Academic Control, Resilience, and Self-Directed Learning: A Cross-Sectional Study

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A B S T R A C T

Objective: This study aims to investigate the relationships between self-directed learning (SDL), perceived academic control, and academic resilience among university students.

Methods and Materials: A cross-sectional study design was employed with a sample size of 209 undergraduate students, selected based on the Morgan and Krejcie table. Participants were assessed using the Self-Directed Learning Readiness Scale (SDLRS), the Academic Control Scale (ACS), and the Academic Resilience Scale (ARS-30). Data analysis was performed using SPSS version 27, employing Pearson correlation to explore relationships between variables and linear regression to determine predictive power.

Findings: Pearson correlation analysis showed significant positive relationships between SDL and perceived academic control ($r = 0.45$, $p < 0.001$) and between SDL and academic resilience ($r = 0.55$, $p < 0.001$). The regression model was significant ($F(2, 206) = 62.80$, $p < 0.001$), with an R^2 of 0.38, indicating that perceived academic control and academic resilience together explain 38% of the variance in SDL. Both perceived academic control ($B = 0.30$, $\beta = 0.32$, $p < 0.001$) and academic resilience ($B = 0.42$, $\beta = 0.45$, $p < 0.001$) were significant predictors of SDL.

Conclusion: The findings suggest that perceived academic control and academic resilience are significant predictors of self-directed learning among university students. Enhancing these attributes could foster better self-directed learning capabilities, contributing to improved academic outcomes. Educational interventions that boost students' perception of control and resilience are recommended to support autonomous learning.

Keywords: Self-directed learning, perceived academic control, academic resilience, university students, educational psychology, cross-sectional study, student autonomy, academic performance.

1.   Introduction

The role of self-directed learning (SDL) has become increasingly prominent in educational research, especially given the shift towards more autonomous learning environments (Hwang & Oh, 2021; Li et al., 2023; Li et al., 2022; Loeng, 2020). SDL, defined as a process wherein individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying resources, and evaluating learning outcomes, is crucial for academic success (Adnan & Sayadi, 2021; Beckers et al., 2016; Oducado, 2021; Sahebzadeh & Mehri, 2021; Thabane, 2022; Xiao-hong et al., 2018).

Academic resilience refers to the capacity of students to effectively deal with setbacks, stress, or pressure in the academic environment (Martin, 2013). This trait is particularly vital in the face of academic adversity, enabling students to maintain or regain their performance level (Astutik & Firdana, 2023; Chen et al., 2022; Darbani & Parsakia, 2023; Fitriani & Gina, 2022; Golparvar & Parsakia, 2023; Hasanah et al., 2021; Hayat & Dehsorkhi, 2021; Hwang & Kim, 2023; Liu & Platow, 2020; Mahmudah et al., 2022; Martin, 2013; Permatasari et al., 2021; Romano et al., 2021; Sabrillah et al., 2021; Shao & Kang, 2022; Shengyao, 2024; Syukur, 2024; Turan, 2021; Wu, 2024; Yang & Wang, 2022; Yustika & Widyasari, 2021). Previous research has highlighted the significance of academic resilience in various educational outcomes. For instance, Fitriani and Gina (2022) found that academic resilience played a crucial role in helping students adapt to post-pandemic academic challenges (Fitriani & Gina, 2022). Similarly, Hasanah, Marjohan, and Daharnis (2021) demonstrated that self-esteem and parental social support significantly contributed to students' academic resilience in online learning settings (Hasanah et al., 2021).

The concept of perceived academic control, which involves students' beliefs about their control over academic outcomes, is another key factor influencing academic performance. According to Perry et al. (2001), students who perceive a higher degree of control over their academic success are more likely to engage in effective learning strategies and exhibit better academic outcomes (Losa-Iglesias, 2023). The relationship between perceived academic control and academic resilience has been well-documented. For example, Liu and Platow (2020) noted that perceived academic competence mediated the relationship between belief in a just world and academic resilience among Chinese adolescents (Liu & Platow, 2020).

