

Strategic studying had nonsignificant correlation with academic performance. This finding is inconsistent with the previous findings reported by West and Sadoski (2011). However, the mean score for strategic studying indicated that students used different study strategies before the examination for obtaining better grades. This new information which was not reported previously needs to be investigated further. In addition, techniques used by students for strategic studying in developed nations may be different from developing nations. We have not empirically tested this conclusion, however, since the survey instrument was developed based on those techniques considered to be used in developed countries, there may be a need to confirm that they are the same for students in developing nations.

On the basis of the findings it is suggested that faculty members should assess course load they assign to their students for the particular test as well as hold review/discussion sessions before a test or an examination. Faculty members should address and take serious notice of these problems which affect students' academic performance and interpose the achievement of their desired goals. Deans and department heads may hold seminars/lectures; confidence building, and counseling sessions to obtain in-depth understanding of these variables that may affect student performance.

Limitations and Suggestions

This study has certain potential limitations. The sample size of the present study was small and thus the results may not be generalized to all students in Pakistan. It was assumed that students provided true reflection of their self and their habits. Like any survey, there is always the limitation of response bias by students, especially with the GPA reporting. However, in our sample we were able to validate the GPA reported. There is also the possibility that some students may not have understood the items in our questionnaire accurately to reflect their opinions and behaviors.

We did conduct a pilot study to address this issue, but were not able to address the strategic studying techniques that may have been used in addition or in substitution to those provided in the instrument. Further, studies should validate the study finding with a larger sample. Understanding the study techniques used by students in developing nations and the differences between those of the developed nations would help in developing techniques or opportunities for improvement.

Conclusion

It can be concluded that academic competence, test competence, time management, and test anxiety were significant factors that affect academic performance. Exclusively, test competence, academic competence, and test anxiety were important factors that discriminate between low GPA and high GPA achievers. Further, it is recommended that converging the focus of attention towards understanding the above mentioned factors will prove to be helpful for students to improve their performance.

References

Adelman, C. (1999). *Answers in the tool box: Academic intensity, attendance patterns, and bachelor's degree attainment.* Washington, DC: United States Department of Education.

Akram, R., & Mahmood, N. (2010). The relationship between test anxiety and academic achievement. *Bulletin of Education and Research, 32*(2), 63-74.

Alvermann, D. E., & Moore, D. W. (1991). Secondary schools. In R. Barr, M. L. Kamil, P. B. Mosenthal, & P. D. Pearson (Eds.), *Handbook of reading research* (pp. 951-983). New York: Longman.

Anderson, T. H., & Armbruster, B. B. (1984). Studying. In P. D. Pearson (Ed.), *Handbook of reading research* (pp. 657-679). New York: Longman.

Bean, J. P. (1985). Interaction effects based on class level in an explanatory model of college student dropout syndrome. *American Educational Research Journal, 22*(1), 35-64. doi: 10.2307/1162986

Blue, A., Gilbert, G., Elam, C., & Basco, W. (2000). Does institutional selectivity aid in the prediction of medical school performance. *Academic Medicine, 75*, 31-33.

Britton, B. K., & Tesser, A. (1991). Effects of time-management practices on college grades. *Journal of Educational Psychology, 83*(3), 405-410. doi: 10.1037/0022-0663.83.3.405

Brown, A. L. & Day, J. D. (1983). Macro rules for summarizing texts: The development of expertise. *Journal of Verbal Learning and Verbal Behavior, 22*, 1-14.

Burger, J. M. (1992). Desire for control and academic performance. *Canadian Journal of Behavioral Science, 24*(2), 147-155. doi: 10.1037/h0078716

Campbell, R. L., & Svenson, L.W. (1992). Perceived level of stress among university under-graduate students in Edmonton, Canada. *Perceptual and Motor Skills, 75*, 552-554.

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

Deshler, D. D., Shumaker, J. B., Lenz, B. K., Bulgren, J. A., Hock, M. F., Knight, J., & Ehren, B. (2001). Ensuring content-area learning by secondary students with learning disabilities. *Learning Disabilities Research and Practice, 16*, 96-108.

Devadoss, S., & Foltz, J. (1996). Evaluation of factors influencing student class attendance and performance. *American Journal of Agricultural Economics, 78*, 499-508.

Eccles, J. S., Wigfield, A., & Schiefele, U. (1998). Motivation to succeed. In W. Damon & N. Eisenberg (Eds.), *Handbook of child psychology* (pp. 1017-1095). New York: Wiley.

Eum, K. U., & Rice, K. G. (2010). Test anxiety, perfectionism, goal orientation, and academic performance. *Anxiety, Stress, and Coping, 24*(2), 167-178. doi:10.1080/10615806.2010.488723

Fletcher, J. (1998). *A study of factors affecting advancement and graduation for engineering students* (Unpublished doctoral dissertation). Auburn University, Auburn, USA.

