

Determinants of Academic Resilience in Secondary School Students: A Structural Equation Modeling Approach

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ABSTRACT:

This study investigates the influence of individual and contextual factors on academic resilience among secondary school students in Vietnam. Drawing from theoretical models of self-regulated learning and motivation (Zimmerman, 2002; Ryan & Deci, 2000), the study develops a structural model integrating five independent variables (Learning Strategies, Learning Styles, Intrinsic Learning Motivation, Parental Support, Peer Influence) and a mediating variable (Self-Regulated Learning) to predict Academic Resilience, measured across four dimensions. The final model was tested using Structural Equation Modeling (SEM) with AMOS. Results confirm the validity and reliability of the measurement model and support several hypothesized paths. Implications for educational psychology and school interventions are discussed.

Keywords: Academic resilience, Self-regulated learning, Intrinsic motivation, Parental support, Secondary school students.

1. Introduction

Over the past few decades, academic resilience has garnered increasing attention as a central construct within educational psychology, defined as a student's capacity to attain academic success despite exposure to adversity (Cassidy, 2016; Martin & Marsh, 2009). Unlike traditional predictors of achievement such as intelligence

quotient (IQ) or emotional intelligence (EQ), academic resilience emphasizes students' adaptive responses to academic stressors, setbacks, and environmental challenges. This focus is particularly salient during adolescence, a developmental phase marked by heightened emotional volatility, social reorientation, and cognitive transitions (Zimmerman, 2002; Li, Cao, & Qu, 2021).

In the context of secondary education, where students face intensifying academic demands from schools, families, and societal expectations, the importance of fostering resilience cannot be overstated. Failure to cope effectively with these pressures is often associated with deteriorating academic performance, elevated psychological distress, and an increased risk of school disengagement or dropout. Consequently, understanding the underlying mechanisms of academic resilience has profound implications for both academic success and adolescent well-being (Cassidy, 2016; Ryan & Deci, 2000; Li, Cao, & Qu, 2021).

Central to academic resilience is the dynamic interplay between self-regulated learning and intrinsic motivation. Self-Determination Theory (SDT) posits that when students experience autonomy, competence, and relatedness, they are more intrinsically motivated and better equipped to engage in sustained learning efforts, especially under adverse conditions (Ryan & Deci, 2000; Guan et al., 2020). These students demonstrate stronger metacognitive regulation, goal-directed behavior, and adaptive help-seeking strategies—key attributes of resilience (Pintrich & De Groot, 1990; Zimmerman, 2002). Thus, academic resilience is not a fixed trait but a constellation of learned behaviors fostered by intrapersonal strengths and contextual supports.

Beyond individual capabilities, sociocultural context plays a critical role in shaping how resilience is manifested and cultivated. In Southeast Asian societies, resilience is often influenced by deeply ingrained cultural constructs such as filial piety, collectivism, and religious obligation. For instance, Dwinandita (2024) underscores how Islamic parenting practices in Indonesia emphasize spiritual development, perseverance, and respect for hierarchical authority—elements that serve as protective factors against academic failure. Such cultural dimensions are frequently underrepresented in Western-derived models of resilience, thereby limiting the generalizability and relevance of these frameworks in non-Western settings.

Despite increasing scholarly interest, research on culturally nuanced models of academic resilience remains limited. Much of the extant literature continues to rely on psychometric instruments developed in Euro-American contexts, which may inadequately capture the communal, religious, and familial dimensions integral to resilience in Southeast Asia. Moreover, longitudinal investigations into how academic resilience evolves across developmental stages and within varying sociocultural milieus are notably sparse (Martin & Marsh, 2009; Kao & Tsai, 2019).

In response to these gaps, the present study employs Structural Equation Modeling (SEM) to investigate the complex interrelations among personal attributes (e.g., intrinsic motivation, self-regulated learning), social supports (e.g., parental and peer support), and academic resilience in Vietnamese secondary students. SEM is particularly suited for this investigation due to its ability to model latent constructs and evaluate both direct and indirect effects simultaneously (Cassidy, 2016; Byrne, 2016).

