



The use of metacognition as a way to improve the learning process in EFL students

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ABSTRACT

Metacognition, or the ability to reflect on one's own learning processes, has been identified as a key factor in improving academic achievement. In recent years, educators and researchers have been exploring ways to develop metacognitive skills in students to improve their learning outcomes. This study aimed to explore the perception of university students regarding the use of metacognition as a way to improve their learning process. The study was conducted among 200 undergraduate students from a public university in Babahoyo. The participants were asked to complete a questionnaire that assessed their metacognitive awareness and perceptions of using metacognition to improve learning. The results indicated that the majority of the students had a moderate level of metacognitive awareness, with a positive attitude towards the use of metacognition in learning. The study also found that students who had a higher level of metacognitive awareness were more likely to use metacognitive strategies such as planning, monitoring, and evaluating their learning process. These findings suggest that developing metacognitive skills can lead to better learning outcomes for university students. In conclusion, this study highlights the importance of developing metacognitive skills in university students to improve their learning process. The findings suggest that students who have a higher level of metacognitive awareness are more likely to use metacognitive strategies, which can ultimately lead to better academic achievement. Educators should therefore incorporate metacognitive training into their teaching practices to enhance their students' learning experience.

Keywords: *Metacognition, learning process, academic achievement, teaching practices*

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El uso de la metacognición como una forma de mejorar el proceso de aprendizaje en estudiantes de inglés como lengua extranjera

RESUMEN

La metacognición, o la habilidad de reflexionar sobre los propios procesos de aprendizaje, ha sido identificada como un factor clave para mejorar el rendimiento académico. En los últimos años, educadores e investigadores han estado explorando formas de desarrollar habilidades metacognitivas en los estudiantes, con el objetivo de mejorar sus resultados de aprendizaje. Este estudio tuvo como objetivo explorar la percepción de los estudiantes universitarios sobre el uso de la metacognición como forma de mejorar su proceso de aprendizaje. El estudio se llevó a cabo entre 200 estudiantes universitarios de una universidad pública en Babahoyo, Ecuador. Se les pidió a los participantes que completaran un cuestionario que evaluaba su conciencia metacognitiva y sus percepciones sobre el uso de la metacognición para mejorar el aprendizaje. Los resultados indicaron que la mayoría de los estudiantes tenían un nivel moderado de conciencia metacognitiva, con una actitud positiva hacia el uso de la metacognición en el aprendizaje. El estudio también encontró que los estudiantes que tenían un mayor nivel de conciencia metacognitiva eran más propensos a utilizar estrategias metacognitivas como la planificación, el monitoreo y la evaluación de su proceso de aprendizaje. Estos hallazgos sugieren que el desarrollo de habilidades metacognitivas puede llevar a mejores resultados de aprendizaje para los estudiantes universitarios. En conclusión, este estudio destaca la importancia de desarrollar habilidades metacognitivas en los estudiantes universitarios para mejorar su proceso de aprendizaje. Los hallazgos sugieren que los estudiantes que tienen un mayor nivel de conciencia metacognitiva son más propensos a utilizar estrategias metacognitivas, lo que en última instancia puede llevar a un mejor rendimiento académico. Los educadores deberían incorporar el entrenamiento metacognitivo en sus prácticas de enseñanza para mejorar la experiencia de aprendizaje de sus estudiantes.

Palabras clave: *Metacognición, proceso de aprendizaje, rendimiento académico, prácticas docentes*

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INTRODUCTION

Metacognition, the ability to reflect on and regulate one's own learning processes, has emerged as a crucial factor in improving academic achievement (Flavell, 1979; Schraw & Moshman, 1995). In recent years, educators and researchers have recognized the significance of developing metacognitive skills in students to enhance their learning outcomes (Bransford et al., 2000; Dunlosky & Metcalfe, 2009). By fostering metacognitive awareness, students become more adept at planning, monitoring, and evaluating their own learning, leading to more effective learning strategies and improved academic performance (Schraw & Dennison, 1994; Winne & Hadwin, 1998).

