

STUDENT ENGAGEMENT AND COLLEGE EXPERIENCE AS MEDIATORS OF THE RELATIONSHIP BETWEEN INSTITUTIONAL SUPPORT AND ACADEMIC PERFORMANCE

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ABSTRACT

Academic performance is one of the indicators of learning. It is the extent to which a student, teacher, or institution has partly achieved their educational goals. It is vital in the part of the students because the level of success they achieve from the school/university has far-reaching implications for their personal and professional lives (Christiana, 2014). Students' academic performance impacts on their career choice, personal income and level of success, as well as the degree of participation in community life (Christiana, 2014; Grainen, 1995). The present study proposes a multiple mediation model to examine the interrelationships between academic performance and its antecedents such as institutional support, student engagement, and college experience through the application of the statistical three-path mediation model. In particular, it aims to investigate if the relationship between institutional support and academic performance is sequentially mediated by student engagement and college experience. Using the variance-based structural equation modelling approach to analyze a sample of 687 college students from a Lasallian institution in the Philippines, the results reveal that the variables are interrelated in such a way that the relationship between institutional support and academic performance is sequentially mediated by student engagement and college experience. However, analysis of the data by specific mediation effect reveals that college experience does mediate and student engagement does not mediate the relationship between institutional support and academic performance.

Keywords: Academic performance, institutional support, student engagement, college experience, multiple mediation model.

1. Introduction

Today's challenge in education reforms is to include a vision of nurturing and supportive schools that engage students and allow them to flourish not only cognitively, but also socially, emotionally, and civically (Joselowsky, 2007). Success in college life is influenced by the degree to which students become involved in academic matters and other school activities (Svanum & Bigatti, 2009). The premise of student engagement being that the more students study or practice a subject, the more they tend to learn is commonly reflected as among the better predictors of learning and personal development (Karini, Kuh, Klein, 2006). There is a better quality tertiary education for institutions who fully engage their students through various activities that contribute to students' success as compared to other colleges and universities where students are less engaged (Kuh, 2002 as cited by Williamson, 2010). Student engagement reflects the students' effort (i.e., time and

energy) not only to commit in institutional and extra-curricular activities but as well as to educationally purposeful activities such as classroom undertakings (Kuh, 2001). Hence, student engagement has positive effects on desired outcomes in college such as learning behavior (Carini, Kuh & Klein, 2006; Fredricks, Blumenfeld & Paris, 2004).

Academic performance or academic achievement is one of the indicators of learning behaviour. Academic performance is vital in the part of the students because the level of success they achieve from the school/university has far-reaching implications for their personal and professional lives (Christiana, 2014). Students' academic performance impacts on their career choice, personal income and level of success, as well as the degree of participation in community life (Christiana, 2014; Grainen, 1995).

A brief literature review suggested that the antecedents to academic performance include intraindividual constructs such as self-efficacy of the students (Malmivouri, 2008; Missildin, 2004; Yates, 2002, Byrnes, 2008), stress (Sinha, 2014), self-doubt, academic procrastination, self-esteem (Duru & Balkis, 2014), academic self-concept (Marsh & Yeung, 1997), and even lifestyle habits (Stea & Torstveit, 2014), eating behaviors (Zuman, Ilias, Isa, & Danis, 2012), cigarette consumption (Young, 2014). Interpersonal factors have also been related to academic performance such as teacher's charisma and knowledge (Akinsolu, 2010; Akiri and Ukborukbo, 2009), and parental support (Cutrona et al, 1994).

Research efforts in the Philippines have also dedicated attempts to provide a closer look of the antecedents of academic performance. It has been related empirically to individual-difference variables such as thinking styles or the students' preferred way of applying their abilities in cognitive tasks (Bernardo, Zhang, & Callueng, 2002). Moreover, student's beliefs about intelligence influence how much they perform and what they can actually do (Magno, 2012). On the other hand, parental involvement and academic performance has also been examined (Blair, 2014). The study noted that the Filipino parents have a strong sense of investments in their children. For Filipinos, education serves as a motivation for economic betterment and social prestige rather than for learning per se (Chruch, 1987). Consistent with the cultural norm of comparatively strict obedience to the parents, students are anticipated to follow or even surpass their parents' expectations (Blair, 2014). Lastly, there has been no documentation of the influence of teachers on student achievement and their motivation (Bernardo, 2008).

