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Academic Buoyancy in Indonesian Students with Daily Academic Problems: The Roles of Anxiety, Grit, Social Support, and Mediating Self-Efficacy

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ABSTRACT

This study examined the structural model of academic buoyancy among students experiencing daily academic challenges, focusing on the roles of grit, academic anxiety, social support, and the mediating effect of self-efficacy. This descriptive-correlational study involved 900 undergraduate students from four universities in Malang, Indonesia, with data collected between February and April 2025 using a multistage cluster random sampling technique. Participants were screened to ensure they faced routine academic challenges, including stressors such as coursework load, exam pressure, and time management difficulties. Data were collected using the Academic Buoyancy Scale (ABS), Short Grit Scale (Grit-S), Academic Anxiety Scale (AAS), Multidimensional Scale of Perceived Social Support (MSPSS), and General Self-Efficacy Scale (GSES), all demonstrating strong psychometric properties. Structural equation modeling showed that grit, social support, and self-efficacy positively predicted academic buoyancy, whereas academic anxiety had a negative effect. Self-efficacy also mediated the effects of grit, academic anxiety, and social support on academic buoyancy. These findings underscore the importance of strengthening self-efficacy, promoting grit, and reducing academic anxiety to enhance students' buoyancy in managing academic demands. The study provides theoretical insights and practical implications for developing psychological interventions and educational strategies in higher education.

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1. Introduction

University students are increasingly confronted with persistent academic pressures, including heavy coursework, demanding examinations, and challenges in time management. These stressors not only disrupt psychological well-being but also undermine academic performance, especially when coupled with limited social support and heightened expectations for achievement (Liza et al., 2022; Rahmah et al., 2025). This critical transition period is often marked by the erosion of established social support networks, the burden of significant financial investment, and the daunting realization of one's academic limitations in a more competitive environment—all of which can overwhelm students' nascent coping strategies and precipitate emotional distress (Cassady et al., 2019). Within this context, academic buoyancy, defined as the capacity to adaptively cope with everyday academic setbacks, has gained recognition as a vital psychological resource that sustains both learning outcomes and mental health (Martin & Marsh, 2008).

A growing body of research highlights the benefits of academic buoyancy, linking it to higher achievement, more effective regulation of academic emotions, and greater life satisfaction (Martin et al., 2013; Rafsanjani et al., 2024). Yet, findings regarding its antecedents remain inconsistent. Studies exploring grit, academic anxiety, social support, and self-efficacy have yielded mixed results, with some identifying robust effects while others report weak or nonsignificant associations (Friala et al., 2023; Martin et al., 2010; Putwain et al., 2012; Yun et al., 2018). For instance, social support, characterized by engagement with the social environment and the establishment of interpersonal relationships, has been identified as an important factor in fostering academic buoyancy (Fu, 2023). However, Yun et al. (2018) found its effect to be non-significant in certain cohorts, suggesting that its influence may be channeled primarily through mediating psychological mechanisms rather than acting in isolation. These inconsistencies raise important questions about the mechanisms through which personal and social resources operate in fostering resilience in academic settings.

To compound this issue, much of the existing work has examined these predictors in isolation rather than within an integrative framework. This fragmented perspective limits our understanding of how internal strengths, such as grit and self-efficacy, interact with external supports, such as encouragement from peers and family, to reinforce students' ability to withstand routine academic pressures. Advancing such an integrative perspective is essential for both theoretical clarity and the development of effective interventions in higher education.

The present study addresses this gap by proposing a structural model in which grit, academic anxiety, and social support predict academic buoyancy, with self-efficacy serving as a mediating mechanism. This model refines theoretical insights into resilience while also responding to urgent practical concerns, as large-scale surveys continue to document elevated levels of stress, anxiety, and depression among university students (Eisenberg et al., 2023). By positioning self-efficacy as the central mediating mechanism, this study offers a parsimonious explanation for prior inconsistencies: distal factors like grit and social support may exert their influence on buoyancy not directly, but by first shaping students' core belief in their own capability to manage academic demands (Bandura, 1998). Findings from this study are expected to inform strategies aimed at reducing academic anxiety, cultivating grit, optimizing social support, and strengthening self-efficacy, thereby equipping students with the resources needed to thrive despite academic challenges. The conceptual model of the study is presented in Figure 2.