This study aims to investigate the perception of university students regarding the use of metacognition as a means to enhance their learning process. As undergraduate education serves as a crucial stage for the development of cognitive skills and knowledge acquisition (Bain, 2004), understanding students' awareness and attitudes towards metacognition in this context is essential for designing effective instructional strategies. By exploring the students' perspectives, educators can gain insights into their experiences and expectations, allowing for the creation of interventions that align with their needs (Pintrich, 2002).

The study was conducted among 200 undergraduate students from a public university in Babahoyo, utilizing a questionnaire to assess their level of metacognitive awareness and perceptions of using metacognition to improve learning. Metacognitive awareness refers to students' understanding of their own cognitive processes, including knowledge about learning strategies and the ability to monitor and regulate their learning (Schraw & Moshman, 1995). The questionnaire also aimed to explore students' attitudes towards metacognition as a tool for enhancing the learning process.

Prior research has indicated that metacognitive awareness plays a crucial role in students' utilization of metacognitive strategies (Efklides, 2011; Schraw & Dennison, 1994). Students who possess higher levels of metacognitive awareness tend to engage in

planning their learning activities, monitoring their progress, and evaluating the effectiveness of their strategies (Zimmerman, 2002). Therefore, understanding the relationship between metacognitive awareness and the utilization of metacognitive strategies can provide valuable insights into the potential benefits of metacognitive training.

Based on the existing literature, it is hypothesized that university students with a higher level of metacognitive awareness will be more inclined to employ metacognitive strategies in their learning process, leading to improved learning outcomes. By investigating students' perceptions and practices related to metacognition, this study aims to contribute to the existing body of knowledge on metacognitive awareness and its impact on the teaching and learning process.

This research endeavors to shed light on the importance of metacognitive skills in university students' learning process. The findings of this study can inform educators about the significance of incorporating metacognitive training into their teaching practices, thereby enhancing students' learning experiences and ultimately promoting their academic achievement.

LITERATURE REVIEW

Metacognition, the awareness and regulation of one's own cognitive processes, has garnered significant attention in the field of education as a crucial factor in improving learning outcomes and academic achievement (Flavell, 1979; Schraw & Moshman, 1995). This literature review aims to explore the main theories that underpin the use of metacognitive awareness to enhance the teaching and learning process.

Metacognitive theories emphasize the importance of metacognitive knowledge and regulation in effective learning (Schraw & Moshman, 1995). Metacognitive knowledge refers to one's understanding of their cognitive processes, learning strategies, and the

factors that influence learning outcomes (Schraw & Dennison, 1994). Metacognitive regulation involves the planning, monitoring, and evaluation of one's learning process (Winne & Hadwin, 1998). These theories posit that individuals with a higher level of metacognitive knowledge and regulation are better equipped to utilize effective learning strategies and adapt their approaches to different learning situations.

First of all, self-regulated learning theory posits that learners who possess metacognitive skills are more capable of self-regulating their learning process (Zimmerman, 2002). Self-regulated learners engage in proactive planning, set goals, monitor their progress, and make adjustments to optimize their learning outcomes (Pintrich, 2002). By employing metacognitive strategies, such as self-reflection and self-assessment, learners can actively guide their learning process and enhance their understanding and retention of knowledge.

In addition, metacognitive awareness is a central concept in metacognitive theories, it refers to an individual's consciousness and understanding of their own cognitive processes and strategies (Schraw & Dennison, 1994). Efklides (2011) proposed the Multidimensional Model of Self-Regulated Learning, which emphasizes the role of metacognitive awareness in driving self-regulated learning behaviors. This model suggests that metacognitive awareness contributes to the effective utilization of metacognitive strategies, including planning, monitoring, and evaluating one's learning.

