

Metacognitive strategies for developing English listening skills in preschoolers with special needs.

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Abstract

This article explores the benefits of implementing metacognitive strategies in the learning process within the framework of inclusive education. The research highlights that metacognition, understood as the ability to reflect on one's own psychological processes and mental functioning, is an essential tool for educators to foster the development of skills and autonomy among students. It analyzes how these tactics facilitate the acquisition of new content through analysis and reflection, allowing the curriculum to be adapted to the individual abilities of students with special educational needs (SEN).

Likewise, common limitations in professional practice are examined, such as difficulties in emotional self-regulation, time management, and information organization. Finally, the study emphasizes the relationship between attention and the level of metacognitive self-awareness, underscoring the need for students to internalize strategies for monitoring and voluntarily controlling their own investigative and academic processes to improve the quality of autonomous learning.

Keywords: Metacognition, Inclusive education, Learning strategies, Special educational needs.

Resumen

El presente artículo explora los beneficios de la implementación de estrategias metacognitivas en el proceso de aprendizaje bajo el enfoque de la educación inclusiva. La investigación destaca que la metacognición, entendida como la capacidad de reflexionar sobre los propios procesos psicológicos y el funcionamiento mental, es una herramienta esencial para que los docentes fomenten el desarrollo de competencias y la autonomía en el estudiantado. Se analiza cómo estas tácticas facilitan la adquisición de nuevos contenidos mediante el análisis y la reflexión, permitiendo adaptar el currículo a las capacidades individuales de los estudiantes con necesidades educativas especiales (NEE).

Se examinan las limitaciones comunes en la práctica profesional, tales como las dificultades en la autorregulación emocional, la gestión del tiempo y la organización de la información. Finalmente, el estudio enfatiza la relación entre la atención y el nivel de autoconciencia metacognitiva, subrayando la necesidad de que los estudiantes internalicen estrategias de monitoreo y control voluntario sobre su propio proceso investigativo y académico para mejorar la calidad del aprendizaje autónomo.

Palabras clave: Metacognición, Educación inclusiva, Estrategias de aprendizaje, Necesidades educativas especiales.

Introduction

In this paper explore the benefits of using metacognitive strategies in the learning process in line with inclusive education. As part of developing effective academic planning, teachers must ensure they correctly select the strategy to be followed in lesson planning; metacognitive tactics are strategies that teachers should consider to improve the educational process by fostering the development of required competencies.

Metacognition is a cognitive skill that allows one to reflect on one's own psychological experiences that affect learning. It allows one to recognize how the mind works during the learning process. (Casasola-Rivera Wilmer, 2022)

These tactics facilitate the acquisition of new content through analysis and reflection; they require the study of the objective and subjective aspects of the student environment, and thus lead to educational reasoning about their daily activities and the environment surrounding them. They can be applied before, during, and even after class; for inclusive education, this represents an indispensable element to consider when developing a curriculum for students with special needs, where the student's individual abilities must always be weighed alongside the competencies to be developed.

When implementing educational practices involving metacognitive strategies for professional learning and those that facilitate transfer across different contexts, there are frequent references to limitations on personal autonomy in solving professional problems, due to a lack of resources and difficulties in applying analogies, as well as difficulties in learning through diagnosis.

Following this line of thought, it is evident that there are issues regarding the relationship between metacognition and other areas of personality development, such as assertive communication methods in fostering professional competencies to tackle tasks across various training activities; difficulties in self-regulating anxiety and contingent motivations; the inconsistent use of learning strategies; and, most notably, time constraints and the selection and organization of

information; as well as limitations in guiding the metacognitive process, which disrupt the quality of the educational process.

From the students' perspective, implementing metacognitive tactics as a strategy for autonomous learning; in the educational context, a relationship is identified between attention and the student's level of metacognitive self-awareness, as they reported having conscious and voluntary control over their own attention process when engaging in research activities. This requires that students identify their levels of distraction and the degree of disengagement from the activity they are performing; it also highlights the need to develop attention strategies (tracking, comparison, and focusing) in the classroom, so that students internalize metacognitive attention skills while carrying out the academic plan designed for them. (Senra, N., López, M., & Bravo, G., 2021)

LITERARY REVIEW

Special Educational Needs

Across Latin America, one of the main challenges is the low academic performance of students with special educational needs when it comes to developing the skills required for second-language learning, and even more so when it comes to listening skills, which are the primary focus of this study. This issue has been documented by both regional and international organizations; for example, according to a report by the Latin American Laboratory for Assessment of the Quality of Education, students perform below their peers in other regions (UNESCO, 2020).

