



DIRECTIONS

Technology in Special Education

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Introduction to Technology in Transition

Part 5

Sherrilyn K. Fisher & J. Emmett Gardner

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

PERSPECTIVES ON TECHNOLOGY AND TRANSITION

It is important to understand that our effort in this topical issue is to present a viewpoint on technology and transition in a way that calls attention to unique factors and/or issues when considering both domains contemporaneously. Certainly, the extant literature contains a wealth of information that helps us understand each domain by itself as a separate entity. Yet if we adopt a traditional statement from Gestalt psychology, "the whole is more than the sum of the parts," our foremost grasp of technology and transition comes to light with a merger and blending of both domains.

Technology Planning Should be Aligned with Transition Competencies

The topical issue begins by presenting Blackhurst et al.'s article on a framework for aligning technology with transition competencies. The authors examine how technology aligns with various categories of human functions that relate to environmental challenges and transition services. According to Blackhurst et al., individuals with disabilities face a variety of unique challenges in their daily lives. Transition services, and assistive and instructional technologies represent domains that naturally combine with one another to provide individuals with disabilities a set of supports that enable and support functionally relevant behaviors. These behaviors assist individuals to respond to environmental demands, and result in outcomes that impact their success performance of transition competencies.

The Blackhurst et al. framework provides examples that address transition and technology equally well from a variety of perspectives. Most

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-Press Release-

LITERACY PRODUCTS FOR ELEMENTARY STUDENTS WITH DISABILITIES

April 10, 2000. Minneapolis, MN -- To support its belief that a rich, balanced literary experience is important for all students, including those with severe and profound disabilities, AbleNet, Inc. is developing a comprehensive line of products that promote literacy.

“We believe that students benefit from just participating in literacy activities,” said Cheryl Volkman, president and CEO of AbleNet, Inc., a company that has worked to gain greater independence and inclusion for persons with disabilities. “Such experiences are opportunities for social closeness and building one’s knowledge of the world.”

In March, AbleNet began publishing a newsletter for elementary educators and launched its literacy line of products with two Guided Reading Kits, three teacher resource books and other helpful items for the classroom.

The Literary Experience newsletter is a teacher’s blueprint for building a progression of participation experiences. Newsletter content is based on the innovative 4-block model developed by Patricia Cunningham and includes articles by contributing authors, such as Dr. Karen Erickson, a leader in the field of literacy for people with disabilities. Each newsletter focuses on one of the four blocks: guided reading, writing, working with words or self selected reading. Included are articles exploring that component of the model, activities for

getting kids with severe and profound disabilities to participate in literary experiences, and idea templates that can be photocopied for classroom use. The U.S. retail price for the newsletter is \$19.95 for five issues.

AbleNet’s Guided Reading Kits utilize carefully selected books containing elements proven to support teaching children to read for comprehension. Each book is paired with a related guide containing one months worth of activities using simple technology for both children with disabilities and their typical peers. Activities include dramatic play, cooking, academics, building background knowledge and art. AbleNet’s two initial Guided Reading Kits *utilize Silly Sally* and *bayou Give A Pig A Pancake*, and each kit sells for \$38 (U.S. retail). The supportive resources available from AbleNet include books that support Cunningham’s 4-block model.

“AbleNet recognizes that educators can’t do everything they want to do with their students because of lack of time, resources and staff,” said Volkman. “It’s our intention to make their jobs easier by providing ready-to-use activities that can provide a meaningful link between life and literacy for students with disabilities.”

For more information or for ordering, contact AbleNet at 1-800-322-0956, or visit their website at www.ablenetinc.com.§

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A Framework for Aligning Technology With Transition Competencies

Part 2

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*

LEGISLATIVE FOUNDATIONS FOR TRANSITION AND TECHNOLOGY

The importance of preparing students with disabilities to assume adult responsibilities has been reflected in federal legislation. For example, the 1997 Amendments to the Individuals with Disabilities Education Act (IDEA) defines transition as a coordinated set of activities for a student designed within an outcome-oriented process. This process promotes movement from school to post-school activities, including postsecondary education, vocational training, integrated employment, continuing and adult services, independent living, or community participation. Decisions about transition activities must be based upon the individual student's needs, while taking into account the student's preferences and interests (P. L. 10517, Section 602 [30]).