Conceptually, this work is grounded in Broaden and Build Theory (BBT), which posits that positive emotions broaden thought and action repertoires and help build enduring psychological resources (Fredrickson, 1998). In line with BBT, self-efficacy, grit, and social support are expected to generate positive emotions—such as optimism, confidence, happiness, and pride—that expand students' adaptive capacity and reinforce academic buoyancy. In contrast, academic anxiety may narrow students' cognitive and behavioral flexibility, thereby reducing their ability to cope with setbacks. This dual process underscores the importance of examining both protective and risk factors in a unified model. This framework aligns with Bandura's (1998) Social Cognitive Theory, wherein self-efficacy is not

merely an outcome but a generative mechanism that transforms personal dispositions (e.g., grit) and environmental inputs (e.g., social support) into concrete, adaptive actions. Thus, BBT and Social Cognitive Theory together provide a synergistic lens for understanding how internal resources are activated and deployed.

Finally, the urgency of this research is underscored by global evidence documenting the prevalence of academic stress and its consequences. For instance, surveys in the United States indicate that nearly half of students report above-average levels of academic stress, alongside substantial rates of depression, anxiety, and impaired academic functioning (The American Institute of Stress, 2025). Similar findings have emerged in Asia, where students in China (Chen et al., 2024) and Saudi Arabia (Al-Shahrani et al., 2023) report significant academic stress across multiple domains of learning. These patterns highlight the global scope of the problem and the pressing need for integrative models that clarify how personal and social resources can buffer the adverse impact of academic pressures. Critically, early identification and intervention targeting malleable factors like academic anxiety and self-efficacy may serve as a crucial preventative measure, potentially halting the progression from transient academic stress to more entrenched and debilitating mental health conditions such as clinical depression (Cassady et al., 2019; Costello et al., 2003).

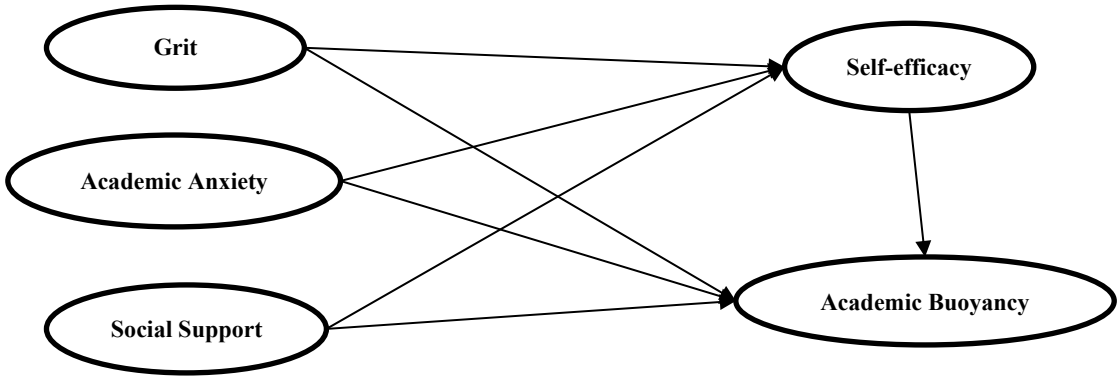

Figure 1. Conceptual Model of the Study

2. Method

2.1. Population, Sample, and Data Collection Method

This study employed a quantitative correlational design to examine relationships among academic buoyancy, grit, academic anxiety, social support, and self-efficacy. Within the proposed model, academic buoyancy and self-efficacy were specified as endogenous variables, while grit, academic anxiety, and social support served as exogenous predictors.

The population comprised undergraduate students from 15 universities in Malang City, Indonesia. A multistage cluster random sampling procedure was applied: universities were first grouped by accreditation status (seven accredited A, eight accredited B), and two institutions were randomly selected from each group. Students from the four selected universities were then randomly recruited as participants.

