Full research paper

NAVIGATING THE COLLEGE STUDENTS' ADVERSITIES: THE ROLE OF ACADEMIC BUOYANCY AND MOTIVATION ON LEARNING ACHIEVEMENT

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ABSTRACT

Understanding the predictor of learning achievement among college students is crucial to adopting the appropriate learning strategy. Academic buoyancy is one of the predictors of learning achievement, playing a vital role in helping students navigate academic setbacks and adversities. However, the previous studies failed to reveal a robust link between the two variables. Therefore, this study aims to explain the nexus between academic buoyancy and students' learning achievement more clearly by introducing the mediating variable, motivational constructs, which include self-efficacy, persistence, and anxiety. This study involved 493 college students in Indonesia. Structural equation modeling (SEM) was utilized to examine the research hypotheses. The results show that academic buoyancy directly affects learning achievement. Furthermore, motivational constructs (self-efficacy, persistence, and anxiety) significantly mediate the relationship between academic buoyancy and learning achievement. This study contributes to the literature by explaining how academic buoyancy affects learning achievement through motivational constructs as a mediating variable. Furthermore, the university must promote students' academic buoyancy and motivational constructs by providing counseling services and encouraging students to recognize and address the adversities during lecture activities.

KEYWORDS

Academic buoyancy, learning achievement, self-efficacy, persistence, anxiety

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Highlights

- *Academic buoyancy plays a pivotal role in navigating setbacks and adversities among college students.*
- *Academic buoyancy positively predicts students' learning achievement.*
- *Motivational constructs (self-efficacy, persistence, and anxiety) comprehensively elucidate the role of academic buoyancy on learning achievement.*
- *The university must take into account the promotion of students' academic buoyancy and motivational constructs by providing counseling services.*

INTRODUCTION

Learning achievement is seen as an important indicator of success in a wide range of areas, such as job satisfaction after employment (Choi, 2018), job performance (Dogaru and Popescu, 2021; Dyer, 1987; Wise, 1975), and career maturity (Bae, 2017; Bae, 2022). Accordingly, most scholars exploring the key predictor of learning achievement, e.g., the teaching and learning strategy (Grønlien et al., 2021; Tong et al., 2022; Yiin and Chern, 2023), teaching quality (Alp Christ et al., 2022; Sanfo and Malgoubri, 2023), cognitive ability (Cadoret et al., 2018; Demetriou et al., 2019; Pluck et al., 2020), prior knowledge (Bosch et al., 2021; Köller, 2012; Schneider and Preckel, 2017), and socio-economic status (Hopfenbeck et al., 2018; Marks and O'Connell, 2023). Besides, social-emotional development is another factor beyond the facia prima that affects learning achievement (Corcoran et al., 2018; Durlak et al., 2011; Liu et al., 2022).

Social-emotional development is becoming popular due to its role in helping students navigate challenges during daily school activities (Durlak et al., 2011; Martin and Marsh, 2020).

Academic buoyancy is part of social-emotional development. Academic buoyancy refers to the student's ability to successfully deal with minor adversities and setbacks during everyday school activities, such as receiving poor grades, negative feedback, exam pressure, competing deadlines, and declining motivation (Martin and Marsh, 2020; Putwain and Wood, 2023). Academic buoyancy helps students as the front-line protection against minor academic adversities. Furthermore, academic buoyancy prevents minor adversities from becoming major, such as school refusal and chronic underachievement (Putwain et al., 2020; Putwain and Wood, 2023). Therefore, academic buoyancy is an important factor affecting students learning achievement.

The previous studies revealed that students' ability to be buoyant in facing academic adversities and setbacks affects learning achievement directly (Granziera et al., 2022; Yu et al., 2019). Although the relationship between academic buoyancy and students' learning achievement is significant, the effect sizes were relatively small (rs = 0.07 to 0.19) (Datu and Yang, 2021; Fong and Kim, 2021; Lei et al., 2022) and failed to reveal a robust link between the two variables. At the same time, academic buoyancy is closely related to motivational and emotional outcomes (Yu et al., 2019). Accordingly, the current study includes the motivational and emotional aspects as a mediating variable to determine the possible linking mechanism between academic buoyancy and learning achievement. More precisely, we examined the relationship between academic buoyancy and learning achievement via an indirect mechanism. Therefore, the current study tries to comprehensively advance the understanding of how academic buoyancy affects students' learning achievement.