In addition to interpersonal and external factors, there is a considerable focus on student motivations, needs, and interest (Joselwosky, 2007) in the pursuit of better academic performance. Learner-centered principles provide strategies for increasing the student motivation and academic achievement (McCombs & Whisler, 1997). De La Salle-College of Saint Benilde (DLS-CSB), Manila, deliberately subscribes to this learner-centered educational philosophy. Faithful to these principles, DLS-CSB (2013) stated:

As a Lasallian learner-centered institution, we accompany students in their journeys of faith development and personal transformation, and share with them meaningful learning encounters that will enable them to become, among others, creative thinkers, competent professionals, and socially responsible citizens. We believe that this brand of educational experience leads to more sustained and empowered learning from which students can draw insights and lessons beyond classroom education (p. 24)

Moreover, DLS-CSB (2013) specified in its educational philosophy:

The learning environment is founded on the belief that each student is unique and endowed by God with talents and gifts that should be understood, appreciated and nurtured. In such an environment,

students develop an appreciation and respect for their own talents and gifts as well as the talents and gifts of others. To nurture these talents and gifts, the College provides an educational environment that promotes innovations through learner-centered teaching methodologies grounded on Howard Gardner's Theory of Multiple Intelligences. The College likewise encourages responsive student activities and services (p. 23).

Revisiting the Lasallian foundational moment, the founder, St. John Baptist de La Salle formed a community of devoted teachers that matures the educational processes that is always in response to the needs of their students (Munoz, 2011). A Lasallian educational institution is not defined by a curriculum template that has no connection to the students' lives but is rather defined by the students' needs (Schieler, 2015). Lasallian pedagogy calls the teachers to look after their students as their younger brothers and sisters to share practical elements of learning that will inspire them to serve others (Crawford, 2015). According to Van Grieken (2007), teaching, as a human activity and as part of the Lasallian tradition, encompasses caring people, good preparation, genuine empathy, well-crafted lessons, and a supportive community. Lasallian universities and institutions of higher learning are required to preserve, produce and propagate knowledge by means of quality academic training and research that opens new paths and responds to the needs of the students (Rodriguez-Echeverria, 2012). Lasallian Brothers must embrace their obligation to ensure that the charism is passed to a broader community of Lasallians by engaging the teachers, and the students need to be engaged by caring persons in order to come to the fullness of their God-given humanity (Crawford, 2015).

Student engagement could be used as an empirical measure for institutions' reflections to address the improvement of student experience (Kuh, 2005), and learning outcomes in the long run. As demonstrated by literature, academic performance does not depend on cognitive ability alone but can also be influenced by many internal and external factors to the students (Tiangco, 2012). Hence, this study aims to better understand student success in the lens of academic performance through the interaction of intraindividual constructs such as student engagement and college experience, and external factor such as institutional support.

Relationship between Institutional Support, Student Engagement, and College Experience

In administrative matters, institutional support in terms of administrative expenditures is negatively related to student engagement (Ryan, 2005). Institutional decisions regarding the allocation of financial resources, various regulatory requirements, and established norms of institutional administration—all of which can contribute to higher administrative spending—may contribute to lower levels of student engagement. However, expenditures in the instructional, academic support, and student service categories did not have a significant relationship with student engagement. The author noted that since the sample came from different institutions, different factors and characteristics of those institutions could have been affected the result especially with the perception on institutional expenditures.

In classroom matters, Kuh (2003) reported that there were students who came to class unprepared and stated that their institutions placed little emphasis to studying and spending time on academic work. It implies that these disengaged students had a little progress toward the desired outcome of the college. One immediate step that the school can make to improve undergraduate education is to identify students who are basically disengaged and provide them with more purposeful activities.

Joselowsky (2007) articulated different approaches on how school and community can engage the youth. For example, school can engage youth by providing clear opportunities to share responsibility for reforms and process improvements (e.g., define policies and practices) to increase achievement for all students.

The influence of school environment to the students' achievement was said to be multifactorial such as private vs. public schools consideration and other classroom-level variables (Coon, Carey, Fulker, & Defries, 1993). In the review of literature conducted by Higgins, Hall, Wall, Woolner, and McCaughey (2005), evidences were clear between the links of school environmental elements (e.g., excessive noise), effective engagement with the staff and other users of the school building with the changes in students' attitudes, behaviors and achievements. However, institutional factors such as facilities (e.g., library and internet access), learning conditions (e.g., lecture rooms, class size, method of teaching) and water and electricity supplies have no direct impact on academic performance (Christiana, 2014). Furthermore, emphasis on academic subjects, more homework, and smaller schools were cited to reflect a causal effect of the school environment in the achievement scores of Catholic students. (Coleman & Hoffer, 1987 as cited in Coon, Carey, Fulker, & Defries, 1993).

