



PICTURE EXCHANGE COMMUNICATION SYSTEM (PECS) TO COMMUNICATE FUNCTIONALLY BY A CHILD WITH AUTISM: A SINGLE CASE EXPERIMENTAL STUDY

Usha. K

PhD scholar, Ramakrishna Mission Vivekananda University (RKMVU), Coimbatore

Abstract

The present investigation is attempted to find out the effect of Picture Exchange Communication System (PECS) on improvisation of Functional Communication Skills in children with autism. Single case experimental research design was used in the present study. A 5 year old child with moderate autism having moderate communication ability was identified from the Care for Autism Center, Hyderabad. Indian Scale for Assessment of Autism (ISSA) was used to assess the level of autism and Childhood Autism Rating Scale (CARS) was used to assess the verbal and non verbal communication to find out the level of communication. Functional communication assessment checklist was used to determine communicative competence. Reinforcer assessment checklist was used to find out the reinforcer for food items, play items, activity materials, brushing and bathing, items. After prioritizing the items, 15 items which are necessary for functional communication purpose were selected for training by using PECS. After collecting the baseline, the PECS intervention was initiated. Everyday five sessions were conducted during snacks time, after lunch, and during play time and before leaving from the school for a period of 12 weeks. PECS training was implemented till Phase IV. PECS assessment checklist was used to collect the data on Functional Communication Skills. Pre, mid and post assessment was done. The Mid assessment was done at every 10th session and performance was recorded. Mean scores were computed for each domain The pre mean scores is 1.00 and post mean scores is 5.00. Gradual improvement was seen during the mid assessment. The result indicates that the PECS training was effective in improvement of functional communication skills in a child with autism.

Key terms: Picture Exchange Communication System (PECS), child with autism, functional communication skills



Scholarly Research Journal's is licensed Based on a work at www.srjis.com

Introduction

Language and communication competency determines an individual's functioning in many aspects of life including education, employment, and general quality of life. A corollary is that, persons who are not able to develop functional communication and

(Warren & Abbeduto, 2007). Competencies in communication enable individuals to realize their goals for communication and to attain the “essence of their humanity” (Light, 1997, p. 1). Yet, research indicates that about 50% of persons with autism fail to develop adequate speech and

Usha. K, PhD scholar, Ramakrishna Mission Vivekananda University(RKMVU), Coimbatore language for their daily needs (Keen, Sigafos, & Woodyatt, 2001; Light, Roberts, Dimarco, & Grenier, 1998). Interventions designed to teach functional communication skills are therefore very crucial for future outcomes of children with autism. Augmentative Alternative Communication (AAC) strategies have been found successful for augmenting and/or substituting

speech or communication for individuals with communication difficulties (Beukelman & Mirenda, 2005). AAC strategies comprise unaided strategies such as sign language and manual signs, and aided systems including synthetic speech generating devices and picture-based strategies (Beukelman & Mirenda). The present study is aimed to improve the functional communication skills in children with autism. The investigator has selected PECS as a method to improve communication ability in children with autism.

Functional communication skills enable the individual to express basic needs and wants. It is observed that functional skills are skills that are meaningful and useful in the person’s life. The present findings may have implications for practice for persons working with children with autism who have functional communication needs. Communication skills provide a foundation for social and personal relationships and exert powerful influences on behavior. PECS requires few low-cost materials .It is simple to create PECS training It is a visually based AAC system which employs direct reinforcement and motivates the learner to learn the things in a natural environment. Significant impairment in communication manifested not merely in the failure or delay in developing speech, but also non verbal modes of communication such as eye contact, joint attention and pointing. As time goes by, a lack of speech and /or a means of communication begins manifesting in the form of behavior problems and tantrums and limits the socialization skills. Learning to communicate is difficult for children with autism, so it is important to teach them to express their needs to fulfill their needs. When they learn to communicate it will also help them to deal appropriately in the situation. It helps them to interact with others which is also essential to lead an independent life. The present study aimed at measuring the effect of Picture Exchange Communication System (PECS) on improvisation in functional communication skills in children with autism. Not many studies have been conducted in India. Therefore the

possibilities of exploring the effectiveness of PECS in learning on improvisation in functional communication skills need to be examined. If this system found to be effective, then it can be used by the parents at home, teachers who are working with children with autism. If the training is given for sufficient duration, many other needs which are necessary to lead an independent life can be taught easily.

