

The Effectiveness of Picture Exchange Communication System (PECS) In Speech and Comprehension of Four Concepts of Fruits

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Abstracts: The study aims to evaluate the effectiveness of Picture Exchange Communication System (PECS) on speech production and comprehension of four concepts of fruits. The study sample consist of 20 children with autism level 1 as indicated by DSM-5 the study conducted in different special education centers in Jordan – zarqa. Pecs program was applied to. train the children to pick up some fruits by names pre- program assessment and post program evaluation for the performance of the children was done. The result of data analysis showed differences in the Means of children performance pre- program (M= 1.43 ,with StdDev=0.283) post program (M=2.75 with Std. Dev=0.273) that the programe has appositve effect on the children development in language acquisition.

Keywords: Effectiveness, PECS, Speech, Comprehension, Concepts, ASD

1. INTRODUCTION

Picture Exchange Communication System (PECS) is approach based on a modified applied behavior analysis (ABA) program designed for early nonverbal symbolic communication training. It is not a program designed to teach speech, although the latter is encouraged indirectly and some children begin to spontaneously use speech while enrolled in the PECS program. The PECS training program was developed by Bondy and Frost (Martin 1999) PECS training occurs during typical activities within the natural settings such as classroom and the home. The communication training occurs within a broader positive behavioral support context entitled the Pyramid Approach. Training techniques include strategies such as chaining, prompting/cuing, modeling.

Professional training regarding PECS needs a two-day' workshop. While speech pathologists might be the primary PECS program coordinator for a specific child, it is helpful to have others also attend the two-day trainings since they too will play an important role(). These others could include parents, the classroom teacher, and classroom assistants. They will be important in identifying new vocabulary and may help construct some of the picture display symbols as well as provide the nonverbal individual with opportunities to use/learn the new vocabulary. Although many people receive their initial training from a Pyramid Educational Consultant, others may receive their training through a train-the-trainer model from a local individual who has had training beyond the two-day orientation and is certified to train others.(Ganz, J. B , "et al".,2012).

PECS training is not limited by age but rather by a small set of criteria. Thus, PECS training could be offered to a fifty year old adult with a cognitive impairment as well as to a two year old with no cognitive impairment.

The candidate for PECS training should be an intentional communicator. This means that the child (or adult) is aware of the need to communicate his/her message to someone, even if it is in a limited fashion. The child (or adult) who drags someone across the room to the location of an object that he or she wishes to have/has at least a beginning notion of intentionality. The child (or adult) who attempts to obtain things without visually checking for an adult or involving him or her in some fashion in the quest to fulfill a desire or need, may not be intentional and may need a different approach before PECS training. (Sulzer-Azaroff, B "et al.", 2009).

Also, the individual should have some personal preferences, in addition to having intentionality. PECS helps to

teach the concept of the power of alternative communication. If one has no or weak preferences, then it may be more difficult to understand and learn the POWER of effective alternative communication via the PECS approach. Sampling for preferences is a first step before beginning PECS training. It may be necessary to develop a repertoire of preferences and dislikes through trial and error or through a history of exposure to various types of food, objects, sweets or activities when there are few strong preferences.

Picture discrimination ability is not a pre-requisite criterion for candidacy.. Those individuals who do have discrimination skills, may make faster progress (Dupee, C. A. 2012). In the initial stages of the program. Some individuals, however, may spontaneously demonstrate that they not only have the ability to discriminate pictured material but that they also already know how to use pictures to communicate. These individuals might be locating and bringing pictures or catalogues on their own initiative to parents or teachers to indicate their desires, for example. These children (or adults) may be ready to begin more traditional augmentative programming; the latter would allow a greater variety of message generation during the initial stages. (Tien, K. C. .2008 &Tien, K. C. (2008,)

Although the PECS strategy is primarily used with individuals who are nonverbal such as autism, it could be used with individuals who are primarily echolalic, those who have unintelligible speech, and those who have only a small set of meaningful words or signs in their repertoire. Careful consideration of the program and its strengths and weaknesses should play an important role in program selection for each prospective communication learner.

