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Unlocking Self-Regulated Learning: Key Factors Shaping Student Success in Higher Vocational Education in Shanghai, China

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Abstract

Purpose This study aimed to investigate the key factors affecting self-regulated learning among students in higher vocational education in Shanghai, China. Focusing on the human ability for self-directed learning and behavior, the research examines how self-evaluation, information quality, service quality, student attitudes, course quality, peer assistance, and the active use of feedback influence students' self-regulated learning. **Research design, data, and methodology:** The study assesses the changes from the current to the desired situation. The research employed a sequential exploratory mixed-methods design, integrating qualitative and quantitative approaches to develop a data collection instrument. The target population consisted of nursing students from vocational colleges in Shanghai, with a sample size of 275 students for the survey, A strategic plan implementation was conducted among 30 students. **Results:** The findings indicated that levels of self-evaluation, information quality, service quality, student attitudes, course quality, peer help, and active use of feedback were generally low. A multiple regression analysis revealed that self-evaluation, information quality, service quality, student attitudes, course quality, peer help, and active use of feedback were significant predictors of self-regulated learning capability. **Conclusions:** A theoretical model was developed and validated by experts, laying the groundwork for future interventions aimed at enhancing nursing students' self-regulated learning capabilities.

Keywords: Self-Regulated Learning, Vocational College, Self-Regulated Learning, Self-Evaluation, Information Quality

JEL Classification Code: I23, J28, L2

1. Introduction

In the "Internet Plus" era, developing students' independent and lifelong learning skills has become a crucial goal within the framework of talent development in modern society (Feng, 2021). As education increasingly utilizes the connectivity afforded by internet and communication technologies, traditional teaching models encounter both opportunities and challenges (Dabbagh et al., 2015). This paper addresses the urgent need to adapt to these changes by exploring how to cultivate independent learning abilities among higher vocational students in the context of the "Internet Plus" initiative.

The research highlights the limitations of conventional classroom environments, such as rigid student-teacher roles and a lack of personalized learning, and contrasts these with the flexible, student-centered learning approach made possible by the Internet (Zmuda et al., 2015). It examines the shift in education from a closed system to an open, resource-rich environment that fosters student autonomy and increases engagement through the use of information technology tools.

The study suggests approaches for developing independent learning modes that are appropriate for the online environment and provides strategies for effectively enhancing the self-directed learning skills of vocational students (Bagheri et al., 2013). By investigating and applying these methods, the paper aims to contribute to the advancement of educational practices that align with the requirements of the information age and the "Internet Plus" educational framework.

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2. Literature Review

2.1 Self-Regulated Learning

Self-regulated learning is described as "an active, constructive process in which learners set goals for their education and then strive to monitor, regulate, and control their cognition, motivation, and behavior, guided and limited by their goals and the contextual features of their environment" (Pintrich, 2000). Typical self-regulated learners often employ a range of cognitive and metacognitive strategies to achieve their learning objectives while managing their time, effort, and physical learning environment to enhance their performance. Additionally, they seek assistance from instructors or peers when encountering learning challenges (Pintrich & De Groot, 1990). Because self-regulated learners are actively involved in their learning, they generally outperform those with lower levels of self-regulation.

The idea of self-regulated learning pertains to how individuals oversee their personal learning processes, focusing on how they monitor, regulate, and assess their own learning, as well as plan actions and behavioral processes that increase the likelihood of achieving their goals (Zimmerman, 2000). It can also be viewed as a learning-oriented activity. Self-regulated learning has garnered significant attention in online learning research (Puustinen & Pulkkinen, 2001). These studies emphasize the crucial role of self-regulated learning in shaping learner behavior in online settings and demonstrate how self-regulation can promote success in such environments (Zimmerman & Schunk, 2011).

2.2 Self-Evaluation

Self-evaluation is a fundamental aspect of self-regulated learning, allowing individuals to take charge of and assess their own learning and behavior (Zimmerman & Schunk, 2011). Zimmerman, a leading researcher in self-regulated learning, defines self-evaluation as the process through which students reflect on their learning goals, strategies, and outcomes, assessing the quality of their performance and their understanding (Schunk, 1996).