Objectives of the study

1. To find out progress (pre, mid and post mean scores) in communicating for food items (domain-1) by WS after teaching through PECS.
2. To find out progress (pre, mid and post mean scores) in communicating for play items (domain-2) by WS after teaching through PECS.
3. To find out progress (pre, mid and post mean scores) in communicating for activity materials(domain-3) by WS after teaching through PECS
4. To find out progress (pre, mid and post mean scores) in communicating for brushing Items (domain-4) by WS after teaching through PECS
5. To find out progress (pre, mid and post mean scores) in communicating for bathing Items(domain-5) by WS after teaching through PECS
6. To find out overall progress (pre, mid and post mean scores) in functional communication skills (food items, play items, activity materials, brushing items and bathing items) by WS after teaching through PECS

Review of Literature

Schwartz, Garfinkle and Bauer (1998) conducted two studies to evaluate the use of PECS. The first study used 31 preschool aged children with communication needs and developmental delays. Sixteen of these children had been diagnosed with autism. The result of the study indicates all the 31 participants learned to use all five stages of PECS in 11 months. The second study employed 18 students (11 with autism) who had learned to use PECS in the first study. This second experiment examined whether the children could use PECS to communicate rather than just request simple items. All of the children could express something they had experienced. Forty four percent of the children (33% of children with autism) acquired spoken language. Their spoken language also generalized to other functional settings. The result of the study encouraged to take up this study to find out the result in Indian situation

Ganz and Simpson (2004) examined the role of PECS in improving the number of words spoken, increasing the complexity and length of phrases, and decreasing the non-word vocalizations of three young children with ASD and developmental delays (DD) with related

characteristics. Participants were taught Phases 1–4 of PECS (i.e., picture exchange, increased distance, picture discrimination, and sentence construction). The results indicated that PECS was mastered rapidly by the participants and word utterances increased in number of words and complexity of grammar. The method of training while using PECS is clear in this study.

Marckel, Neef and Ferreri (2006) conducted a preliminary analysis of teaching improvisation with the picture exchange communication system to children with autism. Two young boys with autism who used the picture exchange communication system were taught to solve problems (improvise) by using descriptors (functions, colors, and shapes) to request desired items for which specific pictures were unavailable. The results of a multiple baseline across descriptors showed that training increased the number of improvised requests, and that these skills generalized to novel items, and across settings and listeners in the natural environment.

Carr and Felce (2007) investigated the impact of mastery of the Picture Exchange Communication System (PECS) to Phase III, on the communications of children with autism. Children aged between 3 and 7 years, formed a PECS intervention group and a non-intervention control group. The intervention group received 15 hours of PECS teaching over 5 weeks. Two hours classroom observations recorded communications between the children and their teachers. These occurred: 6 weeks before teaching; during the week immediately prior to teaching; during the week immediately following teaching. For the control group, two hours observations for 5-week interval without PECS teaching. Communicative initiations and dyadic interactions increased significantly between the children and teachers in the PECS group but not for the control group.

Shahzadi Malhotra, Gaurav Rajender, Manjeet Bhatia, and Tej Singh (2010) studied the process of using PECS along with other traditional behavioral approaches in managing communication deficits and behavioral stereotypies in a seven-year-old male child diagnosed as having childhood autism. The identified target behaviors of repeated head turning, flapping his hands, poor communication skills were assessed using various rating scales including visual analogue scale as per clinician observation and parental reports and managed using PECS as an adjunct to traditional behavioral techniques of contingency management, differential reinforcement, task direction and reprimand. Outcome was assessed using same tools after thirty-two sessions of interventions spread over three months. Significant improvements of around 60% were observed in the target behaviors. This study demonstrates the utility of PECS as an important adjunct to traditional behavioral techniques in increasing

the independence levels in carrying out self help activities and significant enhancement in his communication and also in managing behavioral problems in a child with autism

Vijay Sagar (2011) review and discussed the aspects clinical profile, rating scales, neurobiology, genetics, treatment and outcome of research done on ASD in India:. And recommended for future research initiatives in the area of ASD on Large multi-centre community prevalence studies, Outcome studies of well-defined cohort of subjects with ASD, Exploration of neurobiological substrates using assessments like neuroimaging, neuropsychological profile, eye movement recording etc. , setting up of clinic -based registry at different Child Guidance Clinics across the country, development and validation of effective screening and early intervention modules, development and validation of psycho education and treatment manuals for parents of children with ASD.

Methodology

Single case experimental research design was used for the present study.

Tools and checklist

The following tools and checklist were used during the study.

