DIRECTIONS

Technology in Special Education

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The Value of Technology in Early Intervention

by Linda Heiland

Source: The Catalyst, Spring 2000, Volume 16, #3

The Problem in a Nutshell

Providing quality services for disabled and developmentally delayed children remains a high priority for the nation, the states, and the local communities. Yearly, more and more children are identified as developmentally delayed or showing early signs of more debilitating disabilities. Each year the shortage of qualified educators, paraeducators, and caregivers increases. There are two basic plans of attack for coping with this growing problem: (1) recruit and train more personnel to provide quality services in the education of this population of children and (2) provide more intensive early intervention programs for children identified at birth by collaborative agencies.

Several federal agencies have been developed to assist in the provision of such services, but the time, locations, personnel and monies are simply inadequate to address the growing need. States have also recognized the increasing need for additional services but are plagued by the same problems that local communities are facing: a lack of trained personnel, service locations, time and monies.

Rural communities are by far the hardest hit in this growing crisis. Many people are relocating to smaller rural communities, seeking a better lifestyle for their families away from the problems fostered by the larger urban areas. At the same time, many educators are leaving the smaller rural communities to seek the excitement, convenience, and larger salaries that the urban areas offer.

The result is that smaller rural communities throughout the ignited States are losing personnel that is desperately needed to provide services for a growing population of exceptional children.

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Proposed Solutions

Many programs have been developed and implemented to provide services for school-age exceptional children through inclusionary classrooms. Historically, research has demonstrated that this service situation works well for the disabled children and does not diminish the quality of education that is offered for the other children in the class. This solution, however, places an additional burden on the already overburdened general education classroom teacher. Qualified paraeducators, under the direction of certified special education and classroom teachers, are necessary in such situations to assist the special needs students with assistive and adaptive devices, methodology, and support to make this learning strategy successful.

In Praise of Early Intervention

One step toward a viable solution to this growing problem is the development and implementation of quality early intervention programs for children in the birth through three-year age range. The primary conclusion after approximately fifty years of research is this: quantitative and qualitative data indicate that early intervention results in increased developmental and educational gains for the child and improves the general functioning of the entire family.

As a result of early identification and program participation, fewer Special Education and other habilitative services are necessary for these exceptional children. Early intervention programs result in the participating children requiring less special education and other habilitative services later in life. Children who have participated in such programs are retained less often and in some cases are virtually indistinguishable from their non-handicapped peers later in life (U.S. Department of Education, KidSource, 1999).

Technology in Early Intervention

One vitally important component of early intervention programs is the introduction of technology to all children as soon as possible. Technology, if successfully integrated, will allow these children to better manage their lives and to interact more fully and more meaningfully with ideas and with others in their environment (Gilbert, 1999). The potential success of a "connected" education that involves not only students, but parents, future educators, instructors, caregivers, members of the community, families and local service providers is virtually limitless.

Early intervention through a collaborative team approach should provide the incentive, stimulation and support necessary for these children to succeed later in life. Training should emphasize the communication and collaboration skills that will enhance an educator's and a paraeducator's ability to work with the parents and siblings of disabled children without infringement of the parent/student right. Future training for educators and paraeducators should address the ability to develop activities enhanced by technology that focus on the child and the family, not only in the facility setting but in the home setting as well. Such programs combine the strategies for sensory stimulation, communication skills, and appropriate social interaction skills in a combined home-based and facility-based program of intervention.

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Programs that consistently review, revise and adapt assistive and adaptive technology (high-tech as well as low-tech) will assist infants and toddlers in becoming happy, healthy and having the ability to learn all that they possibly can, as early as possible. This "heads up" strategy will expose children to the stimulation that is necessary for so many of them to facilitate continued growth and development and allow them to share many of the same experiences afforded children without special needs.

Research has repeatedly proven that developmentally appropriate, open-ended software designed to stimulate and support communication can be transformed in an early educational setting to facilitate awareness, confidence, and the control necessary for these children to initiate communication and to reveal abilities that may not have been apparent previously. The early use of technology has the potential to encourage exploration, risk-taking, and discovery learning. (Knofo, 1994).

In Conclusion...

Early intervention programs that begin at birth or soon after result in greater developmental gains that tend to remain with the children longer. Additionally, the likelihood of developing additional problems is greatly reduced (Cooper, 1981). Parents and teachers who work together can create a climate for obtaining information, stimulate information and develop an atmosphere to enhance motivation, creativity and discover the value of learning.

Early intervention programs have repeatedly proven to be a cost-effective means of developing a long-term solution to some of these problems. Highly specialized and comprehensive services required to produce the desired developmental gains are frequently, on a short-term basis, more expensive to implement than traditional school delivery models. However, significant long-term studies of early intervention programs throughout the country produce consistent data that the long-term cost effectiveness and the benefits to the children and the families far outweigh the initial cost of implementing such a program.

