

Solutions for promoting the participation of children with disabilities in everyday

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This paper summarizes a process to establish and maintain a model system of using assistive technology with children. In order for children to have access to a variety of and timely assistive technology solutions it is necessary for all stakeholders to have a working knowledge of ten system components:

Included in this paper are:

- The definition of assistive technology
- Effectiveness evidence of assistive technology
- Phases of building a model system for assistive technology use

- 1. Training**
- 2. Considering**
- 3. Assessing**
- 4. Evaluating**
- 5. Trialing**
- 6. Acquiring**
- 7. Teaching**
- 8. Using**
- 9. Maintaining**
- 10. Re-using**

What is assistive technology?

Assistive technology (AT) is recognized as a means for children to accomplish what they otherwise might not be able to as a consequence of disability. This field of practice is composed of two parts: services and devices. *Service* is any service that directly assists a child with a disability (and their caretakers) in the selection, acquisition, or use of an assistive device. Services are the responsibility of a team of individuals, including the child's primary caretakers. *Devices* are valuable facilitators of activity performance and participation in a wide variety of life situations. Devices act as a bridge between a child's current abilities and the participatory expectations of an activity. An AT device is any item, piece of equipment, or product system, whether acquired commercially or off a shelf (modified or customized), that is used to increase, maintain, or improve the functional capabilities of children with disabilities.

The device continuum ranges from off-the-shelf to customized items. Off-the-shelf items are often designed and intended for ALL children but necessary for some children. For example, a sippy cup with handles in place of an open lid/no handle cup. When off-the-shelf items are intentionally selected by adults and used by a child with a disability to participate in ways he otherwise would not be able to do—the items are considered his/her AT device. Adapted items are those that are modifications with special features specific to an individual child's needs. An example of an adapted item is a child ride-on car adapted to meet the individual needs of children with physical disabilities. Customized items are specialty designed, often patented and marketed for sale to professionals serving or to families raising children with disabilities. Augmentative and alternative communication items are most often cited as customized devices.

What do we know about using assistive technology with children?

Regardless of type, AT devices help children "do" so that they may engage in a variety of everyday activities like: play with toys, build things, know what happens next, take turns and share ideas, hear or see better, read books, sing songs, do finger plays, make food choices, move

from one place to another, hold things, make things turn on/off, etc. AT helps preschool children with disabilities participate in accessing the general education curriculum. This increased participation in activities of daily living improves child development and learning (Campbell,

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Milbourne, Dugan, & Wilcox, 2006; Mistrett, 2004). Increased use of AT devices and services may lead to improved functional outcomes for infants, toddlers, and preschool children with disabilities (Campbell, Milbourne, & Wilcox, 2008). When AT supports are infused throughout the day and across environments there is an increase in the child's participation in daily routines and activities (Dugan et al, 2004; Judge, 2002; Lane & Mistrett, 2002, 2008; Mistrett, 2004, 2005; Stremel, 2005; Sadao & Robinson, 2010). AT supports help children with disabilities, regardless of age or disabling condition to more actively participate; and therefore to grow and develop (Campbell, et al.,

2006; Dunst, Trivette, Hamby, Simkus, 2013; Moody, 2012; Wilcox & Woods, 2011). There are no prerequisite skills or age requirements to using AT, nor does AT inhibit development (Branson & Demchak, 2009; Beukelman & Miranda, 1992; Kangas & Lloyd, 1988). Most effective AT supports are non-intrusive, easy to use and can be easily integrated into the environments of the child and family (Sadao et al, 2009; Judge & Parette, 1998). The intentional use of AT is a flexible and evolving process that includes a continuous cycle of re-assessment and documentation (Long et al, 2003; QIAT Consortium, 2012; Milbourne & Campbell, 2007; Campbell, Kennedy, Milbourne, 2012).

What are the necessary active ingredients of an assistive technology model system of services?

Core components are the features that define an effective program. Core components, cast as principles, inform the specification of contextual aspects of the interventions (e.g., interventions occur in schools or communities), structural elements (e.g., the required number and sequence of sessions), and specific intervention practices (e.g., reinforcing appropriate behavior; Blase & Fixen, 2013).

Ten (10) system components are necessary to compose a program of AT for children: training, considering, assessing, evaluating, trialing, acquiring, teaching, using, maintaining, and re-using. The following elements comprise a well-operationalized program of using AT with children:

- 1. A clear description of the context for the program.**
- 2. Clear description of the core components.**
- 3. Description of the active ingredients that further operationally define the core components.**
- 4. Access to resources and supports that enable the individuals who are delivering the services to initially or continuously build relevant knowledge**
- 5. A practical assessment of the performance of the individuals who are delivering and receiving the program services and its associated core components.**

What is the process for building an assistive technology program for children?

Implementation of a program of using AT with children is a process, not an event, involving multiple decisions, actions, and corrections to change the structures and conditions through which organizations and systems support and promote new program models, innovations, and initiatives. There are distinct periods or stages within the implementation (Fixsen, Blase, Timbers, & Wolf, 2001). Each stage of implementation does not crisply end as another begins. They often overlap, with activities related to one stage still occurring or reoccurring as activities related to the next stage begin. Three core elements take place at each of the stages of implementation: 1) the structure and activities of teams that provide the

accountable structure for implementation at various predefined geographic or otherwise-defined levels; 2) the use of data to address a range of questions and decisions as teams move through implementation and promote ongoing improvement and quality assurance; and 3) the development, installation, support, and sustainment of a well-aligned implementation infrastructure. Implementing a well-constructed, well-defined, well-researched program to the point of successful functioning and sustainability can be expected to take two to four years (Bierman, et al., 2002; Fixsen, Blase, Timbers, & Wolf, 2001; Panzano & Roth, 2006; Prochaska & DiClemente, 1982; Solberg, Hroschikoski, Spert-Hillen, O'Conner, & Crabtree, 2004).

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Dr. Suzanne A. Milbourne is the co-author of the award winning and highly regarded [CARA's Kit for Preschoolers](#) (2007), its companion 2012 [Toddler version](#) and the [TAM Technology Fan for Young Children](#) (2006) and the recently published [PEAT's Suite: Supporting a Child's Physical Environment and Assistive Tool Journey, Birth to Five](#) (available at [DEC bookstore](#)). She has authored several articles and presentations on the use of adaptations to promote young children's participation in everyday routines and activities and is the founder of "[fabricATe](#)" - a maker movement approach to acquiring assistive technology devices and tools for young children with disabilities. Before relocating to Delaware in 2008, Dr. Milbourne served as the coordinator for the federally funded Tots N' Tech Research Institute an inter-university collaboration with a mission to provide up-to-date information and resources about adaptations, including assistive technology, to use with infants and toddlers for states, early intervention providers of all disciplines, and families across the country.