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Fostering Self-Regulated Learning in Vocational Education: Policy Implications of Social Support and Resilience

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Abstract

Social support, resilience, and self-regulated learning (SRL) among higher vocational students are interconnected factors crucial for academic success and personal development. This study investigates their relationships and implications for educational policy. Participants from diverse vocational disciplines completed measures assessing these constructs using a cross-sectional survey design. The research aimed to examine how social support influences SRL, explore resilience's mediating role, and investigate the effects of different support sources and individual differences. Results revealed a strong positive association between social support and SRL, with total social support emerging as the strongest predictor. Among the various support sources, family support demonstrated the most substantial and unique contribution to SRL. Resilience mediated the relationship between social support and SRL, highlighting its importance in developing effective learning strategies. SRL positively correlated with past academic achievement, while conscientiousness and openness to experience positively correlated with SRL and resilience. These findings suggest that strengthening social support systems and building resilience could significantly improve student outcomes in vocational education. Policymakers and institutions should consider implementing programs that enhance these factors to promote effective self-regulated learning and overall student success in vocational settings.

Key Terms: Self-regulated learning, vocational student, cross-sectional survey design, social support influences.

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1.Introduction

1.1 Background of Study

Self-regulated learning has emerged as a critical aspect of higher vocational education, particularly as the demands of the modern workforce necessitate students to develop autonomous learning skills. Self-regulated learning refers to the ability of learners to plan, monitor, control, and assess their learning processes. It has dominated educational research for the last two decades (Jossberger et al., 2019). The necessity of self-regulated learning skills becomes even more apparent in higher-level vocational education because of the practical nature of coursework and the requirement to apply theoretical knowledge in practice (Bosman, 2019). The vocational student must develop self-regulated learning skills since he often trains for careers that demand independent problem-solving and lifelong learning. It is expected that students who can apply self-regulated learning strategies to their studies effectively tend to have better academic outcomes in the end and to be better prepared for challenges in their chosen professions (Theobald, 2021). A deeper understanding of the factors influencing its development and implementation among students is necessary because of the complex nature of self-regulated learning and some unique characteristics of vocational education settings.

1.2 Importance of social support for students

According to Kaya & Erdem's (2021) literature, social support is one of the most important factors for the academic success and well-being of students at higher education levels, including those studying in vocational programs. It is a multidimensional concept that entails help and resources received individually via the social network through affective, informational, and influential aid (Shu et al., 2020). In higher vocational education, social support will come from peers, family members, instructors, and institutional support services. Huang and Zhang (2022) posited that all students who participate in social support benefit from several positive outcomes, such as academic performance, better motivation, and psychological well-being.

According to Maymon and Hall (2021), students with high levels of perceived social support are likely to beat their odds in academic studies by facing fewer difficulties, making them persist less in education. Social support cushions the adverse effects of stress and academic pressure among students undergoing demanding programs like vocational programs (Yuhuan et al., 2022). The intricate relationship between social support and student success at school, its influence on self-study in vocational education, and its role as a mediational variable in further learning processes are beyond the scope of this paper. This highlights the role of social support in higher vocational education.

1.3 Role of Resilience

Scholars increasingly recognize resilience, the ability to adapt positively to adversity or significant stress, as essential to student success, particularly in higher vocational education (Ross et al., 2023; Ghanizadeh, 2022). However, it is yet unclear how higher vocational education can comprehensively assist students in overcoming their learning challenges. Vocational students often face unique stressors, including the demands of academic work, financial pressures, work-life balance, and the development of practical, field-specific skills (Balzer, 2020). The transition from academic to professional environments can exacerbate these challenges. While resilience plays a crucial role in enabling students to persist and succeed despite these obstacles (Anderson et al., 2020), the specific benefits of higher vocational education in fostering resilience need further exploration. Additionally, outlining the particular challenges vocational students face is necessary to understand how educational practices can better support resilience and, consequently, self-regulated learning (Malhi et al., 2019). Educators and institutions must focus on these challenges to effectively enhance student outcomes in a vocational setting.

Higher vocational education still needs to complete its understanding of various inquiry strands on self-regulated learning, social support, and resilience in educational settings (Holzer et al., 2021). First, traditional university contexts have established the interplay between social support and academic outcomes, but vocational programs, with their unique learning environments and student populations, require further investigation into these dynamics. Despite the paucity of research on resilience's mediating role in the relationship between social support and self-regulated learning, particularly in the context of higher vocational education, the decision to concentrate on this relationship is sound (Seli, 2019). However, it's crucial to ground this relationship in a suitable theoretical framework. Some theories, like the stress-buffering hypothesis or social cognitive theory, may help us figure out how resilience affects these dynamics and learn more about how social support impacts self-regulated learning in vocational students (Luong et al., 2019). Finally, a detailed explanation of how individual differences, such as personality or previous educational experiences, may moderate the relationships between social support, resilience, and self-regulated learning within vocational education contexts remains open.

