

Investigation of Academic and Athletic Motivation on Academic Performance Among University Students

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Abstract— The purpose of this paper is to examine the academic and athletic motivation and identify the factors that determine the academic performance among university students in the Emirates of Dubai. The study examined motivation based on nontraditional measure adopting a scale to measure both academic as well as athletic motivation. This study involving 217 athlete and non-athlete students reveals that academic motivation, career athletic motivation and student athletic motivation are motivational factors in improving students' academic performance. Further, it showed there is a significant trend in student athletic motivation as a function of both father educational qualification and mother educational qualification. Findings also suggests a significant trend in career athletic motivation as a function of nationality, however, there is no significant pattern observed from all the three factors as a function of gender and GPA.

Index Terms—academic motivation, academic performance, athletic performance, business management, career motivation, sports motivation, university students

I. INTRODUCTION

A number of research studies have been undertaken to predict the academic performance of students. During the last decade some research has also been carried out on the performance of student athletes. These studies assume importance because they have an important impact and influence on the academic performance of students. Universities and colleges today have a number of students from countries all over the world. These students come with diverse cultural background and societal traits. It is therefore important to identify the factors that motivate the students to improve their academic performance and also ascertain the reasons for athletic motivation. This assumes importance because Sports Administrators at universities and colleges are faced with the difficulty of encouraging students to participate in sports, in spite of the benefits and scholarships that have been provided. Over a period of time, educators and administrators have taken up the challenge of improving the academic performance of students. However, there is a common misconception that only academic performance matters. Consequently, students who excel in academics tend to give a low priority to athletic performance.

The important research questions are:

- (i) Is there a relationship between academic performance and athletic performance?
- (ii) What are the factors that motivate students to improve their academic performance?

(iii) Are the factors that determine athletic performance different?

(iv) Is there gender difference in factors that motivate students to improve academic performance and athletic performance?

(v) What are the cultural implications? In other words, does culture play a role in motivating academic and athletic performance?

A majority of studies that have been conducted on the motivational factors that affects academic performance are conducted in the western countries and their focus is mainly on grade school or secondary school students [Stevenson & Baker, 1997 and Steinberg, et al., 1992, cited in [2]], and [2]. However, there is no such study on the Arab World, particularly the UAE (United Arab Emirates). This study thus, fills the gap in previous literature. It also extends the analysis by including the non-cognitive variables previously used by some researchers.

This is an exploratory study that makes a humble attempt is made to examine the above mentioned research questions. The paper is organized as follows: Section 1 introduction, followed by Section 2 review of literature, Section 3 is the methodology for the data collection and an explanation of variables used in the study. Section 4 contains the findings and Section 5 offers concluding remarks Section 6 implications and Section 7 deals with the limitations of the study and directions for future research.

II. REVIEW OF LITERATURE

A number of early studies examined the importance of traditional variables in predicting academic performance such as high school GPA, SAT score, high school class rank and GMAT [1], [3], [9], [10], [14], [15], and [16]. Similarly, there are a number of up-to-date research that have produced evidence of an association between personality, conscientiousness, openness to experience, emotional stability, agreeableness and academic success [6], [10], [12], and [15]. Likewise, few researchers attempted to study the relationship between motivation (academic motivation, student athletic motivation, career athletic motivation, and study time) and academic performance [4], and [7]. In addition to this relationship, some researchers have explored the impact of demographic variables such as socio-economic status, gender, parent's education qualification and ethnicity in predicting academic performance [2], [4], [5], [14], and

[15].

However, few studies have investigated academic and athletic motivation as nontraditional variables and their relevance as factors in predicting academic performance [3] and limited number of studies considered sports motivation as a significant predictor of academic performance (Snyder (1996), cited in [4]). Gayles [3] considered academic motivation, athletic motivation and career motivation as factors in predicting academic performance among university athlete students. The result showed that academic motivation was a significant factor. Interestingly, female athletes had a higher academic motivation scores than their career and athletic motivation scores. The result further supports existing literature where female athletes can perform better academically than their male counterparts and suggested a further research pertaining to motivation and its impact or relationship to academic achievement needs to be conducted to confirm the findings.

