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Pyramid Educational Consultants Key Research on PECS

What is PECS?

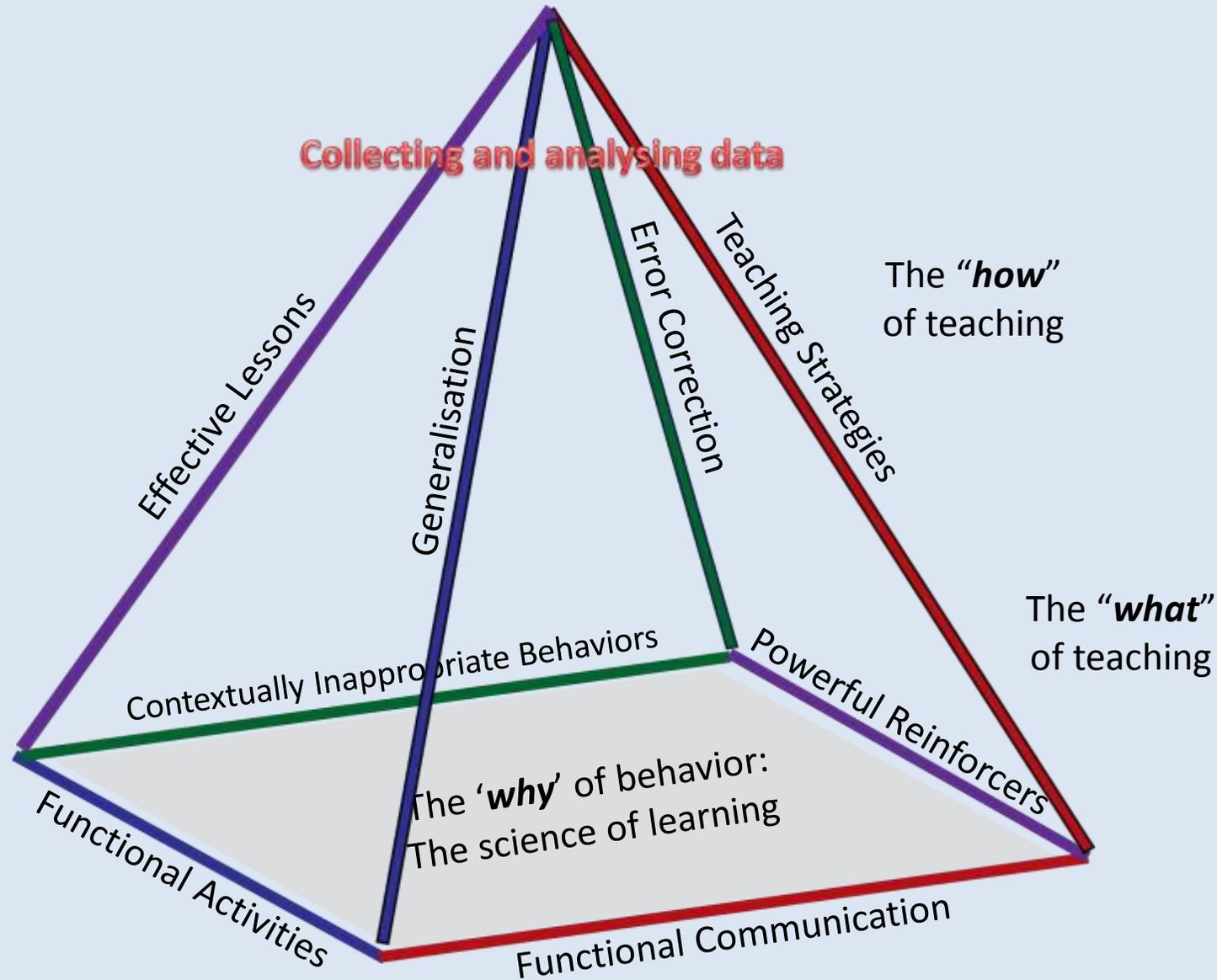
- PECS = The Picture Exchange Communication System
- PECS is an approach that teaches **expressive** communication skills using pictures and a specific teaching protocol
- PECS was designed for people with autism but is used effectively with a variety of communication difficulties

Advantages of PECS

- Requires *interaction* with other people from the start
(social approach)
- Encourages individual to *initiate* communication
(spontaneous)
- Starts with requesting, not labeling /commenting
(functional/reinforcing)
- Is based on the analysis of Skinner's *Verbal Behavior*

PECS Phase I: Leila

The Pyramid Approach to Education



How widespread is PECS?