This study provides three main contributions. First, this study tries to explain more comprehensively how academic buoyancy affects students' learning achievement by including motivational and emotional aspects as mediating variables in the research model. Second, the study of academic buoyancy has been highlighted in various countries such as Australia (Bostwick et al., 2022), the United Kingdom (Putwain and Wood, 2023), Finland (af Ursin et al., 2021; Hirvonen et al., 2020), USA (Fong and Kim, 2021), and China (Yu et al., 2019). However, the study of academic buoyancy among Indonesian college students has received less attention from scholars. Therefore, the current study provides Indonesian university administrators and lecturers a basic understanding of the other predictors of learning achievement beyond the popular predictor (e.g., teaching and learning strategy, cognitive ability, and prior knowledge). Last, the current study will contribute to the existing body of literature, especially on how academic buoyancy affects learning achievement among college students.

THEORETICAL FRAMEWORK

Academic Buoyancy and Learning Achievement

Academic buoyancy is conceptualized as students' ability to successfully deal with minor adversities and setbacks during everyday school activities, such as receiving poor grades or negative feedback, exam pressure, competing deadlines, and declining motivation (Martin and Marsh, 2020; Putwain and Wood, 2023). Academic buoyancy also refers to the student's ability to show adaptive responses when facing challenges and adversity posed by routine school activities (Martin and Marsh, 2020). Students with adaptive responses to academic challenges and adversities are expected to achieve high academic achievement. Furthermore, academic buoyancy also plays a buffer role against the negative impact of adversities and setbacks during everyday school activities (Martin and Marsh, 2020; Putwain et al., 2020). Therefore, students with high academic buoyancy would be expected to mitigate the adverse effects of academic adversities on learning achievement.

The empirical study demonstrates a clear link between academic buoyancy and learning achievement. Students with higher academic buoyancy tend to achieve better results in examinations, particularly in subjects like English, science, math, numeracy, and literacy tests (Putwain et al., 2020; Putwain and Wood, 2023). Another study also shows that higher academic buoyancy is related to higher learning achievement (Datu and Yang, 2021; Yun et al., 2018).

Furthermore, the previous study also explains that academic buoyancy involves coping strategies that help students manage academic stress, lower their anxiety levels, and foster academic performance (Hirvonen et al., 2020). The study by Putwain et al. (2020) indicates that students with high academic buoyancy are adept at planning and prioritizing tasks and frequently engage in reflective practices by evaluating their learning process. These practices help them stay organized and focused, allowing them to identify their strengths and weaknesses, contributing to better academic performance.

The Mediating Role of Motivational Aspects

Although empirical studies show the direct effect of academic buoyancy on learning achievement, the effect sizes were relatively small (rs = 0.07 to 0.19) (Putwain and Wood, 2023). Furthermore, the other study shows no relationship after controlling the beliefs construct (Collie et al., 2015; Putwain and Aveyard, 2018). This finding indicates the presence of other factors that mediate the link between academic buoyancy and learning achievement.

A previous study found that academic buoyancy is associated with psychological aspects, such as motivation, anxiety, boredom, hopelessness, and shame (Datu and Yang, 2021; Hirvonen et al., 2020). Furthermore, academic buoyancy positively affects motivational and emotional factors (Collie et al., 2015). Academic buoyancy is also related to the process linked with students' learning achievement, such as motivational constructs in the form of persistence and self-efficacy (Collie et al., 2015). Additionally, anxiety was identified as another factor that explains the link between academic buoyancy and learning achievement (Collie et al., 2015). Accordingly, we propose that motivational aspects, such as self-efficacy and persistence, mediate the relationship between academic buoyancy and learning achievement.

The motivational construct is conceptualized as what initiates, sustains, and helps individuals complete tasks (Yu et al., 2019). Furthermore, motivational constructs are identified as having three core components: expectancy, value, and affective. Expectancy components revolve around students' belief in their ability to accomplish their goals, called self-efficacy. As Bandura (1997) explains, self-efficacy refers to an individual's confidence in their capability to perform a particular behavior in a given situation. The value components include how individuals value a task and within that, whereby persistence can be considered.

Last, affective components deal with the feelings or emotions that individuals experience before and during a particular task. Anxiety becomes the most extensive and significant focus in the theoretical and empirical analysis. Therefore, considering the three core components of the motivational construct, we use self-efficacy, persistence, and anxiety as mediating variables that reflect the motivational set in the current research model.