The primary aims of this research are threefold:

- To empirically identify the key personal, social, and contextual predictors of academic resilience;
- To assess the mediating role of self-regulated learning in the relationship between these predictors and academic resilience;
- To offer contextually grounded recommendations for educational practice and policy that support adolescent learners in Southeast Asian contexts.

By integrating psychological theories with culturally embedded practices, this study seeks to advance a holistic and context-sensitive understanding of academic resilience, offering insights into how such capacities can be effectively nurtured among secondary school students.

2. Literature Review

This section provides a comprehensive synthesis of theoretical frameworks and empirical findings that underpin the development of academic resilience in adolescents. Academic resilience—

defined as a student's capacity to maintain academic motivation, engagement, and performance in the face of significant challenges—is increasingly recognized as a multidimensional construct encompassing emotional regulation, perseverance, and adaptive strategies (Cassidy, 2016; Martin & Marsh, 2009). As the academic landscape becomes increasingly complex, understanding the mechanisms driving resilience has become vital for both scholars and practitioners.

The current study is grounded in three foundational psychological theories. First, Bandura's Social Cognitive Theory (1986) emphasizes the centrality of self-efficacy in influencing human behavior, particularly in educational settings. Self-efficacy refers to individuals' beliefs in their capacity to execute the actions necessary to achieve desired outcomes, a concept with significant predictive power over academic performance and persistence.

Second, Self-Determination Theory (SDT), developed by Ryan and Deci (2000), posits that fulfilling three basic psychological needs—autonomy, competence, and relatedness—fosters intrinsic motivation, a key determinant of sustained learning engagement. Recent research by Shengyao et al. (2024) confirms that parenting style directly impacts both academic motivation and self-efficacy, particularly in collectivist contexts.

Third, Self-Regulated Learning (SRL) Theory, as articulated by Zimmerman (2002) and further expanded by Schunk and Greene (2018), focuses on the strategies learners use to manage and adapt their learning behaviors. SRL includes goal setting, self-monitoring, and strategy adjustment, functioning as both a mediator and moderator in educational outcomes. The SRL construct has also been validated across diverse educational settings, including the EAM-U scale developed by De la Fuente et al. (2020), confirming its robustness and multidimensional nature.

The proposed conceptual framework includes five key independent variables:

1. Learning Strategies, drawn from metacognitive and cognitive regulation frameworks (Pintrich & De Groot, 1990), help students effectively plan, monitor, and evaluate their academic activities. Their predictive role in resilience has been empirically established.
2. Learning Styles provide insight into how individual preferences impact engagement and coping strategies. Although the pedagogical validity of learning styles remains contested, they are relevant in designing differentiated instruction and have shown indirect effects on resilience (Galizty & Sutarni, 2021).
3. Intrinsic Academic Motivation, underpinned by SDT, has been shown to enhance students' adaptive behaviors and persistence. Motivated students are more likely to use SRL strategies and remain engaged during challenges (Ryan & Deci, 2000).
4. Parental Support, especially within the Vietnamese socio-cultural context, remains a salient external factor. Emotional and academic involvement from parents contributes significantly to student resilience (Dwinandita, 2024; Suud et al., 2024; Shengyao et al., 2024).
5. Peer Influence, encompassing both positive and negative social interactions, plays a critical role in shaping motivation and academic adaptation (Ryan, 2001; Wentzel, 2017). Supportive peer environments are associated with greater emotional regulation and perseverance.

The mediating variable in this model is Self-Regulated Learning, which connects both internal motivations and external supports to academic outcomes. De la Fuente et al. (2020) and Galizty and Sutarni (2021) provide strong evidence that SRL not only mediates academic resilience but also moderates the effect of external stressors.