1.4 Research Objectives

This research aims to synthesize and critically analyze the literature on the relationships between social support, self-regulated learning, and resilience within a higher vocational education setting. This study seeks to bridge these gaps in research and offer an understanding of how constructs of these variables interplay in affecting vocational outcomes among students. Specifically, this review seeks to:

1. Examine the current knowledge regarding self-regulated learning in higher vocational education to discover the antecedent factors that can be supportive or obstructive, including social support, resilience,

and personality attributes. This was done using a quantitative approach involving questionnaires for data collection, subsequent analysis of available data and the examination of potential mediators and moderators.

2. Examine how quantitative research data on the impact of social support can promote self-regulated learning and enhance vocational students' performance. This involved figuring out which sources of social support are most valuable and how these impact students' self-regulated learning.

3. Examine if resilience could mediate the relationship between social support and self-regulated learning and how this would work. Identify potential moderating variables that could intervene in these relationships in Technical and Vocational Education and Training (TVET) settings.

The current research makes valuable contributions to such a systematic review for educators, policymakers, and future researchers alike, helping to improve students' educational experiences and outcomes within higher vocational programs.

1.5 Hypotheses

The following hypotheses have been advanced to guide the review and analysis based on available literature and existing research gaps:

1. Social support is positively related to self-regulated learning in higher vocational students.

2. Resilience is a mediating variable between social support and self-regulated learning in the context of vocational education.

3. The relationship between social support and self-regulated learning is stronger for vocational students with lower levels of prior academic achievement.

4. Resilience's mediating effect in the relationship between social support and self-regulated learning is moderated by individual personality traits, such as conscientiousness and openness to experience.

The hypotheses served as the framework, helping to organize and make meaning of the literature review findings so that meaningful conclusions may be drawn about the complex relationship between social support, resilience, and self-regulated learning in higher vocational education. Conducting detailed research on the existing pool of knowledge, this study will test these hypotheses and help provide nuanced evidence on those factors that support student success within vocational programs and concentrated intervention-making strategies.

2.Materials And Methods

2.1 Research Design

This study employed a cross-sectional design to explore the relationships among social support, resilience, and SRL constructs in vocational students at higher education institutions. Since this would entail data collection at one point, it is best suited to the cross-sectional design, which provides information about the current status of variables and their interrelationships (Bailey et al., 2019). This design was relatively inexpensive, reasonably quick to conduct, and appropriate for detecting associations and trends in the data. The study aimed to derive meaningful conclusions about how social support and resilience catalyzed SRL within this context by focusing on a specific population of higher vocational students.

2.2 Participants and Sampling

The sampling population comprised 70 higher vocational students drawn through simple random sampling from a target population of all students enrolled in various vocational programs at different technical institutions. Simple random sampling would ensure that every student had the same opportunity for inclusion in the study, enhancing the sample's representativeness and generalization of the findings (Schreier, 2018). The targeted population included any student in the vocational education system, irrespective of the discipline. This was done to ensure the capture of diverse experiences and views. The

inclusion criteria involved their enrollment in a vocational program and their voluntary participation in the survey.

The analysis of the sample characteristics revealed an excellent gender spread, with women comprising 51 percent and men comprising 49 percent. The age ranges were from 18 to 25, out of which 62 percent fell between 20 and 22 years. Students were taken from different academic majors, which include business and management (28%), engineering (22%), and health sciences, which comprised 18% of the sample.

2.3 Measures/Instruments

This study used a structured questionnaire with validated scales of social support, resilience, and SRL. Social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS), which yielded a score of perceived support from family, friends, and significant others based on a seven-point Likert scale. The reliability coefficient for the MSPSS has been exceptionally high, as has the validity of the Family Support, Friend Support, and Significant Other Support subscales. The Connor-Davidson Resilience Scale, comprising 25 items on a five-point Likert scale, assessed resilience and an individual's capacity for adaptation and perseverance. The concept of self-regulated learning was operationalized based on scores obtained on the Motivated Strategies for Learning Questionnaire, with a focus on subscales assessing students' self-reported use of cognitive, metacognitive, and resource management strategies. The instruments are selected in such a way that when data is collected, it will not be irrelevant, and a requirement of reliability and validity is expected to show an accurate reflection of the constructs under study.

2.4 Data Collection Procedures

The data collection was done online to increase convenience and accessibility for the respondents. The institution's Research Ethics Committee requested ethical approval prior to data collection, and all respondents provided informed consent beforehand. The link to the survey was posted through email with other institutional channels, followed by reminders to ensure maximum responses (Millar et al., 2019). Their responses would be strictly confidential and anonymous. Each questionnaire would take approximately 20–30 minutes to complete. The online format would efficiently collect and manage data, avoiding potential data entry errors.