Objectives and Hypothesis

This study examines the mediating role of motivation in the link between academic buoyancy and learning achievement to comprehensively advance the understanding of how academic buoyancy affects students' learning achievement. Accordingly, this study examined the relationship between academic buoyancy and learning achievement via an indirect mechanism through motivational constructs. Furthermore, based on the literature review, motivational constructs consist of three core components: expectancy, value, and affective. Self-efficacy, persistence, and anxiety represent each core of motivational constructs.

According to the theoretical framework in the previous section, we draw the conceptual research model (figure 1) and present the research hypotheses as follows:

H1. Academic buoyancy affects learning achievement.

H2. Self-efficacy mediates the link between academic buoyancy and learning achievement.

H3. Persistence mediates the link between academic buoyancy and learning achievement.

H4. Anxiety mediates the link between academic buoyancy and learning achievement.

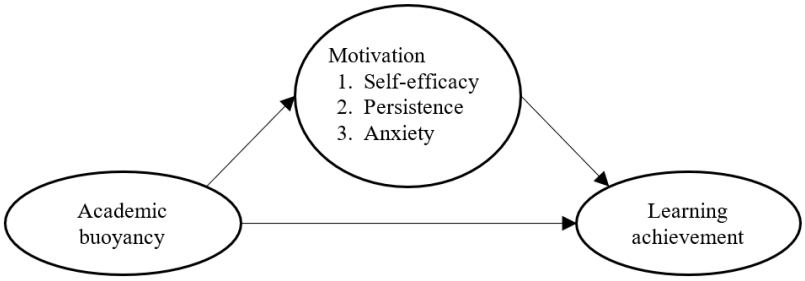

Figure 1: Conceptual research model

MATERIALS AND METHODS

Procedure and Participants

This study was conducted on university students in Indonesia from July to September 2023. To select research participants, we employed the cluster random sampling method. We used the five main islands in Indonesia as the clusters, namely Java, Sulawesi, Kalimantan, Sumatra, and Papua. Students were invited to participate via email and through student association networks. We sent invitations to 1,100 college students across 40 universities within these five clusters. The email contains the research objective, significance, and questionnaire link. Five hundred thirty-two (532) college students participated in the survey (response rate was 48.36%). After cleaning the data, we dropped 39 samples due to missing values in the data set. Therefore, this study used 493 participants as research participants. The detailed characteristics of the research participants are presented in Table 1.

Characteristics		Public University		Private University		Total Participants
		Participants	GPA's on average	Participants	GPA's on average	
Gender	Female	128	3.32	173	3.31	301
	Male	76	3.29	116	3.27	192
Region of the university	Java	82	3.48	113	3.42	195
	Sulawesi	35	3.16	47	3.23	82
	Kalimantan	31	3.04	42	3.15	73
	Sumatera	49	3.31	68	3.27	117
	Papua	11	2.99	15	3.02	26
Discipline	Economics, management & accounting	63	3.39	85	3.44	148
	Engineering	27	3.07	35	3.14	62
	Education	34	3.48	45	3.42	79
	Arts and humanities	32	3.36	43	3.29	75
	Law	29	3.31	26	3.25	55
	Others	40	3.27	34	3.32	74
Academic standing	1st-year student	71	3.06	97	3.14	168
	2nd-year student	65	3.51	88	3.48	153
	3rd-year student	53	3.32	72	3.28	125
	4th-year student	20	3.29	27	3.24	47

Table 1: Participants' characteristics (*N = 493)*

Instruments

We adopt the previous instruments to measure the research variable. We also adjusted the item to fit the research and participant context: college students. We measured academic buoyancy through four items from the Academic Buoyancy Scale (Martin and Marsh, 2020). For motivational constructs (self-efficacy, persistence, anxiety), we adopt the instruments from the Motivational and Engagement Scale: University/College (Martin, 2008). Each construct of motivation consists of four items. Last, we use the grade point average (GPA) to measure learning achievement.

Data Analysis

We used PLS-SEM to examine the research hypotheses using the SmartPLS 3.0 software package. We follow the multistage process by Hair et al. (2014). This process includes model specification, outer model evaluation, and inner model evaluation. In more detail, we propose the conceptual research model (Figure 1) into model specification based on the theoretical framework. We evaluate the outer model through confirmatory factor analysis (CFA), which involves the validity and reliability of each construct in the research model. Last, we evaluate the inner model through the coefficient of determination (R^2), cross-validated redundancy (Q^2), and path coefficients.