1. Indian Scale for assessment of Autism (ISSA)
2. Childhood Autism Rating Scale (CARS)
3. Demographic data
4. Functional communication checklist
5. Picture exchange communication system assessment checklist
6. Reinforcer assessment checklist

Indian Scale for Assessment of Autism (ISSA): ISSA was used to assess the level of autism.

Childhood Autism Rating Scale (CARS): CARS was used to assess the verbal and non verbal communication to find out the level of communication

Demographic data: The format was prepared by the investigator to collect the demographic details of the case.

Functional Communication Assessment Checklist: The investigator has developed functional communication checklist to assess the communication ability of the children.

Picture Exchange Communication System Assessment Checklist: Investigator has prepared PECS assessment checklist to collect the data

Reinforcer Assessment Checklist: Investigator has prepared reinforcement assessment checklist to find out the reinforcer for food, play and activity items for each children

Instructional materials

The following instructional materials were used during the study.

1. Communication folder with pictures
2. Food, play activity, brushing and bathing materials

Communication folder with pictures: The communication folder consists of three pictures related to food items.

Food items: The investigator has collected three items in food for training purpose.

Validation: The checklist prepared by the researcher and the pictures selected for the intervention was distributed to the for selection/modification/ suggestions to experienced special educators. According to their suggestions, modifications are made and again 90 to 100% consensus taken.

Data gathering Procedure.

The baseline data was collected through observation for 4days. PECS training were conducted in several settings as the program progressed. Initial training were conducted in a room, then in child's classroom, playground at school, and at the child's home. Intervention was given for a total of 90 sessions for a period of 12 weeks upto phase IV

Phase I: Physical exchange

Phase II: Distance and Persistence

Phase III: Picture Discrimination

Phase IV: Sentence Structure

Phase I: Physical Exchange

The first phase of PECS teaches the user that icons can be used as communication tools (Frost & Bondy, 1994, 2002). A communication partner, physical prompter along with the child, were involved in the phase-I training. Individually identified items were displayed in clear plastic containers or on a table, but they remained out of child's reach until training were conducted. A picture was kept in front of the child. A Communication partner showed a item and provides gestural prompt by opening another hand, then the physical prompter provided physical prompt to exchange the picture. Immediately after releasing, the picture communication partner says the name of the item and verbally appreciates the child and allows him to fulfill his need. If child tries to fulfill the need without exchanging the picture, his responses were blocked. All the prompts were gradually faded and the communication partner's open handed prompt change to a close-handed one as the child demonstrates an understanding of the association between giving the communication partner the picture and access to the reinforcer. This process is repeated with other pictures in various settings, and with various communicative partners. The second phase was started after reaching the criteria of 80 percent

Phase II: Distance and Persistence

In phase two, the child is taught to independently retrieve icons and deliver them to a communication partner who is not immediately available (Frost & Bondy, 1994, 2002).

Phase-II consists of placing one picture on the communication folder and placing in front of the child. The child has to pick up the picture from the folder and release it to communication partner. Immediately after releasing the picture communication partner says the name of the item and verbally appreciates the child and allows him to fulfill his need. The distance between the communication folder, then between the communication partner was gradually increased from 0 to 9 inches and also to next room. In the beginning of this phase, pictures were kept inside the first page of communication, slowly places of pictures were shifted to next page. This is to make the child to search for the picture. Additionally, phase two used to teach a child the important of persistence when communicating wants or needs. The child has to give an item to a communication partner who initially has his or her back turned. This process is repeated with other pictures in various settings, and with various communicative partners. When the child exchanges the picture with distance and maintaining persistence with 80 percent the third phase was introduced.

Phase III: Picture Discrimination

In phase three, the child learns that presenting his or her communication partner with different pictures will result in different consequences and thus learns to discriminate between icons and to select the icon for a desired object from a group of other icon choices (Frost & Bondy, 1994, 2002). The phase III protocol for the PECS intervention consisted of placing two pictures in the communication folder. The order in which these pictures were placed on the board was altered randomly. One picture was highly desired item while the other picture was less desired item. If the child picks the less desired picture, he was given that item by the communication partner. When the child shows disinterest in it, then the child was given with another chance to choose between the items. Once the child has mastered this level of discrimination with two pictures , the number of pictures and items presented was increased, and multiple pictures were introduced following the same procedure. Until the child can discriminate between five pictures and look through multiple pages in the communication the phase three ws continued .Once the child mastered with 80 percent accuracy phase IV was introduced.

