

Research Paper

The Effect of Psychological Capital on Academic Success of College Students Mediated Through Student Engagement

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Abstract

Although psychological capital is theorized to enhance academic success of college students, there is a lack of sufficient empirical evidence supporting this claim. Given this gap, the present study was conducted to explore the role of psychological capital in academic success of college students, mediated through student engagement. Undergraduate and postgraduate diploma students ($N=502$) were selected using a convenience sampling technique. The participants completed self-reported questionnaires assessing their psychological capital, student engagement, and academic success. To determine the statistical significance of the prediction, hierarchical multiple regression analyses were performed. PROCESS macro for SPSS was utilized for analyzing the mediation effect. Results obtained from the regression analyses revealed that psychological capital was positively and significantly related to both engagement and academic success. Notably, the mediation results also demonstrated that student engagement partially mediated the relationship between psychological capital and academic success. The results of the present study might contribute to the existing literature related to the importance of positive psychology in education by providing insight into the complicated relationship between psychological capital, student engagement, and academic success.

Keywords: psychological capital, student engagement, academic success, college students

Introduction

Academic success is deemed to be a critical standard for evaluating the quality of higher educational organizations (Alyahyan & Düşteğör, 2020), and proper teaching and learning processes are generally expected to correlate with better students' academic success (Anierobi et al., 2021). Further, higher education students who graduate with higher academic success are more likely to have future career success and employability (Fugate et al., 2004). Siu et al. (2014) also emphasized that students need to strive for academic excellence to effectively navigate the challenges posed by an uncertain global economy, competitive job market, and rapidly changing technological era. Higher education students who demonstrate sufficient knowledge and skills through higher academic performance are more likely to gain competitive advantages. Therefore, one of the objectives of higher education institutions should be to achieve and maintain a higher level of academic success among their students. However, enhancing the academic success of college students has long been a significant challenge for higher education institutions, parents, and policymakers. Scholars in the field have also long been working to identify potential factors affecting academic success of college students. As a result, researchers have identified a wide range of factors affecting academic success of college students, such as the amount of time spent studying, English language proficiency, self-motivation, and lecture attendance (Dasanayake & Jayasinghe, 2021). In addition to these factors, with the emergence of positive psychology, there has been a growing interest in

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empirically validating the role of psychological capital in the educational setting to promote positive learning outcomes. Hence, psychological capital is assumed to be of great importance in enhancing positive learning outcomes of higher education students such as academic performance and academic engagement (Gong et al., 2018). Like psychological capital, student engagement is recognized as one of the important factors that determine students' academic success in higher education (Fredricks et al., 2004). In alignment with these research endeavors, the present study attempted to validate the role of psychological capital on academic success of students mediated through student engagement among the student population of Eritrean tertiary education.

Despite advocating for the crucial role of psychological capital in enhancing positive educational outcomes, empirical evidence about the influence of psychological capital on the academic success of higher education students remains underrepresented in special literature (Luthans et al., 2012). Notably, Guerrero-Alcedo et al. (2022) conducted a bibliometric analysis of scientific literature regarding the importance of psychological capital in university students and found that from 2009 to 2021, only 82 research works were published. This scarcity of literature suggests a low level of scientific investigation and production in the field. Additionally, those studies were even carried out in very few specific countries such as China, the UK, the US, Australia, and Spain, suggesting that the available limited literature might not also be globally representative (Guerrero-Alcedo et al., 2022). Moreover, the available psychological capital studies related to university students have predominantly examined academic variables such as intrinsic motivation (Siu et al., 2014), academic adjustment, comprehensive quality of higher education (Jin, 2020), conscious learning, and participation in learning (Lin, 2020), orientation to learning objectives and academic satisfaction (Luthans et al., 2012; Sánchez-Cardona et al., 2021). Nevertheless, research addressing the interplay between psychological capital, academic engagement, and academic success appears to be globally inadequate. More importantly, there is a dearth of studies examining these relationships within the specific context of higher education in Eritrea, as no such study has been carried out to date. Hence, considering this research gap, we conducted a study to assess the efficacy of psychological capital in improving the academic success of college students. Besides, as the association between psychological capital and academic success might not be simple and direct because of the presence of several mediating and moderating variables, the present study has also examined the mediating effect of student engagement on the relationship between the variables. By examining the interplay between these variables, the present study is expected to provide valuable insights into the complex dynamics that underlie academic success of college students. The findings of herein are also expected to guide educational practices, interventions, and policies purported to enhance positive learning outcomes of students in higher education settings.

Literature Review

Psychological Capital and Academic Success

Fred Luthans and his colleagues developed the concept of psychological capital, which represents the application of human resource strengths and psychological resources in the workplace to improve organizational success and productivity (Luthans et al., 2007). Contrasting with the other types of assets such as economic capital (what you have), human capital (what you know), and social capital (who you know), psychological capital (PsyCap) emphasizes “who you are” and notably “who you are becoming”. Positive PsyCap goes beyond the other types of capital and is defined as “an individual’s positive psychological state of development that is characterized by: 1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; 2) making a positive attribution (optimism) about succeeding now and in the future; 3) persevering toward goals, and when necessary, redirecting paths to goals (hope) to succeed; and 4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resiliency) to attain success” (Luthans et al., 2007, p. 3). Both organizational factors (e.g., organizational climate, social and organizational support, work engagement, authentic leadership, supportive and inclusive learning environments) and individual factors (e.g., positive emotions, personality traits, sense of humor) are significant antecedents in the development of Psychological Capital (PsyCap) across various settings, including workplaces and educational institutions (Luthans et al., 2012; Luthans et al., 2007; Srivastava & Maurya, 2017). These factors interact to foster the growth of PsyCap, enhancing individuals’ hope, efficacy, resilience, and optimism in both professional and academic contexts.