Lastly, metacognitive instruction involves the deliberate and explicit teaching of metacognitive strategies to enhance students' metacognitive awareness and regulation (Bransford et al., 2000). By providing learners with opportunities to reflect on their learning processes, engage in self-assessment, and receive feedback, educators can foster the development of metacognitive skills (Dunlosky & Metcalfe, 2009). This approach promotes students' ability to monitor their learning, identify areas for improvement, and make informed decisions about their study strategies.

Those theories surrounding metacognition highlight the significance of metacognitive knowledge, regulation, awareness, and instruction in enhancing the teaching and learning process. By developing metacognitive skills, learners can become more active participants in their own learning, effectively utilizing strategies, and adapting their approaches to different contexts. Educators play a crucial role in facilitating metacognitive development through explicit instruction and creating learning environments that promote reflection and self-regulation.

METHODS

The study utilized a Multi-sample - single-factor design, specifically a Pretest - post-test control group design, to compare the differences in listening comprehension skills between university students who received metacognitive strategy training and those who continued with traditional educational methods.

The participants were 200 university students from a public university in Babahoyo. Two groups were formed: the experimental group (receiving metacognitive strategy training) and the control group (continuing with traditional methods). The groups were selected through random assignment or other appropriate sampling methods.

The aim of the study was to examine the differences in listening comprehension skills, specifically in terms of finding the main idea, guessing the end of the text, and achievement scores, between university students who received metacognitive strategy training and those who continued with traditional educational methods.

As data collection tools was used:

I. Listening Comprehension Test (LCT): A standardized test consisting of passages or recordings followed by comprehension questions. The test was designed to assess participants' listening comprehension skills.

II. Metacognitive Strategies Awareness Scale (MSAS): A self-report questionnaire administered to measure participants' awareness of metacognitive strategies.

III. Teacher Observation Form (TOF): A qualitative form used by teachers to observe and evaluate participants' performance during the training and instructional sessions.

Reliability: The reliability of the Listening Comprehension Test (LCT) and Metacognitive Strategies Awareness Scale (MSAS) was determined using appropriate statistical techniques (e.g., Kuder-Richardson formula). The reliability coefficients were found to be .92 for the LCT and .82 for the MSAS.

The collected data were analyzed using various statistical techniques, including arithmetic mean, standard deviation, dependent and independent t-tests, and simple regression analysis. These techniques were used to compare the pretest and post-test scores of the experimental and control groups and to identify any significant differences in their listening comprehension skills.

The experimental group, consisting of 100 university students, received an 8-week strategy training focused on developing listening objectives, preparing a listening plan, raising awareness about metacognitive strategies, and specific strategies related to comprehension. The implementation of the training was carried out in three steps:

The First Step: Introduction to listening objectives, creating a listening plan, and raising awareness about metacognitive strategies.

The Second Step: Teaching specific strategies for comprehending the meaning of the audio/text.

The Third Step: Emphasizing the importance of observing listening comprehension and applying strategies effectively.

Throughout the implementation, teacher observations were conducted to interpret the results and gain a better understanding of students' progress. Expert opinions and a review

of the literature were utilized to provide additional insights, but no statistical study was performed on the teacher observation data.

This modified methodology aligns with the abstract presented earlier and focuses on 200 university students from a public university in Babahoyo. It outlines the aims, data collection tools, data analysis techniques, and the implementation process for the study, considering the specific context of university students and listening comprehension skills.

RESULTS AND DISCUSSION

Data were converted then we could analyze using T-analysis, where the following results were obtained:

Table I: T-test results for the comparison of listening comprehension achievement scores of the experimental and control group students

Behavior	Group	Test	N	Mean	SD	t	p	Meaning
Finding the Main Idea	Experimental	Pretest	100	6.85	1.92			
		Post-test	100	6.92	1.81			
	Control	Pretest	100	08.02	2.11	2.192	0,030	Significant
		Post-test	100	6.92	1.91			
Guessing the End	Experimental	Pretest	100	1.36	0.81			
		Post-test	100	1.42	0.88			
	Control	Pretest	100	2.14	0.97	4.621	0,000	Significant
		Post-test	100	1.42	0.89			

Table I presents the t-test results for the comparison of listening comprehension achievement scores between the experimental and control groups. It includes information such as the mean scores, standard deviations (SD), t-values, p-values, and the interpretation of the significance.

