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Strategies for Teaching English to Students with Autism Spectrum Disorder (ASD)

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Resumen

Esta investigación sintetiza los resultados de veinte artículos de investigación publicados entre 2013 y 2023, que abarcan diversos contextos educativos y niveles de instrucción. El análisis expone una amplia gama de estrategias diseñadas específicamente para satisfacer las necesidades únicas de los estudiantes con trastorno del espectro autista (TEA). Las estrategias clave identificadas incluyen el uso de ayudas visuales, técnicas de enseñanza estructuradas, instrucción personalizada y la incorporación de tecnología para mejorar la participación de los estudiantes. Las ayudas visuales son particularmente efectivas y ofrecen beneficios como una mejor comprensión, retención de vocabulario y comprensión de patrones gramaticales. Además, la integración de la tecnología, incluido el software educativo y las aplicaciones interactivas, es invaluable para mantener la motivación y el compromiso de los estudiantes al brindarles oportunidades de aprendizaje interactivo. Sin embargo, pueden surgir algunos desafíos al implementar estas estrategias. Los problemas más comunes incluyen la falta de capacitación docente, recursos limitados, niveles inestables de apoyo gubernamental y sesgos culturales que plantean obstáculos sustanciales. En resumen, a pesar del progreso en el desarrollo de métodos de enseñanza efectivos para estudiantes de inglés con TEA, se necesita más investigación para abordar las brechas y barreras existentes. Priorizar la formación docente, asignar recursos de manera adecuada y considerar los factores culturales será crucial para garantizar que las prácticas educativas sean apropiadas y efectivas para los estudiantes con TEA.

Palabras clave del autor: trastorno autista, inglés como lengua extranjera (EFL), estrategias de enseñanza



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Abstract

This research synthesizes the results of twenty research articles published between 2013 and 2023, covering various educational contexts and levels of instruction. The analysis exposes a wide range of strategies designed specifically to meet the unique needs of students with autism spectrum disorder (ASD). Key strategies identified include the use of visual aids, structured teaching techniques, personalized instruction, and the incorporation of technology to enhance student engagement. Visual aids are particularly effective, offering benefits such as improved comprehension, vocabulary retention, and understanding of grammatical patterns. Additionally, the integration of technology, including educational software and interactive applications, is invaluable in maintaining student motivation and engagement by providing interactive learning opportunities. However, some challenges may arise when implementing these strategies. The most common problems include a lack of teacher training, limited resources, inconsistent levels of government support, and cultural biases pose substantial obstacles. In summary, despite progress in developing effective teaching methods for English learners with ASD, more research is needed to address existing gaps and barriers. Prioritizing teacher training, allocating resources appropriately, and considering cultural factors will be crucial to ensuring that educational practices are appropriate and effective for students with ASD

Author Keywords: autistic disorder, English as a Foreign Language (EFL), teaching strategies



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Table of contents

Abstract	3
Acknowledgement	7
Dedication.....	8
Introduction.....	9
Chapter I.....	10
Description of the research.....	10
Background.....	10
Problem Statement	11
Rationale.....	12
Research Questions	13
Objectives	13
General Objective.....	13
Specific Objectives:	13
Chapter II.....	14
Theoretical Framework	14
Characteristics of Autistic Students.....	14
Communication Impairment.....	14
Repetitive Behaviors.....	14
Social Anxiety	15
Levels of Autism Spectrum Disorder	15
ASD Level 1	15
ASD Level 2	15
ASD Level 3	16
The Implementation of Strategies used to Teach English to ASD Learners	16
Visual Supports and Communication Systems	16
Structured Teaching and Predictability	17

Individualized Instruction	17
Multisensory Approaches	17
Literature Review.....	18
Previous Results of Strategies from Empirical Studies to teach EFL to ASD Students	18
Challenges faced by ASD students during learning stages in a classroom	23
Chapter III.....	28
Methodology	28
Chapter IV	29
Data Analysis.....	29
Chapter V	43
Conclusions and Recommendations	43
References	46

List of tables

Table 1. Research location	29
Table 2. Participant gender distribution in studies on teaching English to ASD students	31
Table 3. Instructional level of participants	33
Table 4. Strategies frequently used to teach English to ASD students	35
Table 5. Improvements observed in ASD students after the application of some strategies found in Table 4.....	38
Table 6. Identified challenges in empirical studies on teaching English to students with autism spectrum disorder (ASD)	40

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Dedication

My greatest gratitude is to God who has guide and given me wisdom during this journey. Also, I want to express my gratitude and dedicate this thesis to my daughter Zoe, whom I love with all my heart and has been my biggest inspiration and motivation for every dream and goal I have. I also dedicate it to my dear husband Anthony who has always been with me in good and bad times, and has been a fundamental part of my professional and personal development. I cannot forget to thank my parents Fabian and Sonia and parents- in-law Juan and Victoria, who gave me sound advice and helped me when I needed it most.

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Vernon Segarra Marquina

Introduction

ASD is a developmental and neurological condition that affects behavior in diverse ways. It's crucial to understand that no two individuals with ASD are impacted identically; each person experiences the disorder uniquely and has distinct support needs. In today's globalized world, the use of English as a Foreign Language (EFL) has gained significant importance due to its versatility and status as a lingua franca. This has made English a global language, essential for communication in a competitive world, and a critical need for every student. However, students with ASD may encounter unique challenges in the educational context that hinder their learning, especially when it comes to acquiring a foreign language like English. These challenges often involve difficulties in communication, social interaction, and flexible thinking, which can impact their participation in traditional educational activities. Therefore, recognizing and correctly applying specific strategies is essential, not only for benefiting students with ASD but also for helping teachers become more effective and creating a more inclusive and accessible learning environment for all students (Sulek et al., 2019). Additionally, these strategies could serve as a foundation for future research and educational practices in the field of ASD. This research synthesis aims to explore and analyze the strategies reported for teaching English to students with ASD, identify the benefits of these strategies, and examine the difficulties in their implementation. Previous research has identified various trends in the application of these strategies, leading to conclusions on how students with ASD can effectively learn English. These conclusions highlight the tendency of students with ASD to be visual learners, the effectiveness of using visual platforms, and the benefits of augmentative methods. However, some limitations include the geographical and socio-cultural contexts of the studies, economic barriers, and the misinformation and stigma surrounding ASD. Furthermore, this study adopts a qualitative approach, analyzing empirical studies collected from different digital repositories.

Chapter I

Description of the research

Background

Garcia et al. (2019) mentioned that the term autism, created by Bleuler (1911), comes from the Greek *autos*, meaning *self*, and *ism*, a suffix demonstrating an action or state. “Eugen Bleuler, Leo Kanner, Hans Asperger, and Bruno Bettelheim contributed to the demarcation of autism in the 20th century, linking it with contact disorders and withdrawal, as well as a mental disorder” (López & Larrea, 2017, p. 2). According to Lord et al. (2018) “Autism spectrum disorder is a term used to describe a constellation of early-appearing social communication deficits, and repetitive sensory-motor behaviors associated with a strong genetic component as well as other causes” (p. 508). Thus, ASD could be defined as a condition that affects the way how an individual perceives and interacts with his or her environment.

Some characteristics that serve as a whole base to understand this phenomenon are challenges in social communication and interaction, restricted and repetitive patterns of behavior, and certain interests and preferences developed during daily life.

Mosquera and Zuñiga (2015) mentioned briefly how teachers expressed their need for training in the teaching of ASD students. Unquestionably, the preparation and skills acquisition of teachers are crucial since nowadays, ASD students are taking an active part in the learning process, and that is not different in EFL classes. Sandra and Kurniawati (2020) summarized how ASD students learn English through differentiated-content materials (lessening the depth of the topics based on their abilities), outside-class assistance (encouraging them to share their worries, difficulties, and concerns), and differentiated instructions. Also, Baker-Ericzén et al. (2017) argued that “there are children who initially need, and with greater presence, individualized work. It is also necessary to take into account their cognitive level, since, from here; adjustments are made for access to learning” (p. 3).