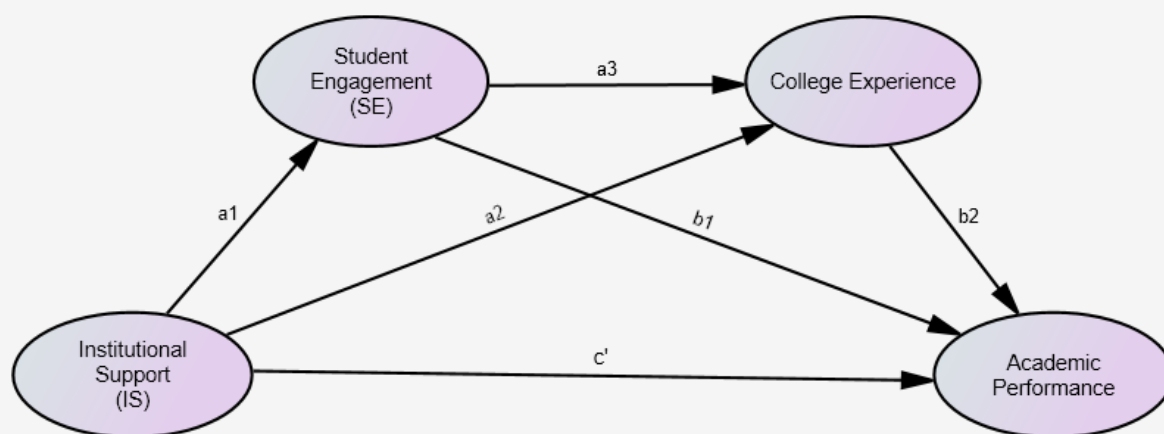
Heng's (2014) study revealed that student engagement in the form of time spent on out-of-class course-related tasks, homework/task, and active participation in classroom setting added significant values to academic achievement; whereas peer learning did not exert differential influences on academic achievement. Moreover, he concluded that extensive reading activities had a negative relationship with student achievement.

In the study of Kuh, Cruce, Shoup, Kinzie & Gonyea (2008), student engagement in educationally purposeful activities was positively related to academic outcomes. However, when college experiences were taken into consideration, the effect of pre-college characteristics to their grades diminished significantly. Hence, institutions are suggested to examine whether they can make first year of college more challenging and satisfying for students that indicated of good performance in college.

2. Research Framework and Hypotheses

Taking account of the above insights, the main goal of the present study is to investigate the mediating roles of *student engagement* and *college experience* on the relationship between *institutional support* and *academic performance* using the college students in one of the De La Salle Schools in the Philippines as respondents. Figure 1, which resembles the three-path mediation model (Hayes, 2009; Taylor et al., 2008), depicts the relationships of the variables of the study. In the three-path mediation model, institutional support and academic performance are the independent and dependent variables, respectively, while both student engagement and college experience are the sequential mediators. Based on the mediation model, the following hypotheses were tested:

- H1: Institutional support is directly related to academic performance
- H2: Student engagement mediates the relationship between institutional support and academic performance.
- H3: College experience mediates the relationship between institutional support and academic performance.
- H4: Student engagement and college experience sequentially mediate the relationship between institutional support and academic performance.



H1: Institutional Support $\rightarrow$ Academic Performance = c'
 H2: Institutional Support $\rightarrow$ Student Engagement $\rightarrow$ Academic Performance = $a1*b1$
 H3: Institutional Support $\rightarrow$ College Experience $\rightarrow$ Academic Performance = $a2*b2$
 H4: Institutional Support $\rightarrow$ Student Engagement $\rightarrow$ College Experience $\rightarrow$ Academic Performance = $a1*a3*b2$

Figure 1. Three-path Mediation Model

3. Methodology

3.1 Participants of the study

A total of 687 college students, which represents 5% of the total student population of a La Salle School, served as random sample of the present study. Following the recommendation of Hair, Ringle, and Sarstedt (2011) that a minimum sample size for a path model is ten times the largest number of structural paths directed at a particular latent constructs in the model, the present study requires only a minimum sample of 30. Thus, a sample of 687 is already adequate for the present study.