The theory is that the introduction of technology in early intervention programs in a consistent, sustained basis will assist developmentally delayed children to "catch up" with their non-disabled peers. This in turn will eliminate the need for additional services for these children as they age and progress through the more traditional school structure. Multi-faceted, technology-infused early intervention programs that involve the parents and families often reap the additional benefits of improved attitudes of parents and siblings toward these children. The support, guidance and availability of much-needed information help to alleviate some of the many outside stresses, frustrations and helplessness that parents and siblings often experience with the birth of a disabled child. Current data indicate that side effects of this type of program include reduced numbers of divorces, suicides, and child abuse.

In conclusion, the ultimate goal is the development and implementation of a quality program for special needs children that will benefit not only these children and their families, but will a ssist in alleviating some of the pressures that are being placed on an already overburdened education system. With the appropriate planning, training and assistance in implementation, technology-infused early intervention programs could be the first step toward success in this venture.

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CONFERENCES

Date: March 19 - 24, 2001
16th Annual International Conference: Technology and Persons with Disabilities
Los Angeles, California
Phone: (818) 677-2578
Fax: (818) 677-4929
www.csun.edu/cod/

Date: April 18 - 21, 2001
CEC Annual Convention and Expo
Kansas City, MO
www.cec.sped.org

Date: April 30 - May 4, 2001
YAI International Conference on Developmental and Learning Disabilities
New York, NY
Phone: (212) 273-6193
Fax: (212) 629-4113
e-mail: amatza@yai.org
www.yai.org

Date: June 25 - 27, 2001
NECC 2001
Call for Participation
Chicago, IL
http://confreg.uoregon.edu/necc2001/call/

A Framework for Aligning Technology With Transition Competencies

Part 7 - Final Installment

A. Edward Blackhurst, Elizabeth A. Lahm, Elizabeth M. Harrison, and Wanda G. Chandler, *University of Kentucky*

Source: Career Development for Exceptional Individuals, The Council for Exceptional Children Volume 22, Number 2, Fall 1999

Sports, Leisure, and Recreation

Competencies associated with group and individual sports and productive use of leisure time are included in this functional category. They span a wide range of activities and include skills that can involve other people or that can be engaged in by oneself. Activities may range from regularly scheduled events, such as walking and yoga to hobbies such as photography or collectibles. Activities should be chronologically age appropriate and should include interaction with non-disabled peers and opportunities for self-initiation and choice (Bishop & Falvey, 1989). The services of a person trained in adapted physical education or recreational therapy may provide valuable resources in this area.

Too often sports, leisure, and recreation functions are forgotten when planning a transition program for people with disabilities. Such functions become even more important as they get older because there is typically more free time in the daily routine of adults. To keep abreast of regularly scheduled events, several approaches are possible. For example, programmable calendars are available that allow for setting alarms days in advance. Though these are made to help organize one's life from daily schedules to address books to lists of things to do, the alarm feature on the calendar could be used as a reminder for someone to go to an event such as a basketball game. For someone who may be interested in participating in a broader variety of events on a less regular schedule, the Internet can be used as a source of information as well as a vehicle for purchasing tickets.

Adaptive devices for pursuing hobbies are also available. For the person interested in gardening, the *Appalachian Cultivator* can help with gardening tasks that typically require a lot of hand strength. For the indoor hobbyist, a *Crochet Aid for One-Handed Operation,* and similar devices are available.

Games are useful for facilitating social interaction and can be beneficial for people with disabilities who have limited interaction with their peers during recreational activities. Some games, however, may have features that make them difficult to play. Adapted games are available, as are devices that can make games accessible to those with disabilities. An example of an adapted game is *Floor Skittles*. This game is similar to bowling but uses marbles and a playing table that is tilted so the marbles will roll back to the users. Another example is *Aid of Aces,* a device that assists the person with poor hand control to hold cards when playing card games. Both activities will provide much social interaction in addition to the enjoyment of playing the game, itself.

Two problems facing people with disabilities, especially those with significant cognitive and/or physical disabilities, are the initiation of an activity and making a choice from several activities. One approach to improving skills in this area of function is to use environmental control systems. Less sophisticated ones can be used with lower functioning individuals. For example, the *Scanning Ultra* 4 gives the user four options for controlling objects in the environment, such as lights, TV, tape player, and a toy. More sophisticated systems provide for many more options. For example, the *Director II* allows the user to control the operation of up to 16 electronic devices that might be found in the home or workplace.

