



## Exploring the Predictors and Outcomes of Academic Resilience among College Students

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### Abstract

This study examines Martin's motivation and engagement framework (2002) on academic resilience and its effects on school enjoyment, class participation, and general self-esteem. There were 487 College students enrolled in General Psychology classes who were asked to answer a 22-item questionnaire based on the specifications of Martin's model (2002). Path analysis was used to determine how well the model fits the data obtained from the sample. Results indicate that the model is not a good fit for the sample of the study. In the context of the sample at hand, Low Anxiety decreases the Academic Resilience of the learners and Control is not a significant predictor of Academic Resilience. This implies that students tend to be more resilient when they worry more about school and their fear of failure. Moreover, the extent of perceived Control they have over their learning experiences does not signify the level of their resilience when it comes to schoolwork. Consistent with literature, academic resilience predicts the desirable educational outcomes of enjoyment in school, class participation, and general self-esteem.

**Keywords:** academic resilience and its effects on school enjoyment, class participation, and general self-esteem

### Introduction

Generally, resilience is defined as the process of, capacity for, or outcome of successful adaptation despite threatening or challenging circumstances (Howard & Johnson, 2000). In the academic context, it

is “the likelihood of success in school and other life accomplishments despite environmental adversities brought about by early traits, conditions and experiences” (Wang, Haertel, & Walberg, 1994). In the same manner, those “who sustain high levels of achievement motivation and performance despite the presence of stressful events and conditions that place them at risk of doing poorly in school” (Alva, 1991), are considered to be academically resilient. There is still much to learn from students who manage to perform in school despite the difficult circumstances that they find themselves in. To a large extent, literature on resilience has established associations between individuals who are at a disadvantage or exposed to various familial and environmental stressors like divorce or drug addiction. Thus, it is of value that an investigation on academic resilience in the school context be done because students also experience difficulties, pressure, or low performance. School is an important place where resilience in young people can be enhanced, benefitting them in the long run (as cited in Martin & Marsh, 2003).

Academic resilience research is the study of high educational achievement despite the presence of risk factors that normally indicate low academic performance. It can be understood as the process and results that are part of the life story of an individual who has been academically successful despite obstacles that prevent the majority of others with the same background from succeeding (Masten & Coatsworth, 2008). Most of studies on academic resilience established its links to different domains that range from academic and educational constructs to psychological factors, socio-demographic as well as family and peer-group characteristics (Finn & Rock, 1997). As a result of studying the construct across a variety of domains, it was difficult to give sufficient detailed attention to any of the domains. In the psychological domain, studies are typically limited to focusing on just self-esteem and locus of control. Additionally, studies on academic resilience are predominantly focused on the mental health and wellbeing of the learner and not in terms of academic development. Martin (2001, 2002, 2003a, 2003b) developed an expansive model of psychological and behavioral engagement known as the Student Motivation and Engagement Wheel which reflects the thoughts, feelings, and behaviors underpinning academic achievement in school and used confirmatory factor analysis to determine which aspects

correspond to academic resilience of the learners (Martin & Marsh, 2006).

The model at hand separates motivation into factors that reflect enhanced motivation (adaptive) and those that reflect reduced motivation (maladaptive). As discussed extensively by Martin (2002, 2002, 2003b), adaptive dimensions include self-efficacy, valuing of school, mastery orientation, persistence, planning and study management. On the other hand, the maladaptive dimensions comprise anxiety, uncertain control, failure avoidance and self-handicapping. Self-efficacy is students' beliefs and confidence in their ability to understand or to do well in their school work, to meet challenges they face, and to perform to the best of their ability. Students are certain in Control when they are sure about how to do well or how to avoid doing poorly in school tasks. Planning is how much students plan their schoolwork, assignments and study and how much they keep track of their progress as they are doing them. Low anxiety involves feeling nervous and worrying about not doing very well in their schoolwork, assignments or exams. How much students keep trying to work out an answer or to understand a problem even when that problem is difficult or is challenging describes Persistence. The Wheel is proposed as an integrative and encompassing way to understand the diversity of psychological engagement dimensions that underpin academic resilience. This model was used in this study to determine its effect on academic resilience.