Fortier, M. S., Vallerand, R. J., & Guay, F. (1995). Academic motivation and school performance: Toward a structural model. *Contemporary Educational Psychology, 20*, 257-274.

Gloe, D. (1999). Study habits and test taking tips. *Dermatology Nursing, 11*(6), 439-449.

Hatcher, L., Prus, J. S., Englehard, B., & Farmer, T. M. (1991). A measure of academic situational constraints: Out-of-class circumstances that inhibit college student development. *Educational and Psychological Measurement, 51*(4), 953-963.

Hembree, R. (1998). Correlates, causes, effects, and treatment of test anxiety. *Review of Educational Research, 58*, 47-77.

Hill, K. T., & Wigfield, A. (1984). Test anxiety: A major educational problem and what can be done about it. *Elementary School Journal, 85,* 105-126.

Ishitani, T., & Desjardins, S. (2002). A longitudinal investigation of dropout from college in the United States. *Journal of College Student Retention: Research, Theory, and Practice, 4*(2), 173-201.

James, D., & Chilvers, C. (2001). Academic and non-academic predictors of success on the Nottingham undergraduate medical course 1970-1995. *Medical Education, 35,* 1056-1064.

Kerlinger, F. N., & Lee, H. B. (2000). *Foundations of behavioral research.* (4th ed.). Fort Worth, TX: Harcourt.

Khalid, R., & Hasan, S. (2009).Test anxiety and low achievers. *Pakistan Journal of Psychological Research, 24*(3-4), 97-114.

Kirschenbaum, D. S., & Perri, M. G. (1982). Improving academic competence in adults: A review of recent research. *Journal of Counseling Psychology, 29*(1), 76-94.

Kleijn, W. C., Ploeg, H. M., & Topman, R. M. (1994). Cognition, study habits, test anxiety, and academic performance. *Psychological Reports, 75*, 1219-1226.

Lay, C. H., & Schouwenburg, H. C. (1993). Trait procrastination, time management, and academic behavior. *Journal of Social Behavior and Personality, 8*(4), 647-662.

Macan, T. H., Shahani, C., Dipboye, R. L., & Phillips, A. P. (1990). College students' time management: Correlation with academic performance and stress. *Journal of Educational Psychology, 82*(4), 760-768.

McFadden, K., & Dart, J. (1992). Time management skills of undergraduate business students. *Journal of Education for Business, 68*, 85-88.

Nguyen, N. T., Allen, L. C., & Fraccastoro, K. (2005). Personality predicts academic performance: Exploring the moderating role of gender. *Journal of Higher Education Policy & Management, 27*(1), 105-116.

Ogle, D. M. (1986). K-W-L: A teaching model that develops active reading of expository text. *The Reading Teacher, 39*(6), 564-570.

Robinson, F.P. (1970). *Effective study (4th ed.)*. New York: Harper & Row.

Sansgiry, S. S., Bhosle, M., & Sail, K. (2006). Factors that affect academic performance among pharmacy students. *American Journal of Pharmaceutical Education, 70*(5), 104-120.

Sarason, I. G. (1980). *Test Anxiety: Theory, research, and applications*. Hillsdale, N.J.: Lawrence Erlbaum and Associates.

Seipp, B. (1991). Anxiety and academic performance: A meta-analysis of findings. *Anxiety Research, 4,* 27-41.

Sieber, J. E. (1980). Defining test anxiety: Problems and approaches. In I. G. Sarason (Ed.), *Test anxiety: Theory, research, and applications* (pp. 15-42). Hillsdale, NJ: Lawrence Erlbaum Associates.

Svanum, S., & Zody, Z. B. (2001). Psychopathology and college grades. *Journal of Counseling Psychology, 48*(1), 72-76

Topman, R. M., Kleijn, W., Ploeg, H. M., & Masset, E. A. (1992). Test anxiety, cognitions, study habits, and academic performance: A prospective study. *Advances in Test Anxiety Research, 7,* 221-241.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*(1), 89-125.

Walker, T., & Siebert, A. (1980). *Student success: How to succeed in college and still have time for your friends*. New York: Holt, Rinehart and Winston, Inc.

West, C., & Sadoski, M. (2011). Do study strategies predict academic performance in medical school? *Medical Education, 45*, 696-703.

Womble, L. P. (2003). Impact of stress factors on college students' academic performance. *Undergraduate Journal of Psychology, 16*(1), 16-23.

Zeidner, M. (1990). Does test anxiety bias scholastic aptitude test performance by gender and socio-cultural group? *Journal of Personality Assessment, 55*, 145-160. doi: 10.1080/00223891.1990.9674054

Received August 09, 2010

Revision received November 19, 2012