EFFECT OF SELF-REGULATED LEARNING (SRL) ON ACADEMIC ACHIEVEMENT OF STUDENTS IN THE SUBJECT OF CHINESE LANGUAGE

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ABSTRACT

The study was primarily focused on investigating the effect of self-regulated learning (SRL) on the academic achievement of Chinese language learners among non-native learners. It was a true experimental research methodology based on pre-test and post-test research design. It was conducted at the University of Central Punjab (UCP) Lahore by selecting 70 students. After conducting the pre-test it was randomly allocated into dual groupings. One is the experimental while the other is the control group. After 16 weeks of treatment, a post-test was conducted. The results showed that the higher the achievement of learners of the experimental group than the learners alienated into the control group of the Chinese language post-test although all students performed equally in the pre-test which exhibited that all students had the same knowledge about the Chinese language before conducting research. It is also recommended that teachers should be conscious of employing the stratagem that initiates self-regulating learning in accordance with the contents of the textbook. Foregoing the above, it is suggested that the developers responsible for implementing the curriculum should also design the courses to inspire students to boost self-regulating-learning skills among them. Refresher-Courses for the professional-cum-novice instructors should be conducted to include the significance of self-regulating learning for students as well. The present research study was focused on the behavioral domain of self-regulating learning with respect to academic achievement of students learning the Chinese language at the university level and more is appreciated to fill the gap.

INTRODUCTION

In the globalized world of contemporary era, the educational institutions are becoming multicultural, leading to more frequent and complex linguistics interactions. This linguistics interaction enables learners to understand the cultural keystones of the language they are studying. For instance, learning any foreign language like Chinese is not just about becoming proficient in its vocabulary and grammar; it involves gaining in-depth insight into its cultural contexts employed in various educational settings. This linguistics awareness enriches the language learning and enhances the students' ability to be proficient in a foreign language for day to day conversation with native speakers (Shen et al., 2023; Chen & Hsiao, 2023). The ability of the day to day interconnectedness is indispensable which not only enhances the practical use of a language but also considerably impacts the learner's cognitive, emotional and behavioral engagement. The significance of mastering supplementary languages, particularly Chinese, has been widely accentuated as learning Chinese serves not only as an opening to bilateral communication but also as a strategic

advantage in a world increasingly well-wrought by China's global guidance. This global shift has raised the urgency of Chinese language education in curricula worldwide. However, achieving academic success in Chinese remains challenging, especially due to the language's inherent complexity, which presents significant obstacles for non-native learners (Liu & Chen, 2023).

Learners of various backgrounds and abilities face significant challenges when learning a tonal language like Chinese, which requires mastery of complex characters, tones, and grammar. Despite these challenges, those who employ self-regulated learning (SRL) techniques such as setting specific goals, managing their study time effectively, and persistently practicing tend to achieve academic excellence in learning Chinese language. These learners are able to overcome the unique hurdles in understanding the tonal distinctions, which are essential for linguistic expertise in Chinese. Recent research emphasizes the importance of SRL in language learning, showing that students who adopt these techniques not only accomplish better scholastically but also develop greater confidence in their learning process (Kitsantas & Cleary, 2023; Luo & Zhou, 2024). Ensuring academic excellence in assistance with self-regulated learning (SRL) techniques is a dire need of the hour, particularly in the challenging context of learning foreign languages like Chinese. The relationship between SRL and academic success is well-documented, with students who actively engage in these techniques often achieving higher proficiency levels. This is especially true in learning Chinese, where the complexities of tonal pronunciation and character mastery require sustained effort and effective learning strategies. Learners who employ SRL are better equipped to overcome these challenges, leading not only to improved performance but also to a deeper understanding and retention of the language. Research supports the positive impact of SRL, highlighting its essential role in enabling students to achieve academic excellence in demanding language-learning environments (Luo & Zhou, 2024). Agreeing with the same, Kim et al. (2023) deliberated direct interrelatedness for self-regulated-learning and academic-achievement. Thus, excelling academically in Chinese language learning hinges on SRL techniques, which empower students to navigate the language's complex characters and tones (Lyu & Wang, 2023).

In this study, the researcher focuses on self-regulated-learning which is the behavioral domain of SRL and playing a highly influencing role in excelling the academic achievement regarding learning a foreign language like Chinese as. The behavioral domain encompasses the actions and practices that learners engage in to manage their learning, such as time management, persistence in language practice, and the consistent application of learning strategies. These behavioral techniques are particularly crucial in mastering the foreign language especially the Chinese language, which requires regular practice and active engagement with complex characters and tonal pronunciation. Recent studies have highlighted the strong correlation between consistent, disciplined study habits and higher levels of language proficiency (Lyu & Wang, 2023). By emphasizing the behavioral aspects of SRL, this study aims to provide insights into how it affects students 'linguistic prowess in the subject of Chinese language.