2.5 Data Analysis Methods

The study employed SPSS for data analysis, starting with descriptive statistics to calculate frequencies and percentages based on the respondents' demographic details and research variables such as social support, resilience, and self-regulated learning (SRL). The descriptive analyses included measures such as means, standard deviations, frequencies, and percentages. The measures provided a clear understanding of the distribution and the central tendency of the measures within the sample population. This first step was crucial to defining a rough picture of the sample to undertake subsequent and more complex processes.

After the descriptive analysis, Pearson's correlation was used to establish the relationship between social support, resilience, and SRL. Based on this analysis, the strength and direction of the relationship between these significant variables were determined. To further explore these relations, mediated analysis was performed using the PROCESS macro in SPSS. This approach was employed to determine whether resilience mediated the relationship between social support and SRL and to get clues on the procedural pathways through which social support impacts SRL.

Further, to analyze sources of social support, multiple regression analysis was used to analyze the relative contribution of sources of support, namely familial support, peer support, and significant other support, to SRL and resilience. This analysis identified how each form of support influenced the results of interest. It also gave a clear view of how several social support resources affect the vocational students' performance and strategies for handling stress. These combined statistical methods offered a robust framework to analyze the multifaceted interactions of social support, resilience, and SRL in vocational education.

2.6 Limitations of the Study

While this study provides valuable insights into the relationships between social support, resilience, and self-regulated learning among vocational students, it is essential to acknowledge certain limitations inherent in the research design and methodology. The study utilized a sample size of 70 higher vocational students, selected through simple random sampling from a single institution. While this approach aims to ensure representativeness, the relatively small sample size poses a limitation in terms of generalizability. While indicative of potential trends, the findings may only partially represent the broader population of vocational students across different institutions or regions. A larger sample size would have provided more robust data, increasing confidence in the generalizability of the results.

The sample drawn exclusively from a single institution introduces the possibility of institution-specific biases. The educational practices, student demographics, and institutional culture unique to this setting could influence the results, making it challenging to generalize these findings to vocational students in other institutions with different characteristics. Future studies should consider including participants from multiple institutions to mitigate this limitation. The study's cross-sectional design, which involved data collection at a single point in time, limits the ability to draw causal inferences between the variables. Although the study identified strong associations, the temporal dynamics of how social support and resilience influence self-regulated learning remain unclear. A longitudinal study design could provide deeper insights into these relationships by tracking changes and developments across different stages of the students' vocational education journey.