In particular, according to data from the National Institute for Educational Assessment, more than 60% of neurotypical students in Ecuador score below average on English language proficiency tests. This situation is exacerbated in rural areas, where access to digital technologies and innovative teaching materials is limited, thereby widening the educational gap compared to urban areas (Jamilah, et al., 2024).

In response to this problem, the use of metacognitive strategies in inclusive education offers alternatives that promote the development of the skills required for learning English. Through metacognitive strategies, appropriate visual and playful development is achieved thanks to personalized content, which promotes the understanding of abstract concepts and, in turn, improves academic performance (Ajila & Núñez-Wong, 2022).

Various studies have been conducted on this issue, focusing on the integration of different types of strategies, including metacognitive strategies; in the classroom; however, few studies have focused specifically on the use and effects of metacognitive strategies. From a cause-and-effect

perspective, it is assumed that implementing metacognitive strategies for students with special educational needs can significantly impact their academic success; in other words, appropriate use of these strategies can improve learning, whereas limited or disorganized use does not yield significant improvements (Romita, et al., 2024).

Metacognitive Strategies & Listening Skills

According to Burga (2019), it is important to analyze teachers' perceptions of the use of metacognitive strategies as a contribution to English language learning. When implemented in the learning process, these techniques help shape students' prior experiences, adapting them to their level of learning. Their preparation involves anticipating and evaluating the task; monitoring and self-assessment; and, finally, self-reflection, the goal of which is for students to be able to assess themselves.

To develop metacognition, it is necessary to clarify and outline the most relevant and appropriate theoretical framework for the proposal. In this regard, Hurtado et al. (2017, as cited in Carrión et al., 2023) noted that: Metacognition is a mental process through which we can reflect on how we learn as human beings. It also allows us to recognize our own limitations and strategies. Through metacognitive plans, conscious and structured actions

Traditionally, education has been conceived as the transmission of information. This pedagogical error assumes that students should automatically use the information they receive. However, knowing how to apply information is a competency and a skill that must be explicitly taught or learned. For learning to be a successful process, it must address the complex web of knowledge that persists within the educational community, which is immersed in social issues. Listening comprehension is fundamental, since if the student fails to achieve a comprehensive understanding of the information provided, they will be unable to interact coherently with their peers. (Chumaña Suquillo et al, 2019).

Based on this premise, Arévalo (2020) conducted an experimental study to assess student performance in the elective course on Listening Comprehension. In this study, students are taught about the characteristics of comprehension and the particularities of spoken language, and metacognition and self-regulation are encouraged. The goal is that, by becoming aware of their own processes, students can create their own learning opportunities outside the classroom, thereby increasing their exposure to the foreign language.

In the context of English language learning, metacognition serves as a foundation for developing listening proficiency; it manifests itself through processes such as preparation before listening, monitoring while listening, and a comprehensive assessment of the process.

The Role of the Educator

Teachers play a fundamental role in today's education system. They serve as a bridge and a tool to ensure that students with special educational needs achieve their educational goals. Teachers must receive training to develop empathetic strategies based on the principles of inclusive education. Regarding the development of listening comprehension in English language learning, the implementation of metacognitive strategies in the process of teaching a second language involves overcoming limitations in personal autonomy in problem-solving, a lack of resources, and difficulties in using analogies, as well as learning difficulties based on special educational needs (Rojas Ceballos et al., 2023).

Metacognitive strategies can be applied before, during, and even after class; this is an essential element of inclusive education when developing curricula for students with special educational needs. The individual abilities of each student must always be taken into account, along with the skills intended to be developed. In language learning, metacognitive knowledge plays a fundamental role in language acquisition; therefore, it is important to promote the use of metacognitive strategies, not only to increase the achievement of learning objectives but also to foster student autonomy and, specifically, to make progress in discursive comprehension (or understanding of discourse). (Gomez et al, 2020).