Statement of the Problem

Despite the increasing global interest in learning Chinese as a foreign language, many non-native learners struggle to achieve proficiency due to the language's inherent complexities, such as its logographic writing system, tonal pronunciation, and unique grammatical structures (He & Wang, 2023). Present research is largely focused a significant gap in understanding the behavioral aspects of self-regulated learning (SRL) and their impact on academic achievement of learners in the subject of Chinese language. Specifically, there is a lack of comprehensive studies examining how persistent and strategic behavioral practices, within the framework of SRL, influence academic achievement in learning Chinese language. Therefore, there is a critical need to explore the role of SRL's behavioral domain in enhancing language proficiency, particularly in relation to different types of learner motivation, to provide evidence-based recommendations for educators and policymakers.

Objective of the Study

1. To analyze the impact of self-regulated learning (SRL) techniques on the academic achievement of students in learning Chinese language.

Research Hypotheses

2. H0: There is no significant difference found in the academic achievement of Chinese language learners in the pre-test.

3. H1: SRL Technique has no significant effect on academic achievement of experimental group in the post-test.

4. H2: There is significant difference in the post-test of the control group.

LITERATURE REVIEW

According to Panadero (2017), self-regulated learning (SRL) refers to the process by which learners actively manage their own learning through goal setting, self-monitoring, self-assessment, and strategic use of learning resources (Wang, 2023). It involves a cyclical process where learners plan, execute, and reflect on their learning strategies, adjusting them as needed to achieve their academic goals. Key indicators of SRL include effective time management, persistence in overcoming challenges, use of metacognitive strategies, and consistent self-evaluation (Schunk & Greene, 2023). The scope of SRL extends to various educational contexts, including language learning, where it is critical for mastering complex skills like those required in Chinese language acquisition (Tseng et al., 2022). Zhou and Li (2023), opinionated that the relationship between Self-Regulated Learning (SRL) and academic achievement in the subject of learning Chinese language is decisive, particularly in the perspective of the complexity of the language. Because SRL involves such a set of strategies including goal setting, self-monitoring, and time management, which are essential for navigating the unique challenges of mastering Chinese characters, tones, and grammar. Therefore, it was quite evident that students who effectively employed these self-regulatory behaviors were better equipped to handle these challenges, leading to higher proficiency levels (Chen & Wang, 2024). Moreover, SRL promotes consistent practice and reflective learning, enabling students to adjust their strategies and deepen their understanding, ultimately resulting in improved academic performance in learning Chinese language (Lyu & Wang, 2023). SRL techniques such as goal setting, time-management, and the consistent application of learning techniques, are crucial for excelling in the complexities of the Chinese language includes the acquisition of characters, tones, and grammar (Zheng, 2022).

Moreover, in the context of SRL the behavioral domain is crucial as it encompasses the tangible actions and practices that learners adopt to manage their learning processes effectively. It involves specific behaviors such as time management, goal setting, task persistence, and the consistent application of learning strategies. When students actively engage in such accomplishments, they are more likely to experience deeper learning, which goes beyond mere surface understanding and leads to a more profound comprehension of the subject matter. In language learning, particularly with challenging languages like Chinese, students with strong self-regulation in the behavioral domain such as goal setting and persistent practice are more likely to engage in deep learning. This deep engagement fosters a genuine understanding of the material, leading to better academic outcomes. SRL is especially effective in contexts where intrinsic motivation drives these behaviors, promoting sustained academic excellence, as these learners are more likely to engage in deep learning practices that lead to better academic outcomes (Lai & Gu, 2023; Wang & He, 2023). Acquiring proficiency in the Chinese language presents unique challenges that stem from its distinct linguistic characteristics. The complexity of Chinese characters, which are logographic rather than alphabetic, poses significant difficulties for learners, especially those whose first languages use alphabetic scripts (Lyu & Wang, 2023). The tonal nature of Chinese, where meaning is often differentiated by pitch, adds another layer of difficulty, requiring learners to develop acute auditory discrimination skills (Zhang & Yin, 2023).

Furthermore, the intricate grammar and syntax of Chinese, which differ considerably from Indo-European languages, can lead to confusion and errors, particularly in sentence structure and word order (Li & Xu, 2022). These challenges are compounded by the need for extensive memorization and consistent practice, which can be overwhelming for learners, especially without strong intrinsic motivation or effective self-regulated learning strategies (He, 2023). Addressing these challenges requires tailored instructional approaches that consider the unique difficulties of Chinese language acquisition, as well as the development of supportive learning environments that encourage persistence and resilience.