A host of important educational and psychological constructs that are conceptually relevant to academic resilience should be also carefully looked into. Martin and Marsh (2006) proposed a three between-network constructs that provide a theoretically relevant basis for further examination: class participation and enjoyment of school (educational "outcome" construct) and general self-esteem (a psychological "outcome" construct). Class participation is an important between-network, school-related behavioral "outcome" measure that is found to enhance students' commitment to learning. Enjoyment of school is a school-related cognitive-affective "outcome" that shapes students' willingness to attend school as well as the goals they have in relation to their academic experience while at school and in their further education and training beyond school. Students' general feelings about themselves because of their school experience refers to the between-network "outcome" construct General Self-Esteem.

These three represent a breadth of students' experience at school and are hypothesized to follow from students' capacity to deal effectively with challenge and adversity in the school setting. This model further hypothesized that students who do not deal effectively with such challenges are less inclined to participate in class, less likely to enjoy school and more likely to experience general negative affect in relation to the self (Martin & Marsh, 2006).

Academic resilience has been linked to various factors within a range of domains from academic to family, peer, socio-demographic and psychological. In conducting research across domains, there is typically less detailed attention specifically given to the psychological domain, where the common focus is on just self-esteem and locus of control (Martin & Marsh, 2006). Previous research aimed at examining a diverse array of psychological and educational dimensions. Martin and Marsh (2006) forwarded a direction of exploring class and school level climates relevant to individual-level variation in academic resilience.

Hence, the aim of this study is to look at Martin's motivation framework, whether Self-efficacy, Control, Planning, Low Anxiety and Persistence predicts Academic Resilience. It is also hypothesized that academic resilience will predict school enjoyment, class participation and general self-esteem contextualize in a school General Psychology class level.

## Method

### Participants

Respondents of the study were 487 college students enrolled and have taken a General Psychology class for the current semester. Teachers administered the instrument to students during their respective classes. Students were asked to complete the instrument on their own and return the completed instrument to the teacher. A sample size of 487 with a desired large effect size also yielded a large statistical power of 1.0000 ( $p = 0.05$ ).

### Materials

A 22-item questionnaire was administered to students in one testing session in their class. The instrument is composed of randomly

arranged items that measures Self-efficacy (*If I try hard, I believe I can do my school work well*), Control (*I'm often unsure how I can avoid doing poorly at school*), Planning (*Before I start an assignment I plan out how I am going to do it*), Low Anxiety (*When exams and assignments are coming up, I worry a lot*), Persistence (*If I can't understand my schoolwork at first, I keep going over it until I understand it*), Enjoyment of School (*I enjoy being a student*), Participation in School (*I get involved in things we do in class*), General Self-esteem (*Overall, I have a lot to be proud of*) and Academic Resilience (*I think I am good at dealing with school work pressure*). These items were adopted to closely resemble the Student Motivation and Engagement Scale (SMES) and Academic Resilience Scale (ARS) utilized by Martin and Marsh (2006). Students rated themselves on a scale of 1 (*Not True of Me*) to 7 (*Extremely True of Me*) for all items.

Except for the scale for Academic Resilience, which had six items, all the other scales were composed of two items each. The scale for Self-efficacy obtained a mean inter-item correlation of .47 and an alpha coefficient of .64. For Control, the scale had an inter-item correlation of .35 and an alpha coefficient of .52. For the scales for Planning, Low Anxiety, and Persistence, the values for mean inter-item correlation and alpha coefficient are .45 and .62, .16 and .28, .46 and .63, respectively. For the outcome variables involved in the model, the scale for Enjoyment of School had an inter-item correlation of .42 and an alpha of .59. The items for Class Participation obtained an inter-item correlation of .48 and an alpha of .65. For the General Self-esteem scale, inter-item correlation is at .30 and alpha is .44. The Academic Resilience scale has acceptable fit values (CFI = 0.97; NNFI = 0.97), its total item correlation ranged from 0.59-0.78 and has an alpha coefficient of .89.