All participants provided informed consent after receiving information about the study's aims, voluntary nature, confidentiality, and right to withdraw. Ethical approval was obtained in line with the WHO 2011 standards on social values, scientific merit, equitable benefits, risk management, non-exploitation, confidentiality, and informed consent, and further guided by the CIOMS Guidelines 2016. A brief screening ensured participants experienced common academic challenges such as exam stress, workload, and time management before completing the questionnaire.

2.2. Research Instruments

All instruments, including the Academic Buoyancy Scale (ABS), Short Grit Scale (Grit-S), Academic Anxiety Scale (AAS), Multidimensional Scale of Perceived Social Support (MSPSS), and General Self-

Efficacy Scale (GSES), were culturally adapted into Bahasa Indonesia. The adaptation process followed the standardized guidelines by Beaton et al. (2000), encompassing translation, synthesis, back-translation, expert committee review, and pretesting. Content validity, assessed using Aiken's V, showed strong expert agreement (V = 0.80–1.00), indicating that the adapted instruments demonstrated excellent content validity and conceptual equivalence with the original versions.

2.2.1. Academic Buoyancy Scale (ABS)

The Academic Buoyancy Scale (ABS) consists of four unidimensional items developed by Martin and Marsh (2008). An example item is "I don't let study stress get on top of me." All items are rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The Cronbach's alpha for this scale was 0.864, indicating that the construct demonstrated satisfactory internal consistency and reliability.

2.2.2. Grit-S

This study employed the Short Grit Scale (Grit-S) developed by Duckworth et al. (2007), which comprises two dimensions: Consistency of Interest and Perseverance of Effort. An example item is "I finish whatever I begin." The scale consists of 8 items rated on a 5-point Likert scale ranging from 1 (not at all like me) to 5 (very much like me). The Cronbach's alpha coefficient was 0.934, indicating strong internal consistency.

2.2.3. Academic Anxiety Scale (AAS)

The Academic Anxiety Scale (AAS), developed by Cassady et al. (2019), consists of 11 items rated on a 4-point Likert scale ranging from 1 (does not describe me at all) to 4 (describes me very well). An example item is "I often worry that I am not doing assignments properly." The pilot test revealed that five items were invalid, with factor loadings of 0.209, 0.145, 0.155, 0.180, and 0.233, which were below the recommended threshold of 0.50 as suggested by Hair et al. (2019). After removing these items, the revised scale demonstrated a Cronbach's alpha of 0.892, indicating good internal consistency.

2.2.4. Multidimensional Scale of Perceived Social Support (MSPSS)

The Multidimensional Scale of Perceived Social Support (MSPSS), developed by Zimet et al. (1988), consists of 12 items categorized into three dimensions: family, friends, and significant others. Each item is rated on a 7-point Likert scale ranging from 1 (very strongly disagree) to 7 (very strongly agree). An example item is "My family really tries to help me." The Cronbach's alpha value was 0.909, indicating strong internal consistency across the dimensions.

2.2.5. General Self-Efficacy Scale (GSES)

The General Self-Efficacy Scale (GSES), developed by Schwarzer & Jerusalem (1995), consists of 10 items assessed using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). An example item is "I can solve most problems if I invest the necessary effort." The Cronbach's alpha value was 0.972, indicating excellent internal consistency for the construct.

2.3. Data Analysis

Data were analyzed using descriptive statistics (SPSS) and Structural Equation Modeling (SEM) with SmartPLS 4. PLS-SEM was chosen due to its suitability for complex mediation models and predictive analysis. Model evaluation followed established criteria for measurement and structural models.

3. Ruslts

3.1. Demographic Description

This study involved 900 undergraduate students from four universities in Malang City. The participants consisted of 223 males (24.8%) and 677 females (75.2%). The participants' ages ranged from 17 to 23 years (M = 19.6, SD = 1.2). Most students were between 18 and 21 years old, with 19-year-olds representing the largest age group (34%), followed by those aged 20 (24.6%) and 18 (19.4%).