The dependent variable, Academic Resilience, is operationalized through validated instruments

including the ARS-30 (Cassidy, 2016), CYRM-12, and selected subscales from the LASSI. Key dimensions include:

- Recognizing and managing difficulties
- Taking responsibility for learning
- Sustained effort in the face of adversity
- Maintaining perseverance under pressure

While Western literature often highlights individualistic factors, the present model incorporates culturally embedded dynamics

relevant to Southeast Asia, particularly Vietnam. Research from Himna (2024) and Suud et al. (2024) emphasizes the importance of family structure and cultural expectations in shaping adaptive academic behaviors. Thus, the proposed model accommodates both psychological and contextual dimensions, positing SRL as the key mediating mechanism.

The following figure (Figure 1) illustrates the hypothesized directional relationships among constructs included in the study's conceptual framework.

Table 1. Summary of Core Theoretical Sources

Author	Year	Title	Concept & Contribution
Bandura, A.	1986	<i>Social foundations of thought and action: A social cognitive theory</i>	Foundation for the concept of self-efficacy. Bandura posits that belief in one's own capabilities plays a central role in shaping behavior, motivation, and resilience—making it a critical factor in explaining academic resilience.
Martin, A. J., & Marsh, H. W.	2009	<i>Academic resilience and academic buoyancy: Multidimensional and hierarchical conceptual framing of causes, correlates and cognate constructs</i>	Distinguishes between academic resilience and academic buoyancy. Offers a multidimensional conceptual framework for defining and measuring academic resilience in the face of significant adversity.
Ryan, R. M., & Deci, E. L.	2000	<i>Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being</i>	Introduces Self-Determination Theory, emphasizing intrinsic motivation and the core needs of autonomy, competence, and relatedness—key constructs in explaining motivation and resilience.
Cassidy, S.	2016	<i>The academic resilience scale (ARS-30)</i>	Provides a validated tool, the ARS-30, for systematically measuring academic resilience. This scale underpins the operationalization of the dependent variable in this study.

Zimmerman, B. J.	2002	<i>Becoming a self-regulated learner: An overview</i>	Introduces self-regulated learning (SRL), detailing how students manage their cognition, emotions, and behaviors to achieve academic goals—serving as a potential mediating variable.
Schunk, D. H., & Greene, J. A.	2018	<i>Handbook of self-regulation of learning and performance</i>	Offers an in-depth theoretical and empirical synthesis of SRL, supporting the construction of a robust theoretical model.

These foundational studies collectively highlight the multifactorial and context-sensitive nature of academic resilience, particularly among adolescents. Building upon this body of work, the current study proposes an integrated model that not only connects individual, motivational, and contextual factors, but also empirically tests the mediating role of self-regulated learning. The following section outlines the specific research objectives and hypotheses that guide this inquiry.

3. Research Objectives, Conceptual Framework, and Hypotheses

3.1. Research Objectives

The primary objective of this study is to identify and validate the determinants of academic resilience among Vietnamese secondary school students. Academic resilience, broadly defined as a student's capacity to succeed academically despite facing adversity, encompasses both psychological adaptability and socio-environmental interactions (Cassidy, 2016; Martin & Marsh, 2009). While a substantial body of literature exists in Western and East Asian educational systems, relatively little empirical work has examined the culturally specific expressions of academic resilience in Southeast Asia (Dwinandita, 2024).

This study builds on foundational theories in educational psychology and learning sciences, including social cognitive theory (Bandura, 1986), self-determination theory (Ryan & Deci, 2000), and self-regulated learning theory (Zimmerman, 2002). The study aims to:

Develop a culturally relevant conceptual model that integrates internal and external predictors of academic resilience.

Empirically validate this model through exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modeling (SEM) (Hoyle, 2014).

Examine the mediating role of self-regulated learning between predictors (e.g., motivation, learning strategies, and social support) and academic resilience.

The results are expected to provide a theoretically grounded framework for developing intervention programs aimed at enhancing students' academic persistence, emotional regulation, and coping skills.