The construct is theorized as a state-like and higher-order construct with four psychological resources, which are hope, efficacy or self-efficacy (confidence), resilience, and optimism. The first resource of PsyCap is *hope*. Hope is conceptualized as people’s psychological and motivational state that helps and guides people to

set practical goals which can be reached through self-directed behavior (agency or willpower) and the ability to derive multicultural approaches (path) and show flexibility in realizing the goal when facing impediments (Snyder et al., 1991). The second PsyCap resource is *self-efficacy (confidence)*. The general concept of self-efficacy refers to “belief in one’s capabilities to organize and execute the course of action required to manage the prospective situation” (Bandura, 1997, p. 2). Self-efficacy has been also conceptualized globally as an individual’s consistent capability to effectively function in a wide range of stressful contexts (Schwarzer, 1992). The third resource of PsyCap is *resilience*. Resilience is commonly conceptualized as an individual’s psychological capacity to handle adversity and effectively deal with one’s environment (Wagnil & Young, 1993). It is also defined as a personal ability that enables individuals to stay strong and display courage and adaptability in the face of difficulty or adversity (Connor & Davidson, 2003). The final PsyCap resource is *optimism*. Optimism is generally defined as a global individual’s tendency to hold positive outcomes or expectancies for their future (Carver et al., 2010). While optimistic students generally expect positive outcomes to happen to them, pessimistic students anticipate negative outcomes to happen to them. Optimistic students are thus more likely to achieve better academic success (Hayat et al., 2022). In an academic context, psychological capital embodies students’ determination and ability to navigate various paths to achieve academic goals (hope), their confidence in successfully handling academic tasks (efficacy), their persistence in facing challenges and bouncing back (resilience), and their positive outlook on the future with expectations of positive outcomes (optimism) (Martínez et al., 2021).

Despite the limited body of literature on the relationship between psychological capital and academic success of higher education students, several emerging studies suggest that human psychological strengths of hope, efficacy, resilience, and optimism are positively and significantly related to academic success of students. The study was perhaps the first study to investigate the application of psychological capital in the academic setting, relating psychological capital with academic performance (Luthans et al., 2012). This study surveyed 95 undergraduate business students and provided empirical evidence that psychological capital is significantly related to GPA. Despite the smaller sample size of the study ($N = 95$), the study was one of the scientific research initiatives on relating psychological capital to various academic variables such as academic success in the academic arena. Subsequently, some researchers began to investigate the importance of psychological capital in the field of academia. For example, in a cross-sectional study conducted among 390 Malaysian undergraduate students, psychological capital was found to have a positive predicting effect on academic achievement of the students (Kuar et al., 2018). Although the study was limited to the simple and direct effect of psychological capital on academic success, the result suggests that psychological capital is an important aspect of positive learning outcomes for higher education students. Similarly, a longitudinal study reported that psychological capital showed a direct and indirect predicting effect on academic performance of Indian university students mediated through academic satisfaction, delineating that students with a higher level of psychological capital experience better academic satisfaction, and thus results in better academic performance (Ujjal, 2018). Besides, Onivehu (2020) observed that psychological capital explained a total of 36 percent of the variance in academic achievement of 180 social work students. Various other studies also supported the hypothesis that psychological capital is a critical instrument to boost positive learning outcomes of students such as academic performance (e.g., Sweet & Swayze, 2020). However, it is very important to point out the fact that the focus of most of these studies was more on the direct relationship between psychological capital and academic performance albeit some of them used other mediating variables than student engagement.

Several studies have also examined the individual contribution of psychological capitals of hope, efficacy, resilience, and optimism separately. For instance, hope was found to be a strong predictor of academic success in college students (Liu & Huan, 2022). Likewise, self-efficacy was found to be one of the important psychological assets contributing to better academic results for college students by enhancing students’ learning-related emotions, metacognitive strategies (Hayat et al., 2020) and academic engagement (Meng & Zhang, 2023). Unlike students with lower self-efficacy who attribute their failures to a lack of ability, students with a higher level of self-efficacy attribute their academic failures to a lack of effort rather than a lack of ability (Pintrich, 2003). In the same way, numerous studies have revealed that resilience (e.g., Vanwyk et al., 2022) and optimism (Anierobi et al., 2021) significantly and positively predict academic performance of college students. Despite the positive contributions of the individual constructs of PsyCap to academic success, it has been argued that when the four individual psychological resources of hope, efficacy, resilience, and optimism are combined, they show a synergistic strong effect, and this qualifies psychological capital to be a higher-order construct. Therefore, PsyCap, as a second-order core construct, seems to have a better predicting effect on desirable outcomes such as performance and satisfaction than the individual resources that comprise it (Liu & Huan, 2022).

Psychological Capital and Student Engagement

Various previous studies conducted at the workplace have consistently established a positive correlation between psychological capital and a range of positive psychological outcomes such as job satisfaction, organizational commitment, organizational citizenship, job performance, well-being, and work engagement of employees (Luthans et al., 2007). Building on this line of research, it is presumed that psychological capital may demonstrate a positive impact on learning outcomes in students of higher education such as academic engagement notwithstanding the scarcity of empirical inquiries (Jafri, 2018). A few studies that have examined the predicting effect of psychological capital on student engagement reported a positive link between the variables. For example, Datu and Valdez (2016) surveyed 606 Filipino high students to explore how well psychological capital contributes to the students' degree of engagement and well-being, and the results of their study revealed that psychological capital significantly predicted academic engagement, flourishing, happiness, and positive affect. Despite the contribution of the study, as it was conducted among high school students, the findings may not be generalized to the higher education student population and their practical implication might be limited to the high school context.

In another study conducted among Hong Kong undergraduate students, psychological capital was found to have a positive predicting effect on student engagement (Siu et al., 2014). The study's further mediation analysis indicated that intrinsic motivation mediated the relationship between psychological capital and student engagement, suggesting that psychological capital has both direct and indirect effects on academic engagement. Similarly, Gong et al. (2018) examined the effect of psychological capital on academic engagement with a sample of 211 Chinese university students and their results highlighted that psychological capital positively predicted academic engagement mediated through positive emotions. It has also been found that university students with a higher level of psychological capital of hope showed greater academic engagement and thus appeared to achieve better academic success (Yoon et al., 2015). Taken all together, the empirical studies presented here seem to be in favor of the positive relationship between psychological capital and academic engagement of higher education students, suggesting that hopeful, efficacious, optimist and resilient students are more likely to have better cognitive, behavioral, and emotional involvement in their academic tasks.