- More than 140 published articles
- At least 70 data based or case studies, 12 descriptive articles, 6 literature reviews
- Articles generated in 13 countries including the USA, UK, New Zealand, Brazil, Greece, Japan, Australia, France, Peru

PECS Improves Socialisation and Interactive Play



Lerna, A., Esposito, D., Conson, M., Russo, L., & Massagli A. (2012). Social-communicative effects of the Picture Exchange Communication System (PECS) in autism spectrum disorders. *International Journal of Language and Communication Disorders*, 47(5), 609-17.

Lerna, A., Esposito, D., Conson, M., & Massagli, A. (2014). Long-term effects of PECS on social-communicative skills of children with autism spectrum disorders: a follow-up study. *International Journal of Language and Communication Disorders*, 49(4), 478-85.

PECS Improves Socialisation and Interactive Play

Study of preschool children with autism (18- to 60-months of age) conducted in Italy

- 18 children assigned to receive either the Picture Exchange Communication System (PECS) training or Conventional Language Therapy (CLT)
- Children receiving PECS training exhibited significantly better joint attention, initiation, and cooperative play than did children receiving CLT in an “unstructured play” assessment, after 6 months.
- Standardised parent report measures also indicated significant improvements in child socialisation in those receiving PECS compared with those receiving CLT.
- A follow-up study showed that these effects maintained at 12 months

PECS with Peers

PECS Training is Effective in Schools



Gordon, K., Pasco, G., McElduff, F., Wade, A., Howlin, P., & Charman, T. (2011). A communication-based intervention for nonverbal children with autism: What changes? Who benefits? *Journal of Consulting and Clinical Psychology, 79*(4), 447-57.

Howlin, P., Gordon, R.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 randomised controlled trial. *Journal of Child Psychology and Psychiatry, 48*(5), 473-81.

PECS Improves Speech to the Same Extent as Established Speech-Based Interventions



Charlop-Christie, M., Carpenter, M, Le, L., LeBlanc, L.A., & Kellet, K. (2002). Using the Picture Exchange Communication System (PECS) with children with autism: assessment of PECS acquisition, speech, social-communicative behavior, and problem behavior. *Journal of Applied Behavior Analysis, 35*, 213-231.

Schreibman, L., & Stahmer, A. C. (2014). A randomized trial comparison of the effects of verbal and pictorial naturalistic communication strategies on spoken language for young children with autism. *Journal of Autism and Developmental Disorders, 44*(5), 1244-51.

Yoder, P., Stone, W.L. (2006). A randomized comparison of the effects of two prelinguistic communication interventions on the acquisition of spoken communication in preschoolers with ASD. *Journal of Speech Language and Hearing Research, 49*(4), 698-711.

Kate with PECS / Kate without PECS

PECS Improves Speech to the Same Extent as Established Speech-Based Interventions

- Well-controlled study of three nonverbal or minimally verbal children (3 yrs 8 mo, 5 yrs 9 mo, 10 yrs 0 mo)
- PECS training resulted in increases in social-communicative requesting, decreases in challenging behavior, and increases in the production of spontaneous speech

PECS Improves Speech to the Same Extent as Established Speech-Based Interventions

- Two, large-scale, federally funded, Randomized Controlled Trials (RCTs) comparing PECS training to established speech-based interventions
- Yoder & Stone , 2006. PECS vs RPMT. Thirty-six preschoolers with autism (18 to 60 months of age) producing fewer than 10 words, randomly assigned to receive either PECS Training or RPMT for 6 months. After 6 months of intervention, both groups exhibited increases in speech production, with no differences in speech production in those who received PECS vs RPMT.

PECS Improves Speech to the Same Extent as Established Speech-Based Interventions

- Schreibman & Stahmer, 2014. PECS vs. PRT
- Thirty-nine preschoolers with autism (20 to 45 months of age) producing fewer than 10 words (50% using zero words), randomly assigned to receive either PECS Training or PRT for 6 months.
- After 6 months of intervention, the majority (78%) of children in both groups were producing more than ten words, with no differences in speech production in those who received PECS (gained 83 words on average) vs. PRT (gained 71 words on average).

Extensive Research Showing Positive Effects means PECS is one of the most Evidence Based Practices

Preventing School Failure, 54(4), 275–282, 2010
Copyright © Taylor & Francis Group, LCC
ISSN: 1045-988X print
DOI: 10.1080/10459881003785506

Routledge
Taylor & Francis Group

Evidence-Based Practices in Interventions for Children and Youth with Autism Spectrum Disorders

Samuel L. Odom, Lana Collet-Klingenberg, Sally J. Rogers, and Deborah D. Hatton

ABSTRACT: Evidence-based practices (EBPs) are the basis on which teachers and other service providers are required to design educational programs for learners with autism spectrum disorders (ASD). As part of their work with the National Professional Development Center (NPDC) on ASD, researchers developed a process for reviewing the research literature and established criteria for identifying EBPs. In their review, they identified 24 focused intervention practices having sufficient evidence. In this article, the authors describe procedures for selecting specific EBPs appropriate for addressing specific IEP goals for learners with ASD. The authors emphasize the importance of systematic implementation of practices.

