TPM Vol. 33, No. 1, 2026
ISSN: 1972-6325
https://www.tpmap.org/

THE RELATIONSHIP BETWEEN SELF-REGULATED LEARNING STRATEGIES AND THE SELF-EFFICACY PROFILES OF FIRST YEAR COLLEGE STUDENTS IN NANCHANG

JINCHENG JI
DOCTOR PROGRAM IN EDUCATIONAL STUDIES, SURYADHEP TEACHERS COLLEGE, RANGSIT UNIVERSITY, THAILAND, EMAIL: JINCHENG.J65@RSU.AC.TH ORCID: 0009-0003-0672-4157

MALIVAN PRADITTEERA
SURYADHEP TEACHERS COLLEGE, RANGSIT UNIVERSITY, THAILAND
EMAIL: MALIVAN@RSU.AC.TH, ORCID: 0000-0001-8429-3549

PANIDNAD CHULERK
ASSISTANT PROFESSOR PHD, SURYADHEP TEACHERS COLLEGE, RANGSIT UNIVERSITY, THAILAND,EMAIL: PANIDNAD.C@RSU.AC.TH, ORCID: 0009-0001-6739-6930

Abstract
The transition to university demands self-directed learning, making Self-Regulated Learning (SRL) strategies and academic self-efficacy critical for first-year student success. However, the specific relationship between these factors among students in Nanchang, China, remains underexplored. This study aimed to: 1) identify the types and frequency of SRL strategies used by first-year college students in Nanchang, 2) examine the relationship between SRL strategies and self-efficacy, and 3) develop guidelines for integrating SRL into university curricula. A mixed-methods approach was employed. Quantitative data were collected from 427 first-year students via a stratified random sample, using a validated SRL strategies questionnaire and the General Self-Efficacy Scale. Qualitative data were gathered through semi-structured interviews with 10 purposively selected students. Students demonstrated a moderate level of SRL strategy use. Resource and Environmental Management was most frequent, while Social and Help-Seeking was least used. A significant positive correlation was found between all SRL dimensions and self-efficacy ($r=0.529$, $p<0.01$). Regression analysis identified Motivational Strategies, Social and Help-Seeking, and Resource Management as significant predictors, explaining 29.3% of the variance in self-efficacy ($R^2=0.293$). Notable disparities in SRL use and self-efficacy were observed across academic disciplines and age groups, with social science and engineering students and older students (aged 21+) reporting higher proficiency. SRL strategies, particularly those related to motivation, social support, and resource management, are strongly linked to the academic self-efficacy of first-year students. The findings underscore the need for universities to implement structured, discipline-specific SRL training and support systems, integrated early into the curriculum, to foster academic confidence and success.

Keywords: Self-Regulated Learning Strategies, Self-Efficacy Profiles, First-Year College Students.

INTRODUCTION

From 2019 to 2022, the COVID-19 pandemic disrupted health, education, economies, and transportation worldwide (Siripipatthanakul et al., 2023). In education, schools rapidly shifted to online teaching platforms due to travel restrictions (Daniel, 2020). While online learning enabled continuity, it also revealed challenges such as reduced supervision, placing greater responsibility on students to engage in self-regulated learning (SRL) (Imran et al., 2023). Some students adapted well, but many struggled due to poor study habits. As higher education increasingly emphasizes autonomy and personal development, SRL—encompassing goal setting, time management, and self-monitoring—has become
essential for fostering both academic success and broader skills (Anthonysamy, Koo & Hew, 2020; El-Adl & Alkharusi, 2020).

Self-regulated learning (SRL) strategies enable learners to plan, monitor, and reflect on their learning, fostering autonomy, motivation, and effective study habits (Ben-Eliyahu, 2019; Zumbrunn, Tadlock & Roberts, 2011). When combined with strong self-efficacy, SRL enhances persistence and academic success (Raković et al., 2022). Research confirms its effectiveness: Zimmerman (2002) showed SRL improves outcomes and resilience, while Pintrich and De Groot (1990) found positive links with motivation and achievement. However, SRL is not innate, and many first-year students struggle with its demands, leading to challenges such as anxiety, poor time

management, and reduced efficiency (Wang et al., 2024).

TPM Vol. xx, No. x, March 20yy – 5-23 – doi: 10.4473/TPM31.1.1 – © 2024 Cises

Self-efficacy, rooted in Bandura's social cognitive theory, refers to one's belief in their ability to succeed in specific tasks or situations (Farmer, Xu & Dupre, 2022). In education, it strongly influences motivation, persistence, and achievement, with research showing significant links to academic performance, learning motivation, and adaptability (Marlina et al., 2024). For first-year students, who often face new academic and personal challenges, cultivating self-efficacy is vital to building confidence, sustaining effort, and effectively adjusting to the university environment (Quackenbush, 2020).

First-year college students often struggle to adapt as they transition from the highly supervised environment of high school to the more autonomous demands of university life (Yukhymenko-Lescroart & Sharma, 2023). During this critical stage, SRL strategies and self-efficacy play a central role in supporting academic success, motivation, and adaptation (Moghadari-Koosha et al., 2020). Research shows that effective use of SRL strategies—such as goal-setting, monitoring, and reflection—not only improves learning outcomes but also strengthens students' confidence and belief in their abilities (Zimmerman & Kitsantas, 2005). In China, where students often enter university with limited autonomy due to a more teacher-centered education system, many freshmen face challenges with time management, motivation, and adaptability (Xiaoyan & Samu, 2024). In Nanchang, these challenges are especially evident, making SRL strategies an important buffer that can enhance self-efficacy and help students manage the pressures of higher education (Jin, 2025).