RESULTS

Outer Model Evaluation

In this section, we conduct the outer model evaluation through convergent validity, discriminant validity, and composite reliability. Convergent validity is established when the loading factor score of the measurement item is higher than 0.70 and the average variance extracted (*AVE*) score is higher than 0.50 (Hair et al., 2020). The result in Table 2 shows the loading factor of all measurement items involved in the current study had scores ranging from 0.804 to 0.962, which exceeds the threshold of 0.70. Furthermore, the *AVE* score of all constructs was higher than the threshold of 0.50, which confirms the convergent validity.

For the discriminant validity, we used the Fornell-Larcker criterion, which proposed that the squared root of the AVE score of each construct should be greater than that of the other constructs (Fornell and Larcker, 1981). The result in Table 3 indicates that each construct had a higher square root of AVE score than the others, which means the discriminant validity of the current model was established.

Later, we estimated the composite reliability using the composite reliability (*CR*). The result in Table 2 shows that the Cronbach's alpha value of all constructs ranged from 0.911 to 0.946. In contrast, the composite reliability value ranged from 0.938 to 0.961, which means the outer model has internal consistency and reliability (Hair et al., 2020).

Constructs	Item	Loading factor	AVE	Cronbach's alpha	Composite reliability
Academic buoyancy	AB1	0.919	0.845	0.939	0.956
	AB2	0.883			
	AB3	0.941			
	AB4	0.932			
Self-efficacy	SE1	0.962	0.815	0.924	0.946
	SE2	0.878			
	SE3	0.938			
	SE4	0.827			
Persistence	Pers1	0.903	0.791	0.911	0.938
	Pers2	0.934			
	Pers3	0.911			
	Pers4	0.804			
Anxiety	Anxy1	0.953	0.861	0.946	0.961
	Anxy2	0.910			
	Anxy3	0.925			
	Anxy4	0.923			
Learning achievement	GPA	1.000	1.000	1.000	1.000

Table 2: Loading factor, AVE, and composite reliability

	Academic buoyancy	Self-efficacy	Persistence	Anxiety	Learning achievement
Academic buoyancy	0.919				
Self-efficacy	0.782	0.903			
Persistence	0.734	0.766	0.889		
Anxiety	-0.654	-0.607	-0.542	0.928	
Learning achievement	0.555	0.535	0.546	-0.471	1.000

Table 3: Discriminant validity (Fornell and Larcker, 1981)

Inner Model Evaluation

The second step of multistage analysis is inner model evaluation. We evaluate the inner model through coefficient determination (R^2), cross-validated redundancy (Q^2), and path coefficients. The coefficient determination (R^2) was to estimate the model's predictive accuracy. The result in Table 4 shows the R^2 values of self-efficacy (SE), persistence (Pers), and anxiety (Anxy) were 0.628, 0.545, and 0.606, respectively. This result indicates that more than 50 percent variance of the three motivational constructs (SE, Pers, and Anxy) can be explained by academic buoyancy (AB). Furthermore, the R^2 value of learning achievement (LA) was 0.501, which means 50.1 percent of the LA variance can be explained by AB, SE, Pers, and Anxy variables at a robust level.

Furthermore, we also performed Stone-Geisser's Q^2 (cross-validated redundancy) to examine the model's predictive accuracy. Table 4 shows all the consequent variables (SE, Pers, Anxy, and LA) have a value of Q^2 greater than zero, indicating the current research model has a predictive relevance (Hair et al., 2020; Sarstedt et al., 2019).

Relationship	Adjusted R^2	Q^2
AB → SE	0.628	0.481
AB → Pers	0.545	0.243
AB → Anxy	0.606	0.473
AB, SE, Pers, and Anxy → LA	0.501	0.307

Note: AB = Academic buoyancy; SE = Self-efficacy; Pers = Persistence; Anxy = Anxiety; LA = Learning achievement

Table 4: Coefficient determination (R^2) and cross-validated redundancy (Q^2)

The path coefficients were examined to evaluate the research hypotheses through the significance of the structural relationship among the variables. The evaluation performed a bootstrap resampling method with 5000 iterations at a *p-value* of 0.05 significant level. The results are presented in Table 5 and Figure 2. The first result confirms the first hypothesis that academic buoyancy significantly affects learning achievement (β = 0.106 and *p-value* = 0.024). The result indicates that academic buoyancy is crucial in promoting students' learning achievement.