Smaller proportions were aged 21 (13.8%), 22 (5.4%), 23 (1.8%), and 17 (1%). This distribution provides a clear overview of the demographic characteristics of the sample before the main analyses.

3.2. Intercorrelation among Variables

The table below presents the mean scores, standard deviations, and intercorrelation values among the variables.

Table 1. Means, Standard Deviations, and Intercorrelations among Variables

	M	SD	1	2	3	4	5	6	7	8
1. Academic buoyancy	21.15	4.22								
2. Grit	30.25	5.23	.32**							
3. Academic anxiety	11.21	5.14	-.14**	-.06*						
4. Self-efficacy	37.15	6.74	.39**	.33**	-.12**					
5. Social support	56.63	14.04	.23**	.28**	-.08**	.27**				
6. Family	19.26	5.20	.12**	.26**	-.10**	.26**	.92**			
7. Friends	18.93	4.98	.19**	.22**	-.06*	.24**	.89**	.72**		
8. Significant others	18.43	5.10	.24**	.29**	-.06*	.26**	.93**	.82**	.74**	

*$p < 0.05$; **$p < 0.01$*

Descriptive statistics and intercorrelations among the study variables are presented in Table 1. Students demonstrated moderate to high levels of academic buoyancy (M = 21.15, SD = 4.22), grit (M = 30.25, SD = 5.23), self-efficacy (M = 37.15, SD = 6.74), and social support including its dimensions of family (M = 19.26, SD = 5.20), friends (M = 18.93, SD = 4.98), and significant others (M = 18.43, SD = 5.10), while academic anxiety was relatively low (M = 11.21, SD = 5.14). All correlations were in the expected directions, with academic buoyancy, grit, self-efficacy, and all dimensions of social support positively interrelated, and academic anxiety negatively associated with these constructs.

3.3. Assumption Testing Results

Mardia's multivariate normality test indicated significant skewness (7426.350, $p < 0.001$) and excess kurtosis (90.887, $p < 0.001$), suggesting that the data did not meet the assumption of multivariate normality (Mardia, 1980; Wulandari et al., 2021). To address this issue, bootstrapping procedures were applied during confirmatory factor analysis to obtain more robust parameter estimates (Hair et al., 2025). The results of the multicollinearity analysis indicated that all tolerance values were greater than 0.10 and all VIF values were below 10. These findings confirm that no multicollinearity problem was present among the study variables, ensuring the reliability of the regression estimates.

3.4. Measurement Model Evaluation

The measurement model was evaluated to establish the validity and reliability of the latent constructs. Convergent validity was assessed through factor loadings and Average Variance Extracted (AVE), while construct reliability was examined using Composite Reliability (CR).

Table 2. Evaluation Results of Convergent Validity and Construct Reliability

Variable	Factor Loading	AVE	CR
Academic Buoyancy	0.698 - 0.889	0.669	0.890
Grit	0.883 - 0.993	0.884	0.934
Academic Anxiety	0.665 - 0.893	0.715	0.938
Social Support	0.811 - 0.925	0.768	0.909
Self-Efficacy	0.949 - 0.971	0.918	0.972

As shown in Table 2, all constructs exceeded the recommended thresholds (factor loadings > 0.50; AVE > 0.50; and CR > 0.70), indicating satisfactory psychometric properties. Academic buoyancy, grit, academic anxiety, and social support demonstrated acceptable convergent validity and reliability, while

self-efficacy exhibited particularly strong measurement quality. These results confirm that all constructs are valid and reliable, providing a sound basis for subsequent structural model analysis.

3.5. Structural Model Evaluation

The structural model of academic buoyancy was evaluated using several Goodness-of-Fit indices. These parameters serve to assess how well the proposed model represents the empirical data and to determine the overall adequacy of the structural paths hypothesized in the model.