Several studies were conducted to determine the performance of female and male students and relate it to their sports and academic performance [5], [8], and [13]. The results of research undertaken by these researchers showed conflicting results. Their findings showed that female athletes perform better academically than male. The study of Chee, Pino and Smith [5], suggested that the factors associated with GPA differ by gender. Whereas, Peiperl, and Travelyan [8] found that gender is not significantly correlated with students' performance and that there was no indication that either men or women perform better in the MBA program.

It is interesting to note that the study of Chee, Pino and Smith [5] identified race as an important factor that affects academic ethics as well as academic achievement for women. Moreover, nonwhite women are more likely to have academic ethics compared to their white counterparts, but on the contrary, white women had higher GPAs than nonwhite women. In the case of men, this research showed that race does not affect the academic achievement.

Numerous studies attempted to analyze the influence of family variables (educational level of parents, socio-economic status, and family structure) on academic performance, though the results were inconclusive, there are conflicting results on the effect of socio-economic status of parents on students' academic performance. Some studies showed that socio-economic status is weakly correlated to achievement while recent study done by Casanova, Linares, de la Torre and Carpio [2] showed that socio-demographic variables are better predictors of academic achievement. According to this study, students with normal achievement seem to indicate that the principal predictors of academic achievement were socio-demographic variables.

III. RESEARCH METHODOLOGY

The sample consisted of 217 athletes and non-athletes who were doing courses in business management at the undergraduate level in universities in Dubai. Demographic as well as other motivation related data was collected through a structured questionnaire. It included a number of demographic variables and also 30 items to examine the

extent to which students were motivated toward academic and athletic related tasks. These items were measured using a 6-point Likert-type Scale, ranging from Very Strongly Disagree (1) to Very Strongly Agree (6). An exploratory factor analysis (EFA) and reliability estimates were conducted to confirm the underlying structure and internal consistencies of the items on the scale. Comprehensive Exploratory Factor Analysis (CEFA) was used to conduct the analysis. This statistical program is unique because it produces a measure of model fit, standard errors for rotated factor loadings and factor correlations.

The study was based on a three motivation factor model, an academic motivation (AM), a student athletic motivation (SAM), and career athletic motivation (CAM). Therefore, although we started our study with the initial scale consisting of 30 items to examine the extent to which students were motivated toward academic and athletic related tasks, our idea was to re-classify the items based on specific motivations. On re-classification the scale of AM consisted of 11 items; the scale of SAM consisted of 6 items; and CAM consisted of 5 items. Since the focus of the study was on the influence of motivation to academic performance, we treat the non-cognitive variables such as gender, nationality, socio-economic status, father's education qualification as well as mother's education qualification as controlled variables.

IV. FINDINGS

A. Demographic Results

The respondents were subdivided based on their nationality into several groups as shown in **Fig. 1** 48% of the respondents were Indians and Pakistani, 20% of the respondents belonged to other Asian nationalities, while 19% are from GCC nations (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and UAE) and other Arab countries, and the American, Australian, Canadian, Russian, Nigerian, Tanzanian etc., are merely 13%. As can be seen from the break-up, a majority of the students are expatriates. Among the 217 respondents, 59% were male while 41% were female.

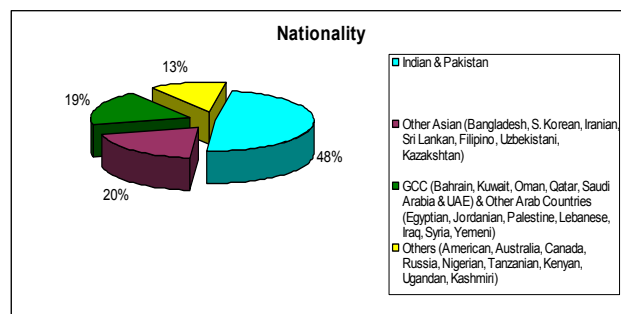


Figure 1. Nationality Subgroups

The frequency distribution of parent's educational qualifications shows that an overwhelming majority of parents were well educated either graduates or post-graduates.

