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Student-Related Variables as Predictors of Academic Achievement Among Some Undergraduate Psychology Students in Barbados

Grace Adebisi Fayombo
The University of the West Indies, Barbados

This study examined some student-related variables (interest in higher education, psychological resilience and study habit) as predictors of academic achievement among 131 (*M* (mean) = 28.17, *SD* (standard deviation) = 1.61) first year psychology students in the Introduction to Developmental Psychology class in UWI (The University of the West Indies), Cave Hill Campus, Barbados. They responded to four instruments: PAT (Psychology Achievement Test), IHES (Interest in Higher Education Scale), PRS (Psychological Resilience Scale) and SHS (Study Habit Scale). Descriptive Statistics, Pearson Product Moment Correlation and Stepwise Multiple Regressions were conducted. Findings revealed significant positive correlations between the student-related variables and academic achievement. The student-related variables also jointly contributed 46% of the variance being accounted for in academic achievement (*R*-square = 0.464, which is the square of the measure of correlation and an indication that the model is fit for future prediction of academic achievement among university students) and this was found to be significant. Additionally, it was found that interest in higher education was the best predictor of academic achievement and that psychological resilience and study habit were other significant predictors. These results were discussed in the light of improving these student-related variables for effective teaching of psychology and good academic performance.

Keywords: academic achievement, interest in higher education, psychological resilience, study habit, developmental psychology

Introduction

Developmental psychology is the study of continuity and change across the life span, and every human being exhibits both indicating that no human organism began as the person he/she is now and that there is no assurance of ending up that way (Schacter, Gilbert, & Wegner, 2009). Developmental psychology aims at explaining these human behaviors or phenomena through the maximum understanding of the present which is a derivative of the past dramatic changes from conception through neonatal to infancy to childhood and radically to adolescence then subtly transforming to adulthood and then to the surprising delights of old age, hence, its

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Grace Adebisi Fayombo, Ph.D., Faculty of Humanities and Education, West Indies Cave Hill Campus, The University of the West Indies.

importance in understanding human behaviors.

In UWI (The University of the West Indies), Cave Hill Campus, School of Education, Barbados, the undergraduate students in the BA (Bachelor of Arts) and BSc (Bachelor of Science) Psychology programmes take Developmental Psychology courses from levels one to three (UWI Undergraduate Students' Handbook, 2009/2010) in order to have a sound knowledge of the changes that occur in human organisms from conception till death and the effect that these changes may have on human behaviors. The level one "Introduction to Developmental Psychology" is the prerequisite for the level two "Developmental Psychology II: Conception to Adolescence", which in turn is the perquisite for level three "Psychology of Ageing".

Being the foundation for the Developmental Psychology courses, Introduction to Developmental Psychology is designed to cover the different principles and theories of human development, cognitive, attachment, personality, moral and language development for proper grounding into the course and application of knowledge in order to understand human behaviors at different stages of pre- and post- natal development, which is the focus of level two Developmental Psychology course and will further engender the understanding of the behaviors of the aged in level three course.

Unfortunately, some students perform below expectation in the course, fail to apply the prior knowledge to new learning situation and may likely become deficient in other Developmental Psychology courses thereby defeating the purpose of being systematically grounded into the course for the purpose of understanding human behaviors. Newman (2008) posited that any kind of knowledge was its own reward, it was something that that could not be taken away from the learner. In order to ensure this, it is essential for researchers to identify the variables that enhance students' learning and performance with a view to suggesting how they can improve students' academic achievement in the course. The focus of this research is on three of such variables which are students' interest in higher education, psychological resilience and study habit.

Regarding students' interest in higher education, evidence abounds that interest in learning had been found to be highly correlated (0.70) with college students' grades in specific courses (Lavin, 1965). More studies also confirmed correlations between interest and both comprehension and learning (Renninger, Hidi, Krapp, & Renninger, 1992). Literature also suggests that interest in schooling predicted academic self-efficacy among the fresh secondary school students (Adeyemo, 2005); that there was a significant relationship between interest in schooling and science achievement among selected junior secondary school students (Olatoye & Ogunkola, 2008); that adolescents' interest in schooling contributed to the academic achievement of students (Odinko & Adeyemo, 1999), that the level of student interest in school and study habits was above average and a significant positive relationship exists though no significant difference existed between male's and female's interest in school (Olatoye, 2004), so also students' motivation levels is of significant importance to their academic achievement (Epstein & Sheldon, 2002; Hamilton, Hinton, & Qian, 2008). Sarason (1983), however, observed that schools were no longer interesting places for most of the students. Similarly, M. Maduabum and C. Maduabum (1998) also noted that many students now took more interest in a certificate than in what they could gain in school because of the scourge of examination malpractices and over-emphasis on paper qualification. Literature suggested that psychological resilience indicated an individual's capacity to withstand stressors and not manifest psychological dysfunction, such as mental illness or persistent negative mood (Neill & Dias, 2001) and it was a dynamic process, suggesting that resilient individuals would exhibit positive behavioral adaptation when they encountered significant adversity or trauma, such as risks associated with negative life and conditions that were related to adjustment difficulties (Luthar, Cicchetti, & Becker, 2000).