Although SRL and self-efficacy are widely recognized as vital to academic success, little research has explored their relationship among first-year college students in Nanchang. This study addresses that gap by examining how SRL strategies influence students' self-efficacy profiles, using a mixed-methods approach to analyze correlations between strategy use and confidence in learning. The findings aim to guide universities in designing targeted interventions that strengthen SRL skills, enhance self-efficacy, and support students' adjustment to college life.

RESEARCH OBJECTIVES

1. To identify the types and frequency of self-regulated learning strategies adopted by first-year college students in Nanchang.
2. To examine the relationship between self-regulated learning strategies and self-efficacy among these students.
3. To develop guidelines for integrating SRL strategies into university curricula to enhance self-efficacy and support academic adaptation.

LITERATURE REVIEW

1. Self-Regulated Learning (SRL) Strategies

Self-regulated learning (SRL) is a learner-centered approach in which students take responsibility for their own learning through activities such as reading, research, and practice, free from external control or interference (Anthonysamy, Koo & Hew, 2020). In modern education, SRL places schools at the core of learning, supported by families and society, with educators guiding students to develop knowledge, character, health, creativity, and essential life skills. By fostering autonomy, SRL equips learners with the qualities needed to adapt, communicate, and thrive in contemporary society (Puustinen & Pulkkinen, 2001).

The SRL cycle consists of three iterative phases—planning, monitoring, and reflecting—that enable learners to actively manage their goals and strategies for continuous improvement. In the planning phase, students set clear goals, choose effective methods, and allocate time to create a structured approach (Raković et al., 2022). The monitoring phase involves self-assessment, adjusting strategies, and maintaining focus to stay aligned with objectives (Chou & Zou, 2020). Finally, in the reflection phase, learners evaluate outcomes, analyze the effectiveness of strategies, and refine future plans for growth (Panadero & Alonso-Tapia, 2014). Together, this cycle promotes resilience, adaptability, and lifelong learning by turning each experience into a foundation for future success.

SRL refers to learners' ability to plan, monitor, and regulate their own learning through cognitive, metacognitive, and motivational strategies (Panadero, 2017). Its key components include:

1. Cognitive Strategies (CS): Techniques that enhance comprehension and retention, including organization (outlining, mapping), elaboration (relating new to prior knowledge), critical thinking (analysis and evaluation), and practice for reinforcement (Zarei & Gilanian, 2014).

2. Metacognitive Strategies (MS): Skills for planning (goal-setting and strategy selection), monitoring (self-assessment during tasks), adapting (adjusting ineffective strategies), and reflecting on learning outcomes for continuous improvement (Karlen, 2016).

3. Motivational Strategies (MOT): Approaches that drive engagement, such as goal-setting, strengthening self-efficacy, enhancing interest, and regulating emotions to sustain persistence (Vollmeyer & Rheinberg, 2006).

4. Time and Task Management (TTM): Methods for prioritization, scheduling, regulating time use, managing workload, and self-monitoring productivity to balance academic demands (Zimmerman & Schunk, 2011).

5. Social and Help-Seeking (SS): Strategies involving peer collaboration, instructor support, effective help-seeking, use of academic resources, and cultivating supportive learning networks (Newman, 2023).
6. Resource and Environmental Management (REM): Ensuring effective use of learning materials and structuring study environments to minimize distractions, supported by institutional resources (Naujoks et al., 2021).
7. Emotional and Behavioral Regulation (ER): Managing stress and motivation through self-talk, mindfulness, disciplined routines, and reflection to foster resilience and sustained progress (Zimmerman, 2002).

2. Self-Efficacy Profiles

Self-efficacy refers to an individual's belief in their ability to succeed in specific tasks or situations, shaping motivation, effort, and perseverance (Farmer, Xu & Dupre, 2022). Self-efficacy profiles provide a nuanced view of these beliefs across different domains, helping educators and individuals identify strengths and challenges. Understanding these profiles is essential for supporting motivation, learning, and overall well-being (Farley, 2020).

SRL strategies and self-efficacy profiles are mutually reinforcing. Engaging in SRL—through goal-setting, planning, monitoring, and reflection—helps students experience successes that strengthen their confidence and self-efficacy. In turn, students with higher self-efficacy are more likely to actively use SRL strategies, persist through challenges, and adapt their learning approaches. Regular feedback and reflection further enhance self-efficacy, while repeated success through self-regulation fosters lifelong learning skills and resilience. Together, SRL strategies and self-efficacy create a dynamic cycle that supports academic achievement, motivation, and personal development (Sadi & Uyar, 2013; Zahid & Ong, 2023).