(EBP) used with infants, children, and youth with ASD and their families; (b) to describe a process for identifying EBPs; (c) to identify the practices that meet the offered definition and thus have sufficient empirical support to qualify as evidence-based; and (d) to describe how teachers and practitioners might use such information to select practices to address specific goals and objectives for individual children.

A Short History of EBP in ASD

In the 1970s, members of the health care community in England began a concerted effort to employ the findings

Extensive Research Showing Positive Effects means PECS is one of the most Evidence Based Practices

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**Nonmedical Interventions for Children With ASD: Recommended Guidelines
and Further Research Needs**

Margaret A. Maglione, Daphna Gans, Lopamudra Das, Justin Timbie, Connie Kasari,
For the Technical Expert Panel, and HRSA Autism Intervention Research –
Behavioral (AIR-B) Network
Pediatrics 2012;130;S169
DOI: 10.1542/peds.2012-09000

Maglione, M.A., Gans, D., Das, L., Timbie, J., Kasari, C., and the Technical Expert Panel and HRSA Autism Intervention Research Behavioral (AIR-B) Network. (2012). Nonmedical interventions for children with ASD: Recommended guidelines and future research needs. *Pediatrics*, 130, Supplement 2, S169-178.

Extensive Research Showing Positive Effects means PECS is one of the most Evidence Based Practices

- A recent systematic review of the autism child and youth intervention literature identified PECS as one of only a handful of evidence-based practices in this area. The authors concluded that PECS is evidence-based practice for improving communication, socialisation, and behaviour.
- A recent review of the autism non-medical intervention research literature by a panel of experts determined that PECS is the only evidence-based augmentative or alternative communication intervention system for this population. Furthermore, this panel reported that PECS has a “moderate” level of evidence, making PECS one of the most evidence-based practices in the field.

The Evidence for PECS vs. App-Based AAC



Transition from PECS to SGD

The evidence for PECS vs High-Tech AAC

- Over 140 articles have been published examining the Picture Exchange Communication System (PECS), whereas approximately 20 (only 17 data-based) research articles have examined high-tech AAC.
- PECS has been examined in both small-scale single-subject design studies and large-scale clinical trials, whereas high-tech AAC has only been examined in small-scale, single-subject design studies.
- PECS has been examined in regards to long-term intervention effects (e.g., 6 months, 12 months), whereas high-tech AAC has only been examined in short-term effects (e.g., 6 to 8 week).

The evidence for PECS vs. High-Tech AAC

- PECS training learner skill generalization in regards to both near-transfer of skills to the same materials and similar environments and materials as well as far-transfer of skills to novel materials and environments, whereas high-tech AAC learner skill generalization has not been examined at all.
- PECS has been shown to exhibit positive effects on spontaneous speech production in nonverbal and minimally verbal children exhibiting 0 to 10 words at the start of intervention, whereas high-tech AAC has only been shown to exhibit positive effects on imitative speech production in children who already have existing speech production skills (average of 17 words at the start of intervention).
- PECS has an established, manualized behavioral teaching protocol that has been shown to lead directly to spontaneous functional communication skills, whereas there is no such protocol for teaching communication skills using high-tech AAC

The evidence for PECS vs High-Tech AAC

With the PECS IV+ App and Transitioning from PECS to an SGD, Pyramid Educational Consultants connects proven teaching methods with innovative technology to make tech solutions more effective.

- In a high-tech world, proven teaching strategies remain every bit as essential for teaching core communication skills. Pyramid's solutions teach fundamental social interactions that enable learners to later transition and use a speech generating device (SGD) effectively.
- If used correctly, devices such as iPads are one tool in the toolbox of empowering individuals with autism and other complex communication needs.
- The PECS IV+ app and system guidelines are designed to make the transition to an SGD faster and more effective, but only after a student has mastered Phases I-IV of the PECS protocol.
- The question isn't whether technology is good or bad, but how to properly use it: tech innovations need a foundation of proven teaching methods.

Research-Based Benefits of use of PECS

- Facilitates acquisition of speech
- Increases social approach during play
- Reduces Behavior Management Targets rates (even when not specifically addressed)
- Is easily understood in community and by peers
- See www.pecsaustralia.com



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