

Technology supports communication at the Child Learning Center:
Practical application of assistive technology research for children with cognitive disabilities

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The Child Learning Center at the Speech Language Hearing Center of CU Boulder is an inclusive classroom for toddlers and preschoolers with a range of abilities. Families, speech-language pathologists, early childhood educators, and an occupational therapist collaborate in a transdisciplinary approach to early childhood educational experience while providing training for graduate students from Speech Language Hearing Sciences (CU Boulder) and Early Childhood Education/Special Education (CU Denver). Assistive technology is one of the tools that the Child Learning Center uses to provide children access to communication, learning, and interaction with their friends, family, and teachers.

One Child's Experience:

Kyle is a happy, curious, toddler who loves books and has Down syndrome (trisomy 21). He uses vocalizations and some single words along with signs to express himself. His comprehension of language exceeds his ability to express himself. His family has embraced the use of sign, but they are beginning signers and realize that they are not able to provide a fluent model of longer utterances. His family wished to provide him with a means to communicate longer utterances. They also wished to provide a means of communication that was effective with a wider range of communication partners, as people outside his family were not always familiar with his signs. Students and professionals at the Child Learning Center are introducing him to the use of assistive technology in the form of speech generating devices.

Use of speech generating devices can increase Kyle's ability to participate at home and at school. By providing two options on a device, he can begin to make choices. Kyle can comment on activities, invite his peers to play, and participate in group storyreading experiences with a device programmed with words from the story. With time, Kyle can begin to imitate the speech of the device as it provides an immediate model for him to imitate, under his own control.

The Evidence-Base For Assistive Technology and Children with Down syndrome:

Common characteristics in language development of children with Down syndrome include higher comprehension than expressive language, difficulty with syntax or longer utterances, and difficulty producing speech sounds (Kay-Raining Bird, et. al, 2000; Dodd & Thompson, 2001). Cognitive characteristics tend to include strong visual memory and weaker auditory memory (Jarrod & Baddeley, 1997). Assistive technology support for children with Down syndrome takes advantage of strengths in visual memory, and reduces demand on auditory memory by providing an immediate speech model to imitate. A common myth regarding speech generating devices is that they discourage natural speech development by providing an alternative method of communication. Research indicates that this is not the case. In fact, use of speech generating devices actually PROMOTES speech development and preliminary evidence suggests that it also promotes the use of longer utterances (Blischak, et. al, 2003).

Blischak, D., Lombardino, L., & Dyson, A. (2003). Use of speech-generating devices: In support of natural speech. *Augmentative and Alternative Communication, 19(1)*, pp. 29-35.

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Kay-Raining Bird, E., Gaskell, A., Babineau, M., & MacDonald, S. (2000). Novel word acquisition in children with Down syndrome: Does modality make a difference? *Journal of Communication Disorders, 33*, 241-266.