Approximately 50% of respondent's parents had income of over AED 25,000. The sample consisted of a uniform

distribution of parents belonging to different income groups.

B. Reliability and Data Analysis

In adopting the Student Athlete’s Motivation towards Sports and Academics Questionnaire (SAMSAQ), we hypothesized that all items may be grouped into three factors, (1) Academic Motivation (AM), (2) Career Athletic Motivation (CAM), and (3) Student Athletic Motivation (SAM). To test the hypothesis, the three factors were confirmed, by initially using the SPSS for Factor Analysis as a data reduction to identify a small number of factors that explain most of the variance observed in survey questions. **Fig 2.** illustrates the overall model of our analysis. We used the Principal Axis Component as the extraction method suppressing a factor loading less than 0.4 (as considered to be small) in order to make an easier scanning of the output. The three factors seen in Appendix 1 explain 47.3% of cumulative variance. We also examined the sampling adequacy using the Kaiser-Meyer-Olkin measure. The sampling showed a high value of 0.82 suggesting a factor analysis is appropriate and it is significant ($p < 0.05$) using the Bartlett’s Test of Sphericity.

A reliability analysis Cronbach’s alpha was further conducted to determine if all item groupings are acceptable and reliable. Though we intend to adopt the SAMSAQ questionnaire, we drop some of the variables because these variables were not significant for a study undertaken in the UAE because of the cultural and other differences. The first factor (Academic Motivation) has 11 items with a reliability Cronbach’s alpha of 0.84, the second factor (Career Athlete Motivation) has 5 items with a Cronbach’ alpha value of 0.70, and the third factor (Student Athletic Motivation) has 6 items with Cronbach’ alpha value of a 0.76. The Cronbach’s alpha indicator of the three factors suggests that the items have relatively high internal consistency.

The correlation reported in Appendix 2 shows the relationship of the three factors among the controlled variables, such as gender, nationality, educational qualification of parents, family income, and GPA. There is a significant relationship of the qualification of father with the qualification of mother ($r = 0.416, p < 0.01$); family income is highly related to father’s educational qualification ($r = 0.166, p < 0.05$). Interestingly, there exist a significant correlation of the father’s qualification with the Student Athletic Motivation and Academic Motivation ($r = -0.153, p < 0.05, r = -0.158, p < 0.05$ respectively). Similarly, there is a significant correlation of the mother’s qualification with the Student Athletic Motivation ($r = -0.162, p < 0.05$).

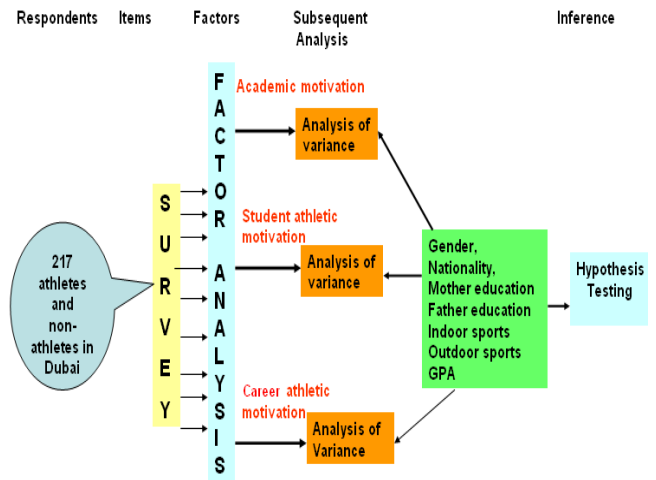


Figure 2. The overall model of the analysis.