2. LITERATURE REVIEW

The determination effectiveness of the Picture exchange communication system (PECS) on functional communication development was assessed (Patricia M.Martin,199) The study revealed that . the students in the study developed some functional communication skills, that allow them to communicate their need appropriately, although the degree of mastery of the skills varies among the students because variation in the milestones of their development . A critical reviewing compares language outcomes for children with autism when using Picture Exchange Communication System (PECS) and sign language. The results of the study revealed that every intervention has different advantages and disadvantages and individuals differences plays a role in the outcomes(Shaw- Cosman M.A.2008).

One research conducted by (Cherine, 2012) supports the claim that PECS can provide children with ASD a means of functional communication and may increase speech production in some individuals and speech development, as well as minimize the signs of autism and maximize learning. Meta- analysis study on the pecs(Ganz, J. B., et.al. 2012) indicated that the result of the study support the judgement that PECS is a promising intervention method and it revealed that functional communication outcomes associated with PECS protocol were most impacted, that preschool children and those with autism generally showed the strongest training effects and in general students who advanced through the most PECS protocol phases had the best outcomes .Perception of parents using PECS in English had been studied the findings of the studies indicated using PECS in English enhance children's learning and improve communication and promotes bilingual of autistic children, but it is not an ideal one. However it could help parents' children with autism to teach new skill appropriately. A study on a group of south African children (Juli.Trvisi et.al,2010) was studied to explore the effects of PECS on the frequency of requesting and commenting and the length utterances of two children with autism who presented with some spoken language. The study revealed a considerable increase in intentional communicative acts for the participants with marked increases in requesting and the development of forms of communication (from augmentation of speech with pictures to speech only utterances).

Analyzing the impact of the implementation of PECS on the comprehension of instruction (visual and oral) by 20 children of both sex with ASD(Ana C. Tamanha,2020) .It has been observed an expressive increase in comprehension of both instruction and promoted the improvement in understanding of contextual information.

An experimental A-B design (Zahra Zahrooian, 2021) used to investigate the effect of employing Picture Exchange Communication System (PECS) on English as a foreign language vocabulary learning relying on its effectiveness in first language communication. The participants were two high-functioning children with autism aged 9 and 12 at a school for students with special needs. The treatment phase included 15 sessions. An analysis of visual inspection and graphic representation revealed performance improvement in both cases after the intervention. Moreover, some problems while educating the two participants for English vocabulary including lack of cooperation in phase 2, lack of attention and cooperation in mid-intervention, sense problems such as proprioceptive and vestibular are reported through qualitative analysis of the reports made of weekly sessions.

Abla Morta (2017), explored the effect of peer-mediated picture exchange communication system intervention in improving vocabulary knowledge in children with ASD. Participants were ten children aged seven, attended a center for children with autism. A pre-post design was used to examine the effect of peer-mediated picture exchange communication system intervention in improving vocabulary knowledge in children with autism spectrum disorders. Findings from this study advocated for the effect of peer-mediated picture exchange communication system intervention in improving vocabulary knowledge in children with autism spectrum disorders.

A study to examine whether children learn to request more readily with PECS when the symbols involved are highly iconic versus symbols that are low in iconicity (Katie Angermeier et al., 2007). The results indicated that students learned to request desired objects under both conditions, lending further support for the effectiveness of PECS. There was little to no difference, however, in the effectiveness and efficiency of requesting between the two conditions during Phases I and II of PECS training. Thus learners do not benefit from symbols that bear more resemblance with their referents during the first two phases of PECS instruction.

A study aimed to assess the effectiveness of expert training and consultancy for teachers of children with ASD in the use of the PECS was conducted by (Patricia Howlin, 2007) on three groups of children with Autism. The results indicated modest effectiveness of PECS teacher training rates of pupils initiation and use of symbols in the classroom increase although there was no evidence in improvement in other areas of communication.

