

Teacher and Parents Persuasion of use of Picture Exchange Communication System to improve Attention Span for Autistic Students in Abu Dhabi Autism Center

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Abstract

The fact has been established by [20] one out of every 146 newborns in UAE is affected with Autism Spectrum Disorder, and measuring the attention span using what method is difficult. It has been emphasized by [21] Children with ASD have a shorter attention span; hence the purpose of this study is to increase the attention span of autistic children in Abu Dhabi by using Picture Exchange Communication System (PECS). PECS is a picture-based communication method for people with little or no communication abilities to communicate using pictures [23]. PECS is used in the classroom by teaching the children to make their requests by handing them an exchange card representing what they want. The goal of this study is to persuade parents and teachers of the use of PECS to improve the attention span of autistic students at the Abu Dhabi Autism Center. Three samples are used in this study. The children are used as the samples of the study. Three parents and three teachers are interviewed to find out how persuaded they are about the use of PECS in increasing the attention span of the children at the Abu Dhabi center. Nine participants are involved in this study. The location of the study is the Abu Dhabi center. The experimenter will be the observer in this study. This study shows how effective the use of PECS is in improving the attention span of autistic children at the Abu Dhabi Autism Center. As a result, PECS is effective in increasing the attention span of autistic children, and parents and teachers are convinced that using PECS at Abu Dhabi Autism Center will help autistic children increase their attention span.

Keywords: ASD, PECS, Parent, Teacher, Persuasion

Article Progress

Received: 09 January 2023
Revised: 31 January 2023
Accepted: 14 February 2023

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1. Introduction: [24], [25] define Autism spectrum disorder (ASD) as a developmental disability caused by brain differences. ASD patients frequently struggle with social communication and interaction, as well as restricted, repetitive behaviours or interests. People with ASD may also learn, move, or pay attention in different ways [34] [33]. Although not considered in the core diagnostic criteria, attention problems are also common in ASD. The purpose of this study is to explore if using a picture exchange communication system (PECS) may persuade Abu Dhabi Autism Centre instructors and parents. PECS is a picture-based communication approach that enables people who struggle to speak to communicate using pictures or images. Individuals with autism, for example, can utilize PECS to start a conversation [1]. It can also help autistic youngsters improve their performance in school by boosting their attention span [2]. Autism is becoming more common in Abu Dhabi at an alarming rate. Autism affects one out of every 68 children, according to the Centres for Disease Control and Prevention [3].

According to [4], around 52 million people worldwide have autism, accounting for 1-2 percent of all children. Current autism therapy focuses on behavioural changes in autistic children, developmental abilities via the enhancement of specific developmental skills, classroom-based educational teaching, and socio-relational focusing on the development of social skills and emotional connection. This training is taking place in Abu Dhabi to assist autistic children in improving their attention span and academic achievement.

The Abu Dhabi facility, for example, is considered one of the best autism rehabilitation centres in Abu Dhabi [5]. The centre admits people with autism all year and provides them with lessons designed exclusively for them on an international level to meet all of their needs. Among the services offered by the centre are assessment and diagnosis, early intervention, speech therapy, sensory integration services, physical education, music education, outdoor activities, vocational rehabilitation, and housekeeping [26]. As a consequence, using PECS, this initiative will provide the best academic, training, psychological, and social programs for autistic children in Abu Dhabi. Children with Autism Spectrum Disorder (ASD) may struggle to learn to communicate and comprehend what others say to them. They frequently struggle with nonverbal communication skills (National Institute of Deafness and Other Communication Disorders, 2012). Hand

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gestures, eye contact, and facial expressions are particularly difficult for them. The goal is to improve their performance depending on their skills and talents [27]. As a result, this chapter will go into detail concerning the education of autistic children in Abu Dhabi. PECS is used in the classroom by collecting numerous objects that may be beneficial to autistic children. These factors can also be recognized by interviewing caregivers and observing the child.