3. First-Year College Students in Nanchang

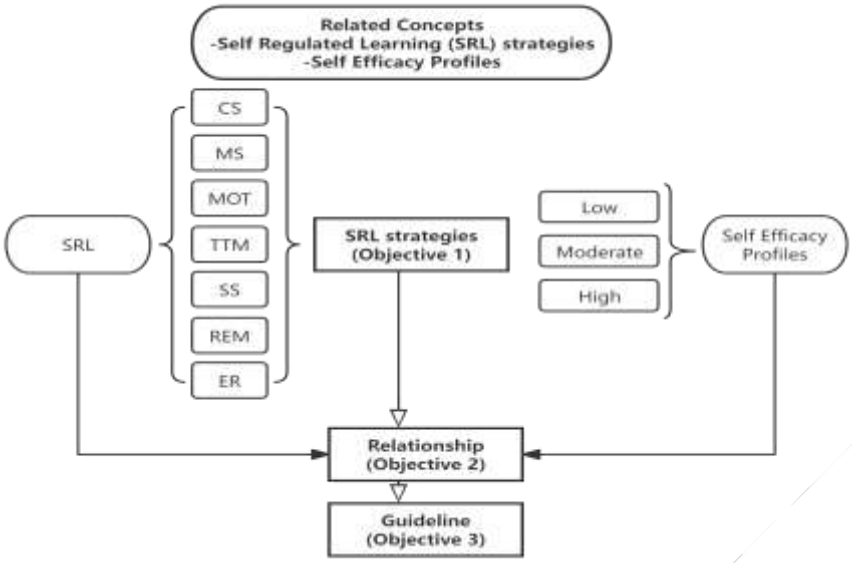
Nanchang, the capital of Jiangxi Province, serves as the province's higher education hub, hosting a full spectrum of universities, vocational colleges, and adult education institutions that together enroll nearly 392,000 students (Xie & Xia, 2020; Xiaoyan & Samu, 2024; Jin, 2025). Leading institutions such as Nanchang University, Jiangxi University of Finance and Economics, Jiangxi Normal University, East China Jiaotong University, and Jiangxi Agricultural University anchor the city's academic ecosystem, while vocational colleges provide applied training aligned with workforce needs (Pan, 2024). This diversity fosters the development of SRL strategies and academic self-efficacy but also highlights challenges, including limited faculty resources, uneven research capacity, and rising educational pressures (Jin, 2025). In response, universities are pursuing reforms such as international collaborations, faculty development, and innovation-focused curricula, which create opportunities to embed SRL training and self-efficacy support into programs (Meng et al., 2015; Lai et al., 2024). These dynamics underscore the importance of examining SRL strategy use and its relationship with self-efficacy among first-year students in Nanchang.

First-year college students face a complex transition marked by psychological, academic, and social challenges. Psychologically, they must adapt to new environments, develop independence, and explore personal identity, often experiencing stress and anxiety during this adjustment period (Reynolds & Weigand, 2010). Academically, students encounter increased course complexity, diverse motivation levels, and varying SRL abilities, which influence their performance and adaptation to university demands (Chemers, Hu & Garcia, 2001; Tang et al., 2023). Socially, freshmen work to establish new relationships, improve communication skills, and build support networks, though some may face shyness or social anxiety that hinders engagement and affects well-being (Tsang, 2023). Overall, these interrelated characteristics shape students' learning, mental health, and development during their first year.

CONCEPTUAL FRAMEWORK

This study aims to explore the relationship between SRL strategies and the self-efficacy profiles of first year college students in Nanchang. The SRL strategy includes 7 main strategies, namely: Cognitive Strategies (CS), Metacognitive Strategies (MS), Motivational Strategies (MOT), Time and Task Management Strategies (TTM), Social and Help seeking Strategies (SS), Resource and Environmental Management Strategies (REM) and Emotional Regulation Strategies (ER). The self-efficacy profiles includes 3 main level: Low Self-Efficacy, Moderate Self-Efficacy and High Self-Efficacy. The conceptual framework as shown in figure below.

Figure 1.1 Conceptual Framework



METHODOLOGY

This study employed a mixed-methods research design, integrating both quantitative and qualitative approaches to investigate the impact of SRL strategies on the self-efficacy of first-year university students in Nanchang (Teddlie & Tashakkori, 2011). The research aimed to identify the types and frequency of SRL strategies used, examine their relationship with self-efficacy, and develop guidelines for integrating these strategies into university curricula.

The research site was a regular university in Nanchang, chosen for its representativeness as a second-tier city in China (Jin, 2025). The population consisted of approximately 5,000 first-year students. Using stratified random sampling to ensure diversity across disciplines, gender, and socioeconomic background (Koyuncu & Kadilar, 2009), a sample size of 357 was calculated via Cochran's formula for a 95% confidence level and 5% margin of error. Ultimately, 400 students were targeted to account for potential non-responses. From this group, 10 participants were selected via purposive sampling for in-depth interviews to capture diverse SRL and self-efficacy profiles (Patton, 2014).

The primary research instruments were a researcher-developed SRL strategies questionnaire and the General Self-Efficacy Scale (GSES). The 38-item SRL questionnaire, assessed on a 4-point Likert scale, covered seven dimensions: Cognitive, Metacognitive, Motivational, Time and Task Management, Social and Help-Seeking, Resource and Environmental Management, and Emotional Regulation strategies. The 10-item GSES, also a 4-point Likert scale, measured generalized self-efficacy (Schwarzer & Jerusalem, 1995). The instruments' validity was confirmed through Item-Objective Congruence (IOC > 0.5) and exploratory factor analysis, while reliability was ensured with a good Cronbach's alpha (Tavakol & Dennick, 2011). Semi-structured interviews with the 10 participants provided qualitative depth (Guest, Bunce, & Johnson, 2006).

Quantitative data from questionnaires were analyzed using descriptive statistics, correlation analysis, regression analysis, and ANOVA. Qualitative data from the interviews were transcribed and subjected to content analysis to identify key themes.

RESEARCH RESULTS

Based on the study's findings, the following summarizes the key outcomes:

1. Students demonstrated a moderate level of SRL strategy use, with disciplinary variations.

This study conducted an effective questionnaire survey on 427 first-year students, covering seven dimensions of SRL strategies and one measure of comprehensive self-efficacy. Each indicator was scored using a four-point Likert scale, reflecting students' frequency of using various strategies and their level of self-belief in actual learning situations. Specific information was presented in the table below.