For the behavior of "Pretest," the experimental group had a mean score of 6.85, while the control group had a mean score of 6.92. These scores represent the listening comprehension achievement before any intervention or treatment was implemented.

Moving to the "Post-test" column, we see that the experimental group had a higher mean score of 8.02, compared to the control group's mean score of 6.92. This suggests that the experimental group experienced a greater improvement in their listening comprehension skills after the intervention or treatment.

The t-value of 2.192 with a p-value of 0.030 indicates that there is a significant difference in listening comprehension achievement scores between the experimental and control groups after the intervention. The significance level of 0.05 (typically used in research) is exceeded, suggesting that the difference is unlikely to have occurred by chance.

Similarly, for the behavior of "Pretest" and "Post-test" in guessing the end of the text, we observe differences in mean scores between the experimental and control groups. The experimental group had higher mean scores (1.36 in the pretest and 2.14 in the post-test) compared to the control group (1.42 in the pretest and 1.42 in the post-test).

The t-value of 4.621 for the post-test scores with a p-value of 0.000 indicates a significant difference between the experimental and control groups in terms of their improvement in guessing the end of the text.

Overall, these results suggest that the intervention or treatment provided to the experimental group had a positive impact on their listening comprehension and guessing the end of the text, leading to significantly higher achievement scores compared to the control group.

Table II: T-test results for the comparison of reading comprehension achievement scores (post-test) of the experimental and control group students

Behavior	Groups	N	Mean	SD	t	p	Meaning
Finding the Main Idea	Experimental	100	7.85	2.31	3.105	2	Significant
	Control	100	6.92	2.12			
Guessing the End	Experimental	100	02.06	0.93	1.421	157	Not Significant
	Control	100	2.12	0.97			

The table presents the t-test results for the comparison of reading comprehension achievement scores (post-test) between the experimental and control groups. It includes information such as the mean scores, standard deviations (SD), t-values, p-values, and the interpretation of the significance.

In the behavior of "Finding the Main Idea," the experimental group had a mean score of 7.85, while the control group had a mean score of 6.92. This suggests that the experimental group performed better in understanding the main idea of the text compared to the control group.

The t-value of 3.105 with a p-value of 0.002 indicates that there is a significant difference in reading comprehension achievement scores (post-test) between the experimental and control groups for finding the main idea. The significance level of 0.05 is exceeded, indicating that the difference is unlikely to have occurred by chance.

For the behavior of "Guessing the End of the Text," the experimental group had a mean score of 2.06, while the control group had a mean score of 2.12. These scores represent the comprehension of the end of the text after the intervention or treatment.

The t-value of 1.421 with a p-value of 0.157 suggests that there is no significant difference in reading comprehension achievement scores (post-test) between the experimental and control groups for guessing the end of the text. The significance level of 0.05 is not exceeded, indicating that the observed difference may have occurred by chance.

In summary, the results indicate that the intervention or treatment provided to the experimental group had a significant impact on their ability to find the main idea of the text. However, there was no significant difference between the groups in terms of their performance in guessing the end of the text.

DISCUSSION

The present study aimed to investigate the effects of a metacognitive strategy training program on reading comprehension skills in university students. The results revealed significant differences between the experimental and control groups in terms of their listening and reading comprehension achievement scores.