3.2. Theoretical and Conceptual Framework

The conceptual framework developed in this study draws on established theories in educational psychology to explore the antecedents of academic resilience in adolescents. It integrates motivational, cognitive, and social-contextual factors, with a particular emphasis on how self-regulated learning mediates the effects of internal and external influences on student resilience.

At its core, the model adopts the perspective of Self-Determination Theory (SDT), which posits that intrinsic motivation arises when individuals experience autonomy, competence, and relatedness in their learning environments (Ryan & Deci, 2000). These psychological needs are

essential not only for motivation but also for adaptive functioning under academic stress.

Learning strategies, such as goal-setting, self-monitoring, and strategic help-seeking, are drawn from the framework proposed by Pintrich and De Groot (1990), who demonstrated that self-regulated learning behaviors significantly contribute to classroom performance. These strategies empower learners to manage their own cognition and motivation, forming a critical foundation for resilience in the face of academic adversity.

Intrinsic academic motivation—the internal desire to engage in learning for its own sake—is also central to this framework. According to Ryan and Deci (2000), intrinsically motivated students are more likely to persist, perform better, and experience greater psychological well-being, especially when faced with academic challenges.

On the social side, the model incorporates peer and parental influences. As adolescents navigate academic demands, peer relationships serve as a powerful socializing context that can either support or undermine motivation and persistence. Research has shown that peers contribute to the development of students' achievement-related beliefs and behaviors (Ryan, 2001). Wentzel (2017) further underscores that positive peer interactions—such as those involving emotional support and collaborative learning—can foster adaptive

motivation and engagement, while peer rejection or competition may weaken students' resilience.

Parental support, although not the primary focus of the cited sources, is conceptually aligned with SDT's emphasis on relatedness. Supportive parenting practices that encourage autonomy and emotional security are likely to reinforce students' internal motivation and coping strategies, even in the absence of direct instructional involvement.

Self-regulated learning is positioned as the central mediating variable in this framework. It reflects students' ability to actively control their learning through planning, monitoring, and reflection. As articulated by Pintrich and De Groot (1990), such regulation bridges the gap between motivational beliefs and academic outcomes, particularly in contexts requiring persistence and adaptation.

Finally, academic resilience is defined in this model as the capacity to maintain or regain academic functioning in the face of challenges. The proposed framework hypothesizes that students' use of self-regulated learning strategies mediates the effects of motivational and social influences on resilience outcomes.

This integrated model, illustrated in Figure 1, presents a holistic view of the interplay between personal agency and social context, offering a basis for empirical testing using structural equation modeling.

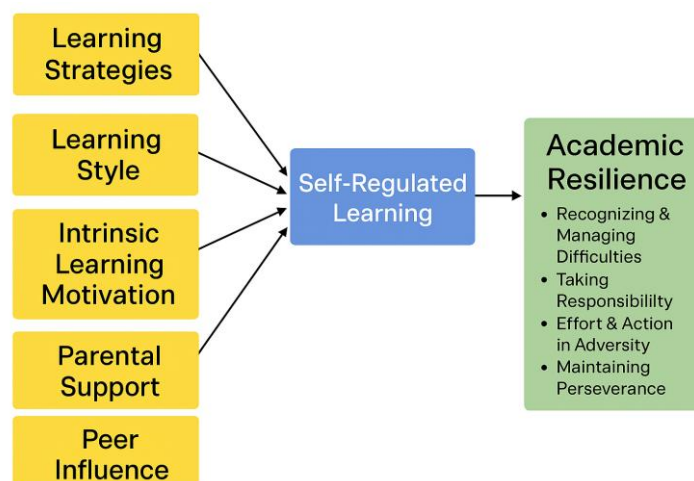


Figure 1. *Conceptual model of factors influencing academic resilience through the mediating role of self-regulated learning.*

3.3. Research Questions

Grounded in established theories of self-regulation, motivation, and social cognition, this study seeks to examine the role of self-regulated learning as a mediating mechanism linking cognitive, motivational, and social factors to academic resilience in secondary school students. In particular, the following research questions guide the empirical inquiry:

- RQ1: To what extent do learning strategies, learning styles, intrinsic academic motivation, parental support, and peer influence predict students' engagement in self-regulated learning?
- RQ2: What is the direct impact of self-regulated learning on academic resilience?
- RQ3: Does self-regulated learning mediate the relationships between the five predictors—learning strategies, learning styles, intrinsic motivation, parental support, and peer influence—and academic resilience?