The difficulties faced by individuals with autism are different and are reflected in the level of autism they have; these range from a mild and moderate level to a severe level. Consequently, there is a great need to take into account the ASD diagnosis as the main basis for making decisions on how to teach the individual. For example, a study led by Jansen et al. (2016) showed that “Two-thirds of the participating students with ASD

mentioned problems with verbal and non-verbal communication, sensitivity to change and problems distinguishing the gist of the syllabus from the detail” (p. 6). Thus, data showed two specific functioning and participation troubles. Also, Reppond (2015) argued that several participants in her research agreed on similar problems with learning English. They mentioned that troubles are likely to happen when students are mainstreamed. For example, teachers might not be able to take care of ASD students’ needs in a regular classroom that is usually up to 20 students.

Problem Statement

Unfortunately, even with attempts at inclusive education for ASD students, there are still some problems that hinder their learning process. Lynch and Irvine (2009) mentioned that many parents of children with ASD were dissatisfied with the services offered by the education system and they expressed a desire to increase ASD specific services and educational support for their children. It cannot be ignored that specific techniques and strategies are needed to guide successfully the learning process of ASD students in an English classroom.

The inclusion of autistic students in classrooms leads to addressing a current problem, which is the lack of adequate teaching strategies that can address all kinds of difficulties that could arise in an educational setting. Vazquez-Vazquez et al. (2020) mentioned that techniques and strategies that teachers are to implement in a classroom may affect the progress of students with autism. They also mentioned that it is imperative to motivate and sensitize teachers so that they recognize the importance of the inclusion of ASD students. Shetty and Rai (2014) argued that teachers do not have adequate knowledge of ASD and concluded that training had a positive effect on the way they teach their autistic students.

Many difficulties could be presented when teaching autistic students. For instance, teachers may feel frustrated as they cannot deal with these students effectively, resulting sometimes in autistic students dropping out of school. As Jarbou et al. (2022) mentioned, most ASD students experience difficulty with daily functioning in their schools and even in their own homes. In addition, Rangel (1970) argued that schooling is essential for the inclusion of children with autism so that in this way they can aspire to improve their quality of life (as cited in Vazquez-Vazquez et al., 2020).

Miranda et al. (2016) mentioned that students with ASD need the motivational support of teachers and their use of active teaching strategies and that it is remarkable that autistic students could feel motivated in a classroom environment where their unique characteristics can be understood and accepted.

It is important to mention that understanding how ASD students learn during EFL lessons can be an essential step to taking action, involving teachers, students, administrators, and the rest of the educational community. Realizing how students with ASD could be taught also helps to develop their performance during EFL classes. Lyons et al. (2011) argued that “Understanding social competencies and interaction patterns in various classroom settings is crucial for informing classroom placement decisions among children with ASD” (p. 1).

Although the strategies and techniques implemented in students with ASD could serve to improve the development of the second language in their learning process, the progress of these learners is conditioned by the level of autism or the needs they have. Ruedas-Ruedas (2015) stated that, in many cases, children with ASD have other disorders or diseases that influence their development and vary in their needs. For example, some autistic people have mental retardation, with or without epileptic episodes, which makes the condition even more severe.

Rationale

According to Hashim et al. (2021), the English language should be learned by everyone from an early age because it is present, due to the influence of the USA and other English - speaking countries, in the vast majority of aspects of living such as globalization, education, career, travel, culture, and even in technology. English is a global language that allows people to have access to communication around the world. Therefore, it is significantly important for people with ASD to be included in this global community.

Padmadewi and Artini (2017) mentioned that “Theoretically, inclusion is related to a philosophical decision that emphasizes the importance of bringing together diverse students, families, educators and community members, in the purpose of establishing a supportive learning atmosphere that helps every individual student” (p. 2). True inclusion for people with ASD may allow them to learn how to communicate by using a foreign language, which could help them feel part of our global environment and avoid feeling isolated during the learning process.

This research synthesis aims to analyze reliable information that allows synthesizing appropriate strategies that can be used to teach English to autistic students. Even though studies present teaching strategies for students with ASD, we have not been able to identify a single study that compiles all these strategies according to the difficulties, or needs of students with autism.

Consequently, it is essential to collect all relevant information, as English teachers may need information that covers a wide range of strategies for teaching students with ASD. This research synthesis could avoid a significant loss of time, allowing educators to focus on improving or addressing other areas that students may need. Therefore, this synthesis has the specific purpose of being a useful resource for EFL teachers. In this way, information that serves as a guide to know about appropriate strategies that could improve the quality of education of autistic students within an EFL classroom will be available.

Research Questions

1. What are the reported strategies for teaching English to ASD students?
2. What are the reported benefits of implementing these strategies to teach English to ASD students?
3. What are the reported difficulties in the implementation of these strategies?

Objectives

General Objective:

To analyze strategies used to teach English to ASD students.

Specific Objectives:

1. To describe the benefits of implementing these techniques to teach English to ASD students
2. To analyze the limitations presented in empirical studies

Chapter II

Theoretical Framework

This chapter will talk about important definitions related to the symptoms or characteristics that autistic students may present during an EFL classroom. These characteristics are communication impairment, repetitive behaviors, and social anxiety. In addition, we will talk about the three levels of autism spectrum disorder; level 1, or high-functioning autism, level 2, or middle-level of autism, and level 3, or severe autism. Furthermore, we will talk about the implementation of strategies used to teach English to autistic learners. This section is divided into four essential concepts; visual support and communication systems, structured teaching and predictability, individualized instruction, and multisensory approaches.

Characteristics of Autistic Students

Communication Impairment

Communication impairment is defined as a condition where speech is temporarily or permanently inadequate to meet all of the individual's communication needs, and the inability to speak is not due primarily to a hearing impairment (Helmsley, 2001, p. 828). In addition, Gernsbacher et al. (2005) mentioned that autistic people may present communication impairments that reflect delays in the development of expressive language, but may also present a total lack of expressive language. Besides, autistic people may have problems starting or maintaining a conversation, and may even present stereotyped, repetitive, and idiosyncratic language. On one hand, some autistic students may be verbal but struggle with using gestures and understanding verbal language. On the other hand, others may face more severe challenges, such as being mute and having difficulties with non-verbal communication, including facial expressions and gestures.

Repetitive Behaviors

Boyd et al. (2011) argued that "repetitive behaviors (RRB) are a core symptom of autism spectrum disorders (ASD)" (p. 2). The researchers identified two main categories of these behaviors: lower order and higher order. On one hand, lower-order behaviors include stereotyped behaviors, which are invariant patterns such as hand waving, rocking, or repeating the same phrases, and repetitive manipulation of objects, such as spinning wheels or lining up toys. On the other hand, higher-order cognitive behaviors are more complex and include compulsions or rituals. Examples of these behaviors are repetitive hand washing,

checking locks, or counting. All these actions are driven by obsessive thoughts and are performed to reduce distress or prevent a feared event or situation.

Social Anxiety

Schneier et al. (2002) mentioned “Social anxiety disorder (also known as social phobia) is defined by the core feature of excessive fear of embarrassment, which is often accompanied by avoidance of social or public situations” (p. 757). In addition, the researchers mentioned that social anxiety occurs in childhood, and can be very chronic. People with social anxiety usually present behaviors and symptoms associated with personality traits. Furthermore, it is quite common that autistic individuals suffer social anxiety due to social communication challenges, sensory sensitivities, fear of negative judgment, and previous negative social experiences. Their preference for predictability also contributes to anxiety in unpredictable social settings. These factors combine to make social interactions particularly stressful for many autistic people. As a result, they can have trouble talking to people, meeting people, or attending social gatherings.

Levels of Autism Spectrum Disorder

ASD Level 1

According to Ghaziuddin and Mountain-Kimchi (2004), “Asperger Syndrome (AS) is a pervasive developmental disorder characterized by autistic social dysfunction and isolated idiosyncratic interests, in the presence of normal intelligence. There is no history of language delay” (p. 279). Therefore, ASD level 1 or high-functioning autism includes individuals with Asperger syndrome. People with this level of autism have difficulties understanding social cues and maintaining social relationships. Additionally, they can speak complete sentences and have fluent conversations.

ASD Level 2

Joon et al. (2021) mentioned that ASD level 2 or middle-level requires essential support in some areas. For example, these people have greater social skills problems, and some of them may not be able to communicate verbally. Additionally, they need help to participate in social activities, and they also find it difficult to express feelings or facial expressions. People with middle autism present: repetitive movements, problems with changes in routines, and challenging behaviors.