DUA Planning & Metacognitive Strategy

DUA planning transforms abstract metacognition into concrete, flexible actions that are accessible to everyone. Designs for Universal Learning (DUA) is an excellent framework for enhancing metacognitive strategies, especially for children with special needs or conditions that limit their learning process or require some form of accommodation. DUA ensures multiple forms of representation (the “what” of learning), multiple forms of action and expression (the ‘how’), and multiple forms of engagement (the “why”). (Sanchez & Lopez, 2020).

When applied to metacognition, DUA allows students to monitor their own process through:

Representation (Perception): Using visual elements that allow the student to mentally map out the process they must follow. For example: “First, I listen. Second, I point.” This clarifies the listening objective and the strategy.

Action and Expression (Strategy): Provide visuals or flashcards that allow students to express what they have heard; for example, by touching an image, moving a token, or giving a verbal response. This facilitates self-assessment while also improving their listening comprehension.

Engagement (Self-Regulation): Provide simple feedback (emojis, smiley faces) and opportunities for students to choose their next strategy (“If I missed it, should I listen with my eyes closed or look at the picture?”). This fosters awareness and planning of their own learning.

Pre-listening: Using Flashcards as a Metacognitive Strategy for Guided Planning

The use of visual aids, such as flashcards featuring images related to the audio to be played in class, allows the teacher to engage students and hold their attention, as this practice prepares the brain for what the students are about to hear—that is, it fosters a metacognitive strategy of guided advance planning. As a metacognitive tactic, before playing the audio, the teacher shows flashcards or images of the key vocabulary the students will hear (e.g., cat, dog, house). This provides a visual cue, useful for both neurotypical children and students with special educational needs (SEN), thereby creating an anchor for their attention. (Ruvalcaba, B. G, 2023).

METHODOLOGY

The purpose of this study was to analyze the use of metacognitive strategies in the learning process, in line with inclusive education. The study aimed to examine these strategies as pedagogical tools for developing listening comprehension among elementary school students.

To this end, two research instruments were designed: a structured pretest was administered using a rubric. This pretest collected data to measure the effectiveness of metacognitive strategies in students with special needs. Subsequently, a posttest was administered using the same rubric. This allowed for an accurate analysis of metacognitive tactics and their impact on developing listening skills in English language learning. In this study instruments used are in a current mode.

The population included in this study consisted of 52 second-grade students, 6 of whom have special needs; specific autism condition, whom take the test. The tests were administered during the third week of December, prior to the holidays, to the students in second-grade classes A and B.

To support the findings, interviews were also conducted with two experts in the field. These interviews sought insights that would provide non-quantifiable data relevant to this study.

The data obtained were tabulated and statistically analyzed, revealing trends in acceptance as well as the level of professor preparedness to use metacognitive strategies in the English language learning process, thereby developing listening skills in students with special needs.

This investigation is viable because metacognitive strategies are resources that teachers can acquire naturally; they can even look up information about their use online. These resources are not only free but also provide guidance on how to apply them within an educational setting where staff

are often not adequately trained in inclusive education. The study will be confined to a specific private school, allowing us to work with a limited population under homogeneous conditions, thereby reducing external variability.

ANALYSIS OF THE RESULTS

Table # 1: Results of pre-test and post-test

	PRE-TEST		POST-TEST		
Criteria	Notes	GROUP A	GROUP B	GROUP A	GROUP B
Planning & Prediction	2/2	5/25	4/27	17/25	18/27
Monitoring Comprehension	2/2	4/25	7/27	19/25	20/27
Use of Supports and Accommodations	2/2	8/25	10/27	18/25	21/27
Flexibility and Fit	2/2	7/25	9/27	19/25	18/27
Self-Assessment & Reflection	2/2	9/25	8/27	18/25	22/27
TOTAL	10/10	25	27	25	27

Source: Own Elaboration

Table 1 shows the progress in grades at a global level of the studied population, categorized by each metacognitive criterion relevant to the execution of this work.

Through the use of this metacognitive strategy, it aims to help students develop intuition when taking a listening test; this skill will be assessed using images and flashcards to help students establish a connection between what they hear and what they read and see.

Table # 2 Results of pre-test and post-test of SEN students.