According to Pintrich (2000), self-evaluation entails assessing one's performance based on established criteria or standards. This reflective practice allows learners to track their progress, identify strengths and weaknesses, and make informed decisions about their subsequent learning steps. Pintrich emphasizes that self-evaluation goes beyond comparing oneself to external benchmarks; it also includes an internal assessment of mastery and competence.

Bandura (1991) further develops the concept of self-evaluation by integrating the influence of beliefs related to self-regulated learning. He argues that the self-evaluation process is shaped by individuals' beliefs in their capabilities to perform tasks at the expected level. These beliefs, in turn, affect learners' motivational and emotional responses, influencing their engagement and persistence when facing challenges.

Moreover, self-evaluation is recognized as an essential skill for lifelong learning and adaptation in a rapidly changing world (Schunk & Ertmer, 1998). It empowers students to become autonomous learners, capable of adjusting their learning strategies and personal development in response to the evolving demands of their environment.

H1: Self-evaluation has a significant impact on self-regulated learning.

2.3 Information Quality

Information quality is a complex concept that refers to the attributes of information that enhance the knowledge of the recipient (Wang & Strong, 1996). In higher vocational education, the quality of information is crucial as it directly influences students' learning outcomes, decision-making, and overall academic performance.

According to Wang and Strong (1996), information quality can be divided into four primary dimensions: intrinsic, contextual, representational, and accessibility. Intrinsic information quality includes factors such as accuracy, objectivity, credibility, and reputation. Contextual information quality pertains to the relevance, value addition, timeliness, and completeness of the information concerning the specific task. Representational information quality focuses on the interpretability, clarity, concise presentation, and consistency of the information. Lastly, accessibility information quality deals with the availability and security of information (Albelbisi, 2019).

Knight and Burn (2005) contend that, in the digital age, the definition of information quality must also take into account the technological means through which the information is conveyed. They propose that information quality should encompass the technical infrastructure that facilitates information use, including the suitability of information systems, user interfaces, and the technical competencies of the information provider.

In the context of higher vocational education in Shanghai, the definition of information quality is also influenced by cultural and linguistic considerations. Winne (2013) highlights that for information to be considered high quality, it must not only be accurate and timely but also culturally relevant and linguistically accessible to learners, reflecting the local educational traditions and language subtleties.

H2: Information quality has a significant impact on self-regulated learning.

2.4 Service Quality

Service quality in education and higher learning is not only vital but also a crucial indicator of educational excellence. Research indicates that positive perceptions of service quality significantly affect student satisfaction, leading satisfied students to attract more peers through word-of-mouth communication (Albelbisi, 2019). Students can be motivated by both academic achievements and the administrative efficiency of their institutions. According to Lee (2009), service quality is a critical performance metric for educational excellence and a key strategic factor for universities to establish a strong image in consumers' minds.

Initially, information systems were defined by two primary functions: system quality and information quality. Pitt et al. (1995) later included service quality as an additional function to assess the adoption and acceptance of information systems. Research by Normelindasari and Solichin (2020) found that service quality significantly impacts perceived usefulness and has a positive correlation with user satisfaction. Users perceive that the effectiveness of a technology is directly influenced by the quality of the service provided (Xu et al., 2013). In the context of electronic services, service quality plays a crucial role in information systems (Gorla et al., 2010).

H3: Service quality has a significant impact on self-regulated learning.

2.5 Student Attitude

Hsu and Huang (2018) were the first to define attitude as a set of preconceived ideas and tendencies that direct judgment and thinking, essentially representing a form of psychological readiness. Pickens (2005), drawing from behaviorism, proposed that attitude is a psychological and neurological state of readiness shaped by experience, which affects how an individual responds to different situations. His definition emphasizes the importance of experience in the development of attitudes.

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H4: Student attitude has a significant impact on self-regulated learning.

2.6 Course Quality

Emotion regulation, also known as emotional self-regulation, refers to the external and internal processes that monitor, analyze, and modify emotional responses—particularly their intensity and duration—to help individuals achieve their goals (Thompson, 2006). The broader concept of emotion regulation encompasses the psychological mechanisms involved in managing emotions. It involves the ability to adjust emotional arousal and expressions flexibly in response to environmental demands (Koole, 2010).