## Data Analysis

Pearson  $r$  was used to establish the correlations between the factors and path analysis was used to determine if the proposed model showing the effect of Self-efficacy, Control, Planning, Low Anxiety, and Persistence on Academic Resilience and the effect of Academic Resilience on students' Enjoyment of School, Class Participation, and General Self-esteem, is a good fit for the data obtained from the sample of this study.

To determine how well the data corresponds with the model, model fitting was done using fit indices. The main absolute fit index is the chi-square (CMIN), which tests for the level of misspecification. A significant CMIN suggests that the model does not fit the data. Then again, CMIN has been found to be too sensitive to sample size that is why it cannot be used as the sole indicator of model fit (Teo, Tsai, & Yang, 2013). Other absolute fit indices commonly used include Goodness-of-Fit Index (GFI), Adjusted Goodness-of-Fit Index (AGFI), and the Root Mean Square Error of Approximation (RMSEA). GFI evaluates the relative amount of observed variances and covariances that can be explained by the model. AGFI takes into account the level of model complexity by considering degrees of freedom. For both GFI and AGFI, the value should be greater than .90. RMSEA counters the tendency of CMIN to reject models with large samples and many variables by using the residuals as an indicator of the accuracy of the model. A lower RMSEA value (<.05) suggests that the model is a good fit for the sample. The Comparative Fit Index (CFI) assesses whether the hypothesized model is better than a baseline model, which assumes that all observed variables are not correlated. A value that is greater than .90 for CFI is associated with a good model. Another index that compares the proposed model to the baseline model is the Tucker-Lewis Index (TLI). The TLI is not normed. For this reason, its value can fall below zero and above one, but typically, good models have TLI values that approach 1.0.

## Results

Table 1  
*Means and Standard Deviations of the Variables*

Variables	<i>M</i>	<i>SD</i>
Self-efficacy	2.68	1.35
Control	3.84	1.12
Planning	3.50	1.26
Low anxiety	3.60	1.24
Persistence	2.89	1.26
Academic Resilience	3.54	0.93
Enjoyment of School	2.97	1.32
Class Participation	3.38	1.17
General Self-esteem	2.90	1.28

Table 1 shows the mean scores and corresponding standard deviations reported by the students for each variable involved in the proposed model. For all the variables, the mean scores fall at the lower end of the scale, indicating that the respondents reported scores that are below the moderate level. In comparison to the means obtained by Martin and Marsh (2006), the values reported by the sample of this study were generally lower.

Table 2  
*Intercorrelations of the Factors*

Variables	1	2	3	4	5	6	7	8	9
1 Self-efficacy	---								
2 Control	.12*	---							
3 Planning	.51*	.21*	---						
4 Low anxiety	-.34*	.42*	.26*	---					
5 Persistence	.71*	.15*	.64*	.33*	---				
6 Academic Resilience	.56*	.10*	.49*	.11*	.60*	---			
7 Enjoyment of School	.61*	.17*	.48*	.31*	.67*	.57*	---		
8 Class Participation	.50*	.16*	.45*	.16*	.60*	.59*	.58*	---	
9 General Self-esteem	.66*	.22*	.46*	.32*	.62*	.52*	.69*	.56*	---

\* $p < .05$ , \*\* $p < .01$

Table 2 shows the zero-order bivariate correlations which determine the pairs of variables that have significant relationships. Although varying in strength, analysis suggested that all bivariate relationship among the variables are positive and significant. This implies that when one variable increases, the other variables also increase in different degrees. Considering the relationships of the proposed predictors of Academic Resilience, Control and Low Anxiety both have a weak correlation, although it is statistically significant at 95% confidence level. Moreover, a pattern arises in the relationships of Control to the other variables in the model. All of the bivariate relationships involving Control are marginal in strength, except for the correlation with Low Anxiety, which is moderate.

Path analysis was conducted to test a hypothesized model showing the effect of Self-efficacy, Control, Planning, Low Anxiety, and Persistence on Academic Resilience, as well as the effect of

Academic Resilience on Enjoyment of School, Class Participation, and General Self-Esteem. The model is tested for goodness of fit using the chi-square (CMIN), Goodness-of-Fit Index (GFI), Adjusted GFI, and Root Mean Square Error Approximation (RMSEA). The indices showed that the proposed model is a bad fit for the data obtained from the sample, as revealed by a high chi-square value that is significant (CMIN = 1327.44,  $p < .001$ ). The GFI (.55) and AGFI (.27) were both low and did not satisfy the required values for these measures of good fit. The RMSEA (.31) is huge relative to the value of .05, which is required for good fit. This further emphasizes that the model is a bad fit for the sample. Other fit indices also did not support the fit of the model like the CFI (.39) and the NFI (.38).