As shown in Table 1 (p. 20), majority of the respondents are males (47%), first year (66%) and second year (28%) in college. About 71% took courses related to Design/Architecture, Natural Sciences, and Business. The rest took other courses such as Arts and Humanities, Information Technology, and Social Sciences.

3.2 Measures

All variables of the present study such as institutional support, student engagement, college experience and academic performance were measured using the Student Engagement Questionnaire developed by Adamson University and SMIIC (2010).

Student Engagement

Student engagement is a 45-item self-report measure with three components such as social component, cognitive component, and self-management component, each with 15 items. Items are measured on a 5-point Likert type scale, with responses ranging from 1 to 5, where 1 means almost never and 5 means almost always. Sample items of student engagement are “Consulted an instructor

about problems with a lesson”, “Wrote reflections on lessons learned”, and Spent significant amount of time for school work”. Adamson University and SMIIC (2010) reported an overall Cronbach alpha of .93 for the 45-item questionnaire, while Anicete, Amora, Bugarin and Adriano (2013) reported that the Student Engagement Scale has convergent validity and discriminant validity (Composite reliability: .90 for social, .87 for cognitive, and .85 for self-management; average variance extracted: .64 for social, .58 for self-management, and .57 for cognitive).

Table 1 Demographic characteristic of the respondents

	f	%
A. Gender		
Male	324	47.16
Female	303	44.10
No response	60	8.73
B. Academic Year Level		
First year	451	65.65
Second year	189	27.51
Third year	27	3.93
Fourth year	20	2.91
C. Course/Academic Program		
Design/Architecture	149	21.69
Natural/Chemical/Health Sciences	210	30.57
Arts and Humanities	89	12.95
Social Sciences	2	0.29
Computer/Information Technology	35	5.09
Business administration	127	18.49
No response	75	10.92

Institutional Support

Institutional support is a 15-item Likert type scale with response options ranging from 1 to 5, where 1 means none and 5 means very large extent. Greater extent of institutional support means supportive campus environment. Sample items of institutional support include “Useful and rich library resources”, “Guidance and counseling services”, and “Access to computers and other modern technology”. Previous research (Anicete, Amora, Bugarin and Adriano, 2013) has reported that institutional support has a composite reliability of .92, average variance extracted of .57, and item loadings ranging between .71 and .80.

College Experience

Campus experience is a 15-item Likert type scale with response options ranging from 1 to 5, where 1 means none and 5 means very large extent. It measures the extent of student’s experience in the school campus that has contributed to his/her knowledge, skills and personal development. Adamson University and SMIIC (2010) reported a Cronbach’s alpha of .93 for the campus experience scale.

Academic Performance

Academic performance is a self-reported approximate grade point average (GPA) of a student in all enrolled subjects during the previous semester/term. It is a single item with response options ranging from 1 to 6, where 1 means poor (70%-74%), 2 means fair (75%-79%), 3 means good (80%-84%), 4 means very good (85%-89%), 5 means excellent (90%-94%) and 6 means outstanding (95%-100%). Adamson University and SMIIIC (2010) used this single item to measure student's GPA.

3.3 Data Analysis

With reference to the research model in Figure 1, path c' is the direct effect of institutional support on the academic performance (H1), controlling for both mediators (student engagement and college experience) (Taylor et al, 2008). The advantage of the three-path mediation model (Hayes, 2009; Taylor et al., 2008) is that the indirect effects of the mediators can be isolated (Castro & Roldan, 2013). The product of the two paths a_1 and b_1 represents the specific indirect effect of student engagement on the relationship between institutional support and academic performance (H2: a_1b_1), while the product of the other two paths a_2 and b_2 represents the specific indirect effect of college experience on the relationship between institutional support and academic performance (H3: a_2b_2). In addition, in the three-path mediation model, the indirect effect of both of the mediators in a series can be analyzed (Van Jaarsveld, Walker, & Skarlicki, 2010). The product of the three paths a_1 , a_3 , and b_2 represents the sequential indirect effect of both student engagement and college experience on the relationship between institutional support and academic performance (H4: $a_1a_3b_2$).

The Partial Least Squares-Structural Equation Modeling (PLS-SEM) using SmartPLS 3.0 software was used in estimating the parameters of the three-path mediation model using the 5000 bootstrap samples as recommended by Hayes (2009). Bootstrapping approach was utilized because it is one of the more valid and powerful methods for testing intervening variable effects (Mackinnon et al., 2004; Williams & MacKinnon, 2008; Hayes, 2009). Moreover, bootstrapping approach can be used for making inferences about indirect effects in any mediation model, regardless of how complex and how numerous the paths (Hayes, 2009).