Student Engagement and Academic Success

According to Kuh (2003), student engagement refers to the time and energy that students invest in dealing with schooling activities inside and outside the classroom environment and adhering to the rules and regulations that educational organization exercises to optimize student participation in these activities. From the existing body of literature, there seems evidence that college students' academic engagement is one of the factors that determine learning outcomes such as academic performance. Several previous studies have supported the assumption that higher education students with a higher level of cognitive, emotional, and behavioral engagement achieve better academic results in their studies. On the other hand, students' less academic engagement is more likely to result in poor academic performance and dismissal from the program. For example, a study conducted in Spain and Portugal, to identify the antecedents of academic performance of university students, reported that academic engagement was proven to be an important predictor of academic performance of university students mediated through psychological capital (Martínez et al., 2019). Other studies that have examined the relationship between academic engagement and academic achievement of higher education students also suggest that students with a higher level of engagement appear to have better academic results (Kim et al., 2019). More importantly, several studies conducted in African higher education institutions also revealed that students' academic engagement is positively associated with their academic performance, indicated by grade point average (GPA). For example, in a study carried out in public universities in Ethiopia with a sample of 530 students, student engagement and academic performance were found to be positively and significantly associated. The study also specifically pointed out that out of the three components of engagement, behavioral engagement appeared to be the strongest predictor of academic achievement (Tessema & Rao, 2018). Overall, most of the empirical studies seem to consistently suggest that full involvement of higher education students in academic activities enhances their positive learning outcomes, more specifically their academic performance.

The Mediating Effect of Student Engagement

Although many previous studies examined the direct relationship between psychological capital and academic success, the nature of the relationship between psychological capital and academic success is not always simple and direct because of the moderated and mediated effect of various psychological variables. Nevertheless, some

studies have made an effort to determine the indirect effect of psychological capital on academic performance mediated through personal variables such as academic satisfaction (Ujjal, 2018), autonomous motivation (Liu & Huan, 2022), and positive emotions (Gong et al., 2018). Empirical studies on the mediating effect of academic engagement on the psychological capital-academic performance relationship are significantly limited (Vîrgă et al., 2022). We have found some studies that support the hypothesis that students' academic engagement functions as a vital mediating variable between psychological capital and academic performance. For example, Vîrgă et al. (2022) conducted a study among university students in India and Romania and reported that academic engagement partially mediated the linkage between psychological capital and academic performance, signifying that students with a higher level of psychological capital show a higher level of engagement in their educational activities and thus achieve better performance in their studies. In another similar study with sequential mediational analyses, psychological capital and academic engagement significantly mediated the relationship between positive emotional experiences and academic performance of Chilean high school students (Carmona-Halty et al., 2021). Some other studies also detected empirical evidence for the intermediating role study engagement on the relationship of individual psychological capital components of hope (Yoon et al., 2015) and efficacy (Meng & Zhang, 2023) with academic performance of students.

Hypotheses of the Study

Drawing from the theoretical conceptualizations of the study constructs and documented empirical studies, the following hypotheses were established to guide the present study.

Hypothesis 1: Psychological capital is positively and significantly related to the academic success of college students.

Hypothesis 2: There is a significant positive relationship between psychological capital and student engagement in college students.

Hypothesis 3: College students with a higher level of student engagement achieve better academic success.

Hypothesis 4: Student engagement mediates the relationship between psychological capital and academic success of college students.

Methods

Sample and sampling strategy

Five hundred-two undergraduate and postgraduate diploma students sampled from three Eritrean colleges participated in the present study. They were selected using a convenience sampling strategy. The mean values for age and cumulative grade point average (CGPA) were 26 years ($SD = 8.16$) and 2.69 ($SD = 0.44$) respectively. Of the 502 total participants, 294 (58.60%) were male and 208 were female (41.40%) respondents. As per the participants' study program, the majority of the participants were undergraduate students ($n = 403$; 80.30%) and some were postgraduate diploma students ($n = 99$; 19.70%). While 401 (79.90%) of the student participants were unmarried, the rest 101 (20.10%) students were married. Most of the participants of the study were selected from the College of Education ($n = 221$; 44%) and College of Science ($n = 215$; 43%) and there were some student participants from the College of Engineering and Technology ($n = 66$; 13%).

Measures

Academic success: To assess academic success, students' cumulative grade point average (CGPA) was used. As part of the self-developed demographic questions, participants were asked to report their CGPA.

Psychological Capital: To measure the positive psychological capital of the participants, the study used a 24-item Psychological Capital Questionnaire (PCQ) originally developed by Luthans et al. (2007) and later revised by Liran and Miller (2017) to fit the scale to the academic setting and specifically to university students. The revised version of PCQ is rated on a five-point Likert type of scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The PCQ is a multidimensional assessment tool comprising four subscales: efficacy (e.g., "I feel confident analyzing a study-related long-term problem to find a solution"), hope (e.g., "I can think of many ways to reach my current study goals"), optimism (e.g., "I always look on the bright side of things regarding my studies"), and resilience (e.g., "I usually manage study-related difficulties one way or another"), with each subscale containing six items. The overall Cronbach's alpha for the original and adapted version of PCQ was found to be .93 and .89 respectively (Liran & Miller, 2017). In the present study, the reliability coefficient of the

scale measured by Cronbach's alpha was found to be .80, which is well above the benchmark of .70 (George & Mallery, 2003).