[28] PECS may also be used in the classroom to educate children to communicate through symbols or pictures rather than words. The study might aid in the establishment of an autism-friendly classroom in Abu Dhabi by utilizing PECS. Children with autism or very limited speaking ability can exert influence over their circumstances by making desired requests. Using picture cards, PECS teaches youngsters how to request goods or activities [29]. Individuals can be taught to use improvisation to improve the efficacy of visual communication systems. In other words, if a specific PECS card portraying a desired object is unavailable, the user can request the item using a picture card depicting the thing. Individuals who learn to improve their requests by including descriptive characteristics of preferred products may be able to request a significantly greater number of favoured items with fewer image cards. The current study is a persuasion of parents and teachers of the use of PECS in the Abu Dhabi centre.

2. Research Objectives: Below-attached are the research objectives of the study:

- To investigate if the use of PECS influences the development of the attention span of autistic children in the Abu Dhabi Autism Center.
- To persuade teachers and Parents of the use of PECS in improving the Attention Span of autistic children in Abu Dhabi Autism Center. Is the use of PECS influence the development of the attention span of autistic children at Abu Dhabi Autism Center?

3. Research Questions: Below-attached are the research questions of the study:

- Is the use of PECS influence the development of the attention span of autistic children at Abu Dhabi Autism Center?
- How the use of PECS persuades the teachers and Parents at Abu Dhabi Autism Center to improve the attention span of autistic children?

4. Literature Review:

4.1 Autism spectrum disorder (ASD) and the learning process

Autism spectrum disorder (ASD) is a developmental disability caused by brain differences [6]. ASD patients may have a known difference, such as a genetic condition. Other causes are unknown. Scientists believe that multiple causes of ASD interact to alter the most common ways.

We still have a lot to learn about these causes and how they affect people with autism spectrum disorder [7]. Autistic children more often struggle with joint attention, which is the use of eye contact and gestures to share one's experiences with others [8]. These challenges can make it more difficult for autistic children to develop communication and language skills. For example, if a parent points to a picture and the child is more interested in another part of the picture, the child may find it more difficult to learn the link between the picture and the word. According to research, approximately 40% of autistic children do not speak at all [9]. As a result, autistic people may find it difficult to form or maintain relationships, and socializing in large groups may be even more difficult due to their inability to communicate verbally. As a case study, autism spectrum disorder was investigated [10]. According to the findings, the child has language impairments that are typical of autistic children's verbal repertoire: lexical, grammatical, morphological, and syntactic impairments that lead to failure in the communicative task. The data analysis shows that patients with ASD have a variety of extra-linguistic issues that can be alleviated through successful social interaction and effective therapeutic interventions.

4.2 Attention and communication

All children require communication skills. These abilities assist children in expressing their needs and desires [11]. When children can

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do this, it benefits their behavior, learning, and socialization. Some autistic children have excellent communication skills, whereas others struggle to relate to and communicate with others. Furthermore, some autistic children have difficulty developing language, understanding or using spoken language, or have no language at all [12]. Autistic children often require assistance in learning and practicing skills for communicating with others [30]. Attention Autism is a learning approach that uses visually based and highly motivating activities to help children with autism develop natural and spontaneous communication skills and increase their attention span [13][31]. The method was created by a speech and language therapist. Language skills develop at a different rate and in a different order in many autistic children than in typically developing children. This means they may not understand what you are saying to them or may struggle to follow instructions. Some autistic children may find it difficult to use spoken language to ask for things or express themselves to others. Some autistic children have difficulty paying attention to and focusing on things that do not interest them.