Research addressing quality issues in online courses has explored key indicators of MOOC quality from various perspectives. Instructional design has consistently been regarded as a crucial factor influencing the overall quality and pedagogical effectiveness of all course types (Margaryan et al., 2015). However, there is a lack of studies focusing specifically on the criteria for instructional design quality in online courses, with some studies relying on principles derived from the foundational theories of instruction (Watson et al., 2017).

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H5: Course quality has a significant impact on self-regulated learning.

2.7 Peer Help

Learner interaction is a crucial mechanism for enhancing online learning (Wu et al., 2022). Peer help, a specific type of learner interaction, plays a significant role as a self-regulated learning strategy and enables learners to create a knowledge community (Lin et al., 2016). This form of assistance is particularly vital in online education, where instructors are not physically present in the classroom to provide support. However, research indicates that online students frequently refrain from seeking help, even at the expense of their academic performance (Mahasneh et al., 2012). Considering the advantages of seeking help and the growing prevalence of online education, it is essential to understand the dynamics of online learners' help-seeking behavior to promote it effectively.

In a previous study that introduced a peer-help discussion forum in an online course, students found the forum to be extremely beneficial and engaged far beyond the course requirements (Huang & Law, 2018). Building on this, the current study aims to explore the factors influencing online learners' commitment to peer help, focusing on learners' epistemic beliefs and their help-seeking profiles, including their attitudes, tendencies, and goals. The findings are intended to deepen the understanding of online learners' help-seeking behavior and provide insights for promoting peer help in online environments. We begin by reviewing relevant literature that informed the specific research questions we aimed to address.

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H6: Peer help has a significant impact on self-regulated learning.

2.8 Active Use of Feedback

Feedback is defined as "information provided by an agent regarding aspects of one's performance or understanding" (Brown et al., 2016). While feedback can be generated internally by oneself, it is often provided externally by teachers or others. There are four levels of feedback related to task, process, self-regulation, and self (García-Jiménez, 2015). Feedback concerning task, process, and self-regulation is linked to improvements in learning outcomes, whereas self-focused or ego-enhancing/protecting feedback generally does not contribute to learning (Brown et al., 2016).

Feedback can be classified as formative or summative, depending on when it occurs during a course of study. Formative feedback is given early enough to allow for improvements, while summative feedback occurs at the end of the study and evaluates performance (Irons & Elkington, 2021). In its most summative form, feedback is limited to evaluative marks, grades, or scores at the conclusion of a study. Even if feedback is given formatively earlier in the course, it has been shown to be less effective than descriptive feedback comments that highlight strengths and weaknesses, diagnose issues, and suggest strategies for improvement (Brown et al., 2016). In higher education, assessment is rarely purely summative; coursework completed prior to or in place of a final examination serves both summative and formative purposes.

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H6: Peer help has a significant impact on self-regulated learning.

3. Research Methods and Materials

3.1 Research Framework

The researcher utilized three theoretical models from Lin and Dai (2022), Albelbisi and Yusop (2019), and Brown et al. (2016). These three frameworks collectively supported and informed the development of the conceptual framework illustrated in Figure 1.

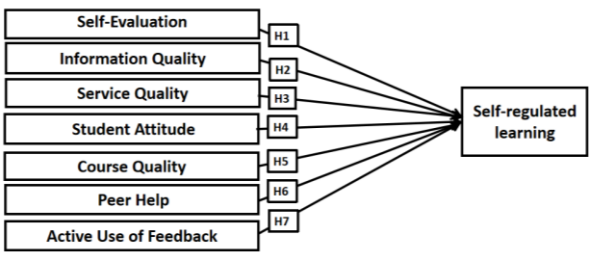

Figure 1: Conceptual Framework

H1: Self- evaluation has a significant impact on self-regulated learning.
H2: Information quality has a significant impact on self-regulated learning.
H3: Service quality has a significant impact on self-regulated learning.
H4: Student attitude has a significant impact on self-regulated learning.
H5: Course quality has a significant impact on self-regulated learning.
H6: Peer help has a significant impact on self-regulated learning.
H7: Active use of feedback has a significant impact on self-regulated learning.