	PRE-TEST							POST-TEST					
Criteria	Notes	1	2	3	4	5	6	1	2	3	4	5	6
Planning & Prediction	2/2	0	1	0	1	0	0	2	2	1	2	1	2
Monitoring Comprehension	2/2	0	1	0	0	0	0	2	1	1	2	2	1
Use of Supports and Accommodations	2/2	0	0	1	1	1	1	1	2	2	2	2	2
Flexibility and Fit	2/2	1	1	1	2	1	1	2	2	2	2	2	2
Self-Assessment & Reflection	2/2	0	0	0	0	0	1	1	2	1	1	2	1
TOTAL	10/10												

Source: Own Elaboration

Table # 2 show specifically the academic performance of students who had autism condition. Categorized according to the metacognitive criterion relevant to the execution of this work.

Table # 3 Triangulation of results

Criteria	Analyze their strengths	Partially recognizes their strengths	Frustrated but recognizes his strengths	Indifferent to their strengths	Doesn't recognize their strengths	Total
Planning & Prediction	33,33 %	40%	10 %	6,67%	0%	100%
Monitoring Comprehension	36,67%	43,33%	6,67%	13.33%	0%	100%
Use of Supports and Accommodations	30%	40%	13,33%	10%	6.67%	100%
Flexibility and Fit	26,67%	43,33%	16,67%	10%	3.33%	100%
Self-Assessment & Reflection	23.33%	46.67%	13.33%	10%	6.67%	100%

Source: Own Elaboration

Most students indicate that the metacognitive strategy of prediction and planning is effective for students with special educational needs (SEN) when identifying words through audio. The mode (40%)

confirm that the most common response was “Partially identifies,” which reflects a positive attitude toward the use of metacognitive strategies in English language learning to develop listening skills. Although 27% showed indifference or disagreement, the overall balance is favorable, which promotes the use of these strategies not only for students with special educational needs but also for neurotypical students. This finding suggests that the use of metacognitive strategies in English language instruction is becoming established as a complementary support for learning, increasing student autonomy. Prior to the use of metacognitive strategies, students with special educational needs (SEN) showed less receptivity to recognizing words through audio recordings; they also exhibited greater difficulty and slowness without the proper support of visual representations of the words to be recognized.

80% of students reported that using pictograms while listening to audio helps them better understand the recordings, and consequently, they develop other skills such as clear pronunciation, in line with their educational level. The mode (43%) indicate that the most frequent response was “Partially identifies,” reinforcing that listening comprehension improves with the use of metacognitive strategies through the use of pictograms when playing an audio recording in English. Only 13% demonstrated that they understand or identify the audio recordings, which leads us to examine more closely the development of listening skills through metacognitive strategies; the same data were collected from tests that also included neurotypical students. These results show that most students in general demonstrate positive outcomes from the use of metacognitive strategies; students with special educational needs (SEN), who are the primary focus of this research, showed positive results of a 5/6 improvement in audio comprehension through the use of pictograms in their tests.

70% of the students indicated that the use of metacognitive strategies to develop listening skills in students with special educational needs is highly effective; when these strategies are applied in accordance with the students’ level and age, they demonstrate the importance of using metacognitive strategies in the English language learning process. The mode (43%) show that the predominant response was “Partially repeats errors.” Although 17% were indifferent and 13% expressed indifference toward the use of metacognitive strategies, the majority indicated that the use of metacognitive strategies improves the process of learning a second language. This finding reflects those students are developing listening proficiency, demonstrating significant progress that can positively impact the quality of student learning.

70% of the student population demonstrated that the use of flashcards in applying metacognitive strategies within the English language teaching process can reinforce academic progress in students, especially when analyzing students with special needs; this also serves as a supplement to the homework assignments sent to reinforce the content taught in class, based on the use of flashcards to develop listening skills in students with special needs. Mode (40%) confirm that the most frequent response was “Partially uses the support,” reflecting a level of acceptance of flashcards in academic planning. However,

30% expressed indifference, indicating a need to strengthen training aimed at improving learning strategies through metacognitive tactics that help develop listening skills. Nevertheless, the overall trend is positive, favoring the incorporation of metacognitive strategies into the educational process.

Analysis of the interviews

To carry out this research study, two experts in the field were consulted: a professor in the Inclusive Education program at ULEAM's Manta campus, and a speech therapist with a master's degree in inclusive education; since this study will focus primarily on students with special needs.