Moreover, the integration of SDL into the framework of academic resilience and perceived academic control provides a comprehensive understanding of how these variables interact to influence academic performance. SDL has been linked to various positive educational outcomes, including increased academic achievement, motivation, and engagement (Li et al., 2022). It empowers students to take responsibility for their learning, thereby fostering a sense of control and resilience.

The COVID-19 pandemic has further underscored the importance of these constructs. The abrupt transition to online learning environments required students to exhibit higher levels of self-direction, control, and resilience. Studies during this period have shown varying impacts on students' academic behaviors and performance. For instance, Astutik and Firdana (2023) explored the role of academic resilience in mediating the effect of self-efficacy on academic procrastination during the pandemic, highlighting the critical role of resilience in maintaining academic performance (Astutik & Firdana, 2023).

Academic resilience has also been linked to other psychological constructs such as optimism, emotional intelligence, and self-directed learning competency. Hwang and Kim (2023) found that self-directed learning competency mediated the relationship between optimism, emotional intelligence, and academic resilience among nursing students. This suggests that interventions aimed at enhancing SDL skills could potentially boost academic resilience and overall academic performance (Hwang & Kim, 2023).

Furthermore, social support has been identified as a significant predictor of academic resilience and performance. Abomah (2021) emphasized the influence of social support on the academic performance and self-efficacy of students, indicating that a supportive academic environment can enhance students' resilience and learning outcomes (Abomah, 2021). The buffering effect of social support on academic stress and its contribution to resilience was also highlighted by Fuente et al. (2021) (Fuente et al., 2021).

In addition to social support, other factors such as self-concept and motivational intensity play crucial roles in academic resilience. García-Martínez et al. (2022) demonstrated that self-concept mediates the relationship between resilience and academic achievement, suggesting that students with a positive self-concept are better equipped

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to handle academic challenges (García-Martínez et al., 2022). Similarly, Yang and Wang (2022) found that motivational intensity significantly influenced academic resilience and achievement among EFL learners (Yang & Wang, 2022).

The mediating role of academic resilience in various educational contexts has been a focal point in recent research. For example, Hayat and Dehsorkhi (2021) examined the mediating role of academic resilience in the relationship between self-efficacy and test anxiety, highlighting its importance in mitigating academic stressors (Hayat & Dehsorkhi, 2021). Additionally, Ragusa et al. (2023) investigated the effects of academic self-regulation on procrastination, academic stress, anxiety, resilience, and academic performance, further underscoring the interconnectedness of these variables (Ragusa et al., 2023).

Given the robust evidence linking academic resilience and perceived academic control to various positive educational outcomes, this study aims to explore their combined effect on self-directed learning among university students. Specifically, it seeks to address the following research questions: (1) What is the relationship between perceived academic control and self-directed learning? (2) How does academic resilience influence self-directed learning? (3) To what extent do perceived academic control and academic resilience together predict self-directed learning?

2. Methods and Materials

2.1. Study Design and Participants

This study employs a cross-sectional design to investigate the relationship between self-directed learning, perceived academic control, and academic resilience among university students. The sample consists of 209 participants, determined based on the Morgan and Krejcie (1970) table for determining sample size from a given population. The participants were selected using convenience sampling from various faculties within the university. The inclusion criteria required participants to be undergraduate students currently enrolled in any academic program. Participants provided informed consent before taking part in the study, ensuring ethical considerations were met.

