

Picture Exchange Communication Systems (PECS)

This is an alternate version of the characteristics overview chart on the next page. It is provided for accessibility.

Verbal skills

- Nonverbal
- Mixed

Grade Level

- PK
- Elementary
- Middle/High


Cognitive Level

- Classic

Areas Addressed

- Communication/Speech
- Social/Emotional

Picture Exchange Communication Systems (PECS)

	Verbal Skills	Grade Levels	Cognitive Level	Areas Addressed
	<input checked="" type="checkbox"/> Nonverbal	<input checked="" type="checkbox"/> PK	<input checked="" type="checkbox"/> Classic	<input type="checkbox"/> (Pre)Academic/ Cognitive/Academic
	<input checked="" type="checkbox"/> Mixed	<input checked="" type="checkbox"/> Elementary	<input type="checkbox"/> High Functioning	<input type="checkbox"/> Adaptive Behavior/ Daily Living
	<input type="checkbox"/> Verbal	<input checked="" type="checkbox"/> Middle/High		<input type="checkbox"/> Behavior
				<input checked="" type="checkbox"/> Communication/Speech
				<input checked="" type="checkbox"/> Social/Emotional



Brief Introduction

Pyramid Educational Consultants, developers of the Picture Exchange Communication System (PECS), describe PECS as an augmentative alternative communication system (AAC) that teaches children and adults with autism (AU) and other communication deficits to initiate communication (Frost & Bondy, 2002). PECS begins with teaching a student to exchange a picture of a desired item with a “teacher” who immediately honors the request.



Description

The PECS training protocol is based on applied behavior analysis (ABA) techniques, whereby functional communication is systematically taught using prompting and reinforcement strategies that lead to independent communication. PECS also teaches discrimination of symbols and then sequencing to create simple sentences. In the most advanced phases, individuals are taught to comment and answer direct questions.

PECS consists of five stages:

Phase I: Teaches students to initiate communication right from the start by exchanging a single picture for a highly desired item.

Phase II: Teaches students to be persistent communicators – to actively seek out their pictures and to travel to someone to make a request.

Phase III: Teaches students to discriminate pictures and to select the picture that represents the item they want.



Summary

PECS uses ABA to teach individuals with AU how to initiate communication with others. Although PECS uses picture symbols and other visual cues, PECS should be viewed as a specific instructional protocol to teach communication skills.



Research Table

# of Studies	Ages (years)	Sample Size	Area(s) Addressed	Outcome
22*	1-17	277	Language production	+

*Note: Includes an integrated review of literature by Tien (2007).



Studies Cited in the Research Table

- Ganz, J., Simpson, R., & Cook, K. (2008). Generalization of a pictorial alternative communication system across instructors and distance. *Augmentative and Alternative Communication, 24*, 89-99.

This study examined the use of a modified PECS strategy to teach functional communication that will generalize across instructors to a 12-year-old boy with AU. Results demonstrated that over the 12 sessions of the study, the participant increased spontaneous communication through the use of PECS and generalized across multiple instructors.
- Lund, S., & Troha, J. (2008). Teaching young people who are blind and have autism to make requests using a variation on the Picture Exchange Communication System with tactile symbols: A preliminary investigation. *Journal of Autism and Developmental Disorders, 38*, 719-730.

This study employed the teaching strategies from PECS to teach three girls (ages 12-17) to use tactile symbols as a means of communication. Over the 35-week study, only one of the participants successfully completed all three phases of the study; however, all participants increased their use of the tactile symbols for communication.
- Tien, K. (2008). Effectiveness of the Picture Exchange Communication System as a functional communication intervention for individuals with autism spectrum disorders: A practice-based research synthesis. *Education and Training in Developmental Disabilities, 43*, 61-76.

This review of the literature on the efficacy of PECS examined 13 studies that involved 125 participants with AU ages 1-12 years. The author concluded that overall the available evidence indicates that PECS is an effective evidence-based practice for enhancing functional communication for individuals with AU.
- Carr, D., & Felce, J. (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.