PLS-SEM is a variance-based estimation procedure (Reinartz, Haenlein, & Henseler, 2009), which simultaneously allows assessment of the reliability and validity of the measures or theoretical constructs and the estimation of the relationships between these constructs (Barroso, Cepeda, & Roldan, 2010). In comparison to covariance-based SEM, PLS-SEM requires less stringent assumptions related to measurement levels of the manifest variables, multivariate normality, and sample size (Hulland, 1999). PLS-SEM is an appropriate technique to use in a theory development situation (Hair, Ringle, & Sarstedt, 2011) such as in the present study. PLS-SEM is usually analyzed and interpreted sequentially in two stages, which involves the assessment of the reliability and validity of the measurement model followed by the assessment of the structural model (Hulland, 1999). Hulland further emphasized that the said sequence ensures that the researcher has reliable and valid measures of constructs before attempting to draw conclusions about the nature of the construct relationships.

4. Results

Following the sequential stages in analyzing and interpreting a PLS model suggested by Hulland (1999), the results of the present study are presented in two parts: Part one presents the results on

the reliability and validity of the measurement model, while Part two presents the results of the structural model (the relationships of the constructs).

4.1 Measurement Model

The assessment of measurement model for reflective indicators in PLS-SEM is based on reliability, convergent validity of the measures associated with individual constructs, and discriminant validity (Hulland 1999).

Construct reliability assessment allows the evaluation of the extent to which a reflective item or set of reflective items is consistent in what it intends to measure (Straub, Boudreau, & Gefen, 2004; Roldan & Sanchez-Franco, 2012). Construct reliability is usually assessed using composite reliability and Cronbach's alpha (Roldan & Sanchez-Franco, 2012; Kock, 2015). Construct reliability is adequate if the composite reliability and Cronbach's alpha are greater than or equal to .70 (Fornell & Larcker, 1981; Nunnally, 1978; Nunnally & Bernstein, 1994; Kock, 2015) or greater than the more relaxed threshold of .60 (Nunnally & Bernstein, 1994; Kock, 2015). In the present study, the student engagement (SE), institutional support (IS), and college experience (CE) are reliable (Table 2a). The endogenous variable academic performance (AP) has a composite reliability and Cronbach's alpha of 1.0 since it has only one item.

Table 2a
Construct reliability, convergent and discriminant validity coefficients.

	Composite Reliability	Cronbach's Alpha	AVE	IS	SE	CE	AP
IS	.907	.877	.620	.787			
SE	.847	.732	.651	.445	.807		
CE	.966	.962	.654	.407	.388	.808	
AP	1.00	1.00	1.00	.172	.206	.443	1.00

AVE = average variance extracted; IS = Instructional Support; SE = Student Engagement; CE = College Experience; AP = Academic Performance. Diagonal elements (bold) are square roots of AVE; Off-diagonal elements are the correlations among constructs. For discriminant validity, diagonal elements should be larger than the off-diagonal elements.

Table 2b
Loadings and cross-loadings of the items and heterotrait-monotrait ratio of correlations

Variables	No. of items	AP	IS	CE	SE
AP	1	1.00	.172	.443	.206
IS	6	.112-.191	.736-.815	.297-.343	.322-.369
CE	15	.296-.420	.263-.392	.764-.852	.220-.368
SE	3	.041-.277	.340-.374	.236-.352	.725-.864

IS = Instructional Support; SE = Student Engagement; CE = College Experience; AP = Academic Performance. Heterotrait-monotrait ratio of correlations (HTMT): $IS \rightarrow AP = .182$, $CE \rightarrow AP = .450$, $CE \rightarrow IS = .439$, $SE \rightarrow AP = .224$, $SE \rightarrow IS = .554$, $SE \rightarrow CE = .452$.

Convergent validity is a measure of the quality of the measurement instrument (which is typically a set of question-statements or items). A measurement instrument has a good convergent validity if the items associated with each construct are understood by the respondents in the same way as they were intended by the designers of the items (Kock, 2015). There are two approaches to assess convergent validity in PLS-SEM. On one hand, Kock (2015) recommends that the item loadings associated with the construct should be statistically significant ($p < .05$) and be equal to or greater than .50 (Hair et al, 1987; 2009; Kock, 2015). Item loading is a correlation between the item and construct. On the other hand, the second approach is the average variance extracted (AVE). AVE quantifies the amount of variance that a construct captures from its items relative to the amount due to measurement error (Chin, 1998), which should be greater than .50 (Kock, 2015; Hair, Ringle, & Sarstedt, 2011; Fornell & Larcker, 1981). Both the item loadings and AVEs are satisfied for all the constructs of the present study (Table 2a).