Table 1 Descriptive Statistic

Variable	N	Min	Max	Mean	Std.	Skewness	kurtosis
CS	427	1	4	2.615	0.719	-0.503	-0.766
MS	427	1	4	2.634	0.714	-0.446	-0.85
MOT	427	1	4	2.582	0.684	-0.481	-0.747
TTM	427	1	4	2.664	0.631	-0.502	-0.484
SS	427	1	4	2.581	0.726	-0.569	-0.804
REM	427	1	4	2.695	0.747	-0.549	-0.783
ER	427	1	4	2.627	0.792	-0.531	-0.823
SRL	427	1.5	3.395	2.628	0.489	-0.828	-0.603
GSES	427	1.1	4	2.648	0.660	-0.725	-0.781

Table 1 reveals that quantitative data from 427 valid questionnaires showed students used SRL strategies between "sometimes" and "often" (Mean scores: 2.5-2.7). Resource and Environmental Management (REM) was the most frequently used strategy (M=2.695), while Social and Help-Seeking Strategies (SS) were the least used (M=2.581).

The Q1-Q7 qualitative interviews are about the seven dimensions of SRL. Based on qualitative interviews, distinct patterns of SRL strategy use emerged across different academic disciplines.

Engineering and social science students frequently employed structured strategies. They regularly used cognitive strategies like summarizing and outlining, engaged in metacognitive planning and goal-setting, and effectively managed their time and study environments using planners and digital tools.

In contrast, art students relied more on intuition and creativity, often struggling with structured approaches. They reported inconsistent time management, a preference for last-minute work, and significant challenges with emotional regulation, especially under deadline pressure. Science majors exhibited moderate but inconsistent use of most SRL strategies.

Motivational and social strategies also varied. Students with higher self-efficacy used self-reward and exercise to maintain focus, while those with lower confidence struggled with procrastination. Social science students valued collaborative learning, whereas engineering and science students often preferred self-reliance, sometimes due to confidence-related barriers.

2. A significant positive relationship exists between SRL strategies and self-efficacy.

Pearson correlation analysis revealed significant positive relationships between all seven SRL dimensions and self-efficacy (GSES). The specific situation is shown in the table below.

Table 2 Pearson correlation analysis

	CS	MS	MOT	TTM	SS	REM	ER	SRL	GSES
CS	1								
MS	0.336**	1							
MOT	0.437**	0.470**	1						
TTM	0.337**	0.316**	0.400**	1					
SS	0.360**	0.321**	0.464**	0.394**	1				
REM	0.376**	0.380**	0.451**	0.299**	0.345**	1			
ER	0.457**	0.381**	0.417**	0.315**	0.383**	0.357**	1		
SRL	0.680**	0.684**	0.766**	0.634**	0.673**	0.665**	0.692**	1	
GSES	0.358**	0.321**	0.468**	0.305**	0.374**	0.364**	0.345**	0.529**	1

Note：* p<0.05 ** p<0.01

Pearson correlation analysis revealed significant positive intercorrelations among all seven SRL strategy dimensions. Furthermore, each SRL dimension was positively correlated with self-efficacy. Among these, motivational strategies (r = 0.468), cognitive strategies (r = 0.358), and social help-seeking strategies (r = 0.374) demonstrated the strongest associations with self-efficacy. Most importantly, the overall SRL score showed a substantial positive correlation with self-efficacy (r = 0.529).

These results clearly indicate that the various SRL strategies are closely interrelated and collectively play a critical role in fostering the academic confidence of first-year university students.

A multiple linear regression analysis was conducted to determine which of the seven SRL dimensions significantly predicted self-efficacy in first-year students. In the process of performing regression analysis, the first step was to conduct an overall test of the regression model to determine whether further analysis was possible. The summary of the model was shown in the table below.

Table 3 Model Summary

Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Durbin-Watson**
1	0.541	0.293	0.281	0.5595	1.874
ANOVA	Sum of Squares	df	Mean Square	F	Sig.
Regression	54.418	7	7.774	24.83	0.000
Residual	131.187	419	0.313		
Total	185.605	426			

From Table 3, the regression model was statistically significant ($p<0.001$) and explained 29.3% of the variance in self-efficacy ($R^2=0.293$). A Durbin-Watson statistic of 1.874 confirmed no major autocorrelation, validating the model for reliable inference. Following this validation, the specific impact of each SRL dimension was analyzed through regression coefficients.

Table 4 Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0.821	0.152		5.408	0.000		
CS	0.087	0.046	0.095	1.907	0.057	0.679	1.473
MS	0.042	0.045	0.046	0.934	0.351	0.705	1.419
MOT	0.234	0.052	0.243	4.486	0.000	0.576	1.736
TTM	0.058	0.05	0.055	1.167	0.244	0.751	1.331
SS	0.11	0.045	0.12	2.437	0.015	0.69	1.449
REM	0.102	0.043	0.116	2.379	0.018	0.713	1.403
ER	0.065	0.042	0.078	1.556	0.120	0.678	1.475

Dependent Variable：GSES

From Table 4, the valid regression model ($R^2=0.293$) identified three significant predictors of self-efficacy: motivational strategies ($\beta = 0.243$), social and help-seeking strategies ($\beta = 0.120$), and resource and environmental management strategies ($\beta = 0.116$). Cognitive, metacognitive, time management, and emotional regulation strategies were not significant predictors.