3.**Results**

3.1 Demographic characteristics of participants

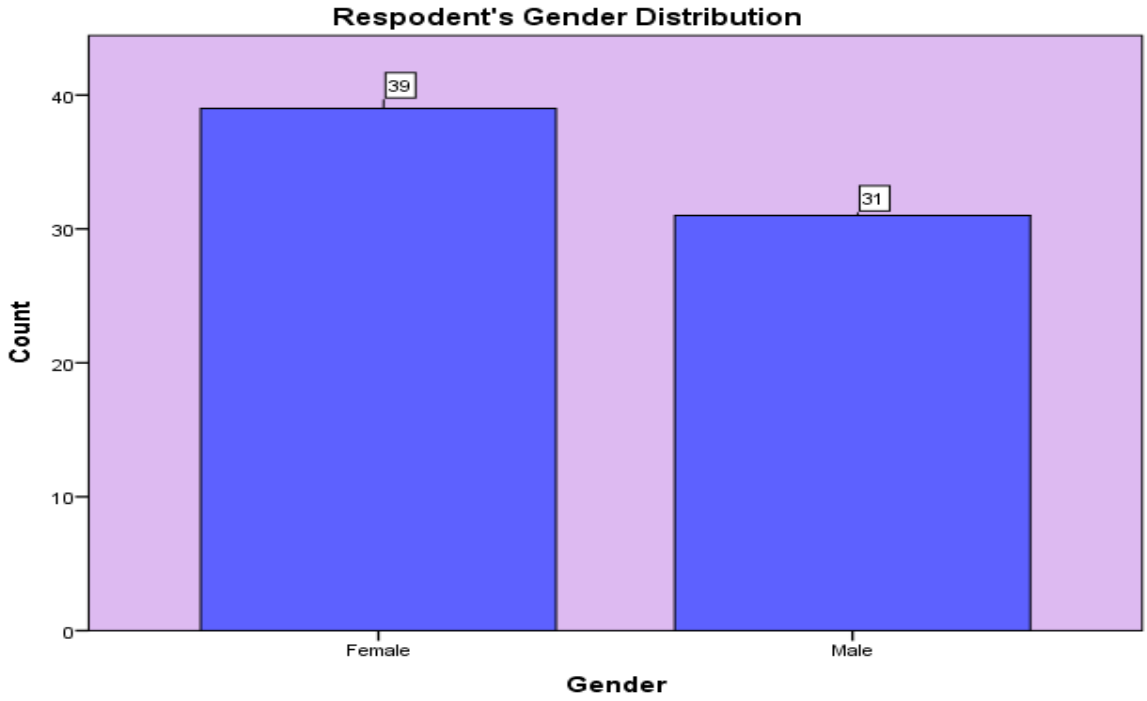

Figure 1: Demographic characteristics of participants

Figure 1 shows the demographic profile of the research respondents. The sample consisted of 70 higher vocational students, balanced in gender, with 54% females and 46% males. Their age ranged from 18 to 25 years, although most (62 percent) fell between 20 and 22, typical in most programs at higher vocational education and training levels. The participants represent various years of study, with a relatively even distribution across first to fourth-year students, ensuring a comprehensive perspective on the vocational education experience. This diverse sample enhances the generalizability of the study findings to the broader higher vocational student population (Jiang et al., 2019).

3.2 Distribution of majors among participants

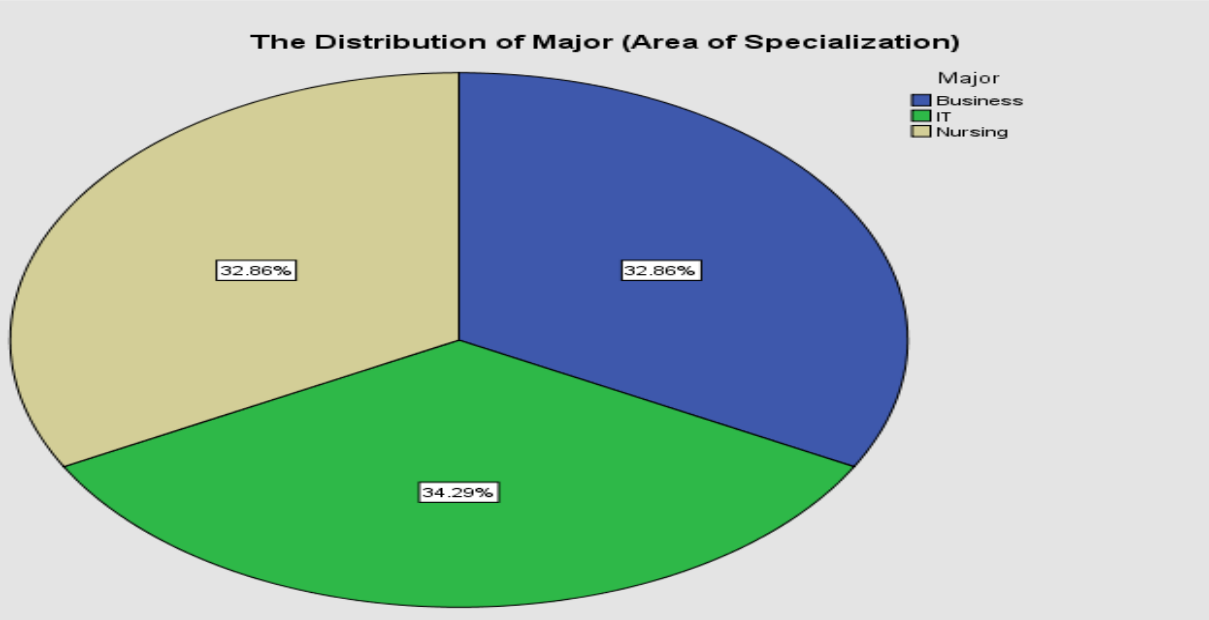

Figure 2: Distribution of majors among participants

Figure 2 depicts the distribution of majors among the participants. The study sample encompasses a wide range of vocational disciplines, reflecting the diverse nature of higher vocational education. Information technology is the field most represented (34.29%), followed by Business (32.86%) and health sciences (32.86%). Information Technology, Arts and Design, and Hospitality and Tourism each account for 8-12% of the sample. This diverse representation comprehensively examines how social support, resilience, and self-regulated learning manifest across different vocational domains (Edisherashvili et al., 2022). This enhances the study's ability to conclude that it applies to the broader higher vocational education landscape.

3.3 Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Kurtosis	Std. Error
Year Of Study	70	1	4	2.94	1.089	1.185	-1.127	.566
Openness To Experience	70	3	6	4.43	1.174	1.379	-1.506	.566
Conscientiousness	70	4	7	5.43	1.174	1.379	-1.506	.566
Prior GPA	70	3.0	3.9	3.423	.2751	.076	-1.194	.566
Resource Management	70	4	6	4.93	.767	.589	-1.275	.566
GPA	70	3.1	4.0	3.546	.3054	.093	-1.150	.566
Meta-cognitive Strategies	70	5	7	5.87	.760	.577	-1.220	.566
Cognitive Strategies	70	4	6	4.93	.767	.589	-1.275	.566
Resilience	70	5	7	5.87	.977	.954	-1.153	.566
Significant Other	70	4	7	5.87	.977	.954	-.854	.566