Although the zero-order relationships of the proposed predictors with Academic Resilience were all statistically significant, one regression path involved in the model is not significant. The regression weight for Control in predicting Academic Resilience is not significantly different from zero at the .05 level. It can also be noted that there is a shift in the direction of the relationship of Low Anxiety and Academic Resilience during path analysis. Results indicate that Low Anxiety decreases Academic Resilience by 0.13. Furthermore, Academic Resilience significantly predicts all of the three outcome variables in the model.

## Discussion

The present study sought to examine the effect of self-efficacy, control, planning, low anxiety and persistence on academic resilience. The data demonstrated that the identified predictors significantly predicted academic resilience. Path analysis also showed that academic resilience subsequently predicts three educational and psychological outcomes over and above the motivation and engagement factors supporting academic resilience. This result holds up to the findings of Martin and Marsh (2006) that specific interventions that aims to increase students' academic resilience should revolve around students' self-efficacy, control, persistence, planning, and anxiety. The ability to do school work, the degree of control one has to avoid doing poorly in school tasks, to keep track of one's progress and to persist in understanding a difficult problem or task influences students' ability to

maintain high levels of performance despite stressful conditions that will place them at risk of doing poorly in school.

Self-efficacy is the belief of the student in his or her own academic capacity (Bandura, 1997). Learners with a higher sense of self-efficacy are generally more resilient because they have more confidence in their ability to meet the challenges and perform to the fullest of their potential. In addition, Self-efficacy also influences how learners set the goals that they want to achieve and how they commit themselves to the tedious process of achieving these goals. Planning and Persistence are two other key dimensions of Academic Resilience. Effective planning improves resilience in the context of school because it provides learners with essential details on how they can work on the things that they aim to accomplish. Having a roadmap to serve as a guide allows for better management of time, effort, and other resources even in the midst of the many challenges in school. Persistence is the extent that learners continue to keep trying even when the problem or task is considerably difficult. Persistent students keep going in spite of minor or major setbacks until they achieve the goals that they have set, making them more resilient and generally more successful in school.

Low Anxiety is the extent of being calm and comfortable in school and with schoolwork. Theoretically, student who experience low anxiety generally report high academic resilience. Contrary to the findings of Martin and Marsh (2006), results of this study indicate that low anxiety decreases academic resilience. This suggests that in the context of this sample, learners increase their resilience when they worry more about school and schoolwork. In contrast to existing literature, the fear of failure, exams, and grades turns out to be an important reason for the respondents of this study to be work harder and become more resilient. Similarly, Church and Katigbak (1992) found that Filipino college students tend to persist more after failure than after success. That is, Filipino students perceive the thought of failure as a source of motivation rather than a barrier to academic success. Moreover, this echoes the findings of Jowkar et. al. (2013) when predicting the academic resilience of Iranian high school students from goal orientation and perceptions on failure.

Control is the extent of being sure about how to do well in school. In theory, students who feel a greater sense of control over their learning experiences are more resilient. Then again, the findings

of this study indicate that control is not a significant predictor of the academic resilience of the sample. That is, it cannot be guaranteed that the level of control that the respondents perceive influences the level of their resilience in school. As stated by Perry, Hall, & Ruthig (2005), there are existing dispositional differences in the notion of control among students. It is possible for students to view that, at times, control is unimportant. The value that they place in having control over the process of learning affects the extent that control influences various desirable outcomes including sense of worth, efficacy, competence, performance and possibly, resilience. Generally, it is assumed that students want to control their own educational experiences. Then again, it does not necessarily happen all the time. Instances in which this is not the case, as revealed in this study, might be indicative of certain concerns that will have to be addressed including factors like quality of instruction, teacher effectiveness, grading standards, course level, curriculum structure, classroom discipline, class composition, and others (Perry, 2003).