These results suggest that interventions aimed at boosting students' academic confidence should prioritize cultivating their internal motivation, collaborative skills, and ability to manage their learning environment.

The qualitative interviews (Q8-Q9) revealed a strong link between consistent SRL strategy use and academic confidence. Students from engineering and social sciences who systematically applied strategies like note-summarizing, goal-setting, and environment management reported high self-efficacy and control over their learning.

Conversely, students, particularly from art and some science majors, with irregular SRL use described cycles of last-minute work, emotional overwhelm, and low academic confidence. They often attributed these struggles to a

lack of training or environmental barriers, sometimes conflating them with personal inadequacy. This clear dichotomy underscores that targeted SRL training is crucial, especially for students in less structured disciplines, to bridge confidence gaps and improve academic experiences.

3. Age and academic major significantly influence SRL use and self-efficacy.

Analysis of Variance (ANOVA) was used to examine differences in SRL strategies and self-efficacy based on demographic factors. Since all 427 participants were first-year students, the analysis focused on the influence of age and academic major.

Table 5 ANOVA (Age)

	Age (Mean±Std. Deviation)				F	p
	18 (n=183)	19 (n=199)	20 (n=32)	21 (n=13)		
CS	2.508±0.735	2.682±0.688	2.725±0.758	2.815±0.750	2.54	0.056
MS	2.622±0.715	2.647±0.716	2.578±0.737	2.744±0.658	0.207	0.892
MOT	2.493±0.736	2.637±0.638	2.635±0.618	2.846±0.647	2.206	0.087
TTM	2.629±0.641	2.675±0.632	2.693±0.644	2.910±0.428	0.885	0.449
SS	2.449±0.749	2.661±0.708	2.694±0.592	2.938±0.675	4.23	0.006**
REM	2.578±0.779	2.747±0.716	2.806±0.703	3.262±0.499	4.659	0.003**
ER	2.518±0.852	2.705±0.731	2.756±0.755	2.662±0.806	2.097	0.1
SRL	2.546±0.512	2.677±0.456	2.693±0.496	2.879±0.471	3.806	0.010*
GSES	2.564±0.677	2.689±0.638	2.712±0.688	3.038±0.504	2.901	0.035*

Note：* p<0.05 ** p<0.01

Table 5 reveals that ANOVA revealed that age significantly influenced several key areas. Students aged 21 scored highest in resource management (M=3.262) and self-efficacy (M=3.038), while 18-year-olds scored the lowest in these and other SRL strategies like social help-seeking. Students aged 19-20 showed intermediate scores, indicating a transitional phase. These results highlight a clear developmental trend, with older students demonstrating greater academic adaptation and confidence.

Table 6 ANOVA (Major)

	Major (Mean±Std. Deviation)				F	p
	Engineering (n=65)	Science (n=108)	Social science (n=227)	Art (n=27)		
CS	2.538±0.794	2.563±0.718	2.682±0.692	2.444±0.734	1.601	0.188
MS	2.513±0.757	2.676±0.719	2.681±0.676	2.364±0.835	2.392	0.068
MOT	2.533±0.704	2.597±0.706	2.623±0.654	2.290±0.750	2.05	0.106
TTM	2.644±0.690	2.647±0.650	2.703±0.606	2.451±0.609	1.376	0.25
SS	2.628±0.716	2.554±0.679	2.626±0.727	2.207±0.840	2.849	0.037*
REM	2.640±0.849	2.676±0.780	2.772±0.677	2.252±0.782	4.203	0.006**
ER	2.609±0.853	2.672±0.787	2.663±0.750	2.193±0.912	3.028	0.029*
SRL	2.585±0.569	2.627±0.438	2.678±0.457	2.319±0.624	4.671	0.003**
GSES	2.608±0.674	2.553±0.694	2.737±0.599	2.374±0.855	3.831	0.010**

Note：* p<0.05 ** p<0.01

From Table 4, academic major significantly influenced students' SRL and self-efficacy. Social science majors demonstrated the highest overall proficiency, excelling in resource management (M=2.772), overall SRL (M=2.678), and self-efficacy (M=2.737). In stark contrast, art majors scored lowest across most dimensions, particularly in social help-seeking (M=2.207) and emotional regulation (M=2.193). Engineering and science students showed moderate, distinct profiles, with the former scoring highest in social help-seeking (M=2.628) and the latter in emotional regulation (M=2.672). These results highlight a critical need for discipline-specific academic support, especially for art students.

Both age and academic major significantly influenced students' SRL and self-efficacy. Older students (age 21) scored highest in areas like resource management, while younger freshmen (age 18) scored lowest, indicating an initial adjustment period. By discipline, social science and engineering students generally outperformed others, whereas art majors consistently demonstrated the lowest scores across multiple dimensions, highlighting a clear need for targeted academic support.

4. Students recommend integrated and tailored institutional support for SRL development.

Qualitative data from interviews (Q10-Q12) with 10 students revealed students proposed key institutional supports

to enhance their learning. They recommended expanded mental health services, including stress management workshops and counseling, to address academic anxiety. There was strong demand for practical, skill-based training in time management, goal-setting, and SRL strategies, as many lacked formal instruction in these areas.

For curriculum development, students advocated for mandatory, discipline-specific SRL workshops in the first semester and sustained training integrated into orientation courses. They valued peer mentoring programs and requested university-endorsed digital tools, like customized planner apps with reflection prompts and major-specific templates, to bridge the gap between SRL theory and daily practice.