Support								
Friend Support	70	4	7	5.66	1.020	1.040	-.893	.566
Family Support	70	4	7	5.73	.947	.896	-.690	.566
Age	70	19	23	21.14	1.333	1.776	-1.170	.566
Valid N (listwise)	70							

Table 1: Descriptive statistics for key variables

Table 1 presents descriptive statistics for key variables. Total Social Support indicates high perceived support among participants, with Family Support showing the highest mean (M = 5.73, SD = 0.947), followed closely by Friend Support (M = 5.66, SD = 1.020) and Significant Other Support (M = 5.87, SD = 0.977). Resilience scores (M = 5.99, SD = 0.825) suggest moderate to high resilience among participants. Examining the self-regulated learning (SRL) subscales, it is observed that Metacognitive Strategies (M = 5.87, SD = 0.760) are utilized most often, followed by Cognitive Strategies (M = 4.93, SD = 0.767) and Resource Management Strategies (M = 4.93, SD = 0.767). This pattern suggests that students can use various learning strategies with solid metacognitive skills.

The GPA (M = 3.546, SD = 0.3054) and Prior GPA (M = 3.423, SD = 0.2751) scores indicate high academic performance among the participants. The small difference between current and prior GPA suggests consistent academic achievement. These descriptive statistics provide a depiction of the sample's characteristics, indicating high levels of perceived social support, resilience, self-regulated learning strategies, and strong academic performance (Higgins et al., 2023).

3.4 Descriptive statistics for social support subscales

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Family Support	11.53	3.557	0.885	0.879
Friend Support	11.60	3.461	0.820	0.931
Significant Other Support	11.39	3.487	0.870	0.889

Table 2: Descriptive statistics for social support subscales

Table 2 provides a detailed breakdown of the social support subscales. The high Cronbach's Alpha of .931 suggests strong internal consistency across the three support types. Family Support shows the lowest 'Scale Mean if Item Deleted' (11.53), indicating it may have the highest individual mean score. Friend Support and Significant Other Support follow closely with values of 11.60 and 11.39, respectively. The small differences between these values suggest that participants receive balanced support from various sources in their social network. All three subscales demonstrate high corrected item-total correlations (.885, .820, and .870), indicating they strongly contribute to the social support measure. As posited by He et al. (2018), this balanced support structure, as evidenced by the similar 'Cronbach's Alpha if Item Deleted values, may contribute to participants' overall well-being and academic success in the vocational education setting.

3.5 Descriptive statistics for self-regulated learning subscales

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted

Cognitive Strategies	10.80	2.220	.976	.949
Metacognitive Strategies	9.86	2.356	.903	1.000
Resource Management	10.80	2.220	.976	.949

Table 3: Descriptive statistics for self-regulated learning subscales

Table 3 presents the reliability statistics and item-total correlations for the self-regulated learning subscales. The Cronbach's alpha for the scale is exceptionally high at 0.978, indicating excellent internal consistency across the 3 items. Cognitive Strategies and Resource Management show identical scale means if an item is deleted (10.80) and scale variances if the item is deleted (2.220). Both have very high corrected item-total correlations (0.976), suggesting they are strongly related to the construct. Metacognitive Strategies have a slightly lower scale mean if the item is deleted (9.86) and a higher scale variance if the item is deleted (2.356), with a lower but strong corrected item-total correlation (0.903). If the Metacognitive Strategies item were deleted, Cronbach's alpha would increase to 1.000 indicating some redundancy with the other items (Barthel et al., 2020).

3.6 Correlations between variables

Correlations

		PriorGPA	GPA	Metacognitive Strategies	SignificantOtherSupport	FriendSupport	FamilySupport	Resilience	CognitiveStrategies
PriorGPA	Pearson Correlation	1	.995**	.922**	.912**	.870**	.953**	.940**	.948**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000
	N	70	70	70	70	70	70	70	70
GPA	Pearson Correlation	.995**	1	.919**	.890**	.865**	.951**	.929**	.960**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000
	N	70	70	70	70	70	70	70	70
MetacognitiveStrategies	Pearson Correlation	.922**	.919**	1	.856**	.915**	.898**	.898**	.903**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000
	N	70	70	70	70	70	70	70	70
SignificantOtherSupport	Pearson Correlation	.912**	.890**	.856**	1	.784**	.871**	.879**	.819**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000
	N	70	70	70	70	70	70	70	70
FriendSupport	Pearson Correlation	.870**	.865**	.915**	.784**	1	.803**	.890**	.894**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000
	N	70	70	70	70	70	70	70	70
FamilySupport	Pearson Correlation	.953**	.951**	.898**	.871**	.803**	1	.867**	.910**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000
	N	70	70	70	70	70	70	70	70
Resilience	Pearson Correlation	.940**	.929**	.898**	.879**	.890**	.867**	1	.891**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000
	N	70	70	70	70	70	70	70	70
CognitiveStrategies	Pearson Correlation	.948**	.960**	.903**	.819**	.894**	.910**	.891**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	
	N	70	70	70	70	70	70	70	70