Resilience among the adolescents referred to the notion that some succeeded in the face of adversity, in a risk-protective model of resilience, a protective factor interacts with a risk factor to mitigate the occurrence of a negative outcome (Zimmerman, Ramírez-Valles, & Maton, 1999). Bauer, Keefe, and Shea (2001), however, found that adolescents who experienced specific learning difficulties frequently exhibited few protective factors and struggled to adapt successfully when confronted by difficulty and their inherent strengths or resilience skills were frequently lacking (Donald, Lazarus, & Lolwana, 2002). Wong and Lee (2005) concluded that in order to empower at-risk adolescents, prevention efforts were needed to promote protective factors.

Capable functioning in the face of adversity is therefore linked to a triad of protective factors distinguished by Boyden and Mann (2005) as:

(1) Personal protective factors which are inherent to the resilient individual, by virtue of either biological programming or temperamental attributes, including innate factors, such as autonomy, self-help skills and aptitude, which strengthen the individual by buffering risk;

(2) Familial protective factors (including sound family structure and a supportive family network);

(3) Extra-familial protective factors (environmental factors including bonds with pro-social adults, positive peer relationships and effective schools).

Regarding study habit, Risko, Alvarez, and Fairbanks (1991) suggested that students who achieved academically adopted strategies to monitor and managed their time for studying and success in course work reinforces continued use of these strategies. They focused on five areas that influenced students' habits and academic achievements in college, time management, study environment, library use, memory and attention. Risko et al. (1991) agreed with Nist, Simpson, Olejnik, and Mealey (1991) that there is no single time management that works for all students or even the same student in all learning situations, suggesting that how a student manages time is personal and idiosyncratic. Research, however, indicated that students generally failed to benefit from study skills courses as suggested by Risko et al. (1991) and Nist et al. (1991) and showed resistance to this course at higher education level.

In another similar study, Sedat (2006) investigated the reasons why students showed resistance to the course of study skills and habits and found that they did not want to change their study habits, could not change their study skills, believed the new study skills to be meaningless and perceived that learning study skills in schools was not relevant to their career. It was proposed that the instructors of this course should have opportunities to practice these study skills, instead of giving students theoretical knowledge.

Present Study

The background provided suggests that each of the student-related variables is essential for academic attainment, yet there had not been concurrent study of these variables as predictors of academic achievement among the undergraduate students in Barbados. Introduction to Developmental Psychology is a core course, a prerequisite for other developmental psychology courses, therefore, any student that derails from the course may not be able to cope with other developmental psychology courses essential for understanding human behaviors, hence the need to investigate into some variables that may predict academic achievement in this course among the undergraduates in UWI, Barbados, with the view of suggesting ways of improving them among the students for better academic achievement.

Specifically, therefore, this study aims at: (1) Finding out the relationships among interest in higher education, psychological resilience, study habit and the students' academic achievement; (2) Determining the

extent to which each of the variables will relatively predict students' academic achievement; and (3) Finding out the combined contributions of the predictor variables to the variance in academic achievement.

Method

Participants

The respondents were the 131 Introduction to Developmental Psychology students at the first year, 2009/2010 cohort in the BA programme in the Faculties of Humanities and Education and BSc programme in Faculty of Social Science, UWI, Cave Hill Campus, Barbados. Their ages ranged from 17 to 40 years, (*M* (mean) = 28.17, *SD* (standard deviation) = 1.61), there were 46 males and 85 females.

Measures

The four instruments used to collect data in this study were developed and validated by the researcher, PAT (psychology achievement test), IHES (interest in higher education scale), PRS (psychological resilience scale) and SHS (study habit scale).