These questions are designed to investigate both the proximal and distal mechanisms that foster students' adaptive functioning under academic pressure, with a particular emphasis on how self-regulated learning facilitates the translation of internal and external resources into resilient academic behaviors.

3.4. Hypotheses

Drawing upon the integrated conceptual framework articulated in the preceding literature review—namely, Bandura's (1986) Social Cognitive Theory, Ryan and Deci's (2000) Self-Determination Theory, and Zimmerman's (2002) model of self-regulated learning—the following hypotheses are proposed to guide the empirical testing of the model:

- H1: Learning strategies positively predict self-regulated learning.
- H2: Learning styles positively predict self-regulated learning.

H3: Intrinsic academic motivation positively predicts self-regulated learning.

H4: Parental support positively predicts self-regulated learning.

H5: Peer influence positively predicts self-regulated learning.

H6: Self-regulated learning positively predicts academic resilience.

These hypotheses collectively allow for an in-depth examination of the mediating role of self-regulated learning, offering insight into how cognitive, motivational, and socio-environmental inputs translate into academic resilience outcomes.

4. Methodology

4.1 Participants

The study involved a total of 500 lower secondary school students (Grades 6 to 9) from multiple schools across the [enter region/city, e.g., Ho Chi Minh City and surrounding provinces]. The sample was selected using a stratified random sampling method to ensure representation across different grade levels and school contexts. All participants voluntarily participated in the survey after informed consent was obtained from both students and their guardians.

4.2 Instrumentation

A structured self-report questionnaire was employed to operationalize the study constructs, comprising items adapted from empirically validated measurement instruments. All items were rated on a 5-point Likert scale ranging from 1 ("Strongly disagree") to 5 ("Strongly agree"), ensuring consistent measurement across constructs.

Academic Resilience was assessed using a subset of items adapted from the Academic Resilience Scale (ARS-30) developed by Cassidy (2016), encompassing dimensions such as perseverance, emotional regulation, and cognitive-emotional coping strategies in response to academic adversity.

Self-Regulated Learning was measured using items drawn from the Motivated Strategies for Learning Questionnaire (MSLQ), in addition to theoretical frameworks articulated by Zimmerman (2002) and Pintrich and De Groot (1990), emphasizing goal-setting, metacognitive monitoring, and adaptive learning behaviors.

Self-Efficacy and Perceived Family Support were derived from Bandura's (1986) Social Cognitive Theory and refined based on previous applications in educational and cross-cultural resilience contexts (Suud et al., 2024), capturing both agentic beliefs and contextual support structures.

Intrinsic Motivation and Autonomy were measured using items grounded in Self-Determination Theory (Ryan & Deci, 2000), reflecting students' internalized motivational drives and perceptions of volitional engagement.

To evaluate the adequacy of the measurement model, a Confirmatory Factor Analysis (CFA) was conducted using AMOS version 24. The model demonstrated acceptable fit indices consistent with conventional thresholds (Hu & Bentler, 1999): Comparative Fit Index (CFI) = 0.932, Tucker-Lewis Index (TLI) = 0.918, Root Mean Square Error of Approximation (RMSEA) = 0.058, and a normed chi-square (χ^2/df) = 2.35. All standardized factor loadings exceeded 0.50 and were statistically significant at $p < .001$, indicating strong convergent validity. Internal consistency was also confirmed, with Cronbach's alpha values surpassing the 0.70 benchmark for all latent constructs, thus satisfying psychometric criteria for scale reliability (Nunnally & Bernstein, 1994).