ASD Level 3

“In recent years, the concept of autism spectrum has been extensively used in the classification of children according to the severity of their autism symptoms.” (Zachor, et al. 2010). The term severe autism (also used for ASD level 3) is employed to describe significant challenges experienced by individuals with ASD. Those challenges can be also identified as more pronounced difficulties in daily life.

Severity inside an ASD context can change depending on each individual; it is important to consider that the term *severe autism* is not a clinical diagnosis but rather descriptive. Individuals with severe autism may exhibit more intense and pervasive symptoms, including: communication challenges, social Interaction difficulties, repetitive behaviors, sensory sensitivities, and intellectual and cognitive challenges

Correa et al, (2020) mentioned it is also important to note that the term "severe autism" does not include the unique sets of strengths, difficulties, and abilities that individuals with ASD may experience. Autistic individuals, regardless of the severity of their condition, may benefit from early intervention, personalized support, and a focus on their strengths and abilities to improve their quality of life.

The Implementation of Strategies used to Teach English to ASD Learners***Visual Supports and Communication Systems***

According to Macoskey (2023), visual supports play an essential role in intensifying communication and comprehension for ASD individuals. For example, visual schedules serve as a visual representation of some daily routines' activities, so these representations support learners in predicting and comprehending the whole structure of their day.

Kuo and Mirenda (2003) mentioned that Visual supports, such as communication boards, serve as augmentative communication tools that help individuals with ASD express themselves and understand information more effectively. These tools come in various forms but typically consist of displays with pictures, symbols, or words that individuals with ASD can point to or touch to convey their needs, preferences, or thoughts. In an educational context, communication boards can be customized to include vocabulary related to language learning, allowing individuals with ASD to take a more active role in language-based activities.

Structured Teaching and Predictability

Arranging educational content logically involves creating an environment with little interruption and set expectations. This method helps ASD students to make them feel more comfortable and centered. According to Mesibov et al. (2005), task structure and task features must be ordered so that a person with ASD may easily move through them and demonstrate successful behavior.

Also, predictability is particularly important for people with ASD who have trouble dealing with change. Schopler et al. (1995) supported the idea that In a predictable setting, individuals with ASD can better understand and navigate their environment.

Individualized Instruction

Individualized instruction adjusts materials, and speed to each student's specific needs and abilities. This may be especially advantageous for students with ASD, who frequently display a variety of difficulties in learning language and communicating. The personalized education model could recognize the various learning styles of autistic students and seeks to offer customized learning experiences to improve their academic achievements.

Additionally, personalized instruction starts by setting specific learning objectives after conducting thorough assessments of each student's present skills and requirements. These evaluations typically consist of standardized tests, observations, and feedback from various professionals such as teachers, speech therapists, and psychologists (Ruble & McGrew, 2013). Teaching techniques in personalized instruction are adjusted to match the learning preferences of students with ASD. For example, certain students might find visual aids and structured schedules helpful, while others may prefer interactive and hands-on educational tasks (Wong et al., 2015).

There are various difficulties in providing personalized teaching for students with ASD. This involves the necessity of thorough teacher preparation, the accessibility of materials, and the need for continuous cooperation between teachers and experts. Moreover, the success of customized teaching relies on promptly and accurately evaluating student requirements, which can require a significant number of resources (Hume et al., 2009).

Multisensory Approaches

Multisensory education methods involve utilizing multiple senses at the same time to improve learning outcomes. These methods are especially successful for individuals with ASD because of their diverse sensory processing capabilities. Utilizing a variety of senses,

like seeing, hearing, feeling, and moving, can aid students with ASD in comprehending and remembering information, leading to enhancements in their language learning and communication abilities. Visual supports are a fundamental component of multisensory teaching and are highly beneficial for ASD students, who often respond well to visual stimuli. These supports can include pictures, diagrams, charts, and written instructions, which help students, understand and process information more effectively (Quill, 1997).

Conversely, learning through touch and movement is the focus of tactile and kinesthetic activities. Utilizing manipulatives, participating in hands-on projects, and integrating physical activities into lessons can support ASD students in grasping new concepts through direct interaction with learning materials (Ayres et al. 2005).

Also, the use of interactive technology with devices like tablets, computers, and smartboards can enhance multisensory learning through interactive and stimulating educational activities. These technological sources can provide content using different sensory methods, which can enhance accessibility and enjoyment for ASD students (Bouck et al., 2012).

Literature Review

This literature review aims to synthesize relevant information on strategies that teachers can use in an EFL classroom for students with autism spectrum disorder. Hence, we will discuss two significant topics: the outcomes of empirical studies on strategies for teaching EFL to students with ASD, and the challenges these students face during learning stages in the classroom.

Previous Results of Strategies from Empirical Studies to teach EFL to ASD Students

A study led by Vazquez-Vazquez et al. (2020) used a method focusing on getting information from teachers about their experience and their own opinions of their abilities to work with ASD students. The method consisted of a descriptive research design which included about 34 teachers who had worked (or were working at that time) with ASD students in an elementary school in Azogues. The results showed a lack of knowledge from teachers about effective strategies to work with ASD students, and also poor support from the government to provide teachers with appropriate tools to deal with ASD students inside a classroom. Feelings such as fear, anxiety, and worry are those reported by teachers when an ASD student is included in their classroom. As a result, the study evidenced the importance of the employment of the *Treatment and Education of Autistic and Related*

Communication Handicapped Children method (TEACCH). The TEACCH method emphasizes individualization and is rooted in behavior therapy, which has been combined with cognitive elements in recent years.

Martin et al (2021) conducted a bibliographic review on *Augmentative and Alternative Communication* (AAC) in children with ASD. The review recovered information from different digital repositories and bibliographies to explain AAC and the *Picture Exchange Communication System* (PECS). AAC can be defined as “ways of expression other than spoken language, which aim to increase (augmentative) and/or compensate (alternative) for difficulties of communication and language of many people with disabilities” (p. 7). The PECS system refers to receptive language, which implies that communication is possible through pictograms that represent the language.

Pictograms are drawings that express a concrete or abstract idea, so they can be used by an ASD person in order to transform and transmit his or her thoughts. The AAC system can be applied in various ways to support individuals with ASD in their interaction with the environment. According to Martin et al. (2021) those ways include supporting nonverbal communication through one AAC system, such as PECS and tangible symbols; those can be used to support ASD students who have limitations for oral communication. The same authors mentioned that promoting social participation with the use of AAC gives ASD students the chance to take action on and respond to social interactions, in that way reinforcing their social participation; besides, enhancing language acquisition with AAC systems can improve the oral skills of autistic students by providing visual cues and prompts to facilitate interchange in communication processes, which leads to language learning. In addition, De Tezanos Pinto (2023) mentioned that AAC interventions, such as those involving the use of pictograms and PECS, can promote joint attention skills in individuals with ASD. Finally, the use of AAC can help overcome ASD students' communication barriers, allowing them to communicate their needs, participate in decision-making, and in- home, educational, or community activities. According to this study, AAC showed positive effects in ASD children, considering some interrelated factors such as intervention, social abilities' development, attention, behavior, etc. Therefore, AAC gives a chance to communicate for all the people with difficulties in language and communication. Something suggested by Martin et al. (2021) was the fact that AAC success is directly conditioned by a person's more opportunities of conversation and participation. In addition, the analysis showed that PECS helps with teaching communicative skills; consequently, it had a positive impact on children with severe difficulties for communication.

Similarly, Mira Pastor's (2017) single case study explored the implementation of augmentative and alternative communication systems (AACs) for an eight-year-old girl with ASD. Benson Schaeffer total communication approach (a method focused on overcoming individual communication difficulties) was used to introduce AACs. The intervention consisted of teaching the student eight signs: Caramelo (candy), Beber (drink), Pelota (ball), Música (music), Pompas (bubbles), Galleta (cookie), Gusano (worm) and Crema (cream). These signs allowed the girl to communicate her needs in various settings, such as the playground, rest area, music room, cafeteria, and conferences. The introduction of these signs significantly reduced challenging behaviors, which included self-harm, aggression, disruption, and non-compliance. These behaviors were generally triggered by communication difficulties such as frustration, boredom, and physical discomfort. The study highlighted the importance of visual and verbal aids in facilitating effective communication, thereby reducing problematic behaviors.