Student Engagement: To measure the outcome variable of student engagement, the University Student Engagement Inventory (USEI) developed by Maroco et al. (2016) was applied. The USEI is a three-dimensional scale devised to measure emotional (e.g., "I feel excited about the schoolwork"), behavioral (e.g., "I pay attention in class"), and cognitive (e.g., "I try to integrate the acquired knowledge in solving new problems") components of student engagement. The measure is a 15-item self-report based on a Likert-type scale ranging from 1 (*never*) to 5 (*always*). Maroco et al. (2016) provided adequate reliability, factorial, convergent, and discriminant validities with the sample of college students in Portugal. Very recently, Assunção et al. (2020) also asserted that USEI is a valid and reliable instrument to measure student engagement of university students across countries.

Data Collection Procedure and Ethical Considerations

Before data collection, the study was approved by the Asmara College of Education. Then, self-report questionnaires were distributed to the participants in their respective classrooms. As per the American Psychological Association guideline, participation in the present study was voluntary and based upon informed consent. The informed consent statement was placed at the beginning of the questionnaire, allowing participants to consider their participation in the study. The respondents were also assured that the data would be kept confidential and would not be used for any purpose other than the study.

Statistical Data Analyses

First, the data were inputted into SPSS Version 25. Then, descriptive statistics such as mean and standard deviation were run to explore and summarize the data. After that, the Pearson product-moment correlation was performed to explore the bivariate relationships between study variables. Afterward, to determine the statistical significance of the prediction effects of predictors on the outcome variables, hierarchical multiple regression analyses were conducted. Finally, PROCESS macro for SPSS was utilized to assess the mediation effect.

Results

Descriptive Statistical Analyses of the Study Variables

The minimum, maximum, mean, standard deviation, reliability coefficients, and measure of shape distribution values are presented in Table 1. As can be seen from Table 1, the reliability coefficients for the study variables of psychological capital and student engagement were satisfactory. Besides, the values for measure of were found to lie within the acceptable limit of +2 and -2, indicating that the data were normally distributed.

Table 1. Descriptive Statistics of the Study Variables (N=502)

Variables	<i>M</i>	<i>SD</i>	items	α	<i>Sk</i>	<i>Ku</i>
Psychological capital	84.08	11.37	24	0.80	-.39	1.17
Student engagement	59.35	5.57	15	0.63	.01	-.18
Academic success	2.69	0.44			.10	-.21

Note. *Sk* = skewness; *Ku* = Kurtosis

The Interplay Between the Study Variables

Table 2 presents the bivariate relationships between the study variables of psychological capital (including its constituents), academic engagement (including its constituents), and CGPA measured by Pearson Product moment correlation. Results from the Pearson Product moment correlation demonstrated that the overall psychological capital score of the students was positively and significantly associated with both their student engagement ($r = .42, p < 0.01$) and academic success ($r = .34, p < 0.01$). Further, the four psychological capital components of hope ($r = .28, p < 0.01$), efficacy ($r = .30, p < 0.01$), resilience ($r = .24, p < 0.01$), and optimism ($r = .22, p < 0.01$) were positively and significantly related to academic success of the students. Similarly, student engagement as a whole ($r = .28, p < 0.01$), and its behavioral ($r = .28, p < 0.01$), emotional ($r = .10,$

$p < 0.05$), and cognitive ($r = .20$, $p < 0.01$) dimensions showed positive statistically significant relationships with students' academic success.

Table 2. Bivariate Relationships Between the Study Variables

Variables	1	2	3	4	5	6	7	8	9
1. Hope									
2. Efficacy	.60**								
3. Resilience	.43**	.39**							
4. Optimism	.53**	.43**	.34**						
5. Psychological capital	.84**	.83**	.65**	.75**					
6. Behavioral	.30**	.27**	.15**	.17**	.30**				
7. Emotional	.18**	.15**	.11*	.13**	.19**	.22**			
8. Cognitive	.35**	.34**	.20**	.31**	.40**	.33**	.20**		
9. Student engagement	.39**	.37**	.22**	.29**	.42**	.71**	.65**	.76**	
10. Academic success	.28**	.30**	.24**	.22**	.34**	.28**	.10*	.20**	.28**

* $p < 0.05$. ** $p < 0.01$.

Hierarchical Multiple Regression Analyses

The predicting effect of psychological capital on academic success

Hierarchical multiple regression analysis was conducted to examine the extent to which psychological capital predicts the academic success of college students while controlling for demographic variables. The variables were entered into the regression model in sequential steps, with demographic variables entered in the initial step and psychological capital added in the subsequent step. The results, as displayed in Table 3, indicated that demographic variables accounted for 38% of the variance in academic success ($R^2 = .38$, $F(4, 497) = 77.55$, $p < .001$). Upon the inclusion of psychological capital in the second step, the model's explanatory power increased to 41%, elucidating additional variance in the outcome variable ($R^2 = .41$, $F(5, 496) = 67.95$, $p < .001$). Specifically, psychological capital explained an additional 2% of the variance in academic success after controlling for demographic factors (R^2 change = .02, $F(1, 496) = 18.57$, $p < .001$). Among the demographic variables, age ($\beta = .26$, $p < .05$) and program of study ($\beta = -.39$, $p < .001$) were significant predictors of academic performance. Older students and those in postgraduate diploma programs exhibited greater academic performance compared to their counterparts. Furthermore, psychological capital demonstrated a significant positive association with academic performance ($\beta = .16$, $p < .001$).

Table 3. The predicting effect of psychological capital on academic success

Predictors	B	SEB	β	Model				
				R	R ²	ΔR^2	F	df
Step 1				.62	.38		77.55*	4.497
Age	.01	.01	.26**					
Gender	-.05	.04	-.05					
Marital status	.01	.07	.01					
Program of study	-.43	.09	-.39***					
Step 2				0.64	0.41	0.02	67.95***	5.496
Age	.01	.00	.25					
Gender	-.05	.03	-.05*					
Marital status	.02	.07	.02					
Program of study	-.38	.09	-.35***					
Psychological capital	.01	.00	.16***					

Note. Dummy variables were coded as: Gender: Male = 1, Females = 0; Marital status: Married = 1, Unmarried = 0; Program of study: Undergraduate = 1, Postgraduate diploma = 0. * $p < .05$, ** $p < .01$, *** $p < .001$