3.2 Research Methodology

This section of the thesis outlines a comprehensive action research methodology for each phase of the study. The initial pre-strategic plan stage aims to understand the current situation and identify the need for change. This preliminary phase employs a mixed-methods approach, beginning with qualitative techniques such as classroom observations and student interviews to evaluate learning performance in guidance classes. Feedback from these sessions establishes a baseline assessment.

Next, the research incorporates quantitative methods by using the Wenjuanxing platform for data collection. After confirming the survey's validity and reliability, it is distributed to 275 students to examine the relationships between various independent and dependent variables. The resulting data is analyzed using SPSS for multiple linear regression, which aids in refining the study's framework and hypotheses for the following phase.

Once the conceptual framework is established, a strategic plan based on the independent variables is created, and the hypotheses are finalized. The design details of this intervention are detailed in the next chapter. A group of 30 students is selected through nonprobability sampling to participate in a 14-week strategic intervention.

After the intervention, a combination of qualitative and quantitative methods is employed again to assess its effectiveness. Participants are surveyed, observed, and interviewed once more. The collected data is analyzed and compared to the pre-intervention findings to validate the outcomes of the strategic planning process.

3.3 Research Population, Sample Size, and Sampling Procedures

3.3.1 Research Population

In this thesis, junior college students from the Health and Elderly Care program at Shanghai Urban Construction

Vocational College were chosen as the research population. This group includes students majoring in elderly nursing, elderly care services and management, and health management. The researcher selected three out of six majors, specifically focusing on elderly care, elderly care services and management, and health management. From this total, 275 participants were selected for the study.

3.3.2 Sample size

The researcher conducted a pilot survey with a random sample of 30 students to assess reliability through a pilot test. Subsequently, 275 students were identified as the research population, and the researcher used multiple linear regression to explore the relationships between independent and dependent variables. Finally, 30 voluntary students were selected to participate in the implementation of the strategic plan design.

3.3.3 Sampling Procedures

Hair et al. (2010) recommends a sample size ranging from 30 to 500 for most research projects. This study adheres to this guideline by using a sample size of 30 for the reliability test during the preliminary diagnostic phase. Following that, a larger sample of 256 is employed for the Multiple Linear Regression analysis within the same phase, facilitating a more thorough investigation of the relationships between variables. To meet the minimum sample size of 256 nursing students recommended by Krejci and Morgan (1970), stratified random sampling was implemented to select eligible students from three nursing cohorts. To further improve the representativeness of the sample, 339 questionnaires were distributed randomly among these students. Ultimately, 275 responses were gathered, yielding a response rate of 81.1%.

The study then moves to the intervention phase, concentrating on a subset of 30 students who participate in a current intervention strategic plan. After the intervention, these same 30 students engage in a subsequent intervention strategic plan, utilizing the same research methods as before. This within-subjects design allows for a direct comparison of individual student outcomes before and after the intervention, thereby enhancing the study's capacity to isolate and measure the effects of the intervention.

3.4 Research Instruments

3.4.1 Design of Questionnaire

The researcher developed the survey questionnaire by following three steps:

Step 1: Identifying the sources for the questionnaire from three publicly published articles (Albelbisi & Yusop, 2019; Brown et al., 2016; Lin & Dai, 2022).

Step 2: Modifying and adapting the survey questionnaires to fit the context of Chinese university students.

Step 3: Implementing the Item Objective Congruence (IOC) process.

3.4.2 Components of Questionnaire

The questionnaire consists of a total of 47 questions, divided into two sections. The first section includes questions aimed at collecting basic demographic information about the research population, such as gender and age. The second section is organized into five dimensions: self-evaluation (4 questions), information quality (4 questions), service quality (4 questions), student attitudes (3 questions), and course quality (3 questions), along with peer support.