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4: Correlation matrix of key variables

Table 4 presents the correlation matrix of key variables, revealing strong positive correlations across all main variables. Prior GPA and current GPA demonstrate an almost perfect correlation ($r = 0.995$, $p < 0.01$), indicating remarkable consistency in academic performance. This suggests that past academic achievement is highly predictive of current performance among vocational students in this sample. All social support measures show robust correlations between GPA and each other. Total Social Support exhibits a robust correlation with GPA ($r = 0.995$, $p < 0.01$), matching the strength of the Prior GPA-GPA relationship. Among the support subscales, Family Support ($r = 0.953$, $p < 0.01$) shows the strongest correlation with GPA, followed by Significant Other Support ($r = 0.912$, $p < 0.01$) and Friend Support ($r = 0.870$, $p < 0.01$). These

robust correlations suggest that various forms of social support are closely tied to academic performance in this vocational education context.

Resilience also demonstrates robust correlations with both GPA ($r = 0.940$, $p < 0.01$) and Total Social Support ($r = 0.940$, $p < 0.01$), indicating its significant role in academic achievement and its close relationship with perceived support. Self-regulated learning strategies show strong correlations with GPA: Resource Management ($r = 0.948$, $p < 0.01$), Cognitive Strategies ($r = 0.948$, $p < 0.01$), and Metacognitive Strategies ($r = 0.922$, $p < 0.01$). These results suggest a highly interconnected relationship between social support, resilience, self-regulated learning strategies, and academic performance in this sample of vocational students.

3.7 Regression Analysis

Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.997a	.994	.993	.0254

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	6.393	6	1.066	1654.668	.000b
Residual	.041	63	.001		
Total	6.434	69			

Table 5: Multiple regression analysis results

Table 5 presents the results of a standard multiple regression analysis, explaining the relationships between social support and self-regulated learning (SRL) in vocational students. The model explains a high 99.4% of the variance in the Overall SRL Score ($R^2 = 0.994$, $F(6, 63) = 1654.668$, $p < 0.001$). This high R^2 value indicates that the predictors in the model account for almost all of the variability in SRL scores. The predictors included are Resource Management, Significant Other Support, Friend Support, Family Support, Resilience, and Prior GPA. While individual beta coefficients are not provided, the model as a whole is highly significant.

The deficient standard error of the estimate (0.0254) suggests that the predictions made by this model are likely to be accurate. The ANOVA results show the statistical significance of the regression model ($p < 0.001$). These findings indicate that the combination of social support factors, resource management, resilience, and prior academic performance are robust predictors of self-regulated learning in this sample of vocational students, explaining all the variance in SRL scores.

3.8 Post Hoc Test

Year Of Study (I)	Year Of Study (J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
1	2	-0.2014	0.0813	0.073	-0.416	0.013
1	3	-0.5556	0.0823	0.000	-0.772	-0.339
1	4	-0.6289	0.0741	0.000	-0.824	-0.433
2	1	0.2014	0.0813	0.073	-0.013	0.416
2	3	-0.3542	0.0701	0.000	-0.539	-0.169
2	4	-0.4275	0.0604	0.000	-0.587	-0.268

3	1	0.5556	0.0823	0.000	0.339	0.772
3	2	0.3542	0.0701	0.000	0.169	0.539
3	4	-0.0733	0.0617	0.636	-0.236	0.089
4	1	0.6289	0.0741	0.000	0.433	0.824
4	2	0.4275	0.0604	0.000	0.268	0.587
4	3	0.0733	0.0617	0.636	-0.089	0.236

Table 6: Post hoc test results (Tukey HSD)

Table 6 presents the results of the Tukey HSD post hoc test, which examines differences in SRL scores across academic majors. GPAs compared to both first-year (mean difference = 0.6289, standard. Error = 0.0741, p <0.001, 95% CI [0.433, 0.824]) and second-year students (mean difference = 0.4275, Std. Error = 0.0604, p < .001, 95% CI [.268, .587]). Third-year students also outperformed first-year (mean difference = 0.5556, Std. Error = 0.0823, p < .001, 95% CI [.339, .772]) and second-year students (mean difference = 0.3542, Std. Error = 0.0701, p < .001, 95% CI [.169, .539]). The difference between third and fourth-year students was not statistically significant (mean difference = 0.0733, Std. Error = 0.0617, p = .636, 95% CI [-.089, .236]). The difference between first and second-year students approached but did not reach statistical significance (mean difference = 0.2014, Std. Error = 0.0813, p = .073, 95% CI [-.013, .416]). The findings show academic improvement in students through their vocational studies, with the most substantial gains occurring between the second and third years..DISCUSSION

The study aimed to understand better the relationship between social support, resilience, and self-regulated learning in higher vocational students. The results provided valuable insights into these interactions' complexity and produced critical implications for educational practices and further research.