The predicting effect of student engagement on academic success

Multiple hierarchical regression analysis was carried out to determine the predicting effect of student engagement on academic success while controlling the effects for demographics. In running the regression analysis, the predictors were entered into the regression model in the form of steps. In the first step, demographic variables such as age, gender, marital status, and program of study were entered. Student engagement was included in the second step of the regression model. As presented in Table 4, variables inputted in the first step of the model explained a total of 38% of the variance in academic performance ($R^2 = .38$, $F(4, 497) = 77.55$, $p < .001$). The inclusion of student engagement in the second step slightly improved the model to have a total of 40% of the variance in the students' academic success ($R^2 = .40$, $F(5, 496) = 64.97$, $p < .001$). After the effects for demographics were controlled, student engagement explained a small percent of the variance in the outcome variable even though the regression model was statistically significant (R^2 change = $.01$, $F(1, 496) = 9.39$, $p < .001$). Student engagement was positively and significantly related to CGPA ($\beta = .11$, $p < .001$).

Table 4. The predicting effect of psychological capital on CGPA

Predictors	B	SEB	β	Model				
				R	R ²	ΔR^2	F	df
Step 1				.62	.38		77.55*	4.497
Age	.01	.01	.26**					
Gender	-.05	.04	-.05					
Marital status	.01	.07	.01					
Program of study	-.43	.09	-.39***					
Step 2				.63	.40	0.01	64.97***	5.496
Age	.01	.01	.24*					
Gender	-.04	.04	-.04					
Marital status	-.00	.07	-.00					
Program of study	-.43	.09	-.39***					
Student engagement	.01	.00	.11*					

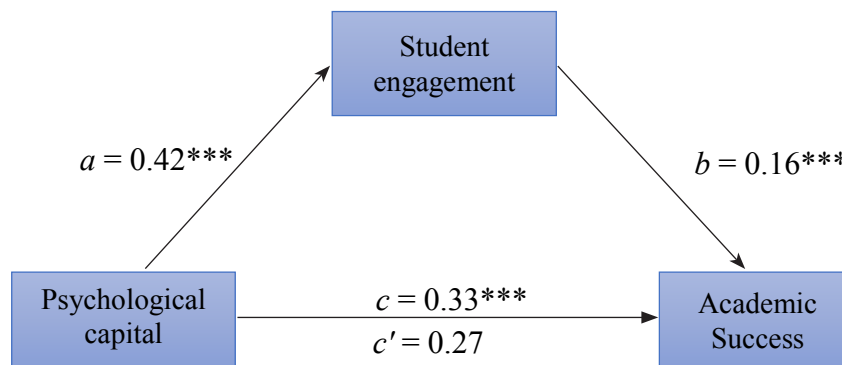
Note. Dummy variables were coded as: Gender: Male = 1, Females = 0; Marital status: Married = 1, Unmarried = 0; Program of study: Undergraduate = 1, Postgraduate diploma = 0. * $p < .05$, ** $p < .01$, *** $p < .001$

Mediational Analysis

PROCESS macro for SPSS was employed to perform the mediation analyses of the current study. In performing the analyses, psychological capital was an independent variable, academic engagement was a mediating variable, and academic success or CGPA was a dependent variable. Regarding the regression paths for the total effect, as can be viewed from Figure 1 and Table 3, the total estimate effect of psychological capital on academic success (without the mediator) and without controlling the effects for demographic variables was statistically significant ($\beta = 0.34$, $SE = .01$, $p < .001$). The standardized regression coefficients for the mediation analyses also indicated that the direct structural paths from psychological capital to academic success ($\beta = 0.27$, $SE = .02$, $p < .001$) and psychological capital to engagement ($\beta = 0.42$, $SE = .02$, $p < .05$) were positive and statistically significant. Likewise, the path from student engagement to academic success was positive and statistically significant ($\beta = 0.16$, $p < .05$). Interestingly, results from the biased-corrected bootstrap estimation method with the sample of 5000 delineated that the indirect effect of psychological capital on academic success through student engagement was statistically significant since the 95% confidence interval did not contain zero ($\beta = 0.07$, $SE = .02$, 95% $CI = 0.03 - 0.11$), indicating that mediation has occurred. However, despite the reduction of the direct effect of psychological capital on academic success after the inclusion of the mediator in the model, the direct effect remained statistically significant ($\beta = 0.27$, $p < .05$), indicating that student engagement partially mediated the relationship between psychological capital and academic success.

Table 3. Total, direct and indirect effects

Structural Paths	β (SE)	95% CI
<i>Total effects</i>		
Psychological capital → academic success	0.34***	[0.01. 0.02]
<i>Direct effects</i>		
Psychological capital → student engagement	0.42***	[0.17. 0.25]
Student engagement → academic success	0.16*	[0.06. 0.48]
Psychological capital → academic success	0.27***	[0.14. 0.27]
<i>Indirect effects</i>		
Psychological capital → student engagement → academic success	0.07	[0.05. 0.35]

Figure 2. Demonstrates the unstandardized regression weights for the paths a, b, and c. The indirect effect is the multiplication of path a (0.42) and path b (0.16) = 0.07. ***p < .001; *p < .05.

Discussion

Drawing from the existing literature and theoretical assumptions related to psychological capital and student engagement, the present study proposed four guiding hypotheses. First, the study hypothesized that psychological capital, as a core construct, would be positively and significantly related to academic success of college students. Results obtained from regression analyses confirmed the hypothesis that college students' psychological capital is an important feature of students' academic success, suggesting that hopeful, optimistic, resilient, and efficacious students achieve better academic performance in their academic studies. In accordance with this result of our study, the recently growing body of literature on the application of positive psychological capital in the academic setting demonstrated that students with abundant psychological resources of hope, efficacy, optimism, and resiliency are more likely to achieve higher grades (GPA) in their academic study (e.g., Anierobi et al., 2021; Liu & Huan, 2022; Onivehu, 2020; Ujjal, 2018).