3.4.3 IOC Results

The researcher recruited five independent experts, including scholars and doctors, to perform the Index of Item-Objective Congruence (IOC) assessment. All five experts were Chinese professors. During the IOC process, the experts utilized a scoring system in which they assigned a value of +1 for "Congruent," 0 for "Questionable," and -1 for "Incongruent" to each item in the questionnaire. In this study, all items received scores exceeding 0.67, indicating an acceptable level of congruence. Consequently, the researcher chose to keep all the questionnaire items for further analysis.

3.4.4 Pilot survey and Pilot test results

A 47-question survey was distributed to a group of 30 individuals to assess its reliability, ensuring that it consistently measures the intended variables. Prior to this, the questionnaire underwent an Item-Objective Congruence (IOC) process to validate the content of each item, and all questions were deemed suitable for reliability testing. The reliability test results, which assess the consistency of the items and their ability to form a cohesive scale, were presented in a table. The results were favorable, with each item achieving a reliability score of 0.6 or higher: self-evaluation scored 0.891, information quality 0.924, service quality 0.910, students' attitude 0.895, course quality 0.824, peer help 0.933, active use of feedback 0.942, and self-regulated learning 0.908.

Table 1: Pilot Test Result

Variables	No. of Items	Sources	Cronbach's Alpha	Strength of Association
Self-evaluation (SE)	4	Cassidy (2011)	0.891	Good
Information quality (IQ)	4	Albelbisi and Yusop (2019)	0.924	Excellent
Service quality (SQ)	4	Albelbisi and Yusop (2019)	0.910	Excellent
Students' attitude (SA)	3	Albelbisi and Yusop (2019)	0.895	Good
Course quality (CQ)	3	Albelbisi and Yusop (2019)	0.824	Good
Peer help (PH)	6	Brown et al. (2016)	0.933	Excellent
Active use of feedback (AUF)	7	Brown et al. (2016)	0.942	Excellent
Self-regulated learning (SRL)	13	Albelbisi and Yusop (2019)	0.908	Excellent

4. Results and Discussion

4.1 Results

4.1.1 Demographic Profile

The researcher presented the demographic profile of the entire research population (n=275) and then focused on the selected group of students (n=30) who participated in the strategic plan, as detailed in Table 2.

Table 2: Demographic Profile

Entire Research Population (n=275)		Frequency	Percent
Gender	Male	42	15.72%
	Female	233	84.73%
Year	First Year	114	41.457%
	Second Year	158	57.45%
	Third Year	3	1.09%
Age	18-19	156	56.73%
	20-21	111	40.36%
	22-23	8	2.91%
	24 years and above	0	0%
Total		275	100%
Strategic Plan Participants (n=30)		**Frequency**	**Percent**
Gender	Male	2	6.67%
	Female	28	93.33%
Year	First Year	15	50%
	Second Year	14	46.66%
	Third Year	1	3.34%
Age	18-19	8	26.67%
	20-21	22	73.34%
	22-23	0	0%
	24 years and above	0	0%
Total		30	100%

4.1.2 Results of multiple linear regression

The researcher utilized Multiple Linear Regression (MLR) to test seven hypotheses related to students' self-regulated learning, based on data from 275 survey questionnaires. To confirm the model's reliability, a variance inflation factor (VIF) analysis was performed to check for multicollinearity. The VIF values were all below the acceptable threshold of 5 (Hair et al., 1995), indicating no issues with multicollinearity. Additionally, the regression model's R-squared value of 0.859, incorporating seven independent variables, suggested that the model could explain 85.9% of the variation in students' self-regulated learning, thereby affirming its predictive strength.

Table 3: The multiple linear regression of five independent variables on self-regulated learning

Variables	Standardized Coefficients Beta value	t-value	p-value	VIF	R^2
Self-evaluation (SE)	0.458	6.876**	.000	2.820	0.859
Information quality (IQ)	0.616	7.421**	.000	1.603	
Service quality (SQ)	0.623	7.012*	.002	3.714	
Students' attitude (SA)	0.584	6.542**	.000	1.449	
Course quality (CQ)	0.604	7.154*	.003	2.084	
Peer help (PH)	0.588	7.006*	.002	2.770	
Active use of feedback (AUF)	0.612	7.905**	.000	3.753	

Note: p-value <0.05*, p-value <0.001**

4.2 IDI Intervention Stage

The IDI spanned 14 weeks and was designed to enhance students' learning performance, using both quantitative and qualitative data collected at the pre-IDI stage. The researcher presented the IDI in a chronological sequence, as shown in Figure 2.