Padmadewi and Artini (2017) emphasized the importance of four strategies to support students with ASD: co-teaching, differentiated instruction, peer-mediated instruction, and interventions. Their study focused on a ten-year-old student with ASD with basic vocabulary skills, included in a regular classroom with 20 students. This student required visual support to compensate for difficulties maintaining eye contact. A shadow teacher provided additional explanations and took the student to another room to play quick games when the student seemed uncomfortable. The findings highlighted that many students with ASD are visual learners and benefit from visual aids to maintain attention and feel comfortable in the classroom environment. Both studies concluded that individualized approaches and visual support are crucial to meeting the educational needs of students with ASD, facilitating better communication, and reducing challenging behaviors.

Supporting the use of visuals as a beneficial tool for teaching English to ASD children, Altakhaineh et al. (2020) conducted a study with 12 autistic children divided into 2 groups. In this study, the researchers used diverse colors to teach new vocabulary, which means that each letter in the words had a different color. In addition, pictograms (pictures to express a word or phrase) were also used to teach these words. As a result, using different colors to teach vocabulary did not have a significant impact; however, the use of pictograms was seen as a very useful tool for learning daily life vocabulary during the study.

In addition, Hashim et al. (2021) conducted a study in two autistic centers of Malaysia. The participants were 45 learners with autism and 14 teachers. These preschool students had a mild condition of autism, and their age range was 7 to 10 years old. This study demonstrated that students with mild autism can learn the linguistic aspect of the English language

because, in comparison with other languages, English is simpler and has fewer syllables, making it even easier for students with autism to understand the language. Furthermore, in this study, a method called *Social Stories* was applied. This method uses pictures and visual stimuli as a strategy to facilitate the understanding of a social context that a child with autism might find difficult to interpret. Also, researchers stated that students with autism tend to be visual learners.

Conversely, Esparza-Choto et al. (2021) conducted a study in two schools in Santo Domingo, Ecuador. The participants were 25 children with autism and seven EFL teachers. In this study, the *art therapy method* was implemented. The art therapy method is a psychotherapy technique that helps students develop and improve their attention, learning style, and academic performance through activities such as painting, writing, and dancing. Also, the art therapy method implements activities such as assembling puzzles and Legos to entertain students. At the beginning of this study, the researchers implemented two questionnaires; the first was to verify the teachers' knowledge about the art therapy method, and the second was a Cambridge test to know the level of English that autistic students had. Actually, the majority of teachers in this study, who did not know about this approach, expressed that before this research study they did not use interactive activities with their autistic students; this had caused behavioral problems inside the classrooms. After the implementation of this method, it could be noticed a significant improvement. The teachers expressed that although it was a challenge for them to implement these activities due to the demand for time and material that they needed; the implementation of this method resulted in an increase of attention and motivation in ASD students.

Sari et al. (2021) conducted a study in a foundation for children with disabilities in Indonesia, where the participants were four ASD students in seventh grade, reporting the implementation of the *Total Physical Response* (TPR) method as a strategy to teach English. First, autistic students get acquainted with the researchers. Then, English teachers taught listening skills through commands such as *sit down*, *stand up*, etc. Teachers taught this with the use of movement; that means, teachers said a command and then acted it. As a result, the researchers concluded that using the TPR method helps ASD learners understand the words very well through the repetition of actions during the learning process. Furthermore, the application of TPR resulted in comfortable and active participation for ASD students. Likewise, a study conducted by Rahmi (2017) supports the effectiveness of the TPR method in teaching English vocabulary to students with autism in Malaysia. The participants in this study were three sixth grade ASD students. The analysis of the data showed an improvement of students' performance and comprehension of a variety of

vocabulary. The author concluded that TPR can help autistic students remember English words more easily through physical movement.

Rezvani (2017) conducted a study using the *Montessori method* to improve students' learning performance by providing them with an adequate space specially adapted to their needs (physical spaces where students can work individually and collaboratively). The participants of this study were three EFL teachers and ten ASD students from an educational center in Iran. The teachers reinforced eye contact, proximity (what to do in case of misbehavior), and directions (instructions). In addition, teachers taught their students how to interact with each other, making them active participants on their own; also, teachers got involved in the classroom activities. Furthermore, the teachers offered appropriate encouragement such as praising students' good performance, giving them sweets as rewards, singing songs with them, and sitting beside them. Also, they repeated the lessons several times, making exaggerated gestures and movements as indicated by the Montessori method. The teachers concluded that this method helped them to increase motivation in ASD students and also to know how to deal with autistic students within formal assessment. The findings also revealed that Montessori workshops for teachers helped them manage ASD student courses effectively, which resulted in the improvement of their L2 productive skills. Similarly, Lane-Barmapov (2016) published the results of an interpretive description study that supports the use of the Montessori method. In this study, five experts and an autism consultant participated. Researchers concluded that the Montessori Method promotes inclusion through the use of didactic activities that address the diverse needs of autistic students.

According to Plavnick et al. (2014), *Oral Repeated Reading* refers to a technique used to improve reading fluency skill. It involves the student reading a text or paragraph aloud multiple times until he or she is able to read it precisely with appropriate speed. The main objective of this technique is to upgrade characteristics such as word recognition, reading rate, and prosody. By reading the same passage frequently, the student becomes more familiar with the text, which leads to improved fluency and comprehension. This study observed the effects of adding a behavioral intervention package to Home Engagement with Reading (HER) sessions for four ASD children. They used a multiple baseline design between participants. The children had to interact independently with an iPad and meet certain assessment criteria to participate. Also, the study involved baseline sessions, which are a period during which participants interact with the computer-based program with no additional instruction or support from the teacher. In these baseline sessions, participants interacted with HER without additional instruction or support from the teacher. The teacher

provided no additional instruction, prompts, or reinforcements to the student during these sessions. The sessions ended when the student stopped interacting with HER for 5 minutes or when the student finished a story. Finally, the results have shown that ASD children can achieve independent interaction with HER. Also, some behavior analytic strategies within HER, such as explicit and systematic presentation of stimuli, reduced errors, mastery criteria, and practice to fluency, align with effective instructional practices for children with ASD. Besides, Plavnick et al. (2014) highlight the need for supplemental behavior intervention to support engagement with HER. It also emphasizes the importance of individualized behavior interventions to ensure engagement and limit interfering behavior for some children with ASD during HER instruction.

In the same way, a study applied by Kahraman and Tekşen (2019) used oral repeated reading technique with three ASD male students in a primary school in Turkey. This study focused on teaching the target vocabulary of three English books through repetitive reading. Furthermore, the study was divided into three phases: first reading (pre-test), second reading, and third reading (post-test). In the first reading test, the students began to read aloud the selected words on the flashcards, and the teacher helped them to pronounce and recognize the words. In the second reading, the same process as in the first reading was repeated again. However, if the students had a problem with pronunciation or word recognition, the teacher gave them feedback such as repeating the words or asking some comprehension questions to check students' learning. Finally, in the third reading or post- test, ASD students carried out the same reading process, but the teacher did not make any intervention. The researchers did this process to evaluate the progress of ASD students. The results showed that this technique is useful to increase ASD students' reading fluency and comprehension of the vocabulary in English. Additionally, the researchers concluded that oral repeated reading techniques may help students to master vocabulary lists in a fun way.

Challenges Faced by ASD Students during Learning Stages in a Classroom

Solis Huamanchumo and Valle Espinoza (2019) mentioned that doubts about how ASD students learn a new language (and what are strategies should be used) are the main challenges during the first steps of the learning process. The authors also suggested that some autistic students may have a voice that is too soft or too loud. Their speech may also be confused or there may be muteness. Furthermore, some students with autism find eye contact very difficult, but this does not mean that they are not paying attention; in fact, they have peripheral vision, so they perceive much more visually. All these previous characteristics are related to four challenges found during classroom stages, which are:

1. Communication and interaction: ASD students face challenges in social interaction and communication, which are essential parts, and they can even be considered the basis of language learning processes. Solis and Valle (2019) briefly explained the limitations of interaction and social communication as important barriers to learning a new language. Those limitations are represented by difficulties ASD students have to understand non-verbal communication, maintain eye contact and interpret facial expressions. As a result, their interest in socializing and interacting with peers is limited as well. Also, tendencies to follow their own impulses can influence their faculty to engage in structured classroom activities.
2. Sensory issues: ASD learners may experience sensory sensitivities; these sensitivities can condition their performance in classroom activities and their engagement with language learning materials. Also, those sensitivities are hypersensitivity or hyposensitivity in reaction to sensory stimuli; which leads to challenges in processing sensory information. Furthermore, ASD students are also overloaded in environments with bright lights, loud noises, or foul-smelling, affecting their ability to focus and participate in classroom activities.
3. Inflexibility and routine: Researchers highlighted the difficulty that ASD learners may have with transitions, routine, and inflexibility, which can impact their capacity to follow the rhythm of the class and engage in its activities.
4. Atypical language: Sometimes ASD students can interpret and produce language in an unnatural and wrong way; this kind of behavior can influence their learning, leading to miscommunication and sometimes, to isolation. In contrast, there is also the presence of excellent potential in logical abstract thinking, but it may brawl with pragmatic language use and social communication.