(1) PAT assesses the students' knowledge of the topics covered in Introduction to Developmental Psychology class via a 50-item multiple choice test items with four options A-D for an item; The remaining three instruments IHES, PRS and SHS all have two sections. Section A elicits the basic information about the participants, including sex, age, faculty and programme, while Section B assesses the constructs being studied;

(2) IHES: Section B assesses students' willingness to participate in schoolwork utilizing a 10-item scale, five positively worded and five negatively worded. Items included "Coming to university is very interesting"; "I don't enjoy listening to my lecturer(s)";

(3) PRS: Section B assesses the adolescents' inherent ability to cope with academic stress and life generally via a 15-item scale, seven positively worded and eight negatively worded. Items included "I am calm in stressful situations"; "I find it difficult to follow my plans";

(4) SHS has two sections: Section B assesses the students' study skills and the strategies adopted in studying using the a 10-item scale, five positively worded and five negatively worded. Items included "I review each subject regularly during the term to cover the syllabus"; "I don't concentrate when studying".

All the items in IHES, PRS and SHS have the modified Likert format requiring the participants to rate their responses with corresponding scores; "Strongly agree", 4; "Agree", 3; "Disagree", 2; "Strongly disagree", 1. The higher the score, the higher the interest in higher education, the stronger the resilience, the more effective the study strategies and the higher the academic achievement. The items were generated during the review of literature and the initial versions were given to experts for suggestions and comments before coming up with the final versions. The Cronbach alpha reliability coefficients of 0.71, 0.73, 0.79 and 0.77 were obtained for PAT, IHES, PRS and SHS, respectively.

Procedure

Informed consent of the students to participate in the survey was obtained during the lectures prior to the administration of the questionnaires. The students were briefed of the purpose of the research and that they were free not to participate in the study, if they so wished but all consented to participate. The students were surveyed in the lecture hall with the help of four research assistants who had been groomed in the administration of the four instruments.

The researchers took time to brief the participants in the process of answering the items in the

questionnaires and that the PAT is not for examination purpose, but for research and they were also told that the information would remain confidential. To buttress this, the students were told not to write their names or identification numbers on the instruments for confidentiality.

The researchers ensured that all the instruments were properly filled and collected immediately the participants have finished responding especially because of the psychology achievement test involved. The administration of the instruments lasted for approximately one hour.

Data Analysis

Descriptive statistics, Pearson Product Moment Correlation and Stepwise Multiple Regressions were conducted to analyze the data. All the negatively worded items were reversed during the analysis.

Results

The results in Table 1 suggest that the mean performance in Introduction to Developmental Psychology test is 14.11, which is just above average mark of 12.5 and this is just satisfactory, but minimum score of 3 out of 25 is obviously too low. So the minimum scores in the student-related variables as seen in Table 1 are low indicating low interest, low resilience and lack of necessary study skills among some of the participants in this study.

Table 1

Means Scores and Standard Deviations of Participants for the Variables

Variables	*N*	Minimum	Maximum	Mean	Standard deviation
Academic achievement	131	3.00	20.00	14.11	3.79
Interest in higher education	131	14.00	39.00	30.15	5.55
Psychological resilience	131	22.00	59.00	45.13	8.77
Study habit	131	15.00	38.00	26.76	4.77

The first aim of this research was to find out the relationships between the student-related variables and academic achievement. The statistically significant positive correlations among the variables are presented in Table 2. Interest in higher education correlated with academic achievement (r (correlation coefficient) = 0.583, $p < 0.05$); psychological resilience correlated with academic achievement ($r = 0.556$, $p < 0.05$); study habit also correlated with academic achievement ($r = 0.540$, $p < 0.05$). These positive and generally statistically significant correlations indicate that the more the student is interested in school, the more resilient the learner, the more effective the study habit, the higher the academic achievement.

Table 2

Correlation Matrix of Interest in Higher Education, Psychological Resilience, Study Habit and Students' Academic Performance

Variables	Academic achievement	Interest in higher education	Psychological resilience	Study habit
Academic achievement	–			
Interest in higher education	0.583**	–		
Psychological resilience	0.556**	0.515**	–	
Study habit	0.540**	0.530**	0.504**	–

Note. **Significant ($p < 0.01$).

There were also significant positive associations among the variables thus: Interest in higher education

correlated with psychological resilience (r = 0.515, p < 0.05) and study habit (r = 0.530, p < 0.05); psychological resilience also correlated with study habit (r = 0.504, p < 0.05). These significant positive relationships imply that students who are intrinsically motivated to come to the university will probably display the inherent ability to cope with the academic stress, which will also engender into developing good study habit necessary for academic achievement. Thus, academic achievement is associated with adolescents' interest in higher education, psychological resilience and study habit.

These relationships are also illustrated in Figures 1 and 2.