This study examined the ability of 24 children with AU (ages 3-7 years) to master the use of PECS to Phase III during the five-week study period. Participants demonstrated increases in initiation of communication as well as dyadic or two-way communications.

Interventions

5. Howlin, P., Gordon, K., Pasco, G., Wade, A., & Charman, T. (2007). The effectiveness of Picture Exchange Communication System (PECS) training for teachers of children with autism: A pragmatic, group randomized controlled trial. *Journal of Child Psychology and Psychiatry, 48*, 473-481.
This study was designed to assess the influence of formal PECS training and consultancy for teachers on the use of PECS by 84 elementary school students with AU. Results showed that over the five months of the study, the participants increased their use of PECS; however, there was no increase in the frequency of speech and no maintenance of skills after the intervention was eliminated. The authors concluded that the formal teacher training had little effect on student outcomes.
6. Chong, R. (2006). The teaching of functional language skills in a second language to a child with autism. *Kata, 8*, 89-100.
The purpose of this study was to determine whether it was possible to teach one 6-year-old Chinese boy with AU to develop a second functional language (English) through the use of PECS. Over the five phases of the study, the participant was able to develop both spontaneous communication with the use of PECS and several words in English that he did not have prior the study period.
7. Yoder, P., & Stone, W. (2006). Randomized comparison of two communication interventions for preschoolers with autism spectrum disorders. *Journal of Consulting and Clinical Psychology, 74*, 426-435.
This study compared the efficacy of Responsive Education and Prelinguistic Milieu Teaching (RPMT) and PECS in 36 preschoolers with AU. Results demonstrated that the RPMT facilitated more generalized turn taking and initiation of joint attention than the PECS. However, the PECS facilitated more generalized requests than the RPMT in children with very little initiating joint attention prior to treatment.
8. Malandraki, G., & Okalidou, A. (2007). The application of PECS in a deaf child with autism: A case study. *Focus on Autism and Other Developmental Disabilities, 22*, 23-34.
This study involved the use of PECS to develop functional communications skills in one 10-year-old boy with AU and profound hearing loss. Over the four-month study period, the participant learned to use PECS to communicate spontaneously and also developed prosocial skills that were not targeted in this study.
9. Marckel, J., Neef, N., & Ferreri, S. (2006). A preliminary analysis of teaching improvisation with the Picture Exchange Communication System to children with autism. *Journal of Applied Behavior Analysis, 3*, 109-115.
This study attempted to teach two young boys (ages 4 and 5) with AU to improvise their use of PECS to request items for which pictures were not available. The task was to use descriptors such as functions, colors, or shapes to request the unavailable item. Over the study period of 40 sessions, both children were able to successfully improvise with PECS to request the desired items.



References

- Carr, D., & Felce, J. (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.
- Chong, R. (2006). The teaching of functional language skills in a second language to a child with autism. *Kata, 8*, 89-100.
- Ganz, J., Simpson, R., & Cook, K. (2008). Generalization of a pictorial alternative communication system across instructors and distance. *Augmentative and Alternative Communication, 24*, 89-99.
- Frost, L., & Bondy, A. (2002). *PECS: The Picture Exchange Communication System training manual*. Newark, DE: Pyramid Educational Products, Inc.
- Howlin, P., Gordon, K., Pasco, G., Wade, A., & Charman, T. (2007). The effectiveness of Picture Exchange Communication System (PECS) training for teachers of children with autism: A pragmatic, group randomized controlled trial. *Journal of Child Psychology and Psychiatry 48*, 473-481.
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Resources and Materials

- Indiana Resource Center for Autism: www.iidc.indiana.edu/irca/communication/WhatisthePEC.html
This article describes the foundation of PECS.
- Picture Exchange Communication System: www.asatonline.org/resources/treatments/picture.htm
This Association for Science in Autism Treatment fact sheet gives a concise explanation of PECS.
- Picture Exchange Communication System: www.polyxo.com/visualsupport/pecs.html
Written from personal experience, this webpage gives an in-depth understanding of the phases of PECS.
- Pyramid Educational Systems: www.pecs.com
This is the official website for the PECS and as such it offers multiple resources, including up-to-date research and applications.