Many more examples of competencies and devices could be provided, but these should be sufficient to illustrate the importance of attending to human functions and their related competencies when planning and implementing transition services (and other special education and related services, as well). With this conceptualization, it also should be apparent that it is more relevant to focus on the functions that people can perform, and those in which difficulty

is experienced, than to focus on a specific diagnostic label when planning transition services. Such an orientation enables teachers, rehabilitation personnel, employers, and others who provide related services to more directly address an individual's needs.

ON LINE INFORMATION ABOUT TECHNOLOGIES TO SUPPORT TRANSITION

More than 24,000 different technologies have been identified that can be used to support people with disabilities (Trace Research and Development Center, 1995). Knowledge of those devices and how they relate to the needs of such individuals as they transition into the post-school environment is critical. Access to information about technology also becomes more vital as people with disabilities get further away from the direct services system and as they transition into the community and the demands of adult life.

On-line, searchable information systems such as ABLEDATA (http://www.abledata.com), CO-NET from the Trace Research and Development Center (1995) at the University of Wisconsin (http://www.trace.wisc.edu/tcel/) or the Adaptive Device Locator System (ADLS) (http://www.acsw.com/) (Academic Software, 1999) can be used to identify technology to meet specific needs and are accessible through the World Wide Web. Such systems can help transition service providers and people with disabilities identify devices that can support their ability to function in various environments and can be used to communicate their needs to employers and significant others. Additional information about assistive technology, including links to other related Web sites, is available from a Web site supported by the University of Kentucky (http://serc.gws.uky.edu/www/ukat/ukatmenu.html) .

IMPLICATIONS AND CONCLUSIONS

There are several implications that can be drawn from the framework that is reflected in the unifying functional model in Figure 1. First, the model enables people to approach decisions about the use of technology to support transition activities from a problem-solving perspective. Users of the model begin their decision-making by identifying the forces in the various post-school environments that create demands for people with disabilities to function independently. The functional demands can then be translated into competency statements which form the basis for specifying the transition goals, objectives, and activities that can be written into their IEPs.

The various types of technology devices and services are placed into proper perspective by the model: namely, as external supports. The model helps in the understanding of how a person functions, the factors that are important in making decisions, and how the decisions that are made impact on that person. Identification of many factors that influence decision-making are clearly delineated. In fact, the model clarifies the decision-making process for all types of services—including transition services. More importantly, the model illustrates interrelationships of component factors and their potential for influencing each other. Although the model does not define cause-and-effect relationships, it does help people realize that many factors are involved and that they interact in complex ways.

The model provides direction for those making referrals of individuals for special education and related services. It would behoove those who make referrals to be aware of the model and its components. Furthermore, these service providers should be encouraged to obtain as much information as possible about the various elements and provide data about them as part of the referral process.

The model can guide pre-referral activities, assessment, and instructional planning activities. By attending to the elements in the model and others that might be identified, evaluators performing assessments of individuals who have been referred for transition and technology services can use the model to identify variables that should be examined for their potential impact. Assessments of those variables should generate data that can aid in making decisions about the types of technology and related services that could help individuals with disabilities respond successfully to environmental demands. Such decisions should result in the incorporation of technology services in the transition goals and plans into the IEPs for those enrolled in special education programs.

Those providers who are involved in planning and delivering transition services should find that the

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Family Center on Technology and Disability Update

New network members:

Alpha One, Maine
Sertoma International, MO

RESOURCES

QUESTION OF THE WEEK

Q: What is universal access or universal design?

A: According to researchers at NC State University, the Center for Universal Design, Universal design is "the design of products and environments to be useable by all people to the greatest extent possible, without the need for adaptation and specialized design." Seven principles have been established to be applied to evaluate existing designs and educate both designers and consumers about the characteristics of more useable products and environments. These principles offer designers guidance to better integrate features that meet the needs of as many users as possible.

Seven principles include:

Equitable use
The design is useful and marketable to people with diverse abilities.

Flexibility in Use
The design accommodates a wide range of individual preferences and abilities.

Simple and Intuitive Use
Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

Perceptible Information
The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

Tolerance for Error
The design minimizes hazards and the adverse consequences of accidental and unintended actions.

Low Physical Effort
The design can be used efficiently and comfortably and with a minimum of fatigue.

Size and Space for Approach and Use
Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture or mobility.

Real-time captioning

If you need a way to caption live voice in a classroom, visit http://www.colorado.edu/sacs/disabilityservices/realtimecaptioning.html.This site offers information about one school's real-time captioning program in which the spoken word is translated into English text on a PC which can then be read by the user.

NEWS

On October 30th, the President signed the Developmental Disabilities Act into law. The DD Act reauthorizes the Developmental Disabilities Council State Grants, Protection and Advocacy Systems, University Affiliated Programs, and Projects of National Significance.