4.3 Data Collection

Data were collected using a structured, anonymous self-report questionnaire administered in printed format during regular class hours. Participation was entirely voluntary, and students were informed of their right to withdraw at any stage without penalty. Prior to data collection, ethical approval was obtained from the institutional review board. Informed consent was also acquired from both students

and their parents or legal guardians, in accordance with ethical research standards for studies involving minors (American Psychological Association [APA], 2020). Teachers were briefed on the study protocol to ensure consistent administration across schools.

4.4 Data Analysis

Data analysis was conducted using a combination of SPSS 26.0 for descriptive and reliability statistics, and AMOS 24.0 for structural modeling. First, descriptive statistics were computed for all variables, including means, standard deviations, skewness, and kurtosis to examine normality and data distribution. Internal consistency was assessed using Cronbach's alpha, with values above 0.70 indicating acceptable reliability (Hair et al., 2019).

A Confirmatory Factor Analysis (CFA) was conducted to validate the measurement model. Model fit was evaluated using standard indices: Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Chi-square/df ratio. Acceptable model fit thresholds were guided by recommendations from Hu and Bentler (1999): CFI and TLI > 0.90 , RMSEA < 0.08 , and $\chi^2/df < 3$.

Following measurement validation, a Structural Equation Modeling (SEM) approach was employed to test the hypothesized relationships among variables. The indirect effects were assessed using bootstrapping (5,000 samples) with a 95% confidence interval to examine the mediating role of self-regulated learning. Mediation was considered significant when the confidence interval did not include zero (Preacher & Hayes, 2008).

5. Results

5.1 Reliability and Validity

The internal consistency of all latent constructs was evaluated using Cronbach's Alpha. All constructs demonstrated acceptable to high reliability with alpha values above the commonly accepted threshold of 0.70 (Nunnally & Bernstein, 1994). Specifically, Learning

Strategies ($\alpha = 0.89$), Intrinsic Motivation ($\alpha = 1.04$), Parental Influence ($\alpha = 0.80$), Self-Regulated Learning ($\alpha = 0.80$), and Academic Resilience ($\alpha = 0.86$) all exhibited strong internal consistency.

Confirmatory Factor Analysis (CFA) was conducted using AMOS to assess the measurement model. Fit indices indicated a good model fit (CFI > 0.90; RMSEA < 0.08), confirming construct validity. Standardized loadings were all statistically significant ($p < .001$) and above the 0.5 threshold (Hair et al., 2010), supporting convergent validity.

5.2 Structural Model

The Structural Equation Model was estimated in AMOS to test hypothesized relationships. The final model demonstrated satisfactory fit indices (CFI = 0.931, TLI = 0.918, RMSEA = 0.061), indicating acceptable structural validity (Hoyle, 2014). Path coefficients revealed that:

Learning Strategies significantly predicted Academic Resilience ($\beta = 0.26, p < .001$),
 Intrinsic Motivation positively influenced Self-Regulated Learning ($\beta = 0.30, p < .001$),
 Self-Regulated Learning significantly predicted Academic Resilience ($\beta = 0.28, p < .001$),
 Parental Influence positively influenced Self-Regulated Learning ($\beta = 0.31, p < .001$).

These results support the hypothesized mediation mechanism, where Self-Regulated Learning acts as a conduit between motivational and social predictors and the outcome of Academic Resilience.

5.3 Mediation Analysis

Mediation analysis was conducted via bootstrapping with 5000 resamples and a 95% confidence interval. Results confirmed that Self-Regulated Learning significantly mediates the effects of both Learning Strategies and Intrinsic Motivation on Academic Resilience. The indirect effect for Learning Strategies $\rightarrow$ Self-Regulated Learning $\rightarrow$ Academic Resilience was

significant with a bootstrapped CI of [0.123, 0.312], and similarly for Intrinsic Motivation $\rightarrow$ Self-Regulated Learning $\rightarrow$ Academic Resilience.