The behavioral domain of SRL plays also a crucial role in the successful learning of Chinese language as it focus on the actions and practices that learners engage in to develop proficiency. For Chinese language learners, this includes consistent practice in writing characters, accurate pronunciation of tones, and regular engagement with listening and speaking exercises (Wang & Zhao, 2023). Persistence in these behaviors is particularly important, as the complexity of Chinese requires sustained effort over time to achieve fluency (Liu & Chen, 2023). Additionally, the behavioral aspect of language learning involves the strategic use of learning resources, such as flashcards, language apps, and immersion experiences, which help reinforce the material and build language habits developed by SRL (Sun & Li, 2022). Non-native learners who actively manage their study routines and consistently apply effective learning strategies are more likely to overcome the challenges of Chinese language acquisition and achieve higher levels of competency (Gao & Wu, 2023). This behavioral commitment is essential for navigating the intricacies of the language and ultimately mastering the Chinese language. A quick review of the literature on Chinese language learning reveals that while many studies have explored various aspects, there's a notable gap in understanding how SRL strategies interact with specific behaviors in this context. Most research has focused on SRL strategies in general but has often overlooked how particular behaviors, like effective time management, persistence in practice, and the strategic use of digital tools, contribute to language proficiency, especially in learning Chinese (Liu & Chen, 2023).

Future research should aim to address these gaps by investigating how specific behavioral practices within the SRL framework influence Chinese language learning. Longitudinal studies that track learners' progress over time could provide valuable insights into how persistent and strategic behaviors contribute to sustained language learning success. Moreover, examining the role of motivation in moderating the effectiveness of SRL strategies could offer practical guidance for educators in tailoring their instructional approaches to different learner profiles. This line of inquiry would not only deepen our understanding of the behavioral domain in language acquisition but also inform the development of more effective teaching methodologies that support non-native learners in mastering the complexities of the Chinese language.

METHODOLOGY

It was true experimental research based on pre-test and post-test design. It was conducted in University of Central Punjab (UCP). There were 70 participants in the present research who were randomly selected and were enrolled in Chinese classes in the 2022 - 2024 academic years.

Instrumentation and Pilot Testing

The researcher developed pre- and post-tests from Chinese textbooks at the HSK-I level for this investigation, guided by Bloom's Taxonomy. After creating the tests, their validity was confirmed through discussions with Chinese language instructors from the research committee. Modifications were made based on the recommendations of the university's research committee, and the revised tests were then used for the final round of data collection. The content validity of the instruments was determined using the test-retest method, and the post-test's Cronbach's Alpha reliability, calculated using the Statistical Package for Social Sciences (SPSS), was (0.91), indicating a high degree of correlation among the test items. Focusing on the behavioral domain of self-regulated learning, the materials specifically targeted the development of habits, routines, and practical skills that enhance students' ability to manage their learning

activities effectively. Prior to the main experiment, a pilot test was conducted with a smaller group of participants to assess the clarity, practicality, and effectiveness of the research tools, including questionnaires and tests measuring the impact of Self-Regulated Learning (SRL) on academic performance. Feedback was collected on the clarity of questions, instructions, and test length, while researchers analyzed the findings for potential irregularities. Based on this input, ambiguous questions were revised, instructions were simplified, and the test format was adjusted. Irrelevant or duplicate questions were removed, and timing issues were resolved to improve the overall effectiveness of the research instruments.

Participants and Procedure

The research was conducted in University of Central Punjab (UCP), Lahore. The researcher went in person to the office of the Head of Department to request permission to perform an experiment at this university. After seeking permission, the researcher administered a pre-test to students with consent in order to ascertain their prior knowledge and characteristics. Following that, a basic random selection procedure was used to choose 35 students for the experimental group and 35 students for the control group. For sixteen weeks, the researcher carried out the experiment. During treatment, in the first week the researcher developed time management skill in student by providing them teaching-learning material (TLM) and via activities. In the second week the researcher developed self-efficacy in students by providing them content and visualizing videos. In the third week, in order to develop resource-management skill the researcher provided them activities and visualizing videos. In the last week the researcher developed self-preparedness skill in students via activities and provided them respective TLM. After that all the provided skills were measured via paper-pencil test and observation to make sure whether the experimental group had become self-regulated learner or not. So at the end after making sure about self-regulated learning skills among students of experimental group then the instructor started teaching the contents from HSK-I textbook. After the span weeks was over, then it was found that the learners who were grouped in experimental group showed better time-management, self-efficacy and were managing their learning resources effectively as compared to the learners in control group. Moreover, the self-preparedness was observed more in the students of the experimental group the learners of the control group. After teaching 16 weeks a post-test was conducted to find out the Chinese language learning performance of the self-regulated learners and traditional learners. The results are shown in the following tables.