5. Students recommend integrated and tailored institutional support for SRL development.

Based on the findings, comprehensive guidelines were developed:

1. Embed SRL Training in First-Year Orientation and General Education: Introduce foundational SRL strategies through workshops and integrate them into initial coursework.
2. Tailor SRL Instruction to Disciplinary Needs: Develop modules that reflect the unique learning styles and tasks of different majors (e.g., structured tools for engineering, emotional regulation for arts).
3. Integrate SRL into Course Design and Assessment: Encourage faculty to use SRL-enhancing activities like self-reflection prompts and grade the learning process.
4. Develop University-Endorsed SRL Digital Tools: Provide apps for planning and reflection with discipline-specific templates.
5. Strengthen Academic Support and Peer Mentoring: Train senior students as SRL mentors and expand tutoring services to include SRL coaching.
6. Promote Help-Seeking Behavior: Normalize asking for help through instructor feedback and inclusive classroom environments.
7. Support Emotional Regulation and Mental Well-being: Integrate stress management and mindfulness training into wellness programs.
8. Monitor and Evaluate SRL Implementation: Use feedback from students and faculty and collect longitudinal data to continuously refine SRL support.

These guidelines were designed to promote sustained SRL strategy development and academic self-efficacy among university students. By embedding SRL instruction into the academic and co-curricular structure of higher education—while attending to disciplinary differences, student development stages, and institutional support systems—universities were able to significantly enhance students' academic performance, confidence, and long-term learning resilience.

DISCUSSION

This study confirms that SRL strategies are crucial for shaping the academic self-efficacy of first-year students. The findings demonstrate that students who consistently employ strategic approaches to their learning—particularly in managing motivation, seeking social support, and organizing their study environments—develop significantly stronger confidence in their academic abilities. This relationship underscores the vital importance of integrating structured SRL training into university support systems to foster both the skills and the self-belief necessary for student success.

1. Patterns of SRL Strategy Use (Objective 1)

The study revealed that a student's academic major significantly influences how they engage with SRL. Students in structured disciplines like social sciences and engineering consistently reported higher use of organized strategies, such as systematic goal-setting, time management, and environmental control. They directly linked these methods to their sense of academic competence and success.

Conversely, a different pattern emerged among art students, who tended to favor more intuitive and flexible learning approaches. This preference for less structured methods, however, was frequently accompanied by greater challenges with emotional regulation and higher levels of academic stress, particularly when facing deadlines.

Beyond discipline, the research also identified age as a key developmental factor in SRL proficiency. Older students, particularly those aged 21 and above, demonstrated markedly stronger skills in areas like resource management and help-seeking. This contrasts with the lower scores of 18-year-old freshmen, underscoring a clear adaptation period in the first year of university. These findings collectively highlight that both the field of study and the student's stage of development are critical to understanding their SRL journey.

2. The SRL and Self-Efficacy Relationship (Objective 2)

The significant positive correlation found between SRL strategies and self-efficacy strongly aligns with established theoretical frameworks, most notably Zimmerman's cyclical model of self-regulation. This model posits that students who proactively plan, monitor, and adapt their learning processes naturally build a stronger belief in their capabilities, which this study's data clearly supports.

Students who consistently employed core strategies—such as cognitive techniques for processing information, metacognitive practices for planning and monitoring, and motivational tactics for maintaining effort—consistently reported higher levels of academic confidence. Their active engagement in the learning process provided them with concrete evidence of their own competence, thereby directly strengthening their self-efficacy.

Furthermore, the study highlights emotional regulation as a critical, and often pivotal, link in this cycle. Students who possessed strategies to manage stress and anxiety were better equipped to deploy their SRL skills effectively,

even under pressure. Conversely, for students struggling with high anxiety, their emotional state often triggered a debilitating cycle where stress led to avoidance, which in turn prevented the successful application of learning strategies and further eroded their self-belief. This underscores that emotional regulation is not merely a supportive skill but a foundational component that can enable or disrupt the entire SRL process.

3. Guidelines for SRL Integration (Objective 3)

A critical finding of this research was the widespread lack of structured institutional support for developing SRL skills. Many students expressed a clear and strong desire for formal training, identifying their first semester as the most crucial time for such intervention.

The proposed guidelines from the study emphasize that for SRL integration to be effective, it cannot be a one-off workshop. It must be an early, sustained, and embedded effort within the curriculum. Furthermore, this training must be tailored to the unique demands and practices of different academic disciplines to be relevant and adopted by students.

Crucially, the findings argue that effective SRL support must holistically address emotional well-being as a foundational component of academic success. By providing resources for stress management and resilience alongside strategic training, institutions can help break the cycle where anxiety impedes learning. This approach moves beyond the outdated assumption that SRL is an innate student skill, reframing it as a core competency that universities must actively teach and foster.

CONCLUSION AND RECOMMENDATIONS

This study, utilizing a mixed-methods approach, investigated the effects of SRL Strategies on the Self-Efficacy of first-year college students in Nanchang. The study addressed three primary objectives: 1) to identify the patterns of SRL strategy use, 2) to examine the relationship between SRL strategies and academic self-efficacy, and 3) to develop institutional guidelines for integrating SRL into university curricula.

The findings revealed that first-year students demonstrate a moderate level of SRL strategy use. Resource and Environmental Management was the most common strategy, while Social and Help-Seeking was the least utilized. Disciplinary and age differences significantly influenced SRL engagement, with social science and engineering students and older students (aged 21+) showing more consistent use.

A strong, positive relationship was found between SRL strategies and academic self-efficacy. Motivational Strategies, Social and Help-Seeking, and Resource Management were significant predictors, accounting for nearly 30% of the variance in self-efficacy. Students who effectively used these strategies reported higher academic confidence and lower stress.