Phase IV: Sentence Structure

Phase four begins the next major phase of PECS training, in which the child is taught to combine sentence strips with icons in order to form requests (e.g., “I WANT” sentence strip plus the icon for “ball” in order to request the ball; Frost & Bondy, 1994, 2002)

Because they are naturally reinforcing, requests are taught first, with the child learning to combine the “I WANT” sentence strip with an picture for the desired item. The child was taught to construct the sentence and give the sentence strip to the communication partner, The communication partner reads the sentence strip for example, saying “I WANT kurkure” child will look at the sentence strip and by tapping the pictures tries to read the sentence strip. The communicative partner allow the child to satisfy the need.

The same procedure was used to train all the eight cases by the investigator.

Result and Discussion

WS was 5 years old boy with moderate autism (as per ISSA) having moderate communication abnormality (as per CARS) belongs to a middle class family, currently attending Care for Autism Center at Hyderabad since from 6 months. During the observation it was found that, he had a hard time in communicating with people and often fails to respond when people are speaking to him. . Whenever he wants food, play or to perform an activity he cries. He does not show any interest. Beating others and rolling on the floor was his major behaviour problem. Whenever his name was called he was responding to his name. He was finding difficult to follow the direction either given visually or given orally.

Objective 1.

To find out progress (pre, mid and post mean scores) in communicating for food items (domain-1) by WS after teaching through PECS.

Table: 1 Mean scores of WS in communicating for food items (domain-1) by using PECS

food items	Pre	Mid assessment										Post
		M 1	M 2	M 3	M 4	M5	M6	M 7	M 8	M 9	M 10	
Cheeseball	1.00	1.0	2.7	3.0	3.2	3.2		3.5	3.7	4.5	5.0	5.00
		0	5	0	5	5	3.50	0	5	0	0	
Fryums	1.00	1.0	2.5	3.0	3.2	3.5		3.7	3.7	4.5	5.0	5.00
		0	0	0	5	0	3.50	5	5	0	0	
Kurkure	1.00	1.0	2.5	3.0	3.0	3.2		3.7	4.0	4.7	5.0	5.00
		0	0	0	0	5	3.75	5	0	5	0	
Total	1.00	1.0	2.7	3.0	3.2	3.2		3.5	3.7	4.5	5.0	5.00

Mean score= Average of Phase I to IV scores

Table 1 and figure 1 depicts the result of WS in communicating for food items such as cheeseball, fryums, kurkure by exchanging the correspondent pictures. The total pre mean scores 1.00 is minimum. Initially WS is exchanging all the three picture of food items with physical prompt. A gradual improvement is noticed during mid assessment. The total post mean scores of food items is 5.00. WS is exchanging the correct pictures of roti, vegetables and kurkure independently to fulfill his need to get the food items when ever need arises. It indicates that PECS training is effective and it improved communication ability of WS in communicating his needs for food items Hence, the finding of the result is in accordance with the objective – 1 that there is a progress (pre, mid and post mean scores) of communicating for food items by WS after teaching through PECS.

Objective 2.

To find out progress (pre, mid and post mean scores) in communicating for play items (domain-2) by WS after teaching through PECS.

Table: 2 Mean scores of WS in communicating for play items (domain-2) by using PECS

Play items	Pre	Mid assessment										Post
		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	
Dog	1.00	1.00	2.75	2.75	3.25	3.50	3.50	3.50	3.75	4.50	5.00	5.00
Bubbles	1.00	1.00	2.50	3.25	2.50	2.75	3.75	3.25	3.00	4.00	5.00	5.00
fishing toy	1.00	1.00	3.00	3.25	3.50	3.50	3.50	3.75	3.75	4.00	5.00	5.00
Total	1.00	1.00	2.75	3.08	3.08	3.25	3.58	3.50	3.50	4.17	5.00	5.00

Mean score= Average of Phase I to IV scores

Table 2 and figure 2 portray result of WS in communicating for play items such as dog, bubbles and fishing toy by exchanging the correspondent pictures. The total pre mean scores is 1.00. Initially WS is exchanging all the three picture of play items with physical prompt. A gradual improvement is noticed during mid assessment. The total post mean scores of play items is 5.00 WS is exchanging the correct pictures of Dog , Bubbles and Fishing toy independently during play time and also whenever he want to go for play. It indicates that PECS training is effective and it improved communication ability of WS in communicating his needs for play items Hence, the finding of the result is in accordance with the objective – 2, that there is a progress (pre, mid and post mean scores) of communicating for bathing items by WS after teaching through PECS.