Several theoretical perspectives and conceptualizations might explain the positive relationship between psychological capital and academic success. For example, within the broader concept of positivity, psychological capital fundamentally reflects people's expectations for better performance based on their positive evaluation of circumstances, opportunities, motivational endeavors, and perseverance (Luthans et al., 2007). In the same vein, within the general context of conservation of resources theory, psychological capital can be conceptualized as essential individual psychological resources and these resources are believed to help people reach their goals (Siu et al., 2014). In this sense, when college students make the best use of their resources to make positive evaluations about their academic circumstances and opportunities, expect to academically succeed, and become self-determined and motivated, they are more likely to be in a better position to achieve better academic performance. It is also argued that the development of positive psychological resources for students promotes their positive academic behaviors and subsequently improves their academic success (Anierobi et al., 2021; Wang et al., 2014). Academic success in higher education study is naturally challenging, demanding, and stressful, which heavily relies on students' full mobilization of psychological resources of hope, efficacy, resilience, and optimism to have better academic achievement in their studies and complete their program. Similarly, the conservation of resources theory postulates that the accumulation of personal resources is more likely to produce better outcomes (Hobfoll, 2002).

Further, according to hope theory, college students who possess the psychological resource of hope are highly motivated towards the attainment of their valued academic goals and at the same time, they can generate multiple strategies and proactive contingency plans in the face of adversities (Snyder et al., 2002). High-hope students are also more likely to complete their programs successfully and graduate from college. On the other hand, low-hope students appear to have poor academic performance and are far less likely to complete their college study programs (Feldman et al., 2015; Snyder et al., 2002). Therefore, college students with high hope are expected to accomplish their academic goals even during tough times because they can consider challenges as opportunities rather than threats and they also have a high level of motivation and a sense of agency in their academic endeavors. Similarly, college students with a high level of self-efficacy usually appear to set high goals, welcome and thrive on challenges, mobilize necessary resources to attain their goals, are highly motivated, remain resilient during tough situations, and subsequently reap better academic results in their studies. The psychological resource of resiliency equips students with the ability to better deal with inherent setbacks, pressures, adversities, and challenges that they encounter in their academic trajectory, which subsequently leads to better learning outcomes. Academically resilient students are also believed to be optimistic and show positive emotions when encountering impediments and dealing with various events (Sartika & Nirbita, 2023).

Although the present study confirms that psychological capital is a significant predictor of academic success among college students, it is equally important to note that once demographic factors such as age, gender, marital status, and program of study are accounted for, the proportion of variance explained by psychological capital decreases substantially. This finding suggests that the relationship between psychological capital and academic success is not straightforward and might be influenced by various sociodemographic and cultural factors. More specifically, the diminished explanatory power indicates that psychological capital's impact on academic performance could be mediated or moderated by these demographic variables. For example, factors like cultural background, socioeconomic status, and specific educational environments might alter how psychological capital contributes to academic outcomes. Students from different demographic groups may experience and leverage psychological capital in diverse ways, leading to varying effects on their academic achievements.

Second, our study expected that psychological capital would positively and significantly predict student engagement among college students. The sample data of our study corroborated the expectation that college students who possess the psychological strengths of hope, efficacy, optimism, and resilience appear to have better engagement in their academic studies. This finding of our study joined several previously documented studies to support the hypothesis that positive psychological capital is positively and significantly related to student engagement (Jafri, 2018; Siu et al., 2014). One potential explanation for the positive relationship between psychological capital and student engagement might be drawn from the assumption of conservation of resource theory by Hobfoll (1989) that people invest their resources toward the attainment of certain goals. In the same line with this theoretical argument, college students might invest their psychological resources of hope, efficacy, optimism, and resilience to stay engaged in their academic activities. Similarly, when we take a look deep into the different theoretical conceptualizations of student engagement, majority of the theories emphasize quality of participation or connection to schooling activities, initiation of effort, action and persistence in learning, the devotion of energy and time to educational activities, psychological effort and investment towards successful learning, commitment to learning, sense of belongings and identification at the educational institution, academic vigor, dedication and absorption as critical features of student engagement (Fredricks et al., 2004; Kuh, 2003). Therefore, the theories of engagement seem to invariably agree on the fact that the degree of student engagement is fundamentally determined by the psychological resources that the students possess. Students who accumulate enough personal resources of hope, efficacy, resilience, and optimism are more likely to have better behavioral, affective, and cognitive engagement in their education activities than those with inadequate resources. According to the self-efficacy theory of Bandura (1997), people's belief system profoundly affects their choices, commitments, and persistence toward the accomplishment of a particular task. In this sense, college students are more likely to engage in academic and non-academic activities when they believe they can regulate their endeavors and persist until the task is accomplished (Meng & Zhang, 2023). On the other hand, when college students believe that they do not possess the necessary resources to actively participate in different academic activities, they are more likely to avoid engagement. As for self-efficacy, academically hopeful and resilient students were found to be highly engaged because of their ability to invest their agency and motivational efforts to handle their academic assignments (Azila-Gbetor et al., 2022) and also their capacity to reengage and never frustrate when facing overwhelming academic tasks (Romano et al., 2021).

The third hypothesis of our study was that student engagement would positively and significantly predict academic success of college students, and the sample data of the study supported the hypothesis. This result of our study echoed the findings of several previous studies, which reported a statistically significant positive relationship between student engagement and academic performance (e.g., Kim et al., 2019; Martínez et al., 2019; Tessema & Rao, 2018). Despite the different theoretical conceptualizations of engagement, there is strong empirical evidence for the powerful contribution of student engagement to students' academic success (Appleton et al., 2008). Academically successful college students are more likely to: 1) fully dedicate their effort, time, and energy to academic tasks (behavioral), 2) show positive emotions (e.g., interest, happiness), value and appreciate educational activities and outcomes, develop a sense of belongingness with their school (emotional) and 3) apply effective learning strategies (e.g., elaboration, being thoughtful), prefer challenging task and show a willingness to devote their psychological resources to understand and master complex academic tasks (Fredricks et al., 2004; Tessema & Rao, 2018). The significant role of student engagement is not limited to enhancing positive learning outcomes such as academic performance, it is also a successful instrument to effectively deal with academic problems of truancy, absenteeism, and dropout rates (Virtanen et al., 2021).