A measurement instrument has good discriminant validity if the items associated with the construct are not confused by the respondents answering the questionnaire with the items associated with the other constructs, particularly in terms of the meaning of the items (Kock, 2015). There are three approaches to assess discriminant validity in PLS-SEM. The first approach suggests that the square root of the AVE of each construct should be greater than its correlations with the other constructs (Fornell & Larcker, 1981). This criterion is satisfied in the present study since all the square roots of AVE (diagonal elements in bold in Table 2a) are greater than the correlation coefficients among the constructs (off-diagonal elements in Table 2a). The second approach is based on the loadings and cross-loadings of the items of the constructs. To have discriminant validity, no item should load more highly on another construct than it does on the construct it intends to measure (Hair, Ringle & Sarstedt, 2011). Loadings and cross-loadings of all items have satisfied this condition (Table 2b). The third (latest) approach is the heterotrait-monotrait ratio of correlations (HTMT) proposed by Henseler, Ringle and Sarstedt (2015), which suggests that the HTMT should be less than .90 to have a discriminant validity between two reflective constructs. This condition is satisfied for all constructs in relation to the other constructs (bottom of Table 2b).

4.2 Structural model

Estimates of the parameters of the three-path model are presented in Figure 2 and Table 3. The path coefficients are standardized partial regression coefficients provided for each predictor-endogenous variable pair. Path coefficients with three asterisks (***) are statistically significant association at .001 level ($p < .001$), while path coefficients with NS refer to a statistically nonsignificant association at .05 level ($p > .05$). R-squared coefficients, which reflect the proportion of variance explained by the predictors on the endogenous variables, are shown under the endogenous variables (ellipses in Figure 2).

Analysis of the data reveals that the direct effect of institutional support on academic performance is nonsignificant ($c' = -.027$, $p > .05$, $f^2 = .001$), indicating that institutional support has no direct relationship with academic performance; thereby, H1 is not supported. It is worth noting that the total effect of institutional support on academic performance is statistically significant ($c = .172$, $p < .001$) (Table 3). Having a significant total effect complied the first requirement of Baron and Kenny (1986) to proceed the mediation analysis. However, the contemporary approach of mediation analysis suggested by Hayes (2009), which is employed in the present study, does not require any information about the total effect of the independent variable on the dependent variable. That is, mediation analysis can be pursued regardless of whether the total effect of the independent variable on the dependent variable is statistically significant or not.

Further analysis of the data reveals that the specific indirect effect of institutional support on academic performance through student engagement is nonsignificant ($a_1b_1=.022$, $p>.05$, $f^2=.001$). This finding is consistent with the result that institutional support is significantly associated with student engagement ($a_1=.445$, $p<.001$, $f^2=.247$), which in turn insignificantly associated with academic performance ($b_1=.050$, $p>.05$, $f^2=.002$). Either finding indicates that student engagement does not mediate the relationship between institutional support and academic performance; thus, hypothesis H2 is not supported. 24