The next result shows that self-efficacy significantly mediates the relationship between academic buoyancy and learning achievement (β = 0.175 and *p-value* = <0.001), indicating self-efficacy explains how academic buoyancy affects learning achievement. Academic buoyancy will promote students' self-efficacy, which in turn enhances their academic performance (learning achievement). Next, the output shows persistence also plays a significant mediator in the relationship between academic buoyancy and learning achievement (β = 0.245 and *p-value* = <0.001), remarking that persistence also explains how academic buoyancy influences learning achievement. Good academic buoyancy will shape strong persistence, leading to better academic performance. The last finding indicates that anxiety also significantly mediates the effect of academic buoyancy on learning achievement (β = 0.315, *p-value* < 0.001). This suggests that academic buoyancy can reduce anxiety, which, in turn, can enhance learning achievement.

Hypotheses	Relationship	β-value	SE	*t*-value	*p*-value	Remarks
H1	AB → LA	0.106	0.026	2.682	0.024	Supported
H2	AB → SE → LA	0.175	0.019	5.086	<0.001	Supported
H3	AB → Pers → LA	0.245	0.013	5.924	<0.001	Supported
H4	AB → Anxy → LA	0.315	0.028	5.902	<0.001	Supported

Note: AB = Academic buoyancy; SE = Self-efficacy; Pers = Persistence; Anxy = Anxiety; LA = Learning achievement

Table 5: Summary of the tested hypotheses

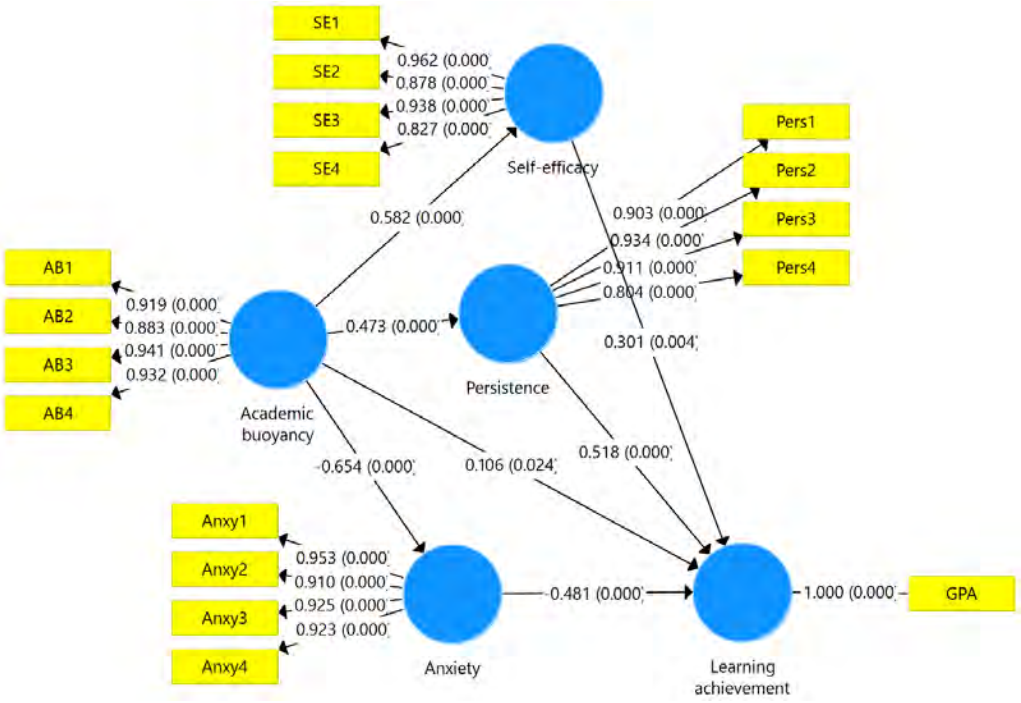

Figure 2: Result of structural model analysis

DISCUSSION

Academic buoyancy and learning achievement

The result of examining H1 shows that academic buoyancy has a significant positive effect on learning achievement. This finding indicates that students who successfully navigated academic adversities and setbacks during daily school had more opportunities for higher learning. The link between academic buoyancy and learning achievement can be explained for the following reasons. Students with high academic buoyancy show higher adaptive capability in response to minor challenges and adversities during daily lectures than those with low academic buoyancy. Students with higher adaptive ability have a higher chance of mitigating the adverse effects of academic adversities. Therefore, students with high academic buoyancy are more likely to achieve higher learning outcomes because they are better equipped to handle and overcome academic challenges.