Table 3. Goodness of Fit for the Structural Model of Academic Buoyancy

Parameter	Standard	Fit Value	Description
NFI	> 0.90	0.923	Good Fit
TLI	> 0.90	0.915	Good Fit
CFI	> 0.90	0.931	Good Fit
AGFI	> 0.90	0.863	Marginal Fit
GFI	> 0.90	0.813	Marginal Fit
SRMR	< 0.05	0.007	Good Fit

As shown in Table 3, the model meets most recommended thresholds, with indices such as NFI, TLI, CFI, and SRMR indicating good fit. Although AGFI and GFI fall within the marginal range, the overall results confirm that the structural model adequately represents the empirical data. These findings suggest that the proposed model is not only statistically acceptable but also theoretically meaningful, as it supports the hypothesized relationships among grit, academic anxiety, social support, self-efficacy, and academic buoyancy within the conceptual framework of the study.

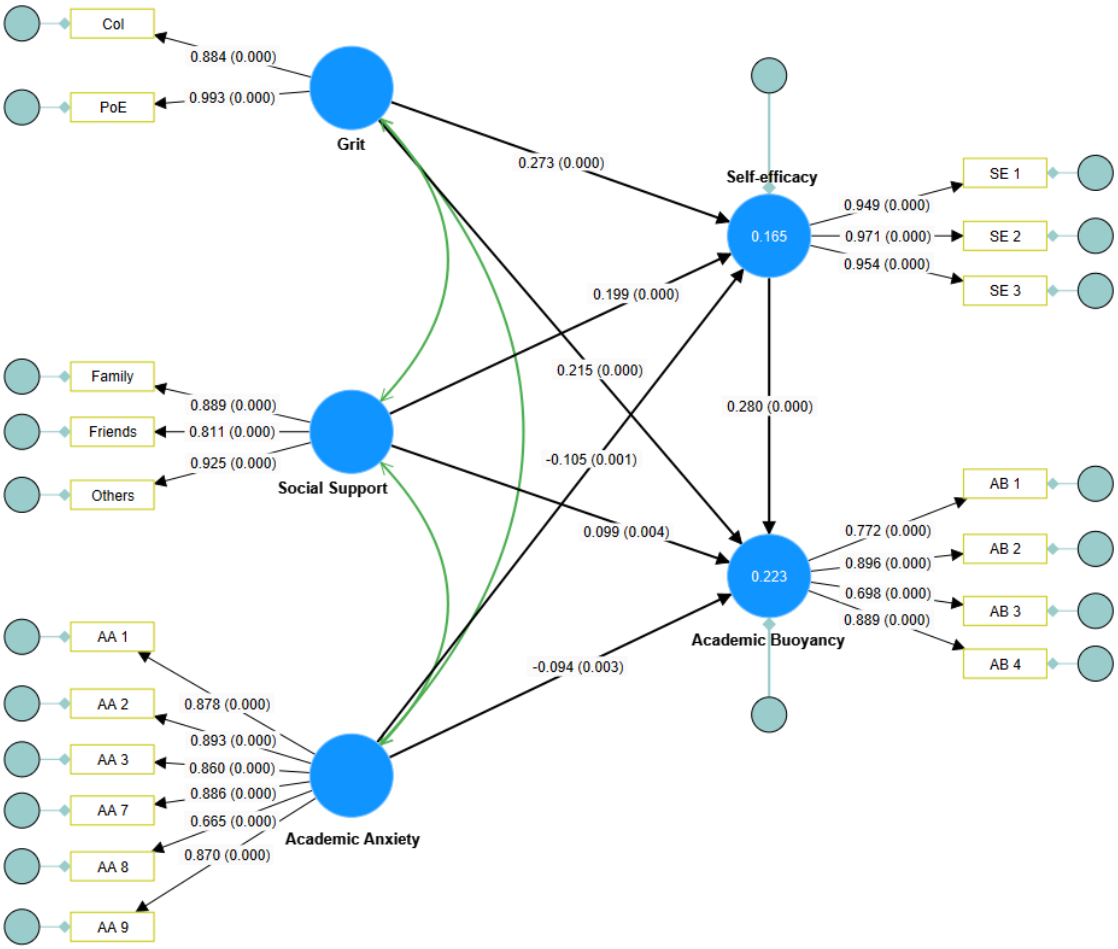

Figure 2. Structural Model of Academic Buoyancy

3.5. Hypothesis Testing Results

The hypotheses were tested using path analysis, with each pathway evaluated based on the significance value (p-value), path coefficient, and t-value.