An interview for a mother who implemented PECS for old child with Pervasive Developmental Disorder (Phoon Hooi San "et.al.", 2013). The interview aimed to investigate a mother's perception about the efficacy of PECS and issues related to PECS intervention. The results of the interview showed that PECS was effective in enhancing communication skills and reducing problematic behaviors. PECS also had a slight impact on speech production of the child.

Perceptions of parents who use PECS for children with ASD and other developmental disabilities was examined (Batool, T. et al 2019) by Survey study, the results revealed that parents with higher levels of education reported more knowledge of PECS and integrated PECS into their home lives to a greater degree than did parents with lower levels of education. However, both groups reported that PECS was easy to use and effective in developing the communication abilities of their children with autism and it is a communication system for children with autism spectrum disorders (ASD).

The important of using program based on PecS to performe personal care was used to provide teeth health, the program was successful in improving gingival health in children with ASD (Batayneh. t.al. ,2020)

A paper by (Carr, D, et al 2007) reports that five of 24 children who received 15 h of PECS teaching towards Phase III over a period of 4–5 weeks, showed concomitant increases in speech production, either in initiating communication with staff or in responding, or both. No children in the PECS group demonstrated a decrease in spoken words after receiving PECS teaching. In the control group, only one of 17 children demonstrated a minimal increase and four of 17 children demonstrated a decrease in use of spoken words after a similar period without PECS teaching.

Upon literature reviewing it has been obvious for the researcher that there is rarely studies that treated the subjects of PECS efficacy in managing the difficulty of communication among the children with ASD in Jordan community from the point of researcher view and literature reviewing the researcher is one of the coordinators of training associate degree program on pervasive developmental disorders, the researcher perceived the shortage of studies in Jordan. areas. That is was this subject is of importance to be discussed.

3. THE AIM OF THE STUDY

The current study aims to investigate the effectiveness of Picture exchange communication system on acquisition of four fruit concepts (Apple, Banana ,orange, and cripe).

4. RESEARCH QUESTIONS

To achieve the aim of this researcher paper. The researcher should find. answers for the ask the following questions

- Does intervention programs based on PECS strategies help autistic children in acquisition of naming objects (fruits, vegetables , utilities or other)

2) Does this program give advantages for special education teams, mothers or care givers in training autistic children to in communication?

5. RESEARCH VARIABLES”

Dependent variables: acquisition of concepts, four types of fruit (Apple , Bamana , orange and Cripes)

Independent variable: Intervention program based PECS strategies

Operation definitions

Acquisition of concepts: the ability of the autistic children to select the orange , banana and apple cripes from six or types of vegetables and fruit

6. METHODOLOGY AND PROCEDURES

6.1 RESEARCH SAMPLE

To achieve this paper 20 autistic children of both sex, age between 8 and 13 years, of level 1 according to the DSM-5 criteria

The team of researcher volunteers have 2-days work ship in the Jordanian Academy for Autism.

6.2 THE TARGET BEHAVIORS

Pick up the four types of fruits when required under the special context.

6.3 APPLYING PECS PROGRAMME

20 trainers participated in this study, tow trainers for each children to meet the criteria of training session on PECS. Reinforcement(sweets, social .) are used. Communication panel which consist of pictures. of fruits and vegetables (Apple, banana, orange, crepes , tomato botato, figs,). The communication panel was hanged on the wall in the class room, where training occurred.

Applying the program started at 2\4- 2/6/2023, daily, as the child urges to the same observational checklist was used to assess the child development.

PECS program phases.