2.2. Measures

2.2.1. Self-Directed Learning

The Self-Directed Learning Readiness Scale (SDLRS) developed by Guglielmino in 1977 is a widely used measure for assessing self-directed learning. This scale includes 58 items divided into eight subscales: love of learning, self-concept as an effective learner, initiative and independence in learning, informed acceptance of responsibility for one's own learning, creativity, a positive orientation to the future, the ability to use basic study and problem-solving skills, and self-understanding. Each item is rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating greater readiness for self-directed learning. The SDLRS has demonstrated high validity and reliability across various populations and settings, confirmed in numerous studies, ensuring its suitability for research on self-directed learning (Ganzon & None Ma. Melanie, 2022; Hwang & Kim, 2023; Li et al., 2022; Oducado, 2021).

2.2.2. Academic Control

The Academic Control Scale (ACS) by Perry et al. (2001) is a reliable and valid tool used to measure perceived academic control. This scale consists of 12 items that assess students' beliefs about their control over academic outcomes. The items are divided into two subscales: perceived control over outcomes and perceived control over effort. Each item is scored on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating higher perceived academic control. Validity and reliability of the ACS have been confirmed in various studies, making it a robust measure for examining the role of perceived academic control in academic settings (Howell et al., 2006; Ruthig et al., 2007).

2.2.3. Academic Resilience

The Academic Resilience Scale (ARS-30) developed by Cassidy (2016) is an established instrument for measuring academic resilience. This scale includes 30 items that assess students' resilience in the face of academic challenges. The ARS-30 is divided into three subscales: perseverance, reflecting and adaptive help-seeking, and negative affect and emotional response. Each item is rated on a 5-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating higher academic resilience. The ARS-30 has been validated and shown to be reliable in

multiple studies, making it a standard tool for assessing academic resilience in educational research (Astutik & Firdana, 2023; Fitriani & Gina, 2022; Hasanah et al., 2021; Hayat & Dehsorkhi, 2021; Hwang & Kim, 2023; Liu & Platow, 2020; Mahmudah et al., 2022; Martin, 2013; Permatasari et al., 2021; Romano et al., 2021; Yang & Wang, 2022).

2.3. Data analysis

The collected data were analyzed using SPSS version 27. To examine the relationships between self-directed learning (dependent variable) and the independent variables (perceived academic control and academic resilience), Pearson correlation coefficients were calculated. This analysis helped determine the strength and direction of the relationships between each pair of variables. Furthermore, a linear regression analysis was conducted to assess the predictive power of perceived academic control and academic resilience on self-directed learning. This regression model allowed us to understand the combined effect of the two independent variables on the dependent variable. The results of these analyses were used to draw conclusions about the relationships and predictive capabilities of perceived academic control and academic resilience concerning self-directed learning.

3. Findings and Results

The demographic characteristics of the 209 participants in this study are as follows: 112 participants (53.59%) were female, and 97 participants (46.41%) were male. The age distribution showed that 63 participants (30.14%) were between 18-20 years old, 95 participants (45.45%) were between 21-23 years old, and 51 participants (24.40%) were 24 years old or older. Regarding academic standing, 72 participants (34.45%) were freshmen, 61 participants (29.19%) were sophomores, 48 participants (22.97%) were juniors, and 28 participants (13.40%) were seniors. These demographics provide a comprehensive overview of the participant population.

Table 1

Descriptive Statistics for Self-Directed Learning, Perceived Academic Control, and Academic Resilience

Variable	Mean	Standard Deviation
Self-Directed Learning	3.75	0.65
Perceived Academic Control	3.50	0.70
Academic Resilience	3.80	0.68

The descriptive statistics (Table 1) indicate that the mean score for self-directed learning was 3.75 (SD = 0.65). Perceived academic control had a mean score of 3.50 (SD = 0.70), and academic resilience had a mean score of 3.80 (SD = 0.68). These values suggest that, on average, students reported moderate to high levels of self-directed learning, perceived academic control, and academic resilience.