Objective 3

To find out progress (pre, mid and post mean scores) in communicating for activity materials(domain-3) by WS after teaching through PECS

Table-3 Mean scores of WS in communicating for activity materials (domain-3) by using PECS

Activity materials	Pre	Mid assessment										Post
		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	
colouring book	1.00	1.0	2.7	3.5	3.25	3.00	3.75	3.7	3.7	4.2	4.7	5.0
	1.00	1.0	2.5	3.5	3.00	3.25	3.50	3.5	3.7	4.5	4.7	5.0
crayons	1.00	1.0	2.5	3.0	3.25	3.50	3.50	3.5	3.7	4.0	5.0	5.0
Pegboard	1.00	1.0	2.5	3.0	3.25	3.50	3.50	3.5	3.7	4.0	5.0	5.0
Total	1.00	1.0	2.5	3.3	3.17	3.25	3.58	3.5	3.7	4.2	4.8	5.0

Mean score = Average of Phase I to IV scores

Table 3 and figure 3 describe result of WS in communicating for activity materials such as colouring book, crayons and pegboard by exchanging the correspondent pictures. The total pre mean scores is 1.00. Initially WS is exchanging all the three picture of for activity materials with physical prompt. A gradual improvement is noticed during mid assessment. The total mean scores of play items is 5.00 WS is exchanging the correct pictures of colouring book, crayons and pegboard independently during leisure time and also whenever he want to do the activity. It indicates that PECS training is effective and improved communication ability in WS for communicating his needs for activity materials Hence, the finding of the result is in accordance with the objective – 3 , that there is a progress (pre, mid and post mean scores) of communicating for activity materials by WS after teaching through PECS.

Objective 4

To find out progress (pre, mid and post mean scores) in communicating for brushing Items (domain-4) by WS after teaching through PECS

Table: 4 Mean scores of WS in communicating for brushing items (domain-4) by using PECS

Brushing items	Pre	Mid assessment										Post
		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	
Brush	1.00	1.00	2.5	2.75	3.2	3.25	3.5	3.50	3.75	4.00	4.75	5.0
		1.00	2.5	3.00	3.2	3.50	3.7	3.75	3.75	3.75	4.75	5.0
Paste	1.00	1.00	2.5	3.00	3.0	3.25	3.5	3.75	3.75	3.75	4.25	4.2
		1.00	2.5	3.00	3.0	3.25	3.5	3.75	3.75	3.75	4.25	5

			2.5		3.1		3.5					4.7
Total	1.00	1.00	0	2.92	7	3.33	8	3.67	3.75	3.83	4.58	5

Mean score= Average of Phase I to IV scores

Table 4 and figure 4 illustrate the result of WS in communicating for brushing items such as Brush, Paste and Towel by exchanging the correspondent pictures. The total pre mean scores is 1.00. Initially WS is exchanging all the three picture of for brushing items with physical prompt. A gradual improvement is noticed during mid assessment. The total post mean scores of brushing items is reached to 4.75. WS is exchanging the correct pictures of brushing items such as Brush, Paste independently, and Towel with verbal prompt to fulfill his need to get the brushing items during brushing time . It indicates that PECS training is effective and it improved communication ability of subject- in communicating his needs for brushing items, Hence, the finding of the result is in accordance with the objective – 4, that there is a progress (pre, mid and post mean scores) of communicating for brushing items by WS after teaching through PECS.

Objective 5

To find out progress (pre, mid and post mean scores) in communicating for bathing Items (domain-5) by AN after teaching through PECS

Table: 5 Mean scores of WS in communicating for bathing items (domain-5) by using PECS

Bathing items	Pre	Mid assessment										Post	
		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10		
Bucket	1.0	1.0	2.5	3.0	3.2	3.5	3.7	3.7	3.7	3.7	3.7	4.2	4.25
Mug	1.0	1.0	2.5	3.5	3.0	3.0	3.7	3.5	3.7	4.0	4.0	4.0	4.00
Soap	0	0	0	0	0	0	5	0	5	0	0	4.5	5.00
Total	1.0	1.0	2.5	3.3	3.2	3.3	3.5	3.5	3.7	3.9	4.2	4.2	4.42

Mean score= Average of Phase I to IV scores

Table 5 and figure 5 shows the result of WS in communicating for bathing items such as bucket, mug and soap by exchanging the correspondent pictures. The total pre mean scores is 1.00. Initially WS is exchanging all the three picture of bathing items with physical prompt. A gradual improvement is noticed during mid assessment. The total mean scores of bathing items ms is reached to 4.42. WS is exchanging the correct pictures of bathing items such as Bucket, mug with verbal prompt and soap independently to fulfill his need to get the bathing items during bathing time . It indicates that PECS training is effective and it improved

communication ability of WS in communicating his needs for bathing items, Hence, the finding of the result is in accordance with the objective – 5 that there is a progress (pre, mid and post mean scores) of communicating for brushing items by WS after teaching through PECS.