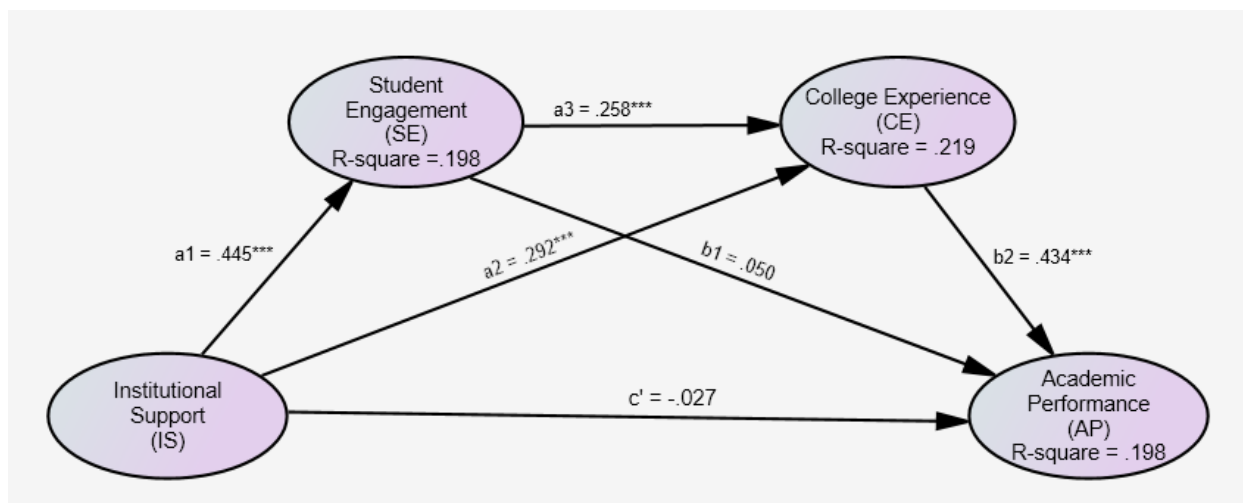
On the other hand, the specific indirect effect of college experience on the relationship between institutional support and academic performance is statistically significant ($a_2b_2=.127$, $p<.05$, $f^2=.038$). This means that institutional support directly affects college experience ($a_2=.292$, $p<.001$, $f^2=.008$), which in turn directly affects academic performance ($b_2=.434$, $p<.001$, $f^2=.184$). This finding indicates that college experience significantly mediates the relationship between institutional support and academic performance with a small extent of mediation effect ($f^2=.038$, small effect based on Cohen, 1988); consequently, this results support the hypothesis H3.

Table 3
Total, direct, and indirect effects on the endogenous variables

	Path coefficient	T-value (bootstrap)	Percentile 95% C.I.	f^2
Total effect: IS $\rightarrow$ AP = c	.172***	4.417	[.098, .250]	
Direct Effects:				
IS $\rightarrow$ AP = c'	-.027 ^{ns}	.603	[-.111, .067]	.001
IS $\rightarrow$ SE = a1	.445***	12.666	[.377, .513]	.247
IS $\rightarrow$ CE = a2	.292***	5.187	[.184, .403]	.088
SE $\rightarrow$ CE = a3	.258***	4.902	[.157, .365]	.068
SE $\rightarrow$ AP = b1	.050 ^{ns}	1.070	[-.040, .142]	.002
CE $\rightarrow$ AP = b2	.434***	6.431	[.278, .547]	.184
Indirect Effects:				
IS $\rightarrow$ SE $\rightarrow$ AP = a_1b_1	.022 ^{ns}	1.052	[.021, .023]	.001
IS $\rightarrow$ CE $\rightarrow$ AP = a_2b_2	.127***	19.228	[.126, .127]	.038
IS $\rightarrow$ SE $\rightarrow$ CE $\rightarrow$ AP = $a_1a_3b_2$	.050***	4.216	[.049, .051]	.003

Notes: *** significant at .001 and ns =nonsignificant. f^2 is the Cohen's (1988) effect size coefficient: .02=small, .15=medium, .35=large. Total effect c is equal to the sum of direct effect c' and indirect effects; i.e., $c = c' + a_1b_1 + a_2b_2 + a_1a_3b_2$.

Further analysis of the data reveals that institutional support positively and significantly affects student engagement ($a_1=.445$, $p<.05$, $f^2=.247$), which in turn positively and significantly affects college experience ($a_3=.258$, $p<.05$, $f^2=.068$), which in turn positively and significantly affect academic performance ($b_2=.434$, $p<.05$, $f^2=.184$). This finding indicates that student engagement and college experience sequentially mediate the relationship between institutional support and academic performance ($a_1a_3b_2=.050$, $p<.05$, $f^2=.003$); thereby, the hypothesis H4 is supported.



H1: Institutional Support $\rightarrow$ Academic Performance = c'

H2: Institutional Support $\rightarrow$ Student Engagement $\rightarrow$ Academic Performance = a_1b_1

H3: Institutional Support $\rightarrow$ Student Engagement $\rightarrow$ Academic Performance = a_2*b_2

H4: Institutional Support $\rightarrow$ Student Engagement $\rightarrow$ College Experience $\rightarrow$ Academic Performance = $a_1a_3b_2$

*** $p < .001$; no asterisk means not significant (based on $t(4999)$, two-tailed test)

Figure 2. Three-path mediation model with the parameter estimates

5. Discussion

Academic performance, which is the extent to which a student, teacher, or institution has achieved their educational goals, is the outcome of education. It is vital in the part of the students because the level of success they achieve from the school/university has far-reaching implications for their personal and professional lives (Christiana, 2014). Students' academic performance impacts on their career choice, personal income and level of success, as well as the degree of participation in community life (Christiana, 2014; Grainen, 1995). This study aims to examine academic performance in greater depth by analyzing the factors that influence this concept through the application of the statistical three-path mediation model. The approach herein is to place institutional support at the beginning of the process, as a main antecedent of academic performance, while student engagement and college experience play mediating roles between institutional support and academic performance. The results show that the student engagement and college experience sequentially mediate the effect of institutional support on academic performance.