Table 4. Results of Direct and Indirect Effects Testing

Pathway	Coefficient	*t*-value	*p*-value	
Grit -> AB	0.215	5.301	0.000	H1 accepted
AA -> AB	-0.094	2.727	0.003	H2 accepted
SS -> AB	0.099	2.655	0.004	H3 accepted
SE -> AB	0.280	6.823	0.000	H4 accepted
Grit -> SE	0.273	6.875	0.000	H5 accepted
AA -> SE	-0.105	3.010	0.001	H6 accepted
SS -> SE	0.199	5.502	0.000	H7 accepted
Grit -> SE -> AB	0.076	4.769	0.000	H8 accepted
AA -> SE -> AB	-0.029	2.609	0.005	H9 accepted
SS -> SE -> AB	0.056	4.047	0.000	H10 accepted

As presented in Table 4, all hypotheses were supported, with p-values below the 0.05 threshold. The direct effect results show that grit, social support, and self-efficacy significantly and positively predict

academic buoyancy, whereas academic anxiety exerts a significant negative effect. Among these predictors, self-efficacy demonstrated the strongest direct influence on academic buoyancy ($\beta = 0.280$), highlighting its central role in sustaining students' adaptive responses to academic challenges.

In addition, the mediation analysis revealed that self-efficacy significantly mediated the effects of grit, academic anxiety, and social support on academic buoyancy. These indirect effects were partial, meaning that grit, social support, and academic anxiety influence academic buoyancy both directly and indirectly through self-efficacy. This finding underscores the theoretical importance of self-efficacy as a key psychological mechanism that channels personal and social resources into students' ability to remain resilient in academic settings.

4. Discussion and Conclusion

4.1. Discussion

This study examined the structural model of academic buoyancy among university students by exploring the roles of grit, academic anxiety, and social support, with self-efficacy as a mediating factor. The findings confirmed the proposed model, with all hypothesized relationships supported. Grit, social support, and self-efficacy positively predicted academic buoyancy, whereas academic anxiety had a negative influence. Furthermore, self-efficacy was found to mediate the relationships between these predictors and academic buoyancy, highlighting its role as a central mechanism that connects personal and social factors with students' resilience in academic contexts.

The significant contribution of grit underscores the importance of sustained effort and perseverance in navigating daily academic challenges. Consistent with recent research (Alazemi et al., 2023; Salmela-Aro & Upadyaya, 2020), grit appears to promote emotional stability and persistence when facing obstacles, thereby enhancing academic buoyancy. However, these findings also refine previous assumptions by demonstrating that the influence of grit operates partly through students' self-efficacy beliefs, suggesting that persistence alone may be insufficient unless accompanied by confidence in one's academic competence. This integration clarifies inconsistencies in prior research where grit predicted achievement but not always resilience (Dahal et al., 2018; Hosseini et al., 2023).

Complementing this internal resource, the negative association between academic anxiety and buoyancy aligns with the 5Cs framework of academic buoyancy (Martin et al., 2010), which identifies composure as a central protective component. Elevated anxiety may narrow students' cognitive flexibility, increase avoidance behaviors, and erode their sense of control (Hu et al., 2024; Putwain & Daly, 2013). However, this study adds nuance by showing that anxiety's impact extends beyond immediate stress reactions, as it also weakens self-efficacy, which in turn suppresses adaptive responses. This suggests that interventions targeting anxiety regulation could have indirect benefits for enhancing students' confidence and resilience

Beyond individual factors, the present findings highlight the significance of social contexts. Social support from family, friends, and significant others was found to bolster academic buoyancy, consistent with evidence that supportive relationships facilitate coping and emotional adjustment (Dewaruci & Hanurawan, 2022; Lei et al., 2021). Prior studies have also shown that emotional encouragement, instrumental assistance, and informational guidance from peers and educators can enhance students' confidence and promote adaptive coping strategies (Collie et al., 2017; Granziera et al., 2022). The results strengthen the argument that contextual resources do not act in isolation but operate synergistically with internal psychological strengths. In this sense, social support functions as both a buffer against academic stress and a catalyst that reinforces self-efficacy, thereby creating a virtuous cycle of resilience (Wang et al., 2015).