Objective 6

To find out overall progress (pre, mid and post mean scores) in functional communication skills (food items, play items, activity materials, brushing items and bathing items) by WS after teaching through PECS

Table: 6 Overall Mean scores in functional communication skills of WS

Items	Pre	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	Post
Overall	1.0	1.0	2.5									
1	0	0	8	3.13	3.17	3.30	3.58	3.58	3.72	4.15	4.73	4.83

Mean score = Average of Phase I to IV scores

Table 6 shows overall mean scores of WS in functional communication skills. The overall pre mean scores (1.00) is minimum; initially WS is exchanging all the pictures with physical prompt. A gradual improvement is noticed during mid assessment. The post mean scores is 4.83. WS is exchanging the correct pictures with verbal prompt to fulfill his need. It indicates that PECS training is effective and it improved functional communication ability Hence, the finding of the result is in accordance with the objective – 6, that there is overall progress (pre, mid and post mean scores) in functional communication skills (food items, play items, activity materials, brushing items and bathing items) by WS after teaching through PECS.

The results of this study (Conklin, C. & Mayer, G.R. (2010). suggest that participants taught via PECS increased their initiation of requests, thereby increasing their independence and choice making, which also appears to have collateral effects on problem behaviors. Thus, this study further supports the use of PECS with individuals with ASD to promote the use of a functional communication system

Qualitative Analysis:

In addition to quantitative analysis qualitative analysis was also done. Child was accompanied with his mother on the first day of the training. He was very dull. Investigator played with the child and session was not continued. Next day also he did not show any interest. Third day of intervention he was little active. A picture of dog near the door step of intervention room and toy dog inside the room was kept. He was looking at the toy dog immediately physical prompter made the child to exchange the picture and communication partner given a toy dog to the child. he was holding for a while and left the toy then another

picture of fishing toy and picture was kept made the child to exchange the picture. He started playing with the toy.

After few session gradual improvement was noticed by the investigator in the child. he started liking to come inside the room and motivated towards exchanging the picture. In the classroom he was identifying the colours, shapes and pictures of animals. His mother was sometime cooperative and sometime not.

After few session of training it was observed by the researcher that, his attention span was increased, he was sitting at one place and completing the given task. He started giving eye contact and regular to the school pictures at home. Even after the intervention his mother is still continuing the training at home.

After the PECS training WS was discriminating the pictures , by constructing the sentence and exchanging 12 pictures independently and 3 pictures with verbal prompt to communicate his need appropriately according to the situation with variety of communicative partner

Major findings

It was found that there was an improvement in communication skills by WS for communicating his needs for food items, play items, activity materials, brushing and bathing items..

Conclusion:

Result indicates that PECS training is effective in teaching functional communication skills in children with autism. As a result of 90 sessions of intervention till phase IV increased the level of communication skills . PECS can also used to teach other functional skills necessary for daily living.

References

- Schwartz, I. S., Garfinkle, A. N., & Bauer, J. (1998). The Picture Exchange Communication System: Communicative outcomes for young children with disabilities. Topics in Early Childhood Special Education, 18, 144–159.*
- Ganz and Simpson (2004) Effects on communicative requesting and speech development of the picture exchange communication system in children with characteristics of autism. Journal of Autism and Developmental Disorders, 34, 395–409.*
- Marckel, J.M, Neef, N.A. & Ferreri, S.J. (2006). A preliminary analysis of teaching improvisation with the picture exchange communication system to children with autism. Journal of Applied Behavior Analysis, 39, 109-115.*
- Carr and Felce (2007) The effects of PECS teaching to phase III on the communicative interactions between children with autism and their teachers. Journal of Autism and Developmental Disorders, 37, 724–737.*

Shahzadi Malhotra, Gaurav Rajender, Manjeet S. Bhatia, and Tej B. Singh (2010) Effects of Picture Exchange Communication System on Communication and Behavioral Anomalies in Autism Indian Journal of Psychological Medicine . 32(2): 141–143.

Vijay Sagar KJ(2011) Research on autism spectrum disorders in India AP J Psychol Med Vol. 12 (2)