4.3 ASD in Abu Dhabi

ASD involves substantial difficulties with social orientation, attention, and multimodal processing of social experiences, especially in children. Attention deficit hyperactivity disorder and autism spectrum disorders commonly co-occur [14]. Some autistic children may have difficulty paying attention and focusing on topics that do not interest them. This includes activities that need the attention of two individuals. These activities, such as reading a book with a caregiver, putting together a puzzle, or crossing the street cautiously. Also, ASD has been related to issues in social information processing and organization [15] [32]. Children with autism often struggle with normal socialization and communication, according to the Abu Dhabi Autism Center [7]. These issues can have a significant negative impact on autistic children's social, educational, and employment opportunities, as well as their overall quality of life. During Autism Awareness Month in April 2022, the ministry of community development of Abu Dhabi launched a series of initiatives to raise community awareness of these categories, disseminate inclusive education, and empower people

with ASD through several initiatives that reinforce the ministry's vision of achieving the best education for this category based on the national policy for pervasive education [13] [40].

4.4 The Use of PECS to Teach Autistic Children

PECS is an alternative/additional communication method that was developed in the United States in 1985 [16] [39]. PECS was originally utilized on preschool children diagnosed with autism at the Delaware Autism Program. It has subsequently been used successfully with thousands of learners of all ages [17] [36]. PECS was utilized by students whose language development was poor and who lacked the willingness to communicate with others. PECS has since been developed to include age stages, among other things. PECS is primarily used to teach functional communication. For example, PECS is a sort of Augmentative and Alternative Communication that teaches children how to communicate with their parents, caregivers, instructors, and peers by using visual symbols. According to studies, some students who use PECS also acquire speech through visual symbols [18] [38]. Others might use a speech-generating gadget. With more than 190 study articles from all around the world, the amount of data supporting the usefulness of PECS as an evidence-based treatment is large and growing [19] [37].

5. Methods: This section outlines the context in which the study will take place. It then describes the participants that are involved in the investigation.

5.1 Research Design

Using a multiple case study research design, the present study will investigate the influence of the PECS in the Abu Dhabi center on the attention span of autistic children. The multiple case study approach was utilized in this work to capture rich descriptive information and emphasize the patterns of findings. Mixed techniques were used in the case studies to generate both qualitative and quantitative data simultaneously. The applied competency training course was utilized to enhance attention skills through training on the PECS method, then analysis of interview criteria, and finally, direct observation of the observed data.

5.2 Participants and Setting

Three children with autism spectrum disorders, three parents, and three teachers are the participants in this study (a total of nine participants). The parents (36, 40 and 43 years old) were middle-class high-school graduates. Three children with autism spectrum disorders are Case 1: One child (10 years old) received self-contained special education services and spent around 27% of his school day in a conventional first-grade classroom. He had been utilizing PECS on a regular basis for a year before the research. Case 2: Another child (11 years old) who went to preschool twice a week and got special education assistance started using PECS two months before the trial started. Case 3: The third child (11 years old) attended the Abu Dhabi Autism Center classes to receive services. Three of the children had been trained to independently for preferred items using PECS and met the following inclusion criteria: (a) a recommendation in an individual education plan for an augmentative or alternative communication system; and (b) a prerequisite repertoire of matching colours, shapes, and functions.

5.3 Data Collection and Procedure

The data will be collected from Abu Dhabi Autism Centre at clinical stages over three month period. The data collection will involve 3 children as participants. As detailed below, some data collection sessions will take place directly with the children, while some will involve teachers and parents to gain more insight into autistic children. The methodology will be used based on an individual assessment by monitoring strengths and weaknesses through the application of testing. Tools, teachers and parent interviews. Autistic children differ in their abilities and levels of ability in terms of attention span. Therefore, the researcher needs an individual session assessment, and the researcher needs to ascertain the children's current level of attention ability.

Table 1.1: location of the study Abu Dhabi classroom

Classroom	School Day	Session	Teaching Skills	Closing Activity
The classroom is one class in ABU Dhabi Autism Center named C4 A includes 3 students of the moderate to severe autism spectrum and two teachers.	The school day begins when students are received from the buses at 8 am.	6 working hours.	Teaching skills are taken from the Individual Educational Plan IEP.	At 1:00 p.m., the closing activity begins.