Under IDEA, beginning at age 14 (and updated annually), the Individualized Education Plan (IEP) of students with disabilities must include a statement of needed transition services. Transition services include instruction, related services, community experiences, the development of employment and other post-school adult living objectives, and, when appropriate, acquisition of daily

living skills and functional vocational evaluation [PL 105-17, Section 614 (d)(1)(A)(vii)]. To meet this mandate, some school districts develop separate IEPs, while others incorporate transition planning into the student's IEP.

As part of the IEP planning process, IDEA also mandates that the assistive technology needs of all students with disabilities be considered [P. L. 105-17, Section 1414 (d)(3)(B)(v)]. Although assistive technologies frequently are thought to be relevant primarily to those with physical disabilities, sensory or health impairments, and communication disorders, it should be noted that this provision applies equally to students with learning disabilities, who may require the use of a device, such as a spelling checker or a word processor, to assist them with written communication.

In further addressing the implications of federal legislation on the transition process and the provision of technology to people with disabilities, Horne and Morris (1998) describe related provisions of the following laws, in addition to IDEA: The Rehabilitation Amendments of 1992, The Carl Perkins Vocational and Applied Technology Education Act of 1990, The School-to-Work Opportuni-

ties Act of 1994, The Fair Labor Standards Act of 1938, The Higher Education Act and Amendments, The Americans with Disabilities Act of 1990, The Developmental Disabilities Assistance and Bill of Rights of 1990, and the Technology-Related Assistance for Individuals with Disabilities Act of 1988.

Various provisions of the above laws validate the necessity to identify the competencies required for transition, provide services to develop those competencies, and to use technology in the transition process, as appropriate.

TYPES OF TECHNOLOGY AND THEIR RELATIONSHIP TO TRANSITION

The evolution of technological advances has led to six broad categories of application. For example, the *technology of teaching* includes very systematic, well-designed approaches to education that generally do not employ machines or equipment (although such devices can be used by teachers who employ the technology of teaching). *Instructional technology* involves the use of systematic approaches to instruction which incorporate media, such as videotapes, multimedia programs, and computer assisted instruction that can be used to teach independent living or employment skills.

Assistive technologies include mechanical and electronic devices, such as communication aids, specially designed computer keyboards, and adaptive switches that people with disabilities can use to help them interact with different post-school environments. Many people with disabilities are dependent upon *medical technologies*, such as respirators and dialysis machines, to keep them alive or enable them to function at work or in the community outside of medical settings. *Technology productivity tools* are computer software, hardware, and related systems that enable people to work more effectively and efficiently. Finally, *Information technologies* can provide access to knowledge

THE TECHNOLOGY CONTINUUM

When considering technology applications for individuals with disabilities, it is helpful to think about a continuum that ranges from “no-tech” to “high-tech” solutions to problems. For example, *high-tech* solutions are those that involve the use of sophisticated devices, such as computers and interactive multimedia systems. *Medium-tech* solutions include the use of less complicated electronic or mechanical devices such as videocassette players and wheelchairs. *Low-tech* solutions are less sophisticated and can include things such as adapted spoon handles, Velcro fasteners, or raised desks that can accommodate a wheelchair. No-tech solutions are those that do not require devices or equipment. These accommodations might involve the use of very systematic teaching procedures, service dogs, environmen-

tal adaptations, or the services of related services personnel such as physical therapists, occupational therapists, speech/language pathologists, or assistive technology specialists.

In making decisions about the type of technology tools or supports a particular person might require, a good approach is to start with the no-tech solutions and then work up the continuum, as needed. For example, in teaching a person with one arm to use a mixing bowl to prepare ingredients for cooking, in some situations it might be better to teach that individual how to wedge the bowl into a drawer and hold it with a hip while stirring, rather than to purchase an expensive medium-tech electric mixer that is equipped to stabilize the mixing bowl while it is being operated. Such practice may also be referred to as the least-intrusive approach or the process of providing natural supports.

Too often, however, when making technology decisions, there is a tendency to start at the upper end of the technology continuum when, in fact, it is better to start at a lower point. For example, when making decisions about a person whose handwriting is difficult to recognize, it is not uncommon to hear recommendations that a laptop computer should be provided that can be taken to various environments in which written products are required (cost: \$1,000-\$4,500). In reality, an electronic keyboard with memory that can be downloaded into a desktop computer may be more appropriate (cost: less than \$250). While the person in this example may eventually require a laptop computer, the

electronic keyboard may be a better place to start, and resources that can facilitate learning, productivity, and personal enrichment of both children and adults.