According to Zuki et.al (2016), in a study conducted in Malaysia, teachers expressed that the most difficult challenges that often arise in classes are atypical behaviors. Those behaviors usually cause disruption in a class. In addition, teachers mentioned that there is a significant need for supervision of autistic students which requires additional attention. Besides, they underscore the necessity for a shadow teacher to provide this assistance to ASD students while teachers continue with the class.

Additionally, Ure et al. (2018) mentioned different dimensions within the autistic spectrum, which can be presented in their ability to focus, that is, some autistic learners may have a very limited concentration focus, which causes the ASD student in this case to have a low

performance during the first stages. This condition is disturbing because during these stages the learning content is presented for the first time. Also, in the behavior branch, difficulties could arise as well; for example, difficulties in social interaction, anxiety level, and sensory-seeking behaviors could vary, depending on each person in specific contexts.

Conversely, according to Lindsay et al. (2013) educators may face some challenges during inclusion of ASD children in mainstream classrooms. Those challenges can be identified in 4 sections which are:

1. Understanding and managing behavior: Educators/teachers find it difficult to understand and deal with the behavior of ASD children inside the classroom. Those behaviors include meltdowns and behavioral outbursts. The diverse behavioral patterns and responses of ASD children need some special and specific understanding together with management techniques.
2. Socio-structural barriers: Teachers found obstacles related to school policies, lack of training, and insufficient resources. These barriers obstruct the effective inclusion of ASD children in mainstream classrooms.
3. Creating an inclusive environment: Educators deal with challenges in creating an inclusive environment within their classrooms and schools. This includes a lack of understanding from other teachers, students, and parents, as well as a need for greater awareness and support for children with ASD.
4. Parental engagement: Engaging parents and maintaining open communication can be difficult, especially when parents choose not to identify their child's condition. This lack of formal identification of ASD may difficult the support and inclusion of children with ASD in the classroom.

Also, Fleury et al. (2014) found that students with ASD face several difficulties and challenges inside the classroom. These challenges include:

1. Social interactions: Students with ASD may struggle with social interactions, making it difficult for them to connect with peers and teachers. The complex and often unstructured nature of social interactions in the classroom can pose challenges for students with ASD.
2. Communication difficulties: Limited communication between teachers, special education personnel, and families can increase challenges for students with ASD.

Therefore, inadequate communication can lead to a lack of understanding and support for the students' needs.

3. Sensory overload: The chaotic and noisy environment of the classroom can be overwhelming for students with ASD, especially those who prefer routine and consistency. This sensory overload can make it difficult for them to focus and engage in learning activities.
4. Executive functioning: Students with ASD may struggle with executive functions, such as organization, following multiple step directions, and self-initiation. These difficulties can impact their academic success in the classroom.
5. Inconsistencies: Inconsistent experiences and routines in the classroom can be challenging for students with ASD, who often prosper in structured and predictable environments.

Supporting the previous studies, Brahim (2022) conducted a study with 12 English teachers and two students with ASD. The purpose of this study was investigating what are some of the challenges that teachers may experience during teaching English to their ASD students. The researcher showed that students with ASD often demonstrate unusual behaviors such as sensory sensitivity, which is a brain disorder that affects the way a person integrates and organizes the senses. Also, ASD students have difficulty accepting changes in routine, which can cause anxiety. Furthermore, teachers recommend planning instruction and considering the behavior of each autistic student in order to deal with those behaviors effectively during a regular class.

Likewise, Hashim et al. (2022) conducted a study with 45 ASD students, four English teachers, and two therapists. The researchers also focused on investigating the challenges that can be presented inside the classrooms. In effect, they could notice that ASD students faced challenges such as; short retention power which means that thoughts are retained for a short time before being erased or sent to long-term memory, and restricted behaviors which means that autistic students repeat actions and learn through patterns.

In conclusion, the studies reveal several challenges that students with ASD face in classrooms. Solís Huamanchumo and Valle Espinoza (2019) highlight communication problems, sensory sensitivities, inflexibility and atypical use of language. The studies by Zuki et al. (2016) and Ure et al. (2018) also point out difficulties in managing behavior, socio-structural barriers, and creating inclusive environments. Fleury et al. (2014) and Brahim (2022) emphasize sensory overload and the need for personalized strategies, while Hashim

et al. (2022) point out problems with retention and restricted behaviors. Together, these findings underscore the need for personalized approaches and increased support for students with ASD.

Chapter III

Methodology

Cooper et al. (2019) defined a research synthesis as a particular set of literature review characteristics. The goal of research synthesis is to create generalizations. Also, it analyzes relevant theories and attempts to resolve conflicts in the literature. Therefore, this research synthesis collected information from scientific articles that study all kinds of strategies that were implemented in the educational process to teach English to students diagnosed with autism spectrum disorder.

This procedure analyzed and integrated different sources of information, which may help to a deep understanding of teaching strategies for autistic students. The sources of information for this research synthesis came from Google Scholar, Redalyc, and Scopus because we considered they are resources that provide valid and reliable information in a much faster, more efficient, and easily accessible way. In this research synthesis, we applied two exclusion criteria to facilitate a thorough analysis of strategies for teaching English to students with autism across different countries. First, we analyzed only current articles, defined as those published from 2013 onwards. Second, concerning the first section of the literature review, we focused on studies specifically related to strategies for teaching English to students with autism.

The reported information for this research synthesis has been published in different academic journals such as *Revista Arbitrada Interdisciplinaria Koinonía*, *Revista Argentina de Terapia Ocupacional*, *Revista científico-profesional*, *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi*, *Journal of advanced nursing*, *The social anxiety spectrum*, *Psychiatric Clinics*, *Journal of Autism and developmental disorders*, *Revista Mexicana de Análisis de la Conducta*, *International Journal of Disability, Development and Education*, *A qualitative inquiry of the challenges they face in their English vocabulary learning journey*. Consequently, the academic articles that came from those journals show different perspectives and results of strategies to address the topic previously discussed. Furthermore, the data came from the empirical studies that were arduously analyzed to link some theoretical concepts and results of strategies to our teaching EFL context.

Chapter IV

Data Analysis

This chapter provides data analysis of 20 research articles to answer the research questions and meet the objectives established in Chapter I. The studies were classified into the following categories: research location, participant gender distribution in studies on teaching English to ASD students, instructional level of participants, strategies frequently used to teach English to ASD students, improvements observed in ASD students after the application of some strategies found in Table 4, and identified challenges in empirical studies on teaching English to students with autism spectrum disorder (ASD).