Furthermore, students with good academic buoyancy can adjust their behavior, emotions, expectations, and assumptions when facing unexpected circumstances and situations, such as receiving negative feedback or a lower grade on a piece of work, exam pressures, and competing deadlines. These abilities make students more successful in dealing with the challenges and adversities during daily lectures, which then leads to positive learning achievement.

This study confirmed that academic buoyancy buffers against the negative impact of adversities and setbacks during everyday school activities (Martin and Marsh, 2020; Putwain et al., 2020). It also confirms previous findings that students with higher academic buoyancy tend to achieve higher learning achievement (Collie et al., 2015; Datu and Yang, 2021; Granziera et al., 2022; Lei et al., 2022; Yun et al., 2018).

The mediating role of motivational constructs

Although we confirmed the significant effect of academic buoyancy on learning achievement, the path coefficient is small (β-*value* = 0.106). We consider this result as a finding to strengthen the proposed hypothesis, the presence of other factors that mediate the link between academic buoyancy and learning achievement. As explained in the theoretical framework, we present motivational constructs (self-efficacy, persistence, and anxiety) as mediating variables in the research model to explain how academic buoyancy affects learning achievement (H2 – H4). The result of examining the mediating variable (H2 – H4) shows that all motivational constructs (self-efficacy, persistence, and anxiety) significantly mediate the relationship between academic buoyancy and learning achievement (*p-value* < 0.05). The detailed mechanism of how each construct plays a mediating variable will be explained as follows.

The first mediating variable is self-efficacy. The current study shows that self-efficacy significantly mediates academic buoyancy and learning achievement. This study shows that students with high academic buoyancy are confident in managing and dealing with academic adversities. The students who reported high academic buoyancy and self-efficacy were less likely to experience college work difficulties, leading to high learning achievement. This situation is different if compared to the students with low academic buoyancy. They demonstrated lower self-efficacy in dealing with daily lecture adversities, such as exam pressures or tight deadlines, and were likelier to have lower learning achievement. Furthermore, students with high self-efficacy respond to academic adversities in a positive and proactive manner. Therefore, we argue that self-efficacy is a factor that can explain how the mechanism of academic buoyancy affects learning achievement. This finding is in line with the previous study that proposed self-efficacy as

a factor that linked academic buoyancy and students' learning achievement (Caprara et al., 2011; Collie et al., 2015; Datu and Yang, 2021; Haidari et al., 2023). Additionally, the results are consistent with earlier research indicating that students with high academic buoyancy strongly believe in their ability to manage academic setbacks, which positively influences their learning performance (Yun et al., 2018).

The second mediating variable is persistence. This study evidences that persistence is another variable that significantly mediates the relationship between academic buoyancy and learning achievement. This study found that more buoyant students demonstrate better persistence and effort in overcoming daily lecture challenges. Furthermore, students are more likely to achieve better learning achievement with better persistence and effort. In contrast, students with lower academic buoyancy exhibit less persistence and effort in overcoming academic challenges, which can lead to lower academic achievement compared to their more buoyant peers. This finding aligns with the previous study that revealed persistence is a variable that links academic buoyancy and learning achievement (Collie et al., 2015; Granziera et al., 2022; Senler, 2022). Therefore, we can conclude that persistence is a factor that can explain how academic buoyancy affects learning achievement.

