PECS:
Facts and Fiction

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PECS

- Development began in 1985 by Lori Frost, MS/CCC-SLP and Andy Bondy, PhD
- Based on principles of Applied Behavior Analysis and on B. F. Skinner's 1957 *Verbal Behavior*
- Protocol was developed as a result of creative problem solving with one learner

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Bob's story

Bob's background information:

- Attended Delaware Autism Program
- No functional communication skills, as he was unsuccessful with speech, sign and picture point systems
- Contextually Inappropriate Behaviors resulted from inability to communicate

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Bob's story (cont'd)

First PECS Implementation:

- Matchbox cars were identified as a reinforcer
- Bob was successful in exchanging a picture to receive the reinforcer
- Progress with additional skills lead to the creation of PECS protocol

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Phase	Target Skill
Phase I	Physical exchange of the picture (pick-up, reach and release)
Phase II	Distance and persistence
Phase III	Visual discrimination among pictures
Phase IV	Sentence structure
Attributes	Expansion of language concepts
Phase V	Responsive requesting (Responding to the question, "What do you want?")
Phase VI	Commenting

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PECS has become very popular:

"The most widely used intervention was PECS, with almost all of the participants mentioning it, even those who did not use any other intervention in their program."

Stahmer, A.; Collings, N. & Palinkas, L. (2005). Early Intervention Practices for Children With Autism: Descriptions From Community Providers. *Focus on Autism and Other Developmental Studies*, 20, 66-79.

Popularity also brings controversy!

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Common misconceptions about PECS

1. If you use pictures, you're using PECS
2. If you implement PECS, the learner will never develop speech
3. If the learner begins speaking, stop using PECS immediately
4. PECS can only be used with children with autism
5. PECS only teaches learners to make single picture requests

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Common misconceptions about PECS

6. You can't do PECS with other programs (i.e. TEACCH, ABA, etc.)
7. Sign language is better
8. Receptive always precedes expressive in language development
9. There is no research to support PECS
10. PECS doesn't work

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MYTH: If you use pictures, you're using PECS

FACT:
- Many people use pictures to target receptive communication skills (i.e. visual schedules)
- PECS = Picture Exchange Communication System
- Pictures ≠ PECS!
- Pec ≠ picture!

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MYTH: If you implement PECS, the learner will never develop speech

FACT:
- All research shows increased vocalizations and improved speech when speech skills are acquired
- Research on single-subject and group design shows large proportion developing speech or improving current speech characteristics
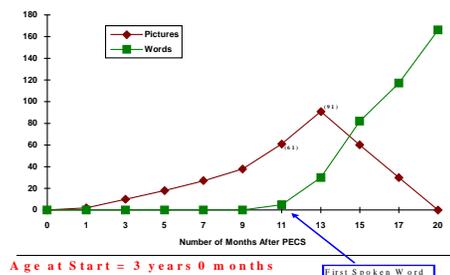
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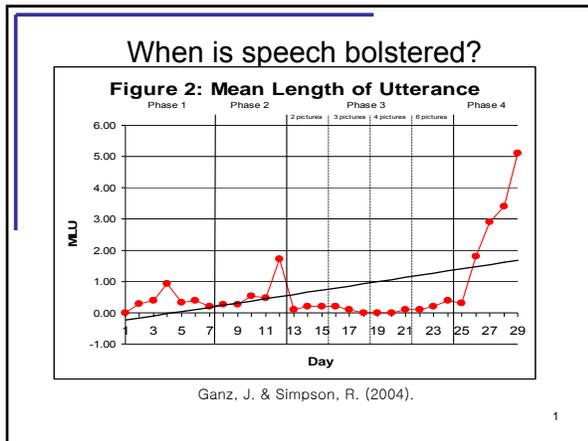## MYTH: If you implement PECS, the learner will never develop speech

FACT:
- Speech development takes time!
- Typical speech acquisition could take over 1 year for children who start using PECS prior to age 6
- The biggest change occurs when sentence structure is introduced (Phase IV)

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Number of Pictures and Spoken Words Acquired After PECS Training

Age at Start = 3 years 0 months

First Spoken Word

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When is speech bolstered?

Figure 2: Mean Length of Utterance

Ganz, J. & Simpson, R. (2004).

MYTH: If the learner begins speaking, stop using PECS immediately

FACT:

- There is no evidence to support that taking away pictures will promote more speech
  - Anecdotal information shows the opposite effect
- If you take away skills (by taking away pictures) that is unethical

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Issues Related to Modality Transitioning

- Transition from PECS to speech or PECS to voice output device
- Criteria for successful transition
  - Speech vocabulary = PECS vocabulary
  - Rate of initiation is equal
  - Length of utterance is equal
  - Speech is at least 85% intelligible to untrained listener

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MYTH: PECS can only be used with children with autism

FACT:

- PECS was originally developed for young children with autism
- Since development in 1985, research indicates that PECS is a successful communication tool for learners of various ages and diagnoses

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Learners with the following diagnoses have demonstrated success with PECS!