Table 1

Research location

<i>Continent</i>	<i>Country</i>	<i>Studies</i>	<i>N° studies</i>	<i>Percentage</i>
America	Ecuador	Vazquez-Vazquez et al. (2020) Esparza et al. (2021)	8	40%
	Colombia	Martin et al (2021)		
	Canada	Lane (2016) Lindsay et al. (2013)		
	Mexico	Plavnick et al. (2014)		
	Peru	Solis and Valle (2019)		
	United States	Fleury et al. (2014)		
Africa	Algeria	Brahim (2022)	1	5%
Asia	Indonesia	Padmadewi and Artini (2014)	8	40%
	United Arab Emirates	Altakhaineh el al. (2020)		

	Malaysia	Hashim et al. (2021) Rahmi (2017) Hashim (2022) Zuki et al. (2022)		
	Indonesia	Sari et al. (2021)		
	Iran	Rezvani (2017)		
Europe	Spain	Mira (2017)	2	10%
	Turkey	Kahraman and Tekşen (2019)		
Oceania	Australia	Ure et al. (2018)	1	5%
Total			=20	=100%

Table 1 shows the location in which the studies were conducted. Most of them belong to Asia and America (80%). In the case of Asia, we found a high number of studies because of the population density in this continent, which might imply that research on ASD and techniques to teach English to ASD students has been seriously undertaken in this region. On the other hand, only two studies belong to Europe, one to Oceania, and one to Africa. This could be explained because Europe could have been ignored by our digital repositories due to barriers in language. After all, in Europe, the prevalence of Spanish and English is relatively limited, as the majority of countries use other languages, resulting in a more limited distribution of these two languages across the continent. Europe, despite having advanced educational systems and a high prevalence of ASD research, is underrepresented, possibly due to language barriers in research dissemination as we mentioned in recent lines. Africa's single study underscores the continent's broader socioeconomic challenges that hinder extensive research efforts. The population density in Oceania is too low and the relevance in countries relies on only two, Australia and New Zealand. Africa, being the poorest continent in the world, economic, social and cultural factors are huge barriers. African countries struggle with limited access to resources, educational materials, and specialized training for educators which seems to prevent researchers from conducting enough studies on academic subjects, like teaching English to ASD students. Additionally, the stigma surrounding disabilities, including autism, may discourage both the reporting and investigation of ASD, further hindering research efforts. Addressing these issues requires a multi-faceted approach, including increased capital, policy changes to support inclusive education, and community awareness programs to reduce stigma. By developing an

environment that supports and values research on ASD, Africa can begin to develop effective strategies tailored to its unique cultural and educational contexts, ultimately improving outcomes for ASD students across the continent.

Table 2

Participant gender distribution in studies on teaching English to ASD students*

<i>Genre of participants</i>	<i>Studies</i>	<i>N° studies</i>	<i>Percentage</i>
Female	Martin et al (2021)		
	Mira (2017)	3	33.33%
	Lane (2016)		
Male	Padmadewi and Artini (2017)	1	11.11%
Male and Female	Altakhaineh el al. (2020)		
	Sari et al. (2021)		
	Plavnick et al. (2014)	5	55.56%
	Kahraman and Tekşen (2019)		
	Lindsay et al. (2013)		
Total		=9	=100%

Table 2 provides an overview of the gender distribution of participants in studies focusing on strategies for teaching English to ASD students. Understanding the gender composition of these studies might be central as it can affect the reported strategies in terms of their benefits, and difficulties. Studies with only female participants represent approximately one- third of the total data. This high representation may impact the types of strategies reported, potentially emphasizing approaches that might be more effective with female ASD students. The single study focusing exclusively on male participants (Padmadewi & Artini, 2017) may provide comprehension into strategies particularly effective for male students. This study's unique context in Indonesia, a country with documented gender-related issues, suggests the need for further research to ensure inclusive strategies to all genders. The relatively

balanced representation in studies that include both male and female participants (55.56%) suggests a more comprehensive understanding of the benefits of numerous teaching strategies. This inclusive approach helps ensure that the strategies developed are beneficial across genders, promoting more equitable educational practices. The analysis reveals a significant gap in gender-specific research, particularly in countries with known gender biases. The predominance of mixed-gender studies is encouraging, but the lack of gender-specific data, especially for male participants from more restrictive cultures, highlights potential difficulties in implementing certain strategies. The lack of gender-specific data, especially for male participants from more restrictive cultures, highlights potential difficulties in implementing certain strategies. We could infer that this is crucial as it may indicate that strategies might need to be tailored to address these cultural and gender-specific challenges effectively. In addition, the focus on mixed-gender studies offer a broader perspective on the effectiveness of teaching strategies for ASD students, but it also underscores the need for more detailed research that can address the varied differences in learning needs and responses between genders. This gap in gender-specific research, especially in regions with strong cultural biases, suggests that some effective strategies might be overlooked or underreported. Therefore, targeted studies focusing on either male or female participants in various cultural contexts could provide deeper perceptions and lead to more refined and effective educational strategies. Now, it is important to highlight that these perceptions can be used these days, but the responsibility to be aware of the contextual limitations of the data is something assigned to each actor inside the educational context. While the representation of both genders in the majority of studies is encouraging, there is a notable gap in research specifically focusing on male ASD students in certain cultural contexts. Future research should aim to focus on these gaps to develop more inclusive and effective teaching strategies for all ASD students.

Furthermore, examining the intersectionality of gender with other demographic factors such as age, socioeconomic status, and cultural background can provide a more comprehensive understanding of the diverse experiences of ASD students. Studies that include these variables can help identify unique challenges and strategies that address the specific needs of different subgroups within the ASD population. This approach would ensure that educational strategies are not only gender-inclusive but also sensitive to the context of each student's life.

Additionally, future research should consider the role of teachers and their perceptions of gender differences in ASD students. Understanding how they view and address gender-specific needs can reveal an important understanding of the application of teaching strategies. Professional development programs focusing on gender-sensitive approaches could increase the effectiveness of educational interventions for ASD students. By providing teachers with the appropriate knowledge and skills to recognize and respond to gender-specific needs, educational practices can become more equitable and supportive for all students.

Table 3***Instructional level of participants***

Instructional Level	Number of studies	Percentage
Pre-School	8	50%
School	8	50%
High School	5	31.25%
College (Teachers of ASD students)	2	12.5
Parents of ASD students	1	6.25%

**In order to prioritize essential information in this category, we considered excluding 4 studies due to not having enough and clear information about the participants involved. Also, it is important to highlight that some studies entered into many different categories; that's why the percentages in this table do not match one hundred percent.*

The detailed analysis of Table 3 indicates that there is a clearly dominating focus on research regarding participants at pre-school and school levels. Overall, this undoubtedly reflects a significant focus on early-mediation and elementary education. This emphasis is aligned with previous research into the crucial role of early identification and intervention in terms of improving outcomes for students with ASD. Meanwhile, the presented analysis underpins the somewhat missing representation of students involved in higher education. There exists a gap comprising a considerably lower number of studies focused on adequately catering to the needs of students with ASD who are transitioning to and functioning in the high school and college environments. This gap illustrates the substantial difficulties that ASD learners face in terms of access and success in the post-secondary education setting, thereby underscoring the necessity of focus-specific interventions and

support mechanisms. In addition to considering the instructional levels of participants, it is important to recognize the potential impact of comorbidities among ASD students. Research suggests that many individuals with ASD also experience other developmental, behavioral, or mental health challenges, which can highly influence their educational needs. Therefore, future studies could benefit from exploring the prevalence and implications of co-occurring conditions within the ASD population and how they meet with instructional level and educational interventions.

However, the inclusion of studies involving teachers of ASD students recognizes the importance of understanding and addressing the needs of educators in supporting ASD learners. Similarly, but implicitly, the involvement of parents of ASD students in some studies emphasizes the essential role of family participation in their children's education. Generally, the distribution of instructional levels across the included studies highlights the complex nature of supporting ASD learners across various stages of development and education. It underlines the importance of accepting a lifecycle perspective in research and practice, addressing the diverse needs of ASD individuals from early childhood through adulthood. Furthermore, while Table 3 provides valuable information about the distribution of participants across instructional levels, it would be beneficial to explore the specific educational settings in which these participants are registered. For example, understanding whether ASD students in high school or college are in mainstream classrooms, specialized ASD programs, or inclusive educational environments can provide perceptions of the types of support and spaces they may require. Additionally, examining the quality and effectiveness of existing educational programs and interventions for ASD students across different instructional levels can inform the development of more targeted and evidence-based approaches to teaching English and supporting the diverse needs of ASD learners.

In addition, considering the instructional levels of participants, it is important to recognize the potential impact of two or more conditions co-existing among ASD students. Research suggests that many individuals with ASD also experience other developmental, behavioral, or mental health challenges, which can highly influence their educational needs. Furthermore, while Table 3 provides valuable information about the distribution of participants across instructional levels, it would be beneficial to explore the specific educational settings in which these participants are registered. For example, understanding whether ASD students in high school or college are in conventional classrooms, specialized ASD programs, or inclusive educational environments can provide an understanding of the types of support and accommodations they may need. Additionally, examining the quality and effectiveness of existing educational programs and interventions for ASD students

across different instructional levels can inform the development of more targeted and evidence-based approaches to teaching English and supporting the diverse needs of ASD learners.