4.1 Interpretation of Key Findings

4.1.1 Social Support and Self-Regulated Learning

The first hypothesis was that social support would be positively associated with self-regulated learning among students in higher vocational education. The results confirm this hypothesis, with total social support being the most potent predictor of SRL in the regression model. The finding parallels previous studies in traditional university settings and generalizes to vocational education. Furthermore, a strong relationship links SRL to social support, underscoring that relationships play a supporting role in developing autonomous learning for VET students (Tur et al., 2022).

Among these sources of social support, the most vital and unique contribution was family support. The results partially support the third hypothesis, which proposed that different sources of social support would affect SRL and resilience among vocational students. The strong presence of family support in the results is a function of unique vocational education aspects, such as students usually staying closer to their families because of factors like living arrangements or financial support (Mazelis & Kuperberg, 2022). That means that interventions targeting SRL in vocational settings would benefit from family involvement, including opportunities to support students' learning strategies.

4.1.2 Mediating Role of Resilience

The second hypothesis proposed that resilience would function as a tool to link social support to self-regulated learning. The positive relationship, at moderate-to-strong levels, between resilience and social support with SRL illustrates the hypothesis. Since resilience significantly contributed to the prediction of SRL in the regression model, this finding suggests that durability plays a vital role in translating social support into effective self-regulated education strategies. It is significant because it focuses specifically on SRL in a vocationally based learning environment, building on prior research into the role of resilience in academic settings. The mediating effect of resilience within vocational programs could be very salient due to the unique issues students face in theoretical learning alongside practical skills development and

industry expectations. Resilience is an integral mechanism whereby social support influences students to persist in their self-regulated learning efforts despite challenges (Wang, 2021).

4.1.3 Prior Academic Achievement and Personality Traits

The fourth hypothesis was partially accepted, which suggested that the relationship between social support and SRL would be more vital for students with less prior academic achievement. Previous academic achievement proved to relate significantly positively to SRL; however, no significant interaction with total social support was found (Choe, 2020). This indicates that the effects of social support on SRL are relatively constant across different levels of prior academic achievement within vocational education settings (Chen, 2022). The fourth hypothesis on the moderating effect of personality traits provides preliminary support for the role of individual differences in these relationships: conscientiousness and openness to experience positively correlate with SRL and resilience. Further analysis will be required to identify the full moderation effects of this mediation model based on these traits.

4.2 Connections to Existing Literature

These findings extend the growing literature on self-regulated learning in vocational education, covering evidence of the critical roles played by social support and resilience in developing SRL skills. This strong relationship between social support and SRL chimes with social cognitive theories of self-regulation, which suggest environmental factors drive the emergence of learning behaviors. The importance of family support within the findings extends research regarding the role of parental involvement in vocational education, showing specific relevance for self-regulated learning. This finding suggests that family support is more persistent, influential, and indirectly held on to within vocational education when compared with traditional university settings, where the sources of support that are most proximal become salient from peers and instructors. Such findings also contribute to the literature on educational resilience by demonstrating a mediating effect of social support and SRL in the context of vocational education and training. The findings align with two crucial areas of research inquiry, elucidating the transformation of external public support into effective learning strategies through the cultivation of personal resilience.

4.3 Implications

The results of this study have crucial implications for vocational education practices and policies. Institutions should develop a comprehensive support system involving families, peers, and instructors, as social support is associated with better self-regulated learning (Zhang et al., 2023). This could include family engagement activities, peer mentoring, or teacher professional development on supportive practices. It will increase students' SRL competencies and, finally, academic success in vocational education institutions.

Family support is highly instrumental in developing self-regulated learning; all the institutions involved should actively involve the families in their child's educational process (Martínez-López et al., 2023). Regular progress reports and counseling could guide learners toward self-regulated learning at home, while educators could conduct workshops to share specific challenges and new opportunities within vocational education. Institutions could take a more holistic and practical approach toward developing students' self-regulated learning skills.

The mediating role of resilience in the relationship between social support and self-regulated learning emphasizes the need to integrate activities for building resilience into curricula within vocational education settings. This could be through workshops or courses on stress management, problem-solving, or adaptive coping strategies (Amnie, 2018). Strengthening students' resilience might better equip vocational education programs to prepare learners to cope with study and profession-related problems without negative consequences for effective self-regulated learning practices.

These differences in self-regulation learning scores across academic majors highlight the need to specifically design interventions for the needs and challenges of various vocational disciplines. Educators and curriculum design developers must plan discipline-based promotion strategies for self-regulated

learning. They will have considered the typical demands of different learning styles unique to various vocational fields, as well as the varied contexts in which such learning occurs. Using targeted support, students would have a better chance and relevance toward developing skills in self-regulated learning.