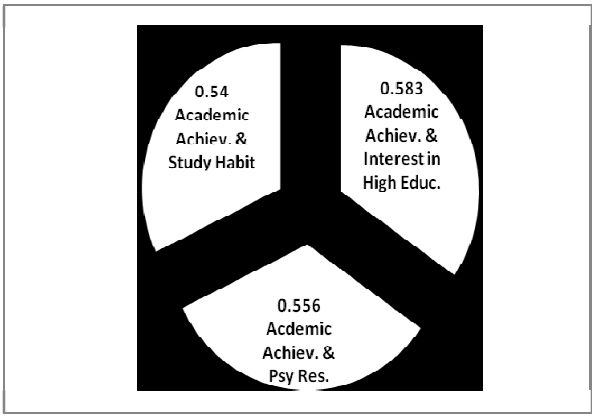

Figure 1. Relationships between academic achievement and student related variables.

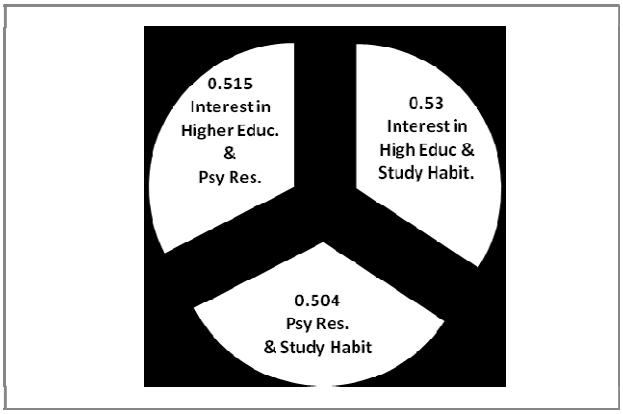

Figure 2. Interrelationships among student related variables.

The second aim of this study was to estimate the relative contributions of the predictor variables to the variance in academic achievement. To this end, stepwise regression analysis was computed with academic achievement as the dependent measure and the student-related variables being the predictors as seen in Table 2. Interest in higher education was entered first to find out how much variability it could significantly account for, followed by psychological resilience to know if the amount of explained variability would significantly increase when included and lastly study habit was also added to see its significant relative contribution.

As can be seen in Table 2, Step 1, interest in higher education alone accounted for 34% (R-square = 0.340) of the variance in academic achievement, the inclusion of psychological resilience in Step 2 accounted for 42% (R-square = 0.420) which resulted in additional 8% of the variance and lastly in Step 3, the inclusion of study habit accounted for 46% (R-square = 0.464) which resulted in additional 4% of the variance in academic achievement being explained. In Step 3 also, the standardized β values reveal the decreasing order of the

predictors: Interest in higher education > psychological resilience > study habit showing that interest in higher education was the best predictor, followed by psychological resilience and study habit. Thus, academic achievement is predicted by interest in higher education, ($\beta = 0.32$, $p < 0.01$), by psychological resilience, ($\beta = 0.28$, $p < 0.01$) and by study habit ($\beta = 0.23$, $p < 0.05$). Thus, each of the academic variables contributed significantly to students' academic achievement with interest in higher education being the best predictor.

Table 3

Stepwise Regression Analysis Predicting Students' Academic Achievement

	Predictors	SE b	β	ΔR^2	t	Significance
Step 1	Interest in higher education	0.05	0.58**	0.34**	8.14	0.000
Step 2	Interest in higher education	0.05	0.40**		5.18	0.000
	Psychological resilience	0.03	0.35**	0.08**	4.47	0.000
Step 3	Interest in higher education	0.06	0.32**		3.90	0.000
	Psychological resilience	0.04	0.28**		3.44	0.001
	Study habit	0.06	0.23*	0.04*	2.89	0.005

Notes. **Sig. $p < 0.01$ in steps 1 and 2; *$p < 0.05$ in step 3; SE b: unstandardized coefficients showing the predicted increase in the value of the criterion variable; β: the standardized beta coefficients, gives a measure of the contribution of each variable to the model; ΔR^2: R-square change; t: gives a rough indication of the impact of each predictor variable, the bigger the t-value , the larger the impact of the predictor variable on the criterion variable.

The final aim of this study was to find out the combined contributions of the student related variables. These predictors accounted for 46% (R-square = 0.464) of the variance in academic achievement as seen in Table 3. Using the stepwise method, therefore, a significant model emerged, ($F_{(3,127)} = 36.64$, $p < 0.0005$). The model explains 46% of the variance (R-square = 0.464), therefore academic achievement is significantly predicted by students' interest in higher education, psychological resilience and study habit.