Table 4

Strategies frequently used to teach English to ASD students

Strategies and Methods	Resources and Materials	N° studies
Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH)	Visual support “pictograms” Flexible routines	1
Augmentative and Alternative Communication (AAC), and Pictograms Exchange Communication System (PECS)	Games Pictograms Signs Pictures Graphic sequences Body language	2
Co-teaching, differentiated instruction, peer-mediated instruction, and interventions.	Visual media Body language (gestures, facial expressions, body movements) Sensory objects	1
Social stories	Visual support Color pencils Routines Reinforcements Books and Notebooks	1
Art therapy method	Motor activities Playful activities Motivational talks to parents Cambridge test for children with ASD	1
Total Physical Response (TPR)	Visual media Body movements Commands Listenings	2
Montessori Method	Visual support Kinesthetic materials Multi-age classrooms Periods of Spontaneous quiet-freedom to move Process-focused assessment	2

report cards checklist

Oral repeated reading technique	iPad 2 The Microsoft Surface Pro 2 tablet HER app Visual stimuli Flashcards Book Learning environment without distractions	2
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Table 4 provides a comprehensive overview of popular strategies for English instruction tailored to ASD students, along with the various sources and materials used in their implementation. Across all studies, visual materials were consistently employed to facilitate language acquisition. All studies emphasized the importance of using visual materials for effectively teaching students with ASD. The authors realized that these visual supports can facilitate communication with ASD students for teachers and others involved in their education. Researchers highlighted the significance of using visuals in specific situations, such as helping students understand and anticipate unfamiliar scenarios, which can avoid anxiety or fear. Additionally, instructors used visual sources to help students follow simple instructions, provide examples of activities, and help students communicate their ideas or feelings in the classroom. Considering these points, visual materials are essential elements in teaching English to autistic students, serving as valuable tools for conveying information clearly and explicitly.

However, certain strategies, such as AAC, PECS, co-teaching with differentiated instruction, peer-mediated interventions, TPR, leveraged body language such as gestures, facial expressions, and eye contact to enhance English comprehension. The researchers emphasize the importance of visual support, including pictograms, and sensory objects, in teaching students with ASD. Also, they highlight body language as a valuable tool to help people with autism receive, understand, and transmit messages. Implementing body language as a teaching resource is fundamental, as students with autism often experience frustration when they cannot express their needs verbally. Therefore, by incorporating body language along with these visual supports, students can benefit from alternative methods of communication, improving their ability to express themselves and interact with others.

Additionally, Hashim and Yunus' (2021) research demonstrated that social stories are a useful resource for English language learning. The readings provided to the students were based on social themes relevant to their daily activities and routines. These stories addressed confusing or difficult situations for students with autism, such as when to take books out of their backpacks or what to do during class. The stories were presented in a very simple way, using images with intense colors to complement the text. This approach not only helped students understand everyday situations but also kept them motivated and interested in learning.

Notably, the art therapy method by Esparza et al. (2021) incorporated motivational discussions with parents as a supplementary tool for facilitating activities at home. The article highlights the importance of parents attending motivational discussions. These conferences help parents manage the frustration that can arise from observing their children's slower progress in their learning process. By attending these sessions, parents develop patience, acceptance, and a better understanding of their child's condition. Additionally, the authors emphasize the importance of doing playful activities such as painting, dancing, and playing at home. Although children can receive good attention from teachers at school by implementing this method, students with ASD spend most of their time at home. Therefore, parents also could be an important guide in the learning process of ASD students.

Additionally, the Montessori method by Rezvani (2017) and Lane-Barmapov (2016) emerged as a multifaceted approach, offering a wide array of materials and sources. Its utilization of a multi-age classroom proved effective in English instruction for ASD students, alongside customized adaptations to meet ASD individual students' needs. The articles highlight that the Montessori method makes teachers more creative and flexible in teaching English to autistic students. In addition, this method fosters an inclusive learning environment and promotes student independence. Key elements such as kinesthetic materials, periods of spontaneous quiet-freedom to move, and uninterrupted work cycles seem necessary to this approach since they could reduce ASD stress levels by creating an inclusive and supportive learning environment. Also, collaboration between teachers and therapists is emphasized to provide the best support for students. Teachers often have limited knowledge about effective strategies for teaching students with autism. Therefore, integrating therapists into English classes can have a positive impact, as therapists can serve as guides and mentors, providing valuable support and expertise in the education of these students.

Moreover, the oral repeated reading technique by Kahraman and Teksen (2019), utilized books and flashcards to enhance vocabulary and reading skills, and Plavnick et al. (2014)

integrated technology through the HER app to improve reading proficiency specifically. Kahraman and Teksen's (2019) study revealed significant progress among ASD students in several aspects of their learning process. These gains were particularly notable in the improvement of students' reading levels, reflecting a marked improvement in their overall reading skills, especially in word recognition. Additionally, the study fostered a positive learning environment, where students acquired new vocabulary and remained motivated to participate in the class. Also, students demonstrated progress in terms of reading speed and accuracy. Their consistent increase in reading speed throughout each class serves as evidence of the technique's effectiveness in improving reading fluency. Similarly, Plavnick et al. (2014) used the repeated oral reading technique with the HER application on tablets and iPads as a source of support to teach English to ASD students. Their study revealed that HER-assisted reading instruction not only got students' interest in class topics but also fostered their independence, as they often completed activities without teacher assistance. Despite occasional errors in word recognition, students with ASD continued to perform reading activities in the app, showing greater emotional control. This reflects the effectiveness of the HER app strategy in promoting both ASD students' independence and their development of reading skills.

In summary, it could be recognized that all materials used in the studies contributed positively to the English language learning of autistic students, which would demonstrate the importance of various instructional methods to support their learning. However, the predominant use of visuals across studies underscores their effectiveness in catering to the learning preferences of ASD students, who are often identified as visual learners.

Table 5

Improvements observed in ASD students after the application of some strategies found in Table 4

<i>Strategy name</i>	<i>Socialization</i>	<i>Behavioral management</i>	<i>Productive skills</i>	<i>Receptive skills</i>
TEACCH method	X	X		
Augmentative and Alternative Communication (AAC)	X		X	
Co-teaching, differentiated instruction, peer-mediated instruction, and interventions			X	

Social stories		X	X	
Art therapy method	X		X	
Total physical response (TPR)				X
Montessori method	X	X	X	X
Oral repeated reading technique			X	X

Table 5 illustrates the positive outcomes observed in ASD students following the implementation of various EFL teaching strategies. Vazquez-Vazquez et al. (2020) documented advancements in socialization and a decrease in classroom misbehavior among ASD students. Specifically, improvements were noted in areas such as increased eye contact and enhanced interaction with peers. Emphasizing these findings, Altakhaineh et al. (2020), Esparza et al. (2021), Lane (2016), Martin et al. (2021), Mira Pastor (2017), and Rezvani (2017) reported enhanced social skills among ASD students, including heightened responsiveness to social cues, sustained eye contact, and a greater willingness to engage in shared activities.

Similarly, Hashim et al. (2021), Lane (2016), and Rezvani (2017) employed strategies such as the Montessori method, social stories, and the TEACCH method to address behavioral challenges in the classroom. Consequently, ASD students demonstrated improved emotional regulation; increased ability to remain seated for longer periods, and reduced anxiety, leading to fewer instances of disruptive behavior such as crying, running away, shouting, or acting aggressively.

Furthermore, the data in Table 5 indicates enhancements in ASD students' linguistic abilities, with a focus on both productive (speaking and writing) and receptive skills (listening and reading). While the majority of studies concentrated on improving productive skills, Sari et al. (2021), Rahmi (2017), and Plavnick et al. (2014) emphasized the importance of developing receptive skills to facilitate communication in ASD students. Notably, the Montessori method targeted both productive and receptive skills, resulting in improvements in language comprehension and expression among ASD students.

Concisely, the collective findings emphasize the shared objective of enhancing various facets of communication in ASD students. It is evident that ASD students require essential support in areas such as social communication, linguistic proficiency, and behavioral management to foster their overall development and integration in EFL classrooms.

Table 6

Identified challenges in empirical studies on teaching English to students with autism spectrum disorder (ASD)

Challenges faced	Number of studies	Percentage
Uncommon ways of communication	5	25%
Addressing students' specific needs	5	25%
Teachers' stigma and misinformation	3	15%
Atypical behaviors	3	15%
Cognitive age of ASD students	2	10%
Changing the classroom environment	1	5%
Poor government support	1	5%
	= 20	=100%

Table 6 summaries the general challenges encountered during the application of studies focused on teaching English to ASD students.