5.4 Observation procedures in the use of PECS

Observation strategies are employed to characterize the individual behavior of autistic children. Describing the behavior seen when participating in the same activity when and engaging in different activities. Observational learning is the process of explaining the acquisition of novel behaviors under novel conditions after observing another person's behavior and the consequences of that behavior.

Table 1.2: The Use of PECS

PECS Phase	Teaching Procedure
Phase 1: Requesting through picture exchange	The teacher/practitioner arranges the training environment by providing one picture at a time, positioning the communication partner appropriately, and displaying the reinforce in view of the learner
Phase 2: Expanding spontaneity- move to the trainer and to picture book	During Phase 2, the learner must have many opportunities to engage in picture exchanges with a variety of communication partners. Partners are chosen from individuals with whom the child interacts on a regular basis, including parents, siblings, family members, classroom or building staff, peers, and therapists.

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Phase 3: Discrimination of pictures from which requests are made	As training progresses, the teacher/practitioner moves a distance from the learner so that the learner must move some distance to access the picture/symbol.
Phase 4: Requesting a phase	The learner picks up the picture/symbol without prompting.
Phase 5: replying to the question what do you want?	As training progresses, the teacher/practitioner places the communication book at some distance so that the learner must move to access the picture/symbol from it.
Phase 6: Making a comment in response to a question	The communication partner immediately hands the item to the learner and names it as the exchange is made.

5.5 Skill assessment

Skill assessment uses both observation and interviews to measure the individual's knowledge, skills and behaviors. The experimenter (researcher) assessed competency in color, shape, and function matching by direct observation. He presented each child with a variety of red, blue, and yellow objects and asked him to match the colors. This approach was also used to evaluate shape and functions. The children were able to match colors, shapes, and functions with 100% accuracy without prompting.

5.6 Preference assessment

By questioning the parents, a list of possibly chosen objects for each stimulus group was developed. These items were then evaluated using a multiple-stimulus (no replacement) approach. Following training and generalization, probes were based on high- and medium-preference items. Neutral objects were those that the child picked throughout the evaluation but did not try to eat, drink, or play with.

5.7 Measurement

i. Dependent variables

Observers graded each child's reaction as correct improvisation, error, or nonresponse. Each time a child manded (pointed to or provided) one or more correct description cards for a favorite object, a correct improvisation was scored. If the child manded with a card

that did not relate to the preferred or neutral item, an error was recorded. If he attempted to mand in an inappropriate method, he received an error. When a child did not attempt to mand for an object, a nonresponse was recorded.

ii. Baseline Procedure

The trainer placed one of his child's favored objects in front of him, with the accompanying picture directly below it. If the child pointed to or brought the picture to him, she provided descriptive feedback and praise, as well as brief access to the object. Following that, an improvisation investigation trial was held. The trainer removed the pictures from the child's view and replaced them with six descriptive symbols. He provided quick access to the desired object if he manded utilizing one or more descriptive cards. If he did not request the item within 5 seconds, the trainer put the chosen item closer to the pictures. If he did not respond, the trial was over, and a new one began. The trial was also concluded.

iii. Improvisation Training

The trainer gave the children a favor and a neutral object, as well as the accompanying description cards. He directed his hand to the corresponding descriptor card and granted them brief access to the desired object if he reached for it rather than manding for it by pointing to or providing a descriptor card. He gave them immediate access to the chosen item and instant vocal feedback if they asked for it with the right card. The trainer completed one to three sessions each day, with a minimum of 10 minutes between them. The length and number of sessions were determined by the child's attention and cooperation. If he walked away or began acting disobediently or disruptively, the training session was ended. After each training session, the trainer conducted a follow-up investigation to measure the effectiveness of improvisation instruction.

iv. Observation on children response

A second observer scored at least 20% of each child's sessions independently. The agreement was assessed when both observers recorded the same response made by the child for a given trial. By dividing the number of agreements by the number of agreements plus