Building on these dynamics, self-efficacy emerged as the most influential predictor of academic buoyancy. This finding is consistent with previous studies that identify confidence as a crucial determinant of students' ability to recover from academic setbacks (Kuserawati & Farida, 2022; Yang et al., 2024). Moreover, grit, social support, and academic anxiety each exerted predictable effects on

self-efficacy. Grit and social support strengthened students' self-efficacy, while academic anxiety weakened it. This pattern underscores the role of self-efficacy as a psychological bridge that translates persistence, confidence, and external encouragement into adaptive strategies for managing academic difficulties (Derakhshan & Fathi, 2023; Eva et al., 2020; Kiftiyah et al., 2024). The mediation analysis further demonstrated that self-efficacy not only contributes directly to academic buoyancy but also transmits the effects of personal and social resources, thereby reinforcing its central role within the model.

These findings can also be interpreted through the lens of the broaden-and-build theory (Fredrickson, 1998), which argues that positive psychological resources broaden individuals' thought-action repertoires and build enduring capacities for managing challenges. Within this framework, self-efficacy, grit, and social support serve as broadened resources that enable students to develop adaptive responses to academic stress. In contrast, academic anxiety, as a negative emotional state, restricts these processes and undermines resilience. By situating the results within this theoretical lens, the study emphasizes that cultivating positive beliefs and supportive environments can progressively enhance students' capacity to overcome academic difficulties.

Overall, the findings refine the 5Cs framework of academic buoyancy (Martin et al., 2010) by underscoring the pivotal role of self-efficacy in linking composure, confidence, and external supports. Practically, interventions that strengthen self-efficacy through mastery experiences, supportive feedback, and structured coping strategies may significantly enhance academic buoyancy, while efforts to reduce academic anxiety and foster grit remain essential within educational contexts. Despite these valuable insights, several limitations should be acknowledged. The cross-sectional design limits causal inference, and the exclusive reliance on self-report measures may introduce method bias. Moreover, the sample was drawn solely from undergraduate students in Malang City, Indonesia, potentially restricting the generalizability of the findings to other contexts. Future studies should employ longitudinal or experimental designs, incorporate behavioral or multi-informant assessments, and explore additional constructs such as coping strategies, emotion regulation, and academic motivation to develop a more comprehensive understanding of academic buoyancy and its applications in higher education.

4.2. Conclusion

This study demonstrates that students' academic buoyancy is strengthened by grit, social support, and self-efficacy, while academic anxiety undermines it, with self-efficacy emerging as a central mechanism that mediates the effects of personal and social resources on resilience in academic settings. Theoretically, these findings refine the understanding of academic buoyancy by highlighting self-efficacy not only as an outcome but also as a dynamic process that channels perseverance and external supports into adaptive coping strategies, thereby advancing existing models of student resilience. At the same time, the results offer practical implications by emphasizing the need for interventions that foster self-efficacy through mastery experiences, constructive feedback, and structured coping strategies. Reducing academic anxiety and cultivating grit remain essential, and universities can play a pivotal role by providing mentoring and coaching to build confidence, workshops on time management and self-regulation, and initiatives that strengthen peer and faculty support. Taken together, these efforts may create an academic environment that empowers students to approach everyday challenges with resilience and sustained motivation.

5. Ethical Considerations

This study received ethical approval from the Research Ethics Committee (KEP) of Universitas Negeri Malang (Approval No. 22.11.9/UN32.14.2.8/LT/2024) All participants were informed about the purpose of the study, data confidentiality, and the voluntary nature of their participation, including their right to withdraw at any time. Respondent data were collected anonymously and used solely for research purposes.

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7. Conflict of Interest

The authors declare no potential conflicts of interest, financial or non-financial, that could have influenced the planning, execution, analysis, or reporting of this study.

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