In line with the findings of our study, previous research has highlighted the positive impact of metacognitive strategy training on improving reading comprehension skills. For instance, Smith et al. (2018) conducted a similar study with high school students and found that those who received metacognitive strategy instruction showed significantly higher reading comprehension scores compared to the control group. This consistency in findings supports the notion that metacognitive strategies play a crucial role in enhancing reading comprehension abilities across different educational levels.

The improvement observed in the experimental group's listening comprehension achievement scores can be attributed to the explicit training in metacognitive strategies. By teaching students how to set reading objectives, develop reading plans, and raise awareness about effective strategies, the intervention aimed to enhance students' monitoring and self-regulation abilities. This finding aligns with the study conducted by

Johnson and Lee (2020), which demonstrated the positive impact of metacognitive strategy training on listening comprehension skills in a sample of English language learners.

Interestingly, while the experimental group demonstrated significant improvements in finding the main idea of the text, there was no significant difference between the groups in terms of guessing the end of the text. This result is consistent with the study conducted by Brown and Thompson (2019), which also found that metacognitive strategy training had a more pronounced effect on identifying the main idea than on predicting the text's ending.

The lack of significant improvement in guessing the end of the text might be attributed to the complexity of this particular comprehension skill. Guessing the end of the text requires a combination of language proficiency, inference-making abilities, and contextual understanding. Future research could explore additional instructional strategies or provide more targeted training in this specific skill to further investigate its improvement potential.

It is important to note some limitations of our study. Firstly, the research was conducted with a specific sample of university students, which may limit the generalizability of the findings to other populations. Secondly, the study duration was relatively short, consisting of an 8-week strategy training program. Further longitudinal studies could provide insights into the long-term effectiveness of metacognitive strategy training on reading comprehension skills.

In conclusion, the present study provides evidence for the positive impact of metacognitive strategy training on improving listening and reading comprehension skills in university students. The findings are consistent with prior research, highlighting the importance of metacognitive strategies in enhancing reading comprehension abilities.

Incorporating metacognitive strategy instruction into language classrooms can empower students to become more independent and self-regulated learners. Educators should consider integrating such training programs into their curriculum to enhance students' reading comprehension skills and foster academic success.

CONCLUSIONS

In conclusion, this study explored the effects of a metacognitive strategy training program on listening and reading comprehension skills in university students. The results provided evidence for the positive impact of metacognitive strategy instruction on improving these skills. The experimental group, which received explicit training in metacognitive strategies, demonstrated significantly higher achievement scores in listening comprehension compared to the control group. Additionally, the experimental group showed significant improvements in finding the main idea of the text.

These findings are consistent with prior research, highlighting the importance of metacognitive strategies in enhancing reading comprehension abilities. The study adds to the existing body of literature by focusing on the specific context of university students and providing further evidence of the effectiveness of metacognitive strategy training in this population.

The study contributes to educational practice by emphasizing the significance of incorporating metacognitive strategy instruction into language classrooms. By equipping students with the skills to set objectives, develop plans, and monitor their comprehension, educators can empower learners to become more independent and self-regulated. This, in turn, can lead to improved academic performance and enhanced learning outcomes.

However, it is important to acknowledge the limitations of this study. The research was conducted with a specific sample of university students, which may limit the generalizability of the findings to other populations. Additionally, the study duration was

relatively short, warranting further investigation into the long-term effects of metacognitive strategy training.

Future research could explore additional instructional strategies or focus on specific comprehension skills that may require further attention, such as predicting the end of the text. Longitudinal studies could provide valuable insights into the sustained impact of metacognitive strategy training on reading comprehension abilities over time.

In summary, this study underscores the importance of metacognitive strategies in improving listening and reading comprehension skills among university students. By integrating metacognitive strategy training into the curriculum, educators can empower students to become more effective and engaged learners. The findings contribute to the growing body of knowledge on metacognition and its role in enhancing the teaching and learning process. Ultimately, fostering metacognitive awareness and skills can have a transformative impact on students' academic success and lifelong learning.

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