Data Collection and Analysis

Pre-test and post-test were administered to collect the data from the respondents. Number was assigned to the received test in the form of achievement score. After that these were coded and entered into computer for statistical treatment. Inferential statistics was applied to analyze the data with the help of SPSS software.

RESULTS AND DISCUSSION

Difference between the experimental group's and the control groups pre-test mean achievement scores

Table 1. Difference in the mean achievement score of the experimental group and control group in pre-test.

Groups	N	M	SD	t	df	Sig
Control	35	9.89	1.961	2.679	68	.098
Experimental	35	10.06	1.578			

Results demonstrated in table 1 shows that the computed t-value is 2.679 > 1.994 table value at 68 df and computed p = .098 > α = .05 which indicated that no important variation was found between experimental group's mean score and control group' mean score in pre-test of Chinese language. Therefore, accepted the null hypotheses and concluded that all students had same prior knowledge about Chinese language

because they performed equally in the pre - test. Thus the hypothesis "H0: There is no significant difference found in the academic achievement of Chinese language learners in the pre-test" is rejected.

Difference in the Mean Achievement Score of the Experimental and Control Group in the Post-test

Table 2. Difference in the mean attainment score of the experimental group and control group in post-test.

Groups	N	M	SD	t	df	Sig
Control	35	11.31	2.374	-6.374	68	.000
Experimental	35	23.43	1.650			

Results reported in table 2 showed that the computed t-value is – 6.374 < 1.994 table value at 68 df, and computed p = .000 < α = .05 which indicated that statistically noteworthy variance occurred in the average attainment score of the control group and experimental group in post-test of Chinese language learning. Hence, null hypotheses rejected and concluding that students of experimental group and control group performed differently in the post-test. Thus the hypothesis "H1: SRL Technique has no significant effect on academic achievement of experimental group in the post-test" is accepted.

Further, to know which degree the mean score of the experimental group and control group differed in the post-test, pair sample t – test was used. (Table 3a, 3b and Table 4a, 4b).

Experimental Group' Difference in the Average Attainment Score in Pre and Post-test

Table 3a. Difference in the average attainment score of the experimental group's pre and post – test.

Test		N	r	Sig.
Pair 1	Pre - test & Post – test	35	.566	.000

Results described in table 3a disclosed that the computed *r* = .566 and computed sig = .000 which indicated that mean achievement scores in pre- test and post – test were significant moderately correlated. Concluding that pre - test and post-test scores were moderately correlated of the experimental group. The following table 3b disclosed the pair difference.

Table 3b. Pair difference in the pre- test and post t-test of the experimental group.

Paired Differences					t	df	Sig. (2-tailed)
		M	SD	SE.M			
Pair 1	Pre -Test – Post -test	13.37	1.505	.254	- 43.93	34	.000

Results reflected in table 3b disclosed that there was a noteworthy average difference existed between pre – test and post-test scores of the experimental group. Computed t = - 43.93 < 2.032 at 34 df, computed p = .000 < α = .05 which indicated that average post-test scores were 13.37 points higher than pre - test scores of experimental group. So, concluding that self-regulating learning moderately effected students of experimental groups' academic achievement in Chinese language learning.

Table 4a. Difference in the mean attainment score of the control group in Pre – test and Post – test.

Test		N	r	Sig.
Pair 1	Pre - test & Post – test	35	.253	.143

Results showed in table 4a disclosed that the computed *r* = .253 and computed sig = .143 which indicated that mean achievement scores in pre- test and post – test were not significantly correlated. Concluding that pre - test and post-test scores were not significantly correlated of the control group.

Table 4b. Paired difference in the pre- test and post t – test of the Control Group.

Paired Differences					Kolmogorov Smirnov		
		M	SD	SE.M	t	df	Sig.
Pair 1	Pre -Test Post –test	1.42	2.44	.581	-15.09	34	.000

Results presented in table 4b disclosed that there was a noteworthy average difference was found between pre – test and post-test scores of control group. Computed t = - 15.09 < 2.032 at 34 df, p < 0.00 which indicated that post-test's average scores were 1.42 points greater than the scores in pre - test of control group. It indicated that attainment score of the control group poorly increased in the post – test. Thus, the hypothesis "H2: There is significant difference in the post-test of the control group" is accepted.