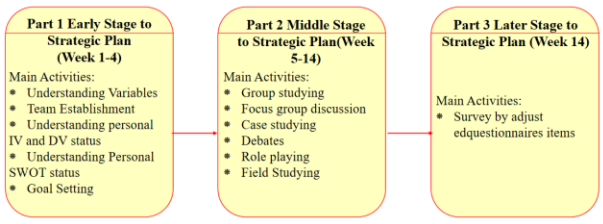

Figure 2: IDI Activities

4.3 Results Comparison between Pre-IDI and Post-IDI

The researcher conducted a paired-sample t-test analysis on all seven variables to determine if there were any differences in students' self-regulated learning between the pre-strategic plan and post-strategic plan phases. The following tables provide a detailed overview of the paired-sample t-test results for the seven variables.

Table 4: Paired-Sample T-Test Results

Variables	Mean	SD	SE	p-value
Self-evaluation				
Pre-strategic plan	2.993	0.741	0.135	P<0.01
Post-strategic plan	3.967	0.754	0.138	
Information quality				
Pre-strategic plan	3.239	0.778	0.142	P<0.01
Post-strategic plan	4.025	0.826	0.151	
Service quality				
Pre-strategic plan	3.065	0.706	0.129	P<0.01
Post-strategic plan	4.317	0.609	0.111	
Students' attitude				
Pre-strategic plan	3.308	0.706	0.129	P<0.01
Post-strategic plan	4.189	0.709	0.129	
Course quality				
Pre-strategic plan	2.957	0.724	0.132	P<0.01
Post-strategic plan	4.211	0.675	0.123	
Peer help				
Pre-strategic plan	3.303	0.713	0.130	P<0.01
Post-strategic plan	4.222	0.674	0.123	
Active use of feedback				
Pre-strategic plan	3.156	0.724	0.132	P<0.01
Post-strategic plan	4.214	0.658	0.120	
Self-regulated learning				
Pre-strategic plan	3.346	0.780	0.142	P<0.01
Post-strategic plan	4.121	0.658	0.120	

Table 4 presents the paired-sample t-test results comparing the pre-strategic plan and post-strategic plan phases as follows:

Self-evaluation: There was a significant increase from pre-strategic plan (M=2.993, SD=0.741, SE=0.135) to post-strategic plan (M=3.967, SD=0.754, SE=0.138), with a mean difference of 0.974. The p-value is less than 0.01, indicating a statistically significant difference, supporting H8.

Information quality: A significant increase was observed from pre-strategic plan (M=3.239, SD=0.778, SE=0.142) to post-strategic plan (M=4.025, SD=0.826, SE=0.151), with a mean difference of 0.786. The p-value is less than 0.01, confirming a statistically significant difference, supporting H9.

Service quality: There was a significant increase from pre-strategic plan (M=3.065, SD=0.706, SE=0.129) to post-strategic plan (M=4.317, SD=0.609, SE=0.111), with a mean difference of 1.252. The p-value is less than 0.01, indicating a statistically significant difference, supporting H10.

Students' attitude: A significant increase was noted from pre-strategic plan (M=3.308, SD=0.706, SE=0.129) to post-strategic plan (M=4.189, SD=0.709, SE=0.129), with a mean difference of 0.881. The p-value is less than 0.01, confirming a statistically significant difference, supporting H11.

Course quality: There was a significant increase from pre-strategic plan (M=2.957, SD=0.724, SE=0.132) to post-strategic plan (M=4.211, SD=0.675, SE=0.123), with a mean difference of 1.254. The p-value is less than 0.01, indicating a statistically significant difference, supporting H12.

Peer help: A significant increase was found from pre-strategic plan (M=3.303, SD=0.713, SE=0.130) to post-strategic plan (M=4.222, SD=0.674, SE=0.123), with a mean difference of 0.919. The p-value is less than 0.01, indicating a statistically significant difference, supporting H13.