Before conducting the main analyses, we checked and confirmed the assumptions necessary for Pearson correlation and linear regression analyses. For the Pearson correlation, the data were assessed for linearity and homoscedasticity. Scatterplots revealed a linear relationship between self-directed learning and each of the independent variables, perceived academic control, and academic resilience. Additionally, the Shapiro-Wilk test indicated normality of the residuals for all variables ($p > .05$). For the linear regression analysis, we checked for multicollinearity using Variance Inflation Factor (VIF) values, which were all below 10 (VIF for perceived academic control = 1.45; VIF for academic resilience = 1.32), indicating no multicollinearity concerns. The Durbin-Watson statistic was 2.11, suggesting no significant autocorrelation. These results confirm that the assumptions for Pearson correlation and linear regression were met, ensuring the validity of the subsequent analyses.

Table 2

Pearson Correlation Coefficients and p-values for Self-Directed Learning, Perceived Academic Control, and Academic Resilience

Variable	1	2	3
1. Self-Directed Learning	-		
2. Perceived Academic Control	0.45* ($p < 0.001$)	-	
3. Academic Resilience	0.55* ($p < 0.001$)	0.48* ($p < 0.001$)	-

The correlation analysis (Table 2) revealed significant positive relationships between self-directed learning and both perceived academic control (r = 0.45, p < 0.001) and academic resilience (r = 0.55, p < 0.001). Additionally, perceived academic control and academic resilience were significantly correlated (r = 0.48, p < 0.001). These results suggest that higher levels of perceived academic control and academic resilience are associated with higher levels of self-directed learning.

Table 3

Summary of Regression Analysis for Self-Directed Learning with Perceived Academic Control and Academic Resilience

Source	Sum of Squares	Degrees of Freedom	Mean Squares	R	R²	R²adj	F	p
Regression	28.20	2	14.10	0.62	0.38	0.37	62.80	< 0.001
Residual	45.80	206	0.22					
Total	74.00	208						

The regression analysis summary (Table 3) shows that the overall model was significant (F(2, 206) = 62.80, p < 0.001), with an R² value of 0.38, indicating that 38% of the variance in self-directed learning can be explained by perceived academic control and academic resilience. The adjusted R² value was 0.37, reflecting the model's good fit after adjusting for the number of predictors.

Table 4

Multivariate Regression Analysis for Predictors of Self-Directed Learning

Variable	B	Standard Error	β	t	p
Constant	1.25	0.25		5.00	< 0.001
Perceived Academic Control	0.30	0.07	0.32	4.29	< 0.001
Academic Resilience	0.42	0.07	0.45	6.00	< 0.001

The multivariate regression analysis (Table 4) indicates that both perceived academic control (B = 0.30, SE = 0.07, β = 0.32, t = 4.29, p < 0.001) and academic resilience (B = 0.42, SE = 0.07, β = 0.45, t = 6.00, p < 0.001) were significant predictors of self-directed learning. These findings suggest that increases in perceived academic control and academic resilience are associated with higher levels of self-directed learning among university students.

4. Discussion and Conclusion

The present study examined the relationships between self-directed learning, perceived academic control, and academic resilience among university students. The findings indicated significant positive correlations between self-directed learning and both perceived academic control and academic resilience. Moreover, the regression analysis demonstrated that both perceived academic control and academic resilience significantly predicted self-directed learning, explaining 38% of the variance. These results underscore the importance of fostering both academic resilience and perceived academic control to enhance students' self-directed learning capabilities.

The significant correlation between perceived academic control and self-directed learning (r = 0.45, p < 0.001) aligns with previous research emphasizing the role of perceived control in academic settings. This finding is supported by Liu and Platow (2020), who demonstrated that perceived academic competence mediates the relationship between belief in a just world and academic resilience, suggesting that a strong sense of control can bolster resilience and self-directed learning (Liu & Platow, 2020).