As a subsequent phase to factor analysis, we examined the mean scores and standard deviation of each motivation by gender as shown in Table 1. Though respondents are predominantly male, the average among the three factors between male and female are not much different. Females have higher motivation scores on athletic motivating tasks ($M=3.94, SD = 1.33$) compared to males ($MD = 3.15, SD = 1.33$). On the contrary, males have a higher Academic Motivation (Mean =4.14, SD = 1.27) than females. Among the three factors, students are more academically motivated than in athletic tasks. Moreover, students whose family income is low are more academically motivated unlike those students whose family income is higher are only moderately academically motivated. By inspection of the means and standard deviations of the gender and the family income, we can conclude that these cannot be significantly different.

TABLE 1. MEAN AND STANDARD DEVIATION FOR MOTIVATION FACTORS BY GENDER, AND SES

Variables	Academic Motivation Factor		Career Athletic Motivation Factor		Student Athletic Motivation Factor	
	Mean	SD	Mean	SD	Mean	SD
Gender						
Male	4.14	1.27	3.15	1.33	3.24	1.28
Female	4.02	1.19	3.94	1.33	3.35	1.21
Family Income						
5 000 - 10 000	4.39	1.18	3.07	1.27	3.35	1.08
10 001 - 15 000	4.16	1.30	2.85	1.21	3.08	1.33
15 001 - 20 000	4.30	1.31	2.99	1.44	3.23	1.41
20 001 - 25 000	3.98	1.31	3.05	1.16	3.21	1.29
25 001 - 30 000	3.98	1.27	4.22	1.26	3.18	1.35
30 001 & above	3.99	1.19	3.87	1.33	3.29	1.17

Further analysis based on one way analysis of variance (ANOVA) was performed to investigate whether there is any significant association between the three motivation factors and the controlled variables: gender, nationality, socio-economic status, father’s education qualification as well as mother’s education qualification as controlled variables. Each of the controlled variables was treated as an independent variable (Anova Factor) and each of the

motivation factor, was treated as the dependent variable. The null hypothesis is set to the no-variability in the motivation factor as a function of the subgroups in the independent variable. The results are summarized as follows:

- 1) There is a significant trend in Academic Motivation (factor-1) (Sig=0.014) as a function of the father educational level
- 2) There is a significant trend in Student Athletic Motivation (factor-3) (Sig=0.021) as a function of the father educational level
- 3) There is a significant trend in Student Athletic Motivation (factor-3) (Sig=0.013) as a function of the mother educational level
- 4) There is a significant trend in Career Athletic Motivation (factor-2) (Sig=0.014) as a function of the nationality.
- 5) There is no significant pattern observed for all the three factors as a function of both gender and GPA.

V. CONCLUSION

The purpose of this study is to adopt the SAMSAQ scale used by Gayles [4] and test it under the peculiar conditions prevailing in the UAE. The result supports the framework for measuring the academic and athletic motivation. The SAMSAQ scale resulted in a good internal consistency when measuring the three motivation factors: (1) Academic Motivation, (2) Career Athlete Motivation, and (3) Student Athletic Motivation. The findings showed important results for all subscales. On an average, male athletes had higher academic motivation scores than any other group. Students whose parents belonged to the higher Socio-economic group had higher athletic motivation.

In our research findings show very little relationship between academic performance and athletic performance because in the UAE students (expatriates) are extremely career oriented. Therefore we concluded that appropriate steps for corrective orientation should be taken. The main emphasis is on the possibility of career prospects and job orientation of academic courses. Students are motivated to improve academic performance when they realize that the academic courses improve their career prospects. Therefore our recommendation is that Universities and colleges should make students aware of the possibility of developing careers in the area of sports and athletics. Are the factors that determine athletic performance different? Yes students who are not academically inclined and have a natural talent and ability to excel in athletics tend to concentrate in athletics.

Our conclusions are consistent with earlier studies [2], [4], [5], [14]. The result is surprising because a majority of students in the UAE being expatriates give a high priority to academic performance and tend to be motivated by the possibility of job-oriented courses. There is also a misconception that athletic activities are not career-oriented and therefore there is a low motivation for those activities.