Finally, the current study expected that student engagement would act as a mediating variable in the relationship between psychological capital and academic success of college students. In line with our expectations, the results of the mediational analyses demonstrate that college students' psychological capital significantly boosts their academic success by increasing the level of their academic engagement. This finding of our study provides empirical evidence for the statistically significant direct and indirect effect of psychological capital on academic success of college students through student engagement. Although there has been less evidence for the mediating effect of engagement on the core construct of psychological capital → academic success relationship, our finding appeared to be directly in agreement with the finding of (Vîrgă et al., 2022), who observed a partial mediational effect of engagement between psychological capital as a whole and academic performance. Some other studies have also suggested that student engagement intervenes in the connection between the individual constructs of psychological capital and academic success in the academic setting. For instance, high-hope students tend to have greater academic success because of their greater engagement, suggesting that engagement mediates the relationship between hope and academic performance (Yoon et al., 2015). Equally, academically efficacious students appear to show a higher level of confidence in their learning and this positive experience of confidence might be an important psychological resource to encourage the students to devote their energy and time to their academic study, and thus achieve higher academic performance (Meng & Zhang, 2023). The significant mediated effect of psychological capital on academic success might be attributed to the notion that students' academic success is generally the product of students' effort, commitment, and effective learning experience or active engagement in their study (Appleton et al., 2008; Fredricks et al., 2004). On the other hand, failing students are generally those who show less willingness, academic effort, and commitment to their studies and also less perseverance when encountering academic challenges (Ayala & Manzano, 2018). This notion suggests that the level of engagement varies across students and this variation might be related to the degree of academic psychological resources of hope, efficacy, optimism, and resilience that the students possess. It has also been argued that the basic personal resources, level of motivation, and socioemotional needs that students bring to higher education institutions greatly vary. Some students come up with adequate resources that give them perseverance in dealing with academic challenges effectively and others struggle to meet the educational requirements successfully (McKenzie & Schweitzer, 2001), which might then end up with undesirable learning outcomes such as poor study engagement, truancy, absenteeism, and poor academic performance (Appleton et al., 2008; Virtanen et al., 2021). Therefore, it might not be surprising to observe students with sufficient individual psychological resources (PsyCap) making the best use of their resources to have a deep learning experience or engagement and subsequently earning higher academic grades.

Implications of the study

The findings of the present study might theoretically contribute to the significantly limited literature on the application of psychological resources of hope, efficacy, resilience, and optimism within the higher education context. More specifically, the study might provide insight into the important role of psychological capital in enhancing positive learning outcomes of higher education students such as academic engagement and academic success. Notably, the statistically significant indirect effect of psychological capital on academic success of college students mediated via student engagement might also help us to recognize the fact that the nature of the association between psychological capital and academic success is not exclusively simple and direct. The study

might also have practical implications for higher education institutions in the sense that the institutions could apply the findings of the present study to improve academic engagement and academic success of their students through the development of psychological capital. Human strength-based education is deemed to boost the development of psychological resources of hope, efficacy, optimism, and resilience and in turn positive learning outcomes such as academic performance and academic engagement. Higher education institutions are thus recommended to integrate the teaching of the development of psychological capital into their curriculum. The promising feature of psychological capital is that it is a state-like and malleable construct that is open for development through various strategies. Therefore, higher education institutions should organize activities such as seminars, orientations, workshops, and short-term education interventions related to the importance and application of psychological capital in enhancing positive learning outcomes. It is believed that higher education institutions that consistently offer encouragement and positive feedback significantly enhance their students' psychological capital. When students receive recognition for their efforts and achievements, it bolsters their confidence in their abilities and motivates them to persist through challenges (Luthans et al., 2012). Numerous studies have also provided empirical evidence that academic PsyCap could be developed through workshops and short training interventions. For example, students were found to perform better in their academic study after they had taken part in focused hope intervention, suggesting that educational intervention improves psychological resources of hope, which in turn increases academic performance of the students (e.g., Feldman et al., 2015; Luthans et al., 2016).

Interestingly, Luthans et al. (2006) have established a Psychological Capital Intervention (PCI) instructional model that has been applied to a variety of settings to optimize psychological capital and thereby improve individual and organizational performance. Several studies have also provided empirical evidence for the application and effectiveness of PCI in boosting psychological capital of both students and employees and thereby enhancing desirable outcomes such as academic and job performance (e.g., Luthans et al., 2010; Luthans et al., 2008; Reilly, 2016; Stoykova, 2013). In the same vein, the present study suggests that the PCI training model could be effectively applied to foster positive psychological wellbeing and student engagement of higher education students through the development of their psychological capital. The next section presents some specific strategies of the PCI short intervention that higher education institutions could apply in promoting psychological capital of their fellow students.

Hope. According to the hope theory of Snyder (2000), the key constituents of hope are agency (willpower), pathways, and goals. Hence, the cultivation of hope through the PCI training in higher education students must primarily focus on guiding students to identify personally valuable, realistic, and measurable academic goals in their college study. After students set their personally valuable goals, they are required to generate multiple routes to achieve the goal. Finally, it is important to note that the pathway from goal setting to goal realization is not always simple and smooth; there might be roadblocks that may result in frustration (Snyder, 2000). The students are thus required and guided to expect such obstacles, remain persistent, and plan some strategies to overcome the obstacles.

