

Building bridges: Families, practice and research
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"literacy is crucial to the acquisition, by every child, youth and adult, of essential life skills that enable them to address the challenges they can face in life, and represents an essential step in basic education, which is an indispensable means for effective participation in the societies and economies of the twenty-first century"

Bridges

Families may be required to act as bridges for children, across the lifespan, and across contexts

Research can be a bridge, bridging mainstream - atypical development, intuition and practice, science and art

Practice can act as a bridge, from research labs to real life

Literacy types and functions

- Reading and writing
- Construction of meaning; using range of skills: analytic and holistic
- Involves print; Different kinds of print: alphabetic, logographic

Reading

- Making print-sound connections; relating connections to language system
- Relating this to a system of meanings

Learning context Language context Print context

Writing

- Generating a system of meaning
- Mapping meanings/intentions onto language
- Adapting language to accommodate the specific needs of the context
- Generating visual or sound based images of component elements
- Generating motor commands
- Reviewing and modifying

RESEARCH

- What we know
 - About literacy development in typical situations
 - About literacy assessment
 - About literacy intervention
 - About the role of families

Literacy development

- Stage theories:
 - Emerging reading, alphabetic stage, orthographic stage, fluency stage
 - Reading to learn (Ehri, 1991, 2000)

Limitation of stages

- Not discrete or discontinuous
- Dependent on reader and text demands
- Skills available may not be the skills used
- May reflect teaching fashions not developmental patterns (Ellis, 1993)

Advantages of stages

- Highlight the changing range of skills acquired
- Help guide teaching and intervention efforts
- Notion of continuum of literacy competence from apprentice to expert

Literacy development: Learning context: Home

- Enculturation into literacy behaviors
- Storybook reading, important for language, listening, print concepts, storytelling
- Active engagement important, especially for story retelling

Literacy development: Learning context: School

- For emergent readers: (Yaden, Rowe, MacGillivray, 2000)
- Allow children to experiment without undue duress
- Draw children in as socially competent partners
- Provide with a variety of mediated dialogue about ways to read and write
- Create any number of opportunities for them to practice
- For early readers: (Snow, Burns & Griffin, 1998)
- Explicit instruction linking sound structure and print
- Opportunities to practice with materials at an appropriate level
- Meaningful 'authentic' literacy experiences
- Becoming fluent readers: (Hiebert & Taylor, 2000)
- Automaticity, Speed, Comprehension
- Metaskills (Gombert 1992).
- Comprehending-comprehension (Tattershall, 2002)

Literacy development: language context

- Vocabulary: reciprocal relationship (Nagy & Scott, 2000; Nippold *et al*, 2001)
 - Supports word identification, text comprehension, and may support phonological representations (Goswami, 2000; Goswami & East, 2000)
- Grammar
 - Bootstrapping resource (Stanovich, 1986)
 - Reading comprehension
 - 'Primes' word identification (Nation & Snowling, 2000)

- Pragmatics
 - Understanding of text structure
 - Narrative skills
- Metaskills

Print context

- Processing (Phonological awareness)
 - Uniquely and robustly predictive of early reading
 - 'Poor' PA persists
 - Awareness of phonemes is particularly informative
 - Phonemic awareness develops in response to specific demands
 - A 'developmentally limited bootstrapping mechanism' (Stanovich, 1986)
 - Can be enhanced
 - If intervention is linked to alphabet, benefits multiply

Role of speech processing

- Both Accuracy and Efficiency of processing are important

Role of speech production

- Accuracy and Efficiency: Equivocal evidence about importance

LITERACY IN AAC

- Challenges: Intrinsic factors to consider
 - Physical impairment
 - Sensory impairment: hearing, vision
 - Communication difficulties: Language, speech
 - Cognitive difficulties: general specific
- Extrinsic factors
- Home environment: Time demands; Challenges of facilitating participation; competing demands and priorities
- School environment: Time demands; instructional focus; competing priorities; volume of opportunities

LEARNING CONTEXT

- AAC users may have less time available for participation in early literacy experiences (Light & Kelford-Smith, 1993)
- Lower priority may be attached to reading, compared to typically developing peers (Dahlgren-Sandberg, 1998; Light & Kelford-Smith, 1993)
- Young AAC users are less able to directly access literacy activities and participate actively (Coleman, 1992; Light & Kelford-Smith, 1993)

'Reasonable' implications

- Need to increase active participation
- Encourage independence

- Encourage repeated reading of familiar stories
- Plan expressive language
- Provide expressive communication support
- Prioritize literacy from an early age?

BUT

- Goldbart & Marshall (2004)
 - “Pushes and Pulls’ on the parents of children who use AAC
 - Demands on parents highlighted in interviews with 11 parents
 - *But it is really mentally and physically, it is very very hard work, it is exhausting*
- To do the above parents need information:
 - *I think I have got a big part really, whether I know what to do or not*
- This creates constant demands to learn new skills
- All implies time, in a context of competing tensions
- Do we too readily assign families the role of struts supporting the bridge?