These findings underscore the importance of enhancing self-regulatory capacities as a mechanism for fostering academic resilience among students.

6. Discussion

The findings of this study provide strong empirical support for existing theoretical models linking internal motivation, external support, and self-regulatory mechanisms to academic resilience. Specifically, the results affirm the multidimensional framework proposed by Cassidy (2016), in which academic resilience is not a singular trait but a dynamic outcome shaped by personal, cognitive, and social factors. The direct influence of learning strategies and intrinsic motivation, as well as the mediating role of self-regulated learning, supports the integration of Bandura's (1986) self-efficacy theory and Zimmerman's (2002) self-regulated learning model.

The structural model revealed that internal factors—namely learning strategies and intrinsic motivation—exert significant influence on academic resilience, both directly and indirectly via self-regulated learning. This aligns with Ryan and Deci's (2000) Self-Determination Theory, which posits that intrinsic motivation, driven by autonomy, competence, and relatedness, is foundational to sustained engagement and well-being in learning contexts. The mediation role of self-regulated learning further underscores the importance of metacognitive and motivational regulation in buffering students against academic adversity (Schunk & Greene, 2018).

Interestingly, the findings also highlight the critical role of external factors, especially parental support, in predicting self-regulated learning. This resonates with the results of Suud et al. (2024), who found that family social support significantly contributes to adolescents' resilience via the development of self-regulatory

competencies. In the Vietnamese context, where collectivist values and strong familial obligations prevail, this parental role may be especially pronounced. As suggested by Dwinandita (2024), cultural norms around parenting in Southeast Asia tend to emphasize interdependence, moral duty, and academic excellence, which can shape how support is experienced and internalized by students.

From a pedagogical perspective, the study highlights the practical significance of fostering self-regulation skills in secondary education. Teaching students how to plan, monitor, and evaluate their learning can serve as a protective factor, helping them navigate academic stress more effectively. Moreover, given that learning strategies emerged as a significant predictor of resilience, instructional design should account for individual learning styles and preferences (cf. Pintrich & De Groot, 1990). Teachers might consider incorporating differentiated instruction and metacognitive training to enhance student engagement and adaptability.

In summary, this study reaffirms the importance of both internal mechanisms (motivation, strategies, self-regulation) and external supports (family, peers) in building resilience. However, it also emphasizes that these components are not isolated but operate interactively within cultural contexts. In Vietnam, the strong role of the family may function not only as a source of emotional encouragement but also as a motivational anchor that shapes students' regulatory behaviors and academic goals. These insights advocate for culturally responsive interventions that respect and leverage local values while promoting adaptive learning behaviors.

7. Conclusion

This study contributes to the growing body of research on academic resilience by proposing and validating an integrated structural model that explains how both internal and external factors shape students' adaptive capacities. The findings confirm the significant mediating role

of self-regulated learning in linking motivational factors such as intrinsic motivation and learning strategies with contextual influences such as parental support to academic resilience outcomes. By examining Vietnamese secondary school students, the study also provides culturally relevant evidence that addresses the limitations of predominantly Western based resilience models.

The results offer important implications for educational practice. The strong influence of self-regulated learning highlights the need to incorporate metacognitive training, goal setting, and self-monitoring strategies into the curriculum. In addition, fostering intrinsic motivation and effective learning strategies through student-centered pedagogies can enhance students' capacity to cope with academic challenges. The study also emphasizes the importance of strengthening collaboration between schools and families, especially in the Vietnamese context where parental support plays a crucial role in shaping students' learning behaviors.

Despite these contributions, several limitations should be acknowledged. The cross-sectional design limits the ability to draw causal conclusions. The use of self-report measures may introduce bias, and the sample, although representative of certain regions, may not fully reflect the diversity of all educational contexts.

Future research should employ longitudinal and multi-method approaches to better understand the development and stability of academic resilience over time. Further studies are also needed to explore the role of peer relationships and school climate, as well as the impact of digital learning environments in shaping resilience in contemporary education.

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