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disputes, the percentage of agreements was calculated. The mean agreement for the three children was 86, 89% and 96%, respectively.

v. Parents and teachers' responses on the use of PECS in the Abu Dhabi autism center

Exploring perceptions on adopting a picture exchange communication system to help children with autism spectrum disorder improve their attention span. The goal of this study was to investigate teachers' and parents' perceptions of the effectiveness of PECS on the communicative, social, and intellectual development of children with ASD in the Abu Dhabi center. To collect data from participants, the perception of the picture exchange communication scale was established. Below are the responses of parents and teachers on the use of PECS in the Abu Dhabi center.

6. Results and discussions: The results demonstrate that parents were usually pleased about using PECS to help the development of their autistic children. There was also a link between utilizing the PECS and better communication, learning, and social skills in children with ASD [33], [34]. After the test of PECS on the three children in the Abu Dhabi autism center to persuade parents and teachers, they have been convinced that PECS should be used in the Abu Dhabi autism center. According to them: The usage of the PECS method has resulted in a reduction in negative behavior in children with ASD. Using PECS's pictures, the learner has improved his ability to decide what he desires. Students become more receptive to orders after using the PECS method. PECS made it simple for children to gain independence (washing hands, using the bathroom, changing clothes).

6.1 The PECS approach introduced the child to a new language

The student has improved his ability to express himself via the use of visuals using PECS. Reduce student distraction by using PECS. After employing the PECS approach, the student became more engaged in educational assignments. When the learner asks for his fundamental requirements, he employs the PECS approach. PECS can help students improve their language skills. When students use PECS, their visual communication improves. The child gets more conscious of household norms and laws when utilizing PECS. The pupil is better

able to explain his needs after utilizing PECS. When the PECS approach was used, the pupil grew calmer and less nervous. Using PECS, the learner is now seeking a fun activity. By employing PECS, the child became more engaged with the teacher's members. Using PECS, the child improved his ability to engage with others. Using PECS, the student's capacity to recognize new concepts is developed.

Despite the fact that no child produced improvised minds to new stimuli during baseline, all of the children displayed generalization to untrained stimuli during training. The outcomes of the current study show a clear functional persuasion of parents and instructors on the usage of PECS in Abu Dhabi autism center instruction and improvisation of minds by autistic children. This supports the findings of Marckel et al. (2006), who demonstrated that autistic children might learn to improvise across symbol categories to request untrained favored things. The current study also suggests that parents may use improvisation training successfully. Prior to improvisation instruction, the experimenter conducted probing trials of untrained items to measure generalization.

7. Conclusion: This research will benefit children who are unable to talk, are not intellectual, or are moderately. Intelligent communicators use their existing communication methods. This study is also expected to inspire further research on autistic children in Abu Dhabi. This method of communication is expected to be simpler to teach autistic children in the Abu Dhabi center to increase their attention span. One limitation of this procedure was that the child would have had access to the desired item if he had used the right description card. This would have been a case of unequal reinforcement. As a result, the generalization probes employed during baseline may be seen as a training method. However, on the baseline generalization inquiries, neither child produced any accurate improvisations. Another drawback of the study was that only around 85% of the sessions were recorded because of technological issues or evidence of overt reactivity by the child.

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7.1 Future Suggestion

Future studies on the remaining sessions would be strengthened by incorporating data on the preservation of improvisation after training. This would be critical for the long-term results of parent-implemented interventions. Future studies may also investigate how teaching improvisation of minds influences emerging vocal sounds and how such vocalizations function.

Acknowledgment: First and foremost, I want to express my gratitude to Allah SWT for providing me with the strength and perseverance necessary to accomplish my proposal. I would also like to convey my deepest appreciation to everyone who has contributed to the success of this study. My deepest appreciation goes to my supervisor, who immensely assisted and contributed a lot to this project, together with my co-supervisor, who has also contributed to the success of this project as well.

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