Range and role of educational experiences

- Students may spend more time in non-literacy activities than in any single literacy activity *during literacy instruction time* (Koppenhaver, 1991; Mike, 1995)
- Literacy instruction time may be lost to non-instructional activities (Koppenhaver & Yoder, 1992)
- Some AAC users are more interested in writing than reading (Smith, 2003)

Implications for Learning Context

- Need to ring-fence literacy instruction time
- Need clear focus on how ‘much’ literacy instruction time is required, and what constitutes literacy instruction at different stages
- Need to explore interests and generate ‘authentic’ learning experiences

The Language Context

Communication/Interaction

1. Overall communication opportunities are reduced, relative to naturally speaking peers (Kraat, 1987; Smith, 1998)
2. Aided communicators are generally less successful at taking the initiative in conversations (Basil, 1992; Buzolich & Wiemann, 1988; Light, Collier & Parnes, 1985; Udwin & Yule, 1991)
3. Opportunities for extended ‘texts’ are limited (Smith, 1998), possibly affecting narrative development

Language Purposes or Functions

1. Purposes of linguistic structures may be different from those of

naturally speaking peers (Kraat, 1987; Smith, 1998)

2. A restricted range of communication functions may be fulfilled linguistically (Light, 1988; Light, Collier & Parnes, 1985b; Udwin & Yule, 1991).
2. External vocabulary constraints may limit language (Smith, 1998)

Language Structures

1. Reliance on single-word utterances (Basil, 1992; Smith, 1998)
2. Slow transition to multi-term utterances, lacking internal structure (Blockberger & Sutton, 2003; Smith, 1998; von Tetzchner & Martinsen, 1996)
3. Atypical word order output, with possible topic-comment structure (Smith, 1998; von Tetzchner & Martinsen, 1996)

Phonological awareness

1. Speech impairment does not preclude phonological awareness (Bishop, 1985; Bishop & Robson, 1989; Dahlgren-Sandberg & Hjelmquist, 1996; Foley, 1993; Foley & Pollatsek, 1999)
2. Speech impairment most likely to interfere with phonological coding (Foley & Pollatsek, 1999; Smith, 2001)

Voice output

- Text-to-speech synthesis may be important (Foley & Pollatsek, 1993) but not adequate (Smith, 2001)

What about symbols?

- Graphic symbols systems may support metalinguistic awareness (Hjelmquist, Dahlgren-Sandberg & Hedelin 1994) particularly at the word level (Bishop et al, 1994)
- May differ across graphic symbol types (McNaughton, 1998; McNaughton & Lindsay, 1995)
- Graphic symbols probably have a limited effect on phonological awareness (Bishop, Rankin & Mirinda, 1994)

Literacy INTERVENTION and AAC

What do we know from research?

- Expectations exert a significant influence (Foley & Staples, 2003; Mirinda, 2003)
- Instructional time is important (Koppenhaver & Yoder, 1993)
- Success is possible (e.g., Fallon, Light, McNaughton, Drager, Hammer, 2004)
- Language skills require specific focus, for emergent readers through the developmental process
- Access to voice output can facilitate print-sound connections
- Need to analyze the types of skills implicit within AAC system
- Need to draw attention to written label as well as graphic symbol
- Need to focus on the long term view, and persist

- Need to address attitudes and expectations
- Harness the power of technology

What do we know from practice?

The success stories of people who use AAC

- An emphasis on integrating all aspects of communication and encouraging independent communication (Nunes da Ponte, 2002; Pebly, 2002; Wershing & Hughes, 2002)
- Harnessing motivation and raising expectations for literacy achievement (Fukushima, 2002, McNaughton, 2002, Mirinda, 2003)
- Intensive input over extended periods of time (Gandell & Filippelli, 2002; Pebly, 2002; Wershing & Hughes, 2002)
- Integration of reading, writing, spelling and communication across activities and goals (Hogan & Wolf, 2002; Pebly, 2002)
- Using voice output and other technology (Gandell & Filippelli, 2002; Given, 2002; Wershing & Hughes, 2002)
- Willingness to adapt, take risks, be flexible and questioning (Bialik & Seligman-Wine, 2002; Pebly, 2002)

What do we know from families?

- Too little, but evidence of pressures, competing priorities, changing plans, and a need to facilitation participation

What are the major gaps?

- Bridge between research and practice
- Bridge between art and science
- Bridge between home and intervention
- Bridges between life stages, particularly beyond the preschool and early school years

How do we build stronger bridges?

- Know where the bridge is to start and finish, ie. have a good plan and set of drawings
- Use the best materials
- Involve the best builders
- Monitor progress as the bridge is constructed
- Monitor 'health' and state of bridge over time

How do we build stronger bridges?

- Participation and involvement of people who use AAC and their families
- Integration with developments in 'mainstream' research
- Establishing an evidence base