Let Us Know if you have recommendations for organizations to join the FCTD Network! Additionally, if you have events you would like posted, send an e-mail with the details to Sgoodman@ucp.org. As always, we continue to look for good organizations that are interested in assistive technology and families with members with disabilities. Brochures can be obtained by sending an e-mail to Susan Goodman (see URL above). All it takes to join the Family Center network of organizations is an e-mail message!§

Press Release New Guide

EXPANDED GUIDE TO TOLL-FREE AND ONLINE DISABILITY RESOURCES NOW AVAILABLE

The revised and expanded third edition of “Disability Information at Your Fingertips,” a handy guide to toll-free telephone and online resources for and about people with disabilities, is now available. This highly acclaimed, inexpensive and easyto-use guide has quadrupled in size since it was first published in 1994. The new edition lists the toll-free phone numbers and world wide web addresses of over 500 national nonprofit organizations and government agencies. Special phone numbers for telecommunications devices for the deaf (tdd/ttyltt) and bilingual services are included when available.

Arranged alphabetically by subject, the 70-page guide covers a wide variety of topics, such as accessibility,

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framework presented here will help in the understanding of the many variables involved in making decisions about transition, the use of technology, and some of the complex interrelationships that exist among those variables. Of primary importance is the concept that technology decisions should be based on the functions that individuals must perform in response to the demands placed on them from the environment. Decisions should not be based solely on the basis of the type of disability an individual has or the existence of a piece of technology equipment.

There are ample technologies available, from low-tech to high-tech, to enhance the abilities of students with disabilities as they prepare for, and move into, post-school settings. Those providing transition services can use the framework presented here to identify functional needs and on-line sources, such as ABLEDATA, CO-NET, and ADLS to locate technologies to meet those needs. Although the functional model was originally developed to guide the delivery of assistive technology services (Melichar & Blackhurst, 1993), the perspective that has emerged since the model was first conceptualized can be used to guide the delivery of all special education, general education, transition service, rehabilitation, and related services. Examples of ways an earlier version of the model can be applied in virtually every area of special education are provided in an introductory special education textbook (Blackhurst & Berdine, 1993). Additional applications of the model to help make technology decisions are provided by Blackhurst and Lahm (in press).

Finally, a particularly important implication of this framework is that school personnel can use it as a tool that will help them meet the IDEA requirement that assistive technology services be considered for all students who are eligible to receive an IEP, including those that require transition plans. Concerns have been raised about what is meant by the term, "consideration" and how IEP teams can go about considering assistive technology needs of students (Chambers, 1998; Lahm & Nickels, 1998). Rather than having an "assistive technology check-off' on IEP planning forms to meet the letter of the law, the application of the framework advocated in this article can help meet the intent of the law, which can result in more effective transition services for students with disabilities.

All tables and references mentioned in this artcle can be obtained by contacting Dreamms For Kids, Inc.§

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Press Release
Take N' Talk

Hastings-On-Hudson, N.Y. October 3l, 2000 - Enabling Devices is soon launching the innovative, new *Take N' Talk series*. These devices strive to achieve learning through actions.

There are five different models available to suite your needs. Each is a self-contained device, which allows the user to record 4 different messages of up to five seconds each. You then play the message back by removing an item (of your choice) from one of the light sensitive compartments (photocells). Recessed compartments on the front panel of the unit can be used for placement of pictures, symbols, or objects (objects cannot be translucent/clear). The fifth device is called the Take or Place N' Talk and this unit plays back a message when an item is removed or placed on one of the four compartments. The wall mounted models come complete with Velcro attachment sites within each compartment and wall mounting accessories. All Take N' Talks come complete with a FREE suggested activities manual that may be used to assist in developing IEP goals and objectives.

For a copy of our FREE brochure or catalog featuring the above products and many more, call 800-832-8697 or fax 914-478-3603. Visit our web site at www.enablingdevices.com. §

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arts, assistive technology, children, employment, legal rights, and recreation, as well as hundreds of specific disabilities. The new edition is spiral bound so that it will lie flat for easier handling.

"Disability Information at Your Fingertips" is used by libraries, disability organizations, health and social service agencies, schools and colleges, private practitioners, companies, and consumers. It is published by Disability Resources, inc., the nonprofit organization that publishes the award-winning newsletter, *Disability Resources Monthly.* Single copies cost only $10 (including shipping and handling), and must be prepaid. Significant discounts are available for bulk orders. To order or obtain additional information, contact Disability Resources, inc., Four Clatter Lane, Centereach, NY 11720-1032; (631) 585-0290, Mon.-Fri., 9 a.m. - 5 p.m. EST. §

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