VI. IMPLICATIONS

These findings may have important implications for advisors and student counselors. The fact that athletic

motivation is low shows the lack of understanding about the career possibilities in athletic areas. The findings of the study confirm the findings of earlier studies [2] that family variables particularly socio-economic status has an important impact on academic motivation of students. Unlike previous research [5] this study shows that Asian students are more academically motivated and male student are marginally more motivated than female students. It is important to recognize the fact that unless students are educated on the career-orientation of sports activities and the fact those students who concentrate on sports activities can also excel academically.

A. Student Counselors

This study gives important insights into the type of student in the UAE. Student counselors who understand the socio-cultural implications that result in differences in athletic motivation and academic motivation can help student to reach their potential academically. For example, helping athletes to learn to deal with prejudice because they are athletes could be more important role for counselors [11]. In a transitional economy like the UAE students athletes should be considered as nonconventional students. Unless student counselors encourage and motivate students who are inclined towards athletic and make them aware of their academic capabilities and the link between academic and athletic motivation-the performance of these students will be insignificant. Timely guidance has a positive impact on motivation and work patterns.

B. Administrators

According to the Gulf News, 17th October 2010, "there may be talent in UAE but a dearth of tournaments and facilities limits institutions from going further than amateur level, leaving athletes frustrated. The general consensus is that due to lack of funds and efforts, university and colleges."

C. Parental support

Athletic motivation remains neglected unless parents and guardians realize the important link between athletic and academic motivation in the holistic development of a student [2].

Taken together, the findings of the present study provide several implications for academic achievement of students. The present study suggests that it is essential for educational counselors, administrators, administrators and parents to understand and support athletic as well as academically motivated students. This is necessary to optimize the academic achievement of the student and promote adjustment and learning among students.

VII. LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

A significant effort has been made to minimize measurement error in variables that were reported. However, there is a likelihood that some discrepancies arose for variables like parents educational qualification. These in turn would have an impact on calculation of socio-economic status. It is therefore recommended that socio-economic status be studied in depth and its impact on Academic and Athletic motivation should be calculated for male and female

students from different cultural backgrounds.

The current study was undertaken over a limited period of time, future research should undertaken over a period of time

APPENDIX

APPENDIX 1. ROTATED FACTOR MATRIX

Items Questions	Loading		
	1	2	3
I am willing to put in the time to earn excellent grades in my courses, so that I get a good salaried job.	.710		
In order to get a good job, it is important for me to learn what is taught in my courses.	.695		
I get more satisfaction from scoring a "Credit/Distinction" in a course toward my major than in winning a game.	.679		
The most important reason why I am in school is to develop skills for a Job.	.650		
I chose (or will choose) my major because it is something I am interested in as a career.	.648		
I am confident that I can achieve a high grade point this year	.631		
I will be able to use what is taught in my courses in different aspects of my career outside of college.	.589		
The most important reason why I am in school is to earn a degree and get a good job.	.574		
I get more satisfaction from having a good job than in the future than a career in sports.	.544		
It is important to me to learn the skills and strategies taught by my coaches.	.524		
The content of most of my courses is interesting to me.	.437		
During the years I compete in my sport, completing a college degree is not a goal for me.		.692	
I chose to play my sport because it is something that I am interested in as a career.		.648	
It is not worth the effort to earn excellent grades in my courses.		.616	
I am confident that I can earn a college degree.	.470	-.607	
Achieving a high level of performance in my sport is an important goal for me this year.		.568	
My goal is to make it to the professional level or the Olympics in my sport.			.816
I am confident that I can make it to an elite level in my sport (Professional/Olympics).			.788
I have some doubt about my ability to earn high grades in some of my courses.			.542
The amount of work required in my courses interferes with my athletic goals.			.536
I will be able to use the skills I learn in my sport in other areas of my life outside of sports.			.501
I am confident that I can be a star performer on my team this year.			.428

Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalization

APPENDIX 2. CORRELATION MATRIX OF VARIABLES IN REGRESSION MODEL

	AM	CAM	SAM	GPA	Qualification of Mother	Qualification of Father	Family Income
REGR AM for analysis 1	1						
REGR CAM for analysis 1	-.041	1					
REGR SAM for analysis 1	.021	.001	1				
Gender	.097	-.077	-.025				
GPA	.118	-.035	-.010	1			
Qualification of Mother	-.124	.079	-.162*	.019	1		
Qualification of Father	-.158*	.029	-.153*	.085	.416**	1	
Family Income	-.041	.064	-.097	-.069	.088	.166*	1

*Correlation is significant at the 0.05 level

**Correlation is significant at the 0.01 level

REFERENCES

- [1] R. G. Brookshire, and S. W. Palocsay, "Factors Contributing to the Success of Undergraduate Business Students in Management Science Courses," Decision Sciences Journal of Innovative Education, vol. 3, Spring 2005, pp. 99-108.
- [2] P. F. Casanova, M. C. G. Linares, M. de la Torre and M. dV. Carpio, "Influence of Family and Socio-Demographic Variables on Students with Low Academic Achievement," Educational Psychology, vol. 25, August 2005, pp. 423-435.
- [3] J. L. G. Gayles, "Examining Academic and Athletic Motivation Among Student Athletes at a Division I University," Journal of College Student Development, vol. 45, January/February 2004, pp. 75-83.

- [4] J. L. G. Gayles, "The Factor Structure and Reliability of the Student Athletes' Motivation toward Sports and Academic Questionnaire (SAMSAQ)," *Journal of College Student Development*, vol. 46, May/June 2005, pp. 317-327.
- [5] K. H. Chee, N. W. Pino and W. L. Smith, "Gender Differences in the Academic Ethic and Academic Achievement," vol. 39, September 2005, pp. 604-618.
- [6] N. T. Nguyen, L. C. Allen, and K. Fraccastoro, "Personality Predicts Academic Performance: Exploring the moderating role of gender," *Journal of Higher Education Policy and Management*, vol. 27, March 2005, pp. 105-116.
- [7] S. A. Nonis, and G. I. Hudson, "Academic Performance of College Students: Influence of Time Spent Studying and Working," *Journal of Education for Business*, vol. 81, January/February 2006, pp. 151-159.
- [8] M. A. Peiperl, and R. Traveyan, "Predictors of performance at business school and beyond," *Journal of Management*, vol. 16, 1997, pp. 354-367.
- [9] A. Richter, "Intemporal Consistency of Predictors of Student Performance: Evidence from a Business Administration Program," *Journal of Education for Business*, vol. 82, November/December 2006, pp. 88-93.
- [10] M. J. Schniederjans, and E. B. Kim, "Relationship of Student Undergraduate Achievement and Personality Characteristics in a Total Web-based Environment: An Empirical Study," *Decision Sciences Journal of Innovative Education*, vol. 3, pp. 205-221, Fall 2005.
- [11] W. E. Sedlacek, and J. A. Gaston, "Predicting the Academic Success of Student-Athletes Using SAT and Noncognitive Variables," *Journal of Counseling and Development*, vol. 70, July 1992, pp. 724-727.
- [12] M. Sheard, "Hardiness commitment, gender, and age differentiated university academic performance," *British Journal of Educational Psychology*, vol. 79, 2009, pp. 189-204.
- [13] H. D. Simons, and D. Van Rheezen, "Noncognitive Predictors of Student Athlete's Academic Performance" *Journal College Reading and Learning*, March 2000.
- [14] A. Sulaiman, and S. Mohezar, "Student Success Factors: Identifying Key Predictors," *Journal of Education for Business*, vol. 81, July/August 2006, pp. 328-333.
- [15] K. L. Whittingham, "Impact of Personality on Academic Performance of MBA Students: Qualitative Versus Quantitative Courses," *Decision Sciences Journal of Innovative Education*, vol. 4, July 2006, pp. 175-190.
- [16] D. A. Yousef, "Success in an introductory operations research course," *International Journal of Educational Management*, vol. 23, 2009, pp. 421-430.

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