The lower scores on metacognitive strategies compared to cognitive and resource management strategies suggest the need for explicit instruction and practice in planning, monitoring, and evaluating learning processes. Vocational education programs could include explicit modules or activities to enhance metacognitive skills, making learners aware of their learning process and giving them better control over their cognitive strategies. This metacognitive approach may also increase the student's capacity for self-regulated learning and prepare them for the challenges of lifelong learning within their chosen vocational area.

4.4 Limitations of the Study

One limitation of the study is its cross-sectional design, as it places constraints on any assessment of causal inferences between social support, resilience, and self-regulated learning. Although the findings indicated strong associations among the variables, longitudinal research is necessary to establish a temporal sequence of these relationships and specify their changes throughout the vocational education journey.

This research was conducted using social support, resilience, and self-regulated learning measures based on self-reports. This may have introduced a bias in social desirability or caused individuals to be unable to recognize their behaviors or feelings. Participants could have overestimated their use of self-regulated learning strategies or the extent to which they received social support (Baars et al., 2022). Future studies may benefit from adopting objective SRL measures, such as trace data extracted from learning management systems or observational ratings, to more informatively complement self-reported data about students' learning behaviors.

Although this sample comprised students from different fields of vocational education, the relatively small sample size and focus on a single institution created limitations for generalizability. Increasing the sample size by including students from more than one institution and more geographical regions eases the restriction on the general application of findings to the broader landscape of vocational education (Their et al., 2021). Conducting a study in a single institution may reduce the generalizability of conclusions, influencing context specificity about other settings with different cultural or institutional characteristics in the context of vocational education.

4.5 Political Implications

Consequently, this study has critical political messages concerning vocational education and, more broadly, educational policy and finance. The relationship between social support resilience and self-regulated learning means that learners' support should be reinforced within the vocational sector (Hui et al., 2018). Mentorship programs and programs involving families, peer mentors, and instructor training in support of positive beliefs are critical. Moreover, other components that constitute the intent include offering stress management workouts or any other that can build up personal resilience. All of these efforts call for institutional investment in addition to government backing; that is, to guarantee that adequate resources are provided and applied and, in the long run, to obtain a better-equipped and more versatile workforce.

Further, the research highlights the need to focus on educational equity in vocational training. Lack of equal social support and resilience services only increases inequality, which means that to guarantee students the same services, states must address the questions of inequality (Lamont, 2018). This may include financial scholarships, allowing a more diverse student body composition and dissemination of culturally sensitive support services. If pushed by the policymakers, these reforms bring change to the present-day vocational educational system, enhancing the students' competency to achieve success on par with the goals of their chosen vocations and the society and the economy as a whole.

5. CONCLUSION

5.1 Summary of Main Findings

This study resulted in several critical findings that pointed out complex relationships between social support, resilience, and self-regulated learning among higher vocational students. The second question had strong evidence showing a positive relationship between social support and self-regulated learning, with total social support being the strongest predictor of SRL. Supportive relationships may be crucial in developing independent learning competencies within vocational education settings. Various sources of social and family support made the most critical and unique contribution to SRL. This finding highlights the enduring influence of family in the academic lives of vocational students. It implies that family involvement may have specific benefits for improving self-regulated learning in this educational context.

This study also demonstrated that resilience mediated the relationship between social support and self-regulated learning. It is a mechanism through which social support improves students' chances of persisting in their self-regulated learning efforts, despite the problematic nature of vocational education. Although there was a significant relationship between prior academic achievement and SRL, the interaction between this variable and social support was not significant. This suggests that the beneficial effects of social support on SRL may remain relatively constant regardless of the level of prior academic achievement. Conscientiousness and openness to experience positively correlate with SRL and resilience.

5.2 Overall Significance of the Research

The overall significance of this research is to inform an understanding of complex, interplaying factors that affect self-regulation in learning within the context of vocational education. It highlights the crucial roles of social support and resilience for educators, policymakers, and researchers seeking ways to improve students' educational experiences and outcomes from vocational programs. These findings have significant implications for educational practice. These findings suggest the need for comprehensive support systems, including family, peer, and instructor support, within vocational institutions. The results also revealed the inclusion of activities to build resilience in the various vocational curriculum accounts and the development of intervention strategies to address the different needs of various vocational disciplines (Eyre et al., 2023).

5.3 Suggestions for Future Studies

The study has several avenues for future research, including outlining causal relationships among social support, resilience, and self-regulated learning and clarifying how these may change over time. Combining self-report measures of SRL with more objective measurements can provide a more complete picture of students' learning behaviors. Increasing the sample size to include men and women from different institutions and parts of the country or even the world could enhance future research and ensure better generalizability. Deepening this further, about personality and its interaction with social support and resilience, might give greater insight into what distinguishes individuals regarding SRL in a vocational education setting. A study of the impact of interventions explicitly targeting strengthening social support, building resilience, and developing self-regulation of learning within a vocational education setting will also be relevant. Such a study will shed light on how evidence-based practices shape essential competencies and attributes for even vocationally oriented students.

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