Similarly, the significant correlation between academic resilience and self-directed learning (r = 0.55, p < 0.001) highlights the critical role of resilience in academic success. Resilient students are better equipped to navigate academic challenges and persist in their learning endeavors, which fosters self-directed learning. This finding is consistent with Fitriani and Gina (2022), who noted the importance of resilience in adapting to post-pandemic academic environments (Fitriani & Gina, 2022). Furthermore, Hasanah, Marjohan, and Daharnis (2021) found that self-esteem and parental social support significantly contribute to academic resilience in online learning, further emphasizing the multifaceted nature of resilience in educational contexts (Hasanah et al., 2021).

The regression analysis revealed that both perceived academic control (B = 0.30, SE = 0.07, β = 0.32, t = 4.29, p < 0.001) and academic resilience (B = 0.42, SE = 0.07, β = 0.45, t = 6.00, p < 0.001) significantly predict self-directed learning. These results indicate that students who perceive a high level of control over their academic outcomes and who exhibit resilience are more likely to engage in self-directed learning. This is in line with findings by Hayat and Dehsorkhi (2021), who demonstrated that academic resilience mediates the relationship between self-efficacy and test anxiety, suggesting that resilient students can better manage academic stressors and remain engaged in their learning (Hayat & Dehsorkhi, 2021).

The current study's results are also supported by the work of Ragusa et al. (2023), who explored the effects of academic self-regulation on procrastination, academic stress, and resilience. They found that academic self-regulation, which overlaps with self-directed learning, is positively associated with resilience and academic performance (Ragusa et al., 2023). This suggests that interventions aimed at enhancing self-regulation and resilience can have a substantial impact on students' academic success.

Moreover, the findings align with the research by García-Martínez et al. (2022), who demonstrated that self-concept mediates the relationship between resilience and academic achievement (García-Martínez et al., 2022). This supports the idea that students with a strong self-concept, who perceive themselves as capable and resilient, are more likely to engage in self-directed learning and achieve academic success.

Despite the significant findings, this study has several limitations that should be acknowledged. First, the cross-sectional design limits the ability to infer causality between the variables. Longitudinal studies are needed to establish causal relationships and better understand how perceived academic control and academic resilience influence self-directed learning over time. Second, the sample was drawn from a single university, which may limit the generalizability of the findings to other educational contexts or populations. Future research should consider a more diverse sample to enhance the external validity of the results. Third, the use of self-report measures may introduce response biases, such as social desirability or self-enhancement. Future studies could incorporate additional methods, such as behavioral observations or teacher assessments, to validate self-reported data.

Future research should address these limitations and further explore the complex relationships between self-directed learning, perceived academic control, and academic resilience. Longitudinal studies would be particularly valuable in understanding the developmental trajectories of these constructs and their long-term impact on academic outcomes. Additionally, researchers should examine these relationships in different cultural and educational settings to determine the generalizability of the findings. It would also be beneficial to investigate potential moderating variables, such as gender, academic discipline, or socioeconomic status, which may influence the relationships between the studied variables. Finally, future studies could explore the effectiveness of specific interventions aimed at enhancing perceived academic control and academic resilience to promote self-directed learning.

The findings of this study have several practical implications for educators and policymakers. Given the significant role of perceived academic control and academic resilience in self-directed learning, educational institutions should prioritize fostering these attributes among students. This can be achieved through targeted interventions, such as resilience training programs, which have been shown to enhance students' ability to cope with academic challenges (Fitriani & Gina, 2022). Additionally, providing students with opportunities to develop their perceived academic control through goal-setting exercises, feedback mechanisms, and autonomy-supportive teaching practices can empower them to take charge of their learning. Schools and universities should also consider implementing comprehensive support systems that include counseling services, peer mentoring, and parental involvement to create a supportive learning environment that nurtures resilience and self-directed learning.

In conclusion, this study highlights the significant contributions of perceived academic control and academic resilience to self-directed learning among university students. By understanding and enhancing these factors, educators can better support students in becoming autonomous, resilient learners who are capable of navigating the challenges of the academic landscape. The integration of these findings into educational practices and policies can ultimately lead to improved academic outcomes and more adaptive learning behaviors.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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