Both experts agree that when teachers have students with special needs, they must pay special attention to the academic strategies they use to deliver content, as these should not be strategies that divide students into groups of neurotypical and special needs students; rather, they should be flexible and adaptable to the diversity of the classroom. Therefore, the implementation of metacognitive strategies must be a key consideration in the English teacher's academic planning when seeking to develop students' competencies and skills, especially when it comes to developing listening skills, as they indicate that metacognitive strategies can be adapted to foster the development of various competencies.

Among the main obstacles that experts report encountering when implementing metacognitive strategies in the classroom, they identify the lack of teacher training as the primary issue; evidence shows that teachers of both English and other subjects continue to rely on traditional practices rather than seeking innovative ways to implement their lesson plans. In the case of second language instruction, another obstacle to metacognitive strategies mentioned by one of the experts during the interviews is the number of class hours assigned to teachers, which limits the application of metacognitive strategies.

For the development of listening skills, strategies such as "*Identifying the Purpose*" or "*Thinking Aloud*" are useful for English teachers, as they indicate that these strategies reduce students' frustration when they make mistakes and also significantly alleviate the anxiety caused by listening to an audio recording without fully understanding its meaning.

Inference is a key milestone in the application of metacognitive strategies, since when a student with special educational needs is able to infer an answer confidently, it indicates that they have been successfully taught these strategies. Experts state that thanks to the implementation of metacognitive strategies, students with special educational needs can infer more quickly because they exercise their auditory memory and, in many cases, are able to correctly identify and eliminate errors made during the listening activity.

Finally, experts note that practicing metacognitive strategies is beneficial for both students with special educational needs and neurotypical students, as metacognitive practices strengthen the development of various skills, serving multiple functions during the teaching process.

DISCUSSION

Metacognition is an innovative tool that helps educators develop strategies to reshape the learning process. There is a tension between the use of traditional teaching methods and innovations such as metacognition. Metacognition encourages students to understand themselves and assess their own learning. It influences the educator's lesson planning, as it suggests that students should be prepared in advance for the activities and content to be covered. These principles stand in contrast to traditional methods that limit students to being mere recipients of information.

Vera (2022), states that the use of metacognitive strategies represents a milestone for students with special needs, as it helps them strengthen their self-regulation, which prevents frustration and disengagement from academic activities. In her work, she notes that by self-regulating their learning, students are able to learn independently and apply what they have learned outside the school setting.

When discussing the education of students with special educational needs, it is often assumed that these students are unable to develop skills such as self-reflection and self-assessment; however, field research shows that metacognitive strategies help these students become more independent, enabling them to develop self-reflection on the content as they learn a new language. The field research showed that strategies such as planning and anticipation facilitate the acquisition of new vocabulary among students with special educational needs and reinforce this learning even among neurotypical students.

CONCLUSIONS

In conclusion, it is important to emphasize that metacognitive strategies are tools that educators should not overlook, especially when seeking to include students with special needs in the process of teaching a second language. Metacognitive techniques help students with special needs tackle academic tasks more easily, as using these techniques helps them self-regulate, thereby reducing their levels of frustration and academic distress.

To implement metacognitive strategies for developing listening skills, it is recommended to use pictograms drawn on flashcards to help students with special educational needs when playing an audio

recording and following the main thread of comprehension. Pictograms were not used in the pretest, whereas in the posttest, after the use of metacognitive strategies, greater development of the skill was evident.

One of the skills that metacognition helps develop is flexibility when making mistakes and managing frustration in the face of errors, as well as the ability to self-regulate, self-correct, and adapt acquired knowledge to develop the skill being targeted; for the purposes of this study, that skill is listening comprehension. In the pretest, self-regulation skills and flexibility were found to be lacking in the study population; however, the use of metacognitive strategies led to an increase in listening proficiency, as the posttest showed that students no longer became frustrated as easily.

To develop self-assessment, it is necessary to tailor it to the student's academic level and tolerance for frustration; the data supports the implementation of metacognitive strategies.

Self-assessment is the pinnacle of metacognition, as it is the very reason for using metacognitive strategies; when properly developed, it increases motivation in students, whether they are neurotypical or have special needs. The research findings show that when conducting a pretest self-assessment, students initially expressed frustration and mockery in response to their errors; however, thanks to the use of metacognitive tactics, which, for the purposes of this study, refers to the use of flashcards as a teaching aid when engaging in an activity that requires listening skills.

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