Self-efficacy. It is believed that self-efficacy is one of the best psychological resources for student development and critically determines students' positive learning outcomes (Bandura, 1997; Luthans et al., 2012). Bandura (1997) has suggested several important strategies that can be applied to influence students' self-efficacy which include 1) *Mastery experience*: when college students can accomplish a challenging academic task, they are more likely to develop and experience a sense of mastery and confidence. What is more, setting high expectations for the students could contribute to their efficacy development. Following these arguments, University or college communities could build the efficacy of their students by providing challenging academic tasks and setting high expectations. However, the level of difficulty of the tasks and expectations should match the capability of the students. If the academic tasks and expectations are unrealistically high and complex, they might lead to repeated failures that devastate the students' level of self-efficacy. 2) *Vicarious learning or modeling*: Bandura (1999) argues that when people observe others successfully doing a particular task, they are more tend to be inspired to believe in their ability to accomplish a task. University communities should use strategies such as peer tutoring, effective role models, cooperative classroom environments, and interactive pedagogical approaches that might assist students in developing the feeling or mentality of "if they can do it, I can do it too". 3) *Social persuasion*: It is also well-documented that when people get constructive feedback and encouraging words from significant others such as teachers, parents, and friends, their level of self-efficacy can be enriched (e.g., Bandura, 1999; Loo & Choy, 2013). Therefore, higher education intuitions could also apply the strategy of social persuasion to raise their students' level of self-efficacy (e.g., college instructors should act

as mentors for their students and provide them with positive feedback). 4), *Physical and psychological wellbeing*: People's physical or psychological wellbeing is also thought to directly influence their efficacy. Negative physical or emotional experiences such as fatigue or pain, as well as depression, stress, fear, and anxiety might dampen efficacy. In contrast, positive emotional or psychological experiences enhance people's self-efficacy. Therefore, higher education student institutions should help their students to better deal with their physical or mental health problems.

Resiliency. According to Masten (2001), resiliency is composed of three important elements: asset factors, risk factors, and influence processes. Asset factors are the factors that boost the level of resiliency such as a conducive and quality learning environment. In contrast, risk factors are the factors that decrease the level of resiliency such as poor learning environment, abusive home, and lack of mentors. Therefore, the development of resiliency in higher education students through the PCI model should focus on making the best use of the asset factors (e.g., stimulating learning environment) and avoiding risky or potentially devastating situations. The third element of resiliency (influence processes) can also be included in the PCI to nurture resiliency in the way that higher education institutions might direct their students to develop a positive sense of interpretation of setbacks. In other words, the students are required to develop a rational perception of reality by critically evaluating the encountered setbacks (e.g., what is in their control, out of their control, and options for taking firm actions).

Optimism. Drawing from the expectancy-value and attribution theories, the psychological resource of optimism can also be developed in higher education students through PCI training. According to expectancy theory, optimistic people generally expect positive things to happen and are positive-outcome oriented. On the other hand, pessimistic people expect negative things to happen and are generally negative-outcome-oriented. In light of this theory, higher education institutions could guide their students to develop realistic optimism. In doing so, the students could be asked to reflect, monitor, and identify self-defeating beliefs when they encounter a difficult situation (e.g., poor academic performance in college study). Then, the students are required to assess the accuracy of their beliefs about the event. Finally, if the beliefs are not accurate and realistic, the students are guided to replace them with realistic and accurate ones. Regarding the attributional theory, higher education students could be assisted in explaining their academic success within the context of stable and internal factors and failures within controllable external and temporary factors. When students attribute their failures to controllable and temporary factors, they tend to work on improving them.

Besides, as of academic PsyCap, findings of the present study highlight that student engagement is an essential ingredient in students' academic success. Hence, higher education institutions should take practical and measurable steps to foster the level of behavioral, emotional, and cognitive engagement of their students. Colleges or universities should do everything possible to design their classrooms, learning activities, and teaching styles in such a way that students' engagement is ensured and sustained. For example, teachers could increase the level of engagement of their students by making their learning experience more relevant, enjoyable, and meaningful. Teachers are also recommended to use technology-based learner-centered and interactive pedagogical approaches to promote all forms of engagement in their students. Kuh et al. (2008) also suggested that the level of students' engagement could be cultivated and developed through quality teaching and learning practices or approaches such as cooperative learning, creative and challenging academic works, rich teaching experiences, active learning, and warm socioemotional climate (e.g., interaction between students).

Limitations and suggestions for future research

Even though the study extends our knowledge and understanding of the role of psychological capital in the academic setting, the study was subject to certain potential limitations mainly related to its methodological aspect, which need attention in future research endeavors. One potential limitation lies in the fact that the study used a convenience sampling strategy to recruit its respondents. Although this sampling technique is one of the commonest sampling strategies used in social sciences today as it entails researchers recruiting their study participants in any way possible or convenient, the strategy might not ensure whether or not the sample fairly represents the population. Hence, future research might be needed to validate the findings of the present study using representative samples. Further, the study employed a descriptive cross-section research design, in which all the study variables were measured within a short period. Given the state-like and malleable nature of psychological capital and student engagement, it would be interesting for future studies to examine the variables using a longitudinal research design. Furthermore, it is very important to bear in mind that the structural relationships between the predictor, mediator, and outcome variables of the study are correlational, not

experimental, and thus no cause-and-effect relationship was established. Finally, after accounting for demographic variables such as gender, age, marital status, and program of study, psychological capital contributed to a smaller percentage of the variance in academic success. This reduction could be attributed to the potential mediating or moderating effects of these sociodemographic variables. Therefore, future research should explore the role of these variables as mediators or moderators in the relationship between psychological capital and academic success in college settings.

Conclusion

Low academic success in college students has long been a chronic problem for many higher education institutions, especially in developing countries with limited resources and low-quality education. Bearing this in mind, over the last decade, psychological capital has been the center of interest for many researchers and educators, as a way to improve positive learning outcomes of higher education students such as student engagement and academic performance. In line with this interest, the present study was designed to examine the relationship between psychological capital and academic success of college students. Results of the study generally indicate that psychological capital is an important positive predictor of both student engagement and academic success. More importantly, psychological capital impacted academic success directly and indirectly with student engagement as a mediator, suggesting that students with higher levels of psychological capital are more likely to show better engagement in their studies and thus achieve excellent academic grades or GPA. Therefore, the findings of the current study underline that academic psychological strengths of hope, efficacy, optimism, and resilience are proven to be critical resources to increase the level of engagement and academic success in students of tertiary education.

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