Phase 1: Physical exchange- In this Phase I, the program begins with enticement whereby the adult displays or shows a preferred object or food item to the child. As he or she reaches for the desired object (apple, orange, banana, grapes) the facilitator assists the child to pick up a picture for the desired object or food item. He or she is physically assisted to give the picture to the message receiver who must be physically near the child (or adult) communicator. The physical closeness allows the exchange to easily take place. The adult who receives the message (picture) does not say anything until the picture is offered. At that juncture, the message receiver says something such as "Oh, you want banana (or whatever the picture represents) and gives the item to the person making the request. In Phase I, there is variation of the items requested, the person who receives the message, the facilitator, and the environment in which the exchange takes place. The objective is to have approximately 80 exchanges during the course of the day.

Phase2: Travelling: In Phase II, the exchange continues with attempts to increase the independence of the child. The facilitator is still available for as-needed assistance. The child learns to remove the picture of fruit from a display board for the exchange. He or she must engage in more physical movement than in Phase I in order to accomplish the exchange. It is preferable to have the child or adult who is the PECS user be responsible for carrying his or her own communication book

Phase3: Picture discrimination- In Phase III, the child learns to select the target picture from a choice of multiple pictures (banana, orange, grapes, apple) that differ in various dimensions. Error correction strategies are used when the response is incorrect

Phase4: Sentence structuring- In Phase IV, the child combines the object picture with the carrier phrase "I want, I need... I like" on a sentence strip and gives the strip to the adult or communication partner

Phase5: Requesting In Phase V, the child learns to respond to the question "What do you want?" by exchanging the sentence strip. Use of the questioning phrase is delayed until Phase V, because the exchange behavior should be automatic by that point in the programming sequence. Earlier use of the carrier phrase or an extended hand gesture is believed to provide undesirable cues relative to the desired behavior-

Phase6: Responding and spontaneous commenting- In Phase VI, the child learns to respond to the questions "What do you want?" vs. "What do you see?" vs. "What do you have?" what do you like -- I like This last phase is designed to introduce the young communicator to commenting behavior; the previous stages focused on requesting behavior.

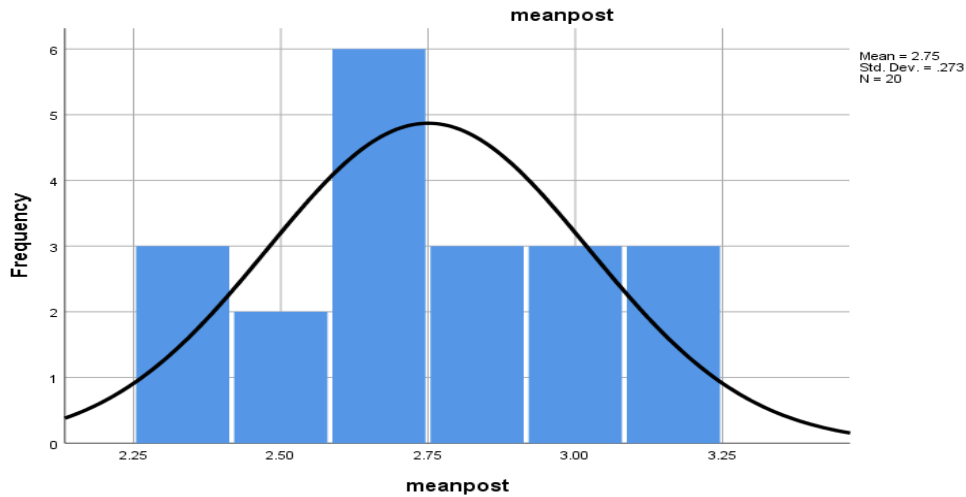
6.4 MATERIALS AND EQUIPMENTS

- Apples, orange, banana, grapes, tomato, potato, figs(natural and model)
- Reinforcement is (social, sweets)
- Facilitator
- Speech language pathologists
- Display Board
- Sentences written on stripes (I want----, I need--- or I like---, This is----) in Arabic words

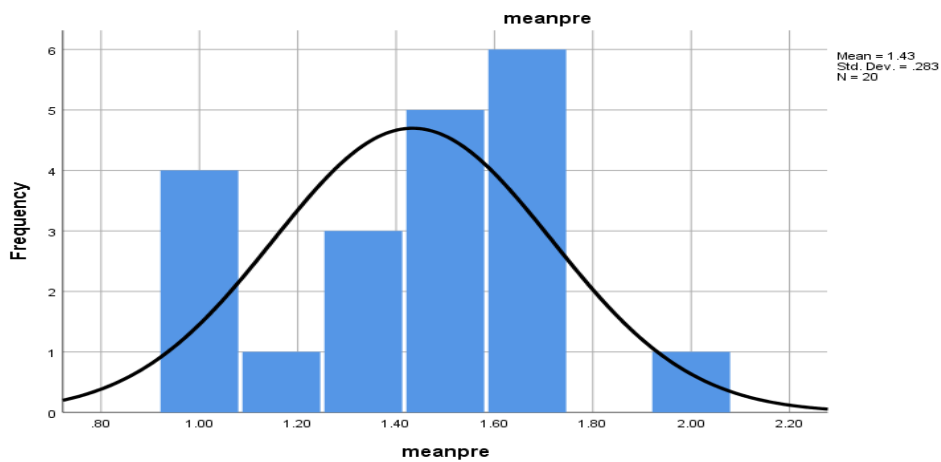
6.5 DATA ANALYSIS: Data was analyzed by using Spss Software Version16. Descriptive analysis of the Means- of children responses pre- and post-program and comparing means and Std. Dev of both data evaluations

6 RESULT: Analysis observational data obtained from pre-program evaluation and post program evaluation indicated that there are differences between the level of performance of the children in each phase of Pecs the mean of performance post program was 2.75 with STD =0,273 and the mean pre- program evaluation for the children was 1.43 with Std.Dev=0,273. This means that there is effectiveness for the training program on the acquisition of concept of the children. But the level of post-program. Performance wasn't too high this because the difference between the children in their cognitive abilities i.e. mental abilities. Second data analysis also shows no difference between male and female in the results.

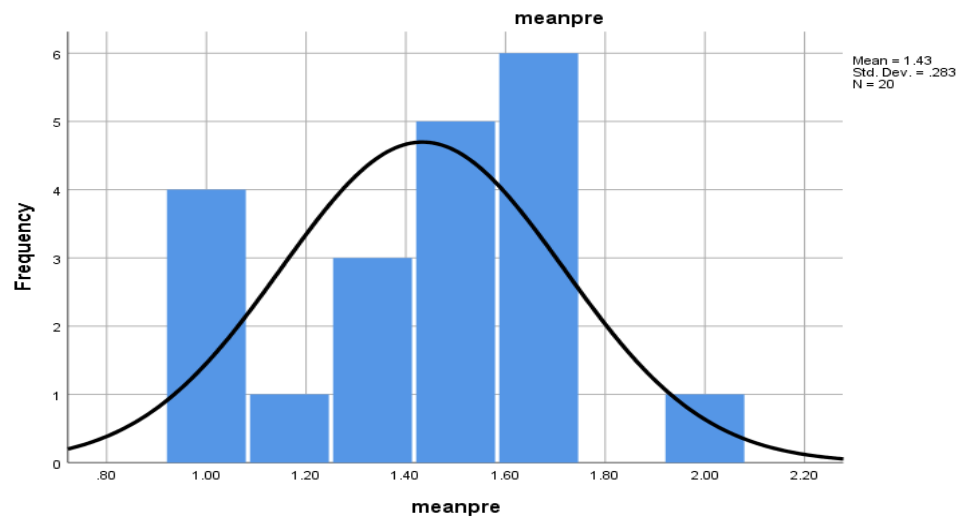
6.6 RECOMMENDATION: The researcher recommended to use PECS program in teaching individuals with autism to improve their abilities' to speech and comprehend their native language. Even the development of the children language concepts related naming and expressing concepts of the targeted objects were sloly and further time of training is needed.it is a helpful program. We can used it in further training .The special education teachers need to used for the ASD.



Graph.1



Graph 2



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