Accordingly, academic institutions center their efforts to provide greater institutional support in order to improve the academic performance of students. When we consider the model with the total effect (Figure 2a), the results indicate that the greater the support of the institution to make a supportive campus environment (i.e., institutional support), the better the academic performance of the students. However, the importance of the direct effect of institutional support on academic performance drops significantly in favor of the student engagement and college experience variables when the full model (Figure 2b) is analyzed. On the one hand, the presence of both student engagement and college experience, as sequential mediators, affect the relationship between institutional support and academic performance. Hence, institutional support has a positive and significant influence on student engagement. Though student engagement has no direct influence on academic performance, it has a positive and significant effect on college experience, which in turn positively and significantly influences academic performance. On the other hand, the degree of institutional support also has a positive and significant influence on college experience, which in turn positively and significantly affects academic performance. With regard to this issue, academic

institutions should deliberately maximize institutional support as it increases the degree of student engagement which in turn enriches the college experience of the students which in turn increases their academic performance. Moreover, academic institutions should deliberately maximize institutional support because it has a positive and significant effect on the extent of college experience among the students which in turn affect positively to their academic achievement.

6. Limitations and Future Researches

A limitation of the current study is its reliance on self-reports of the participants particularly in their academic performance and institutional support. Academic performance was measured by indicating the approximation of their grades during the previous term. The responses (e.g. 95%-100% Outstanding, 90%-94% Excellent) may not fully reflect their grades as the College provides different grade descriptions (e.g. 97-100 is equivalent to 4.0 with a description of Excellent). Moreover, institutional support was measured as the perception of the students. It can result to nuances of the actual support provided by the College being not fully perceived nor actually availed by some of the students (e.g. tutoring and academic assistance).

Despite the above limitations, the results have significant implications and stimulate reflections for every academic institution. The study provided a complex interaction by showing that student engagement and college experience play sequential mediation roles in the relationship between institutional support and academic performance. Student motivation that translates into more school engagement can substantially progress college success (Svanum & Bigatti, 2009). However, the results of this study imply further process or mechanism of predicting academic performance. Extra-curricular activities (e.g., active involvement in student organization) that promote acquiring and improving communication and technical skills, self-awareness that includes values identification and sense of spirituality may increase the sense of engagement, which can lead to the increase of academic performance. Laguador (2013) suggested that students must always be encouraged to join college activities related to academics, cultural and sports that can increase their sense of engagement. It is not enough that the students perceive or feel engaged in the school but rather they must need to appraise the value and outcomes of these engagement activities. It is not enough for them to merely interact with their classmates and teachers, or be provided by rigorous academic requirements but rather they must also view these as helpful opportunities to their personal development.

Furthermore, academic institutions will be able to manage the learning environment of their respective institution more strategically and hopefully obtain better outcomes by providing to students different opportunities to stay engaged in the school such as college organization opportunities where they can actually provide contributions. These contributions will then be based on their developing skills of thinking critically, and understanding their self, other people and differences, values and ethics. Institutions can reflect these kinds of activities perhaps not as a total hindrance to their academic performance. They can rather support it that may result to a better outcome. Institutions must not only encourage them to attend co-curricular and extracurricular activities but also ensure them to actively participate and assessed if the outcomes of these activities were truly achieved. Reflections on how academic institution view, manage and support quality student life that includes interaction of different groups of students, curricular requirements, and campus cultures (Zhao, Kuh, & Carini, 2005) are highly enjoined.

Future research might examine the role of teacher factors in this complex model. It might be good to examine its relative importance and sequence as the students become more engaged in schools. For instance, teacher expectations are considered as one cognitive factor of student engagement and

academic efficacy (Tyler & Boetler, 2008; Chen, Lattuca, & Hamilton, 2008). Views of school administrators and policy-makers could also be considered using a qualitative approach as to what extent institutional support can be provided and results could explain the views of the students this study has presented. Further exploration on student engagement and college experience should be conducted since unpredictable changes always occur in learning where institutions, not only students, must always adapt.

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