Consistent with literature, academic resilience, to a large extent, predicts students' enjoyment of school, class participation, and general self-esteem. Results exhibit that improving the academic resilience of learners can lead to significant developments involving the desirable outcomes in the context of academic environments. Resilient students tend to enjoy being in school and doing schoolwork more than those who are less resilient. They are able to appreciate the tasks involved in school and the challenges that arise in the process of learning. Fostering academic resilience in learners provides them with a mindset that allows them to be more comfortable and at-ease in the midst of the learning environment despite difficulty. Academic resilience also leads to improved class participation and engagement. Resilient learners completely understand that participating in classroom discussions and school activities is an important part of the learning process that is why they continue to engage even if various barriers and risks are involved. Also, academic resilience affects the general self-esteem of the learners. Students who are more resilient feel more confident in their capacity of accomplish the goals that they have set for themselves, which in turn helps them develop a healthy sense of pride when it comes to their learning experiences.

The results of the study at hand reveal that the model hypothesized by Martin & Marsh (2006) on academic resilience is not a

good fit for the data obtained from the sample. Analysis of regression paths show that there are points which do not corroborate with the existing literature on the proposed model. First, it would be interesting to note that in the context of the sample of this study, low anxiety decreases academic resilience, which indicates that the resilience of these learners increases when they worry about school and schoolwork more. This supports the findings of studies that suggest students can have different paradigms and corresponding reactions to the thought of academic failure. Another point worth noting is that control does not significantly contribute to the academic resilience of the respondents. This can be attributed to dispositional differences that influence how student value being in control of their educational environment and learning experiences. In general, having a good sense of control is beneficial for the learning process as well as for the students themselves. As such, other concerns experienced by the respondents will have to be addressed. Lastly, consistent with existing literature, academic resilience significantly predicts the desirable educational outcomes included in the model. This clearly shows that enhancing the academic resilience of students can lead to significant improvements that would allow them to thrive in school and achieve goals which are integral to their development as learners.

It must be recognized though that this study was only able to utilize a few indicators for the identified predictors. Likewise, it was limited to college students enrolled in a general education subject. Thus, for future research on this construct, there is a need to include more items for the indicators that will measure the factors that focus on the family, the school climate, and the immediate community to integrate into the model aspects which are beyond the individual learners, as well as involving students taking up other subjects, specifically professional/core subjects relative to their degree programs.

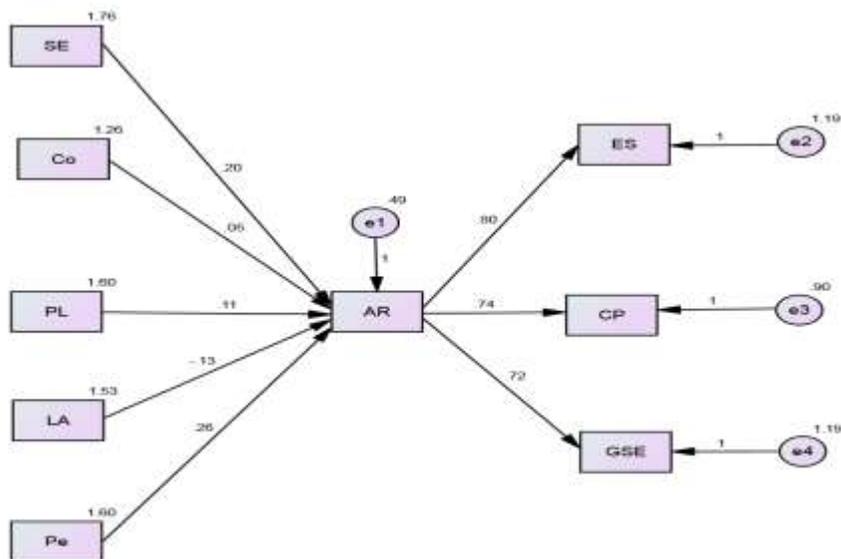


Figure 1. Path coefficients for motivation and engagement factors on academic resilience and academic resilience on educational and psychological outcomes.

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