Active use of feedback: There was a significant increase from pre-strategic plan (M=3.156, SD=0.724, SE=0.132) to post-strategic plan (M=4.214, SD=0.658, SE=0.120), with a mean difference of 1.058. The p-value is less than 0.01, confirming a statistically significant difference, supporting H14.

Based on the paired-sample t-test results, the researcher concluded that all seven variables showed significant mean differences between the pre-strategic plan and post-strategic plan phases. Additionally, there was a significant increase in students' self-regulated learning between these phases.

5. Conclusions, Recommendations and Limitations

5.1 Conclusions & Discussions

The research aimed to explore the influence of various factors on students' self-regulated learning, which is their ability to independently manage their learning process. Specifically, the study examined how self-assessment, the quality of information and services, student attitudes, course

quality, peer support, and active use of feedback affect this form of learning.

To ensure the reliability of the findings, the researchers validated the survey questions using the Index of Item-Objective Congruence (IOC) to confirm they accurately reflected the intended constructs. They also assessed the consistency of the survey results during a preliminary testing phase with Cronbach's Alpha.

Data was collected from 129 students at the Shanghai Urban Construction Vocational College and analyzed using multiple linear regression to explore the relationships between the identified factors and students' ability to self-regulate their learning.

Additionally, a smaller group of 30 students participated in a 14-week program designed to enhance their self-regulated learning. The researchers measured these students' self-regulated learning before and after the program and used a paired-sample t-test to determine whether the program had a significant impact.

The study concluded that the examined factors—self-evaluation, information quality, service quality, student attitudes, course quality, peer support, and active use of feedback—significantly influence self-regulated learning among students. The research methodology was robust, strengthening the validity of the results. The intervention with the 14-week strategic plan also led to a significant improvement in the students' self-regulated learning, demonstrating the program's effectiveness.

This study made a valuable contribution by highlighting ways to encourage students to manage their own learning, particularly by improving their self-evaluation, the quality of information and services they receive, their attitudes, course quality, peer support, and active use of feedback within the context of higher vocational education in Shanghai, China. The research was conducted with a strong methodological approach and thorough analysis, leading to practical insights that can inform educational policies and interventions aimed at fostering these essential skills in students, ultimately preparing them to succeed in a competitive and innovation-driven world.

5.2 Recommendations

Given the importance of information quality in self-regulated learning, educational authorities should ensure that all learning materials are accurate, up-to-date, and relevant. This may involve regular content reviews, updates, and the integration of current research and practices, particularly in the nursing field.

Optimizing service quality in educational settings, including both administrative support and teaching effectiveness, is essential. Providing professional development opportunities for educators and administrative staff can help ensure that students receive the necessary support to succeed.

Student attitudes play a crucial role in self-regulated learning. Schools should foster a positive learning environment that promotes motivation and engagement. This can be achieved through mentorship programs, motivational speakers, and workshops focused on goal-setting and time management.

Considering the importance of course quality, a systematic approach to course design and evaluation is necessary. This should include aligning course objectives with industry standards, using diverse teaching methodologies, and ensuring that assessments effectively measure student learning.

Peer support is a key factor in academic success. Establishing study groups, peer tutoring programs, and collaborative projects can facilitate peer learning and help build a strong community of practice.

Active use of feedback greatly enhances self-regulated learning. Feedback should be timely, constructive, and specific. Educators should train students on how to effectively apply feedback to their work and encourage them to actively seek feedback for ongoing improvement.

5.3 Limitations for Future Research

Relying on self-reported measures can introduce biases like social desirability or response bias. Using a mixed-methods approach that incorporates objective measures along with qualitative data could offer a more well-rounded understanding of the factors influencing academic achievement.

Although the study identified key factors, other unexplored variables might also contribute to self-regulated learning, such as personal motivation, financial stability, and emotional support. Future research should consider these potential confounding variables.

The findings of this study are specific to the cultural, social, and educational context of Shanghai, China. To determine the broader applicability of the results, future research should investigate whether these factors have the same impact in different cultural settings.

The current study did not develop or test specific interventions. Future research could focus on creating and evaluating intervention programs designed to enhance the identified factors and improve self-regulated learning outcomes.

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