The last mediating variable is anxiety. As shown in the summary of the tested hypotheses (table 5), anxiety significantly mediates the relationship between academic buoyancy and learning achievement. This study revealed that students with high buoyancy have positive control of emotions over learning difficulties and adversities. Furthermore, due to the ability to control emotions positively, they are more likely to focus on the probability of success instead of failure. This ability will reduce anxiety when facing academic adversities, such as tight deadlines, negative feedback, and exam pressure. Because of the positive emotion approach instead of negative in facing adversities, students with higher buoyancy are more likely to experience lower anxiety, thus leading to better learning achievement. This study is in line with the previous research that revealed buoyancy contributes to helping students to control negative emotions (e.g., anxiety) (af Ursin et al., 2021; Collie et al., 2015; Hirvonen et al., 2020) and promote positive emotions (e.g., enjoyment) (Datu and Yang, 2021; Jia and Cheng, 2022; Wang and Hui, 2024) in facing adversities during daily schoolwork. The findings also align with prior research demonstrating that students with greater academic buoyancy exhibit better emotional responses to learning situations, which can enhance learning achievement (Collie et al., 2015; Granziera et al., 2022). Accordingly, we conclude that anxiety is another variable that explains the mechanism of academic buoyancy affecting learning achievement.

According to the result, this study provides theoretical and practical implications. Theoretically, this study contributes to the body of literature by explaining more clearly how academic buoyancy affects learning achievement through mediating variables (motivational constructs). The previous studies failed to evidence a robust link between the two variables due to small effect sizes. This study succeeds in revealing the link through the mediation model. Therefore, this study provides evidence that motivational constructs, including self-efficacy, persistence, and anxiety, are variables that can more clearly explain the relationship between academic buoyancy and learning achievement.

This study provides several practical points. First, lecturers are encouraged to help students recognize the adversities and challenges associated with routine lecture activities. By recognizing the adversities and challenges during lecture activities, students can be better prepared and develop effective strategies to successfully deal with academic adversities, such as pressure situations (tests and tight deadlines). Second, it is beneficial for students to learn adaptive responses to academic adversities. Furthermore, developing confidence and positive emotional control can help students manage difficulties more effectively. Students can reduce anxiety by developing confidence and positive emotional control abilities, such as fear of failure in tests or examinations. Lastly, universities are advised to consider providing college counselors to support students in managing their emotional and motivational needs, particularly in dealing with academic adversities and difficulties during routine lecture activities. Counselors can help students develop confidence to maximize success opportunities. Furthermore, counselors can assist students by illustrating that mistakes can be stepping stones toward success and do not define a person's worth. They can also reframe the concept of success, emphasizing personal progress and improvement rather than simply outperforming others.

Limitation

Although this study explained the relationship between academic buoyancy, motivational constructs, and learning achievement, several limitations should be acknowledged. First, the research was conducted on college students as participants, so the findings cannot be generalized to other educational levels, such as elementary and middle school. College students often face greater academic pressures, such as higher academic demands, more challenging coursework, and increased competition, than elementary or middle school students. Second, this study excluded demographical factors, such as gender and discipline background, from the analysis. While our research provides valuable insights into relationships within the variables (academic buoyancy, motivation, and learning achievement), the need to consider these demographic variables may overlook significant differences that could influence the results. Including gender, discipline background, and other demographic factors in future studies could offer a more nuanced understanding of how these variables impact the observed phenomena. We acknowledge this limitation and suggest that subsequent research incorporate these factors to enhance the robustness and generalizability of the findings. Last, this study used a cross-sectional design to examine the research hypotheses. This type of design captures data at a single point in time, which restricts our ability to infer causality or observe changes and developments over time. Consequently, the relationships observed in this study may only partially reflect the dynamic nature of the variables involved. We recommend that future research employ longitudinal designs to better capture the complexities and evolution of the phenomena under investigation.

CONCLUSION

This study aims to explain how academic buoyancy affects learning achievement by presenting motivational and emotional constructs as mediating variables in the research model. The findings indicate that academic buoyancy positively predicts learning achievement. Furthermore, the motivational constructs (self-efficacy, persistence, and anxiety) significantly mediate the link between academic buoyancy and learning achievement. The motivational constructs clearly explain the mechanism of academic buoyancy affecting learning achievement.

Students with high academic buoyancy often possess strong self-efficacy. This belief in their ability to overcome challenges empowers them to engage actively in learning and seek help when needed. In Addition, academic buoyancy also fosters persistence by equipping students with the resilience to bounce back from setbacks. They are more likely to persevere in their studies even when faced with challenges. These situations will help students achieve better academic performance. Lastly, academic buoyancy enables students to face adversities and setbacks with a positive outlook, fostering emotional control. This ability to manage emotions helps reduce anxiety when confronted with academic adversities, ultimately leading to better learning achievement.

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