Discussion

This study investigated the student-related variables (interest in higher education, psychological resilience, and study habit) as predictors of academic achievement among undergraduate psychology students in UWI, Barbados. The result indicated that the academic achievement of the students was slightly above average, which was just satisfactory. This may be due to the fact that these students are still relatively new and they are trying to cope with the new university environment.

One of the major findings of this study is that significant positive relationships exist between the student-related variables and their academic achievement. This is quite expected and a probable reason for this could be attributed to the fact that students who are intrinsically motivated, who find school work meaningful and interesting and who love to listen to their lecturers are likely to be academically oriented and perform well in the examination than those who are being forced to come to the university. The inter relationships among the academic variables also signify their interdependence, indicating that in this Barbadian sample, the university students who are interested in university education will probably be resilient enough to study effectively and consequently achieve academically.

The positive correlations between interest in higher education and academic achievement corroborated the earlier reports by Renninger et al. (1992), and Olatoye and Ogunkola (2008) that interest in learning was highly

correlated with academic efficacy and achievement. The slight above average performance of the sample of this study indicated that some of the participants were moderately interested in learning and they might not even have the intrinsic motivation necessary for academic achievement as earlier pointed out by Epstein and Sheldon (2002). Additionally, some students in the sample may not value university education, because they are the exempted from paying tuition as Barbados citizens. Many of them may not really be interested in education. However, because it is free, they just have to be in the school.

The positive correlations between psychological resilience and academic achievement indicated that students who had the inherent ability to cope with academic stress would perform well in the school, as earlier pointed out by Luthar et al. (2000) that resilient individuals would exhibit positive behavioral adaptation when they encountered significant adversity or trauma while the low achievers might be lacking the necessary capabilities for coping with academic stress. On the contrary, Bauer, Keefe, and Shea (2001) suggested that adolescents who experienced specific learning difficulties frequently exhibited few protective factors and struggled to adapt successfully when confronted by difficulty. As regards, the present sample, some may not be resilient in the sense they were in their prime period (level one), probably their first time of being in the university, many of them were coming straight from secondary schools, some of them have left school for a long time as observed in the age range (17-40 years), so they have to struggle to adapt to the new learning situation, hence there is need to support them to cope academically.

Similarly, the positive relationships between study habit and academic achievement point to the fact that students who utilize effective study strategies, concentrate on the class, assimilate and study regularly in anticipation for examination will achieve academically. This result also amplified Risko et al.'s (1991) assertion that students who achieved academically adopted strategies to monitor and manage their time for studying and success in course work reinforces continued use of these strategies. Some of the participants in the present study reported lack of necessary study skills, such as note taking during the lecture, which maybe because they were not accustomed to it, hence the need for note taking skills training.

Another major finding of this study is that each of the student-related variables (interest in higher education, psychological resilience and study habit) significantly contributed to the variance in academic achievement. Again, this result is expected, because these variables are protective in nature and they prevent the students from poor performance as posited earlier on by Wong and Lee (2005) that in order to empower at-risk adolescents, prevention efforts are needed to promote protective factors. Going by Boyden and Mann's (2005) distinction therefore, interest in higher education and psychological resilience are personal protective factors which are inherent to the resilient individual and are needed to strengthen the individual by buffering risk while the study habit is extra-familial protective factor emanating from effective schools where good study skills are taught for academic excellence.

Interestingly, interest in school has the highest contribution to academic achievement, followed by psychological resilience and lastly study habit. This looks logical, the reason being that interest is foremost in all activities as pointed out by Dewey (1913) that students' learning is interest-based and as such they have high personal meaning for school work, they are also self-motivated and are interested in the topics discussed in the class. Thus, an interested student is likely to be resilient enough to cope with the demands of academic activities and study effectively for good academic performance.

The final result is that the variables jointly contributed 46% (R-square = 0.464) of the total variance in students' academic achievement and this was significant which suggested that the model that emerged was fit

and it had the ability to predict students' academic achievement ($F_{(3,127)} = 36.64$, $p < 0.0005$). The reason for this may not be farfetched. It could be due to the fact that the student-related variables are indices of academic achievement necessary for students to excel academically. Thus, the results of this study revealed the significant positive relationships among interest in higher education, psychological resilience, study habit and students' academic achievement. Additionally, these variables significantly predicted students' academic achievement among some Developmental Psychology undergraduate students in UWI, Barbados.

In conclusion, a significant model using the student-related variables (interest in higher education, psychological resilience and study habit) as predictors set to enhance the university students' academic achievement emerged from this study. It is hoped that this will be adopted by psychologists and educators who are interested in effective teaching and learning psychology, preventing academic failure, as well as improving the performance of students in psychology and other related areas.

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