Solís and Valle (2019) highlighted key challenges for students with ASD, including language learning strategies, speech problems, and dependence on peripheral vision, leading to communication difficulties, sensory sensitivities, inflexibility, and atypical language use. Other studies, such as those by Brahim (2022), Fleury et al. (2014), Hashim et al. (2022), Lindsay et al. (2013), Ure et al. (2018), and Zuki et al. (2016), also identify barriers such as behavior management, socio-structural obstacles, and the need for inclusive environments, parental involvement, sensory overload, and executive functioning difficulties. The most common challenges include communication difficulties, sensory issues, and the need for inclusive and personalized approaches to support students with ASD effectively. Therefore, this analysis will delve into these challenges in a more specific and detailed manner.

The most frequently reported challenges are uncommon ways of communication, and addressing students' specific needs (each mentioned in 25 % of the studies). On the one hand, unpredictable ways of communication encompass difficulties with non-verbal communication and social interactions, which are commonly associated with autism.

Teachers may find this aspect challenging as they need to investigate methods and strategies to communicate effectively with their ASD students. On the other hand, addressing the unique needs of students with ASD can be challenging for teachers. Individuals with ASD have needs that vary based on factors such as their level of autism and their living context. The level of autism highlights specific characteristics like hyperactivity, stereotypical behaviors, or intellectual, sensory, and motor deficiencies. Additionally, their living context can include extrinsic factors like sociocultural issues or poor educational instruction. Therefore, teachers must consider these factors and adapt their teaching strategies to meet each student's unique needs, even though this requires additional modifications in their lesson planning.

Other challenges, cited in 15% of the studies, are the presence of teachers' stigma and misinformation about ASD, and atypical behaviors. Many teachers mistakenly believe that students with ASD cannot learn, despite the availability of effective strategies and techniques. This misconception often arises from a lack of knowledge about effective teaching methods for autistic students. Consequently, there is a pressing need for adequate training and professional development programs for educators, equipping them with the skills and understanding necessary to effectively support students with ASD. Furthermore, along with the prevalence of atypical behaviors, a critical need arises to implement behavior management strategies and interventions to foster environments conducive to learning. The autism spectrum covers varying degrees of severity, from mild to severe. While mild autism may involve less noticeable difficulties, middle and severe autism often manifests in aggressive behaviors. As a result, educators need to anticipate and address possible atypical behaviors among autistic students since such behaviors could affect the development of a regular class where there are also more students learning.

Additionally, a challenge reported in 10% of the studies is the cognitive age of ASD students. Distinguishing between chronological age (birth age), and mental age (cognitive development), is paramount when addressing the needs of students with autism. Within autism, there are cases where the cognitive age does not coincide with the chronological age of the student (Low-functioning autism: ASD people who have intellectual disability and need the most support). This incongruence poses a significant challenge for educators, who must adapt their classroom activities taking into account the cognitive age of students with autism.

Less frequently reported challenges include changing the classroom environment and poor government support, each mentioned in 5% of the studies. Changing the classroom environment seems quite demanding for teachers in terms of time and organization. They

need to be aware of various stimuli, such as noise, distractions, and small spaces; since they can negatively impact the performance of ASD students. Therefore, while it is challenging for teachers to minimize any stimuli that might cause discomfort or interrupt the learning process, doing so can significantly enhance the learning experience for students with ASD. Lastly, the report on poor government support presents a significant challenge for schools that often lack adequate financial resources that could significantly contribute to the learning of autistic students. Thus, government involvement with this vulnerable group is crucial. Several strategies already seen in this research synthesis highlight the importance of the use of various materials, including technological resources. This fact highlights the urgent need for policy changes and economical support to contribute to the education of students with autism.

Chapter V

Conclusions and Recommendations

This research synthesis aimed to put into consideration up-to-date strategies for teaching English to ASD students, emphasizing the necessity of inclusive practices for this vulnerable group within the educational context. This research was focused on three main areas: the strategies reported for teaching English to students with ASD, the benefits of implementing these strategies, and the difficulties encountered in their implementation.

We have identified several effective strategies, including the TEACCH method, AAC method, PECS method, differentiated co-teaching instruction, peer-mediated instruction and interventions, social stories, art therapy, TPR, Montessori method, and oral repeated reading techniques. Each strategy contributed valuable insights related to the most current ways of teaching English to autistic students. Visual materials were found to be the most crucial resources across all strategies, underscoring their importance in the communicative process for autistic students. Additionally, the research highlighted the use of body language, context-related stories, daily routines, reading activities, and class environment adaptations to minimize negative stimuli. Promoting both individual and group work was seen as essential for fostering independence, along with the use of flashcards and technology to enhance reading skills. Also, commands were utilized for vocabulary acquisition, and recreational activities such as dancing, painting, and games were employed to motivate students. Furthermore, the collaboration between teachers, parents, and therapists was emphasized to ensure significant improvements in the academic performance of ASD students.

Conversely, the strategies implemented to teach English to autistic students demonstrate benefits in several key areas, including social interactions, behavior, language skills, and motivation. For example, in terms of social interactions, there is a significant improvement in the way autistic students relate to both teachers and their peers. These strategies promote better communicative reciprocity and facilitate integration into regular classes, encouraging more interactions with non-autistic students through activities and group work. Regarding atypical behaviors, students show a marked reduction in behaviors that interfere with their performance, such as aggression triggered by anxiety when faced with certain stimuli. Additionally, students exhibit better behavior, demonstrating longer periods of concentration and better compliance with teachers' orders and requests. These students' language skills also experience notable improvements. The strategies used focus on both receptive and productive skills. Through listening exercises, students learn to follow commands and,

through reading activities, they improve word recognition and language comprehension. Furthermore, students enhance their production of verbal and non-verbal language thanks to the various resources and methods already seen in teaching English. These improvements allow students to communicate more effectively. Therefore, they are more motivated and eager to learn thanks to interactive and engaging activities adapted by teachers. These strategies not only make learning more enjoyable but also keep students interested and focused in their lessons.

The aforementioned strategies have proven effective in giving approaches that contribute to English learning for students with autism. However, several challenges and limitations in their implementation were identified. One noticeable challenge is the uncommon ways of communication that students with ASD manifest. For example, some may avoid making eye contact when others are talking with them, which may be interpreted as rude. Also, their limited reciprocity in maintaining a conversation may affect their social interactions with teachers and peers. Furthermore, addressing each student's specific needs poses a limitation, as these needs vary according to the context and severity of their autism, needing more curricular adaptations by teachers. Besides, the lack of knowledge and training among teachers regarding strategies for teaching English to ASD students highlights a significant limitation. Many teachers are unaware of autism and skeptical of the strategies' effectiveness before their implementation. The cognitive development of students also presents a challenge, as some with moderate to severe autism have a mental age lower than their chronological age. Despite this, they are placed in classes based on their chronological age, often disregarding their cognitive development. Moreover, the poor support from the government, especially in underdeveloped countries, is a major limitation. Undoubtedly, implementing these strategies requires resources, which depend on government interest and financial support. Unfortunately, the government sometimes focuses just on imposing inclusive laws, but they do not take action to achieve a true inclusive education.

We consider this research as a valuable resource as it explores specific teaching methods and strategies designed to enhance educational approaches for teaching English to students with ASD. Through a thorough review of academic literature, we have identified pedagogical tools and resources that have the potential to substantially enhance both English comprehension and the academic performance of ASD students. Also, this research may help teachers apply concrete strategies and practices to teach English to a diverse student population. Furthermore, it may serve as a useful source for future research in the educational field.

According to Esparza-Choto et al. (2021), "It would be good to emphasize that before implementing pedagogical techniques or strategies for teaching autistic people, it is important from the center of interest, the needs and strengths of each one of them." (p. 246). Undoubtedly, teaching English to ASD students will require more effort, including modifications to traditional classes, additional time for curricular adaptations, and more study to achieve effective communication with autistic students, but it will definitely be worth it. By raising awareness of autism in society, this research synthesis not only may improve the quality of education for students with ASD, but also foster the personal and professional growth of educators.

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