Experimental and control group's comparison of improvement in Pre – test and Post –test

Table 5. Comparison of improvement in pre-test and post-test

Groups	x̄ Pre-test	x̄ Post-test	Mean Improvement
Control group (n = 35)	9.89 (df = 1.994)	11.31 (df = 2.032)	1.42
Experimental group (n = 35)	10.06 (df = 1.994)	23.43 (df = 2.032)	13.37
Mean Difference	0.17	12.12	11.95

Results reported in table 5 illustrated that 9.89 was control group's achievement score in pre-test and 10.06 was experimental group's mean achievement score in pre-test which show no significant variation. In post-test, control group's average achievement score was 11.31 and 23.43 were experimental group's average attained score in post-test which indicated that in the post test, experimental group's students achieved more score than the control group. Furthermore, the improvement of the control group is 1.42 at 0.17 average difference and improvement of the experimental group is 13.37 at 12.12 average variation. It indicated that experimental group learn more than the control group. So, concluding that self- regulated learners learn more Chinese language than the other group of students.

An important limitation of the study is the small sample size of 70 students, which might restrict the applicability of the results. Moreover, the expected Hawthorne effect may have impacted the experimental group's performance, given their awareness of being subjected to treatment. The study exclusively examined Chinese language proficiency, overlooking the wider influence of self-regulated learning on other measures. Inadequate control of external variables, such as motivation and learning assistance, and failure to consider individual variations in learning styles may have influenced the outcomes.

Discussion

The purpose of the current study was to discover the effectiveness of self-regulated learning on the academic achievement of Chinese language learning. So, conclusion was drained from the outcomes which arise from the analysis. It is concluded that the students of experimental group performed higher than the control group in the Chinese language post-test although all students performed equally in the pre-test which indicated that all students had the same knowledge about Chinese language before conducting research. To enhance students' interest in learning Chinese language, the researcher provided treatment of 16 week to enhance self-regulating learning. After that treatment, a post-test was conducted. In the post-test, the achievement scores of the control group were also increased. The achievement score of the control group slightly increased but achievement score of the experimental group highly increased in post -test. Moreover, no significant relationship was found between the pre-test and post-test of control group because the gain of the control group was 1.42 in the post test but significant moderate relationship was

found between the pre-test and post-test of experimental group because the gain of the control group was 13.37 in the post test of Chinese language learning. So, it proved that self- regulating learning had significantly affected students' learning because self-regulated learners performed highly than the traditional learners in Chimes language. Rasheed and Akhtar (2021) found that self-regulated learning strategies significantly affected students' academic achievement in learning Chinese language at HSK-I level. Lim et al. (2020) deliberated that the performance of the students in whom the self-regulating learning were enhanced by using SRL strategies; not performed high in Chinese language test while the Students who just read articles before reading questions performed better on Chinese written exams than their counterparts. Wang (2023) found the significant relationships between self-efficacy by applying SRL strategy and achievement score in learning Chinese language. In addition, the findings of Shen et al. (2023) and Luo and Zhou (2024) are also in line with the findings of this research.

CONCLUSIONS

The study concluded that self-regulated learning significantly affected students' academic achievement in Chinese language learning. The experimental group, which received 16 weeks of self-regulated learning treatment, performed significantly better in the post-test compared to the control group. Although both groups had similar knowledge in the pre-test, the experimental group's scores increased considerably, while the control group's improvement was minimal. A moderate, significant relationship was found between the pre-test and post-test scores of the experimental group, while no such relationship was found in the control group. Therefore, self-regulated learning strategies proved to be highly effective in enhancing students' learning outcomes in the Chinese language. This study recommends that SRL strategies be incorporated by teachers into their teaching practices to enhance students' performance. In addition, teachers should be provided with training on SRL techniques for effective implementation in classroom practices. Furthermore, on the bases of conclusions, it is recommended that teachers should apply self-regulated learning strategies to produce good results in languages learning by developing self-regulated learning skill in students.

In addition, incorporating Self-Regulated Learning (SRL) into daily classroom activities empowers students to take responsibility for their learning through goal-setting, progress evaluation, and reflection. Curriculum designers should integrate SRL concepts to promote independence, time management, and self-assessment. Future research should explore SRL across disciplines, especially STEM, and assess its long-term effects. Additionally, studying SRL in different settings, such as online platforms or with younger students, can provide insights for more tailored interventions. Universities should offer professional workshops to train teachers in SRL strategies, and curriculum designers must focus on integrating SRL into teaching methods. Future research should also explore other domains of SRL beyond the behavioral domain studied here.

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