Agenesis of the Corpus Collosum	Cerebral Palsy
Angelman Syndrome	CHARGE Syndrome
Apraxia	Cleft Lip and/or Palate
Alzheimer Disease	CMV (Cytomegalovirus)
Asperger Syndrome	Cognitively Impaired
Autism	Cornelia deLange Syndrome
Brain Anomaly	Cri du Chat Syndrome
Brain Tumor	Deaf/Hard of Hearing

Learners with the following diagnoses have demonstrated success with PECS!

Developmentally Delayed	Partial Trisomy of 4P
Down Syndrome	Septo Optic Dysplasia
ESL (English as a Second Language)	Speech/Language Delay
Fetal Alcohol Syndrome	Rett Syndrome
Fragile X Syndrome	Traumatic/Acquired Brain Injury
Isodicentric 15 Syndrome	Turner Syndrome
Microcephaly	William Syndrome

Age Ranges

- Youngest learners with developmental disabilities: 16 months old

- Oldest learners: 80+ years old

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MYTH: PECS only teaches learners to make single picture requests

FACT:
- PECS starts with single picture exchanges to request
- PECS expands to multi picture requesting
- PECS expands to commenting, both responsively and expressively

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MYTH: You can't do PECS with other programs

FACT: PECS can act as the communication component within any teaching program

Program	How PECS can be incorporated
DTT	Requesting reinforcer learner wants to work for, choosing the order of activities (labeling pictures first, sequencing next, etc), choosing materials to use (which puzzle to do, which manipulatives to count with, which book to read)
TEACCH	Sabotaging known routines (removing some of the known materials from the bin, removing the finished bin, etc), can elicit a response or a comment

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DRI/Floortime	Requesting desired item within interactions or circles of communication, requesting help/go/out, etc. within playful obstructions
Hanen	Hanen focuses on the role of the parent/carer in interacting with the communication impaired child. PECS can provide the modality in which the child may respond to the parent's/carer's interaction.
PRT (Pivotal Response Training)	Both focus on student's interests PRT: Speech based; PECS: picture based Both research-based Similar outcomes

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MYTH: Sign language is better

Fact:
- There is NO research indicating that learners with autism acquire large sign vocabulary
- There is NO research showing that groups using sign perform better than those using PECS, including any co-occurring impact on speech development

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PECS vs. Sign

	Advantages	Disadvantages
PECS	Visually mediated Easily understood in community and by peers Sequences remain visible Virtually no prerequisites	Material preparation Portable?
Sign	Visually mediated No external materials necessary Portable	Typically requires an imitative repertoire Fine motor skills may be atypical/learners use "homemade" signs Community knowledge Sequencing of signs may be difficult

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MYTH: Receptive Always Precedes Expressive in Language Development

FACT:

Receptive skills and expressive skills are initially acquired independently

- Children can learn to *ask* for "RED" candy before they can respond to "Give me the RED candy"
- For many children, the reward for requesting is much more powerful than the reward for complying

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MYTH: There is no research to support PECS

FACT:

- The first publication was a descriptive report, including outcome for a large group of preschoolers- no control group
- Subsequent research has employed single-subject and group designs
- More research is underway with excellent initial results

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PECS Research

- Beth Sulzer-Azaroff et.al.
  - The Picture Exchange Communication System (PECS): What do the data say (in press)
  - Conclusions
    - Improvement in communication skills for the vast majority of participants
    - When compared with other training methods those using PECS performed as well or better

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PECS Research

- Research further indicates:
  - Increases in functional communication skills
  - Increases in spoken utterances, including increases in mean length of utterance (MLU)
  - Decreases in contextually inappropriate behaviors

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MYTH: PECS doesn't work

FACT:

- Research clearly suggests that PECS is an effective communication tool
- When difficulties arise, problems are often due to:
  - Lack of powerful reinforcers
  - Trainer error

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For more information…

- www.pecs.com
- www.pyramidproducts.com
- The Picture Exchange Communication System (PECS) Training Manual, 2nd Edition. (Frost & Bondy, 2002. Pyramid Educational Products, Inc., Newark, DE).
- The Pyramid Approach to Education (2nd Edition). (Bondy & Sulzer-Azaroff, 2002. Pyramid Educational Products, Inc., Newark, DE).

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