Based on these findings, the following recommendations are made:

- **Embed SRL in Orientation and Courses:** Integrate foundational SRL training into first-year orientation and general education.
- **Tailor SRL to Disciplines:** Customize SRL instruction to meet the specific needs of different academic majors.
- **Develop SRL Digital Tools:** Provide university-endorsed digital planners and platforms to support strategy use.
- **Strengthen Peer Mentoring:** Establish peer mentoring programs to offer practical SRL guidance.
- **Promote Help-Seeking Behavior:** Normalize academic support through inclusive learning environments and accessible resources.
- **Support Emotional Regulation:** Integrate emotional resilience and stress management training into wellness services.
- **Monitor SRL Implementation:** Continuously evaluate the effectiveness of SRL interventions through student feedback and data tracking.

IMPLICATIONS FOR EDUCATION

This research advocates for a fundamental shift in higher education, moving from assuming students are naturally self-regulated to systematically cultivating these vital skills. The findings underscore that SRL development cannot be left to chance; it must be proactively and intentionally embedded into the institutional culture through deliberate curriculum design, robust academic support services, and targeted teacher training.

To achieve this, educators and administrators should prioritize creating learning environments that normalize help-seeking and frame strategic learning as a key to success. This requires moving beyond a one-size-fits-all approach. Instruction, resources, and digital tools must be carefully tailored to specific disciplinary contexts and student developmental stages. This targeted support is especially critical for younger students in their initial transition to university and for those in creative majors like the arts, who were identified as being most at-risk.

Ultimately, by integrating SRL strategy development with emotional resilience training, universities can do more than just improve grades. They can empower all students to become confident, autonomous learners, equipping

them with the metacognitive and emotional toolkit necessary for long-term academic achievement and personal success beyond the classroom

REFERENCES

1. Anthonysamy, L., Koo, A. C., & Hew, S. H. (2020). Self-regulated learning strategies and non-academic outcomes in higher education blended learning environments: A one decade review. Education and information technologies, 25(5), 3677-3704.
2. Ben-Eliyahu, A. (2019). Academic emotional learning: A critical component of self-regulated learning in the emotional learning cycle. Educational Psychologist, 54(2), 84-105.
3. Chemers, M. M., Hu, L. T., & Garcia, B. F. (2001). Academic self-efficacy and first year college student performance and adjustment. Journal of Educational psychology, 93(1), 55.
4. Chou, C. Y., & Zou, N. B. (2020). An analysis of internal and external feedback in self-regulated learning activities mediated by self-regulated learning tools and open learner models. International Journal of Educational Technology in Higher Education, 17(1), 55.
5. Daniel, S. J. (2020). Education and the COVID-19 pandemic. Prospects, 49(1), 91-96.
6. El-Adl, A., & Alkharusi, H. (2020). Relationships between self-regulated learning strategies, learning motivation and mathematics achievement. Cypriot Journal of Educational Sciences, 15(1), 104-111.
7. Farley, H. (2020). Promoting self-efficacy in patients with chronic disease beyond traditional education: A literature review. Nursing open, 7(1), 30-41.
8. Farmer, H., Xu, H., & Dupre, M. E. (2022). Self-efficacy. In Encyclopedia of Gerontology and Population Aging (pp. 4410-4413). Cham: Springer International Publishing.
9. Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. Field methods, 18(1), 59-82.
10. Imran, R., Fatima, A., Salem, I. E., & Allil, K. (2023). Teaching and learning delivery modes in higher education: Looking back to move forward post-COVID-19 era. The International Journal of Management Education, 21(2), 100805.
11. Jin, X. (2025). Factors Impacting Students' Learning Behavioral Intentions with Online Teaching in Design Education: A Case Study of a Public University in Nanchang, China. AU E-Journal of Interdisciplinary Research, 10(1), 45.
12. Karlen, Y. (2016). Differences in students' metacognitive strategy knowledge, motivation, and strategy use: A typology of self-regulated learners. The Journal of Educational Research, 109(3), 253-265.
13. Koyuncu, N., & Kadilar, C. (2009). Ratio and product estimators in stratified random sampling. Journal of statistical planning and inference, 139(8), 2552-2558.
14. Lai, Y., Cai, S., Li, S., & Wu, J. (2024, April). Research on the Implementation Path of Social Service Activities for the Subsidized College Students from the Perspective of Labour Education--Take Some Universities in Nanchang as Example. In Proceedings of the 3rd International Conference on Internet Technology and Educational Informatization, ITEI 2023, November 24–26, 2023, Zhengzhou, China.
15. Marlina, R., Suwono, H., Ibrohim, I., Yuenyong, C., Husamah, H., & Hamdani, H. (2024). Theoretical frameworks of self-efficacy in collaborative science learning practices: A systematic literature review. Jpbi (Jurnal Pendidikan Biologi Indonesia), 10(2), 602-615.
16. Meng, H., Huang, P., Hou, N., & Fan, J. (2015). Social self-efficacy predicts Chinese college students' first-year transition: A four-wave longitudinal investigation. Journal of Career Assessment, 23(3), 410-426.
17. Moghadari-Koosha, M., Moghadasi-Amiri, M., Cheraghi, F., Mozafari, H., Imani, B., & Zandieh, M. (2020). Self-efficacy, self-regulated learning, and motivation as factors influencing academic achievement among paramedical students: A correlation study. Journal of allied health, 49(3), 145E-152E.
18. Naujoks, N., Bedenlier, S., Gläser-Zikuda, M., Kammerl, R., Kopp, B., Ziegler, A., & Händel, M. (2021). Self-regulated resource management in emergency remote higher education: status quo and predictors. Frontiers in Psychology, 12, 672741.
19. Newman, R. S. (2023). Adaptive help seeking: A strategy of self-regulated learning. In Self-regulation of learning and performance (pp. 283-301). Routledge.
20. Pan, X. (2024, June). A Study on the Influencing Factors of Electronic Product Recycling Behavior among College Students: A Case Study of Universities in Nanchang City. In Proceedings of the 3rd International Conference on Big Data Economy and Digital Management, BDEDM 2024, January 12–14, 2024, Ningbo, China.
21. Panadero, E. (2017). A review of self-regulated learning: Six models and four directions for research. Frontiers in Psychology, 8, 422. https://doi.org/10.3389/fpsyg.2017.00422
22. Panadero, E., & Alonso-Tapia, J. (2014). How do students self-regulate? Review of Zimmerman's cyclical model of self-regulated learning. Anales de psicologia, 30(2), 450-462.
23. Patton, M. Q. (2014). Qualitative research & evaluation methods: Integrating theory and practice. Sage publications.
24. Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom

academic performance. Journal of educational psychology, 82(1), 33.
25. Puustinen, M., & Pulkkinen, L. (2001). Models of self-regulated learning: A review. Scandinavian journal of educational research, 45(3), 269-286.
26. Quackenbush, M. (2020). The Effects of Self-Regulated Learning Training on Teachers' Self-Regulated Learning, Self-Efficacy for Teaching, and Perceived Instructional Effectiveness in Computer-Supported Collaborative Learning Environments (Doctoral dissertation, Old Dominion University).
27. Raković, M., Bernacki, M. L., Greene, J. A., Plumley, R. D., Hogan, K. A., Gates, K. M., & Panter, A. T. (2022). Examining the critical role of evaluation and adaptation in self-regulated learning. Contemporary Educational Psychology, 68, 102027.
28. Reynolds, A. L., & Weigand, M. J. (2010). The relationships among academic attitudes, psychological attitudes, and the first-semester academic achievement of first-year college students. Journal of student affairs research and practice, 47(2), 173-193.
29. Sadi, Ö., & Uyar, M. (2013). The relationship between self-efficacy, self-regulated learning strategies and achievement: A path model.
30. Schwarzer, R., & Jerusalem, M. (1995). Generalized self-efficacy scale. J. Weinman, S. Wright, & M. Johnston, Measures in health psychology: A user's portfolio. Causal and control beliefs, 35(37), 82-003.
31. Siripipatthanakul, S., Muthmainnah, M., Asrifan, A., Siripipattanakul, S., Kaewpuang, P., Sriboonruang, P., ... & Sitthipon, T. (2023). Blended Learning and Online Learning During the COVID-19 Pandemic. Interdisciplinary Research: Collaborative Insights, 1, 44-54.
32. Tang, H., Datu, J. A. D., Liu, Z., Shen, J., & Xing, Q. (2023). The engaged lives of encouraged students: Academic encouragement, grit and academic engagement in Chinese first year undergraduate students. Current Psychology, 42(23), 19526-19536.
33. Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. International journal of medical education, 2, 53.
34. Teddlie, C., & Tashakkori, A. (2011). Mixed methods research. The Sage handbook of qualitative research, 4(1), 285-300.
35. Tsang, A. (2023). The value of a semi-formal peer mentorship program for first-year students' studies, socialization and adaptation. Active Learning in Higher Education, 24(2), 125-138.
36. Vollmeyer, R., & Rheinberg, F. (2006). Motivational effects on self-regulated learning with different tasks. Educational Psychology Review, 18(3), 239-253.
37. Wang, T., Ruiz-Segura, A., Li, S., & Lajoie, S. P. (2024). The relationship between students' self-regulated learning behaviours and problem-solving efficiency in technology-rich learning environments. Journal of Computer Assisted Learning.
38. Xiaoyan, W., & Samu, Q. (2024). Impact of Online Learning on College Students Learning Outcomes in Nanchang, China. International Journal of Advanced Research in Education and Society, 6(2), 634-642.
39. Xie, H., & Xia, Q. (2020). A Study on the Stability of Teachers in Private Colleges and Universities in Nanchang, Jiangxi Province.
40. Yukhymenko-Lescroart, M. A., & Sharma, G. (2023). Sense of purpose and progress towards degree in freshman college students. Journal of College Student Retention: Research, Theory & Practice, 25(1), 187-207.
41. Zahidi, A. M., & Ong, S. I. (2023). Self-Efficacy beliefs and self-regulated learning strategies in learning English as a second language. Theory and Practice in Language Studies, 13(6), 1483-1493.
42. Zarei, A. A., & Gilanian, M. (2014). On the relationship between cognitive self-regulated learning and language learning strategies. Journal of Social Issues & Humanities, 2(12), 200-209.
43. Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. Theory into practice, 41(2), 64-70.
44. Zimmerman, B. J., & Kitsantas, A. (2005). Homework practices and academic achievement: The mediating role of self-efficacy and perceived responsibility beliefs. Contemporary educational psychology, 30(4), 397-417.
45. Zimmerman, B. J., & Schunk, D. H. (2011). Self-regulated learning and performance: An introduction and an overview. Handbook of self-regulation of learning and performance, 15-26.
46. Zumbrunn, S., Tadlock, J., & Roberts, E. D. (2011). Encourage self regulated learning in the classroom