Each of the above types of technology has significant implications for improving functional abilities, in and of itself. It is important to remember, however, that they also may be used in combination. For example, an office worker who is paralyzed may require a respirator to assist in breathing (*medical technology*). That individual may also use a voice-operated computer (*assistive technology*) to complete a software tutorial about how to design databases (*instructional technology*) that was designed according to principles of near-errorless learning (*technology of teaching*). As a result of the tutorial, the worker will be able to set up a database, enter and retrieve information necessary to function effectively on the job (*technology productivity tool*), and use the Internet (*information technology*) to locate information that could be stored in the database.

While the above example may be somewhat extreme, it serves to place the various types of technology into perspective. In reality, it is more likely that only one or two types of technology would be used simultaneously. Additional information about the types of technology and their use is available elsewhere (e.g., Alliance for Technology Access, 1994; Blackhurst, 1997; Blackhurst & Lahm, in press; Inge & Shepherd, 1995; Parette, 1997; Pesta, 1994; Scherer, 1993).§

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importantly, the article helps us understand and consider the identification and selection of technology and transition competencies from a system's perspective. Using technology to enhance transition planning and the transition process is not simply saying that technology "A" assists transition competency "X." Each individual's use of technology in transition represents a unique combination of ecological and social factors in a system where these factors interact and influence each other in potentially complex ways. Blackhurst et al.'s unique framework for aligning technology with transition competencies cuts across time, individual characteristics and situations, and transition environments to significantly impact stakeholders' and end users' decisions and actions.

Technology and Transition Involves Social Components and Issues

Many factors and outcomes of technology and transition have significant social effects. This perspective is demonstrated throughout Parette's article on transition and AT planning as it relates to families of various cultures. Through Parette's careful analysis of cultural issues and various perspectives and predispositions of different family groups, the importance of family centered planning is emphasized relative to technology in transition services. Despite good intentions, functional relevance, and proposed outcomes of using technology in transition planning, Parette cautions us that families across different cultures may not eagerly embrace the use of AT. For example, AT decisions and services

may have a negative impact on some family functions, because factors and behaviors associated with using AT may be at odds with certain family values and belief systems. The potential for increased personal independence as the result of using AT may not be highly valued by other family members, or AT may even be viewed as accentuating a disabling condition rather than positively expanding the user's abilities. Moreover, family members may have varied reactions to the amount of perceived time and support needed with respect to AT training.

Parette concludes that when making AT recommendations with respect to the transition process, we must understand that our decisions will impact families in ways that may create unique cultural, ethnic, and social sensitivity issues or circumstances. We must therefore be prepared, among other things, to address relevant family concerns regarding AT and the transition planning process in ways defined as relevant by the family, not the service provider. Technology and transition providers must offer culturally sensitive and extensive communication and be prepared to meet differing information needs of families. Professionals must understand that their preferences for AT may not automatically result in the family member with the disability receiving what experts might clearly define as "best practice" and/or the "most functionally relevant" support.

Computer-supported Studying Promotes Postsecondary Transition

There are many situations where technology can provide a useful "tool" to individuals who have to perform specific tasks to be successful in transition. In their article on computer supported

studying in the context of post secondary transition, Anderson-Inman et al. report that a variety of students with learning disabilities who transition from high school to college and university settings are at risk for experiencing future academic difficulties. The authors observe that many of the postsecondary challenges facing students with learning disabilities, such as time management, reading and comprehension, and integration and synthesis of information, rely on students successfully using cognitive and self-management strategies. Unfortunately, many students transitioning out of high school have never learned appropriate postsecondary academic problem-solving strategies.

Anderson-Inman et al. propose that one solution for successful transition is to empower students by providing access to a variety of computer-based tools. They describe three projects and give examples of how individual students—each with unique learning disabilities—used technology to master a set of academic tasks they were formerly unable to accomplish. Each student was taught to use a specific set of software tools and techniques to support his/her management of the reading, writing, and study demands of postsecondary settings. Anderson-Inman et al.'s perspective on technology and transition emphasizes the unique and individualized situation, and that computer-based tools should be delivered via a systematic instructional program that (a) addresses computer-based strategies to compensate for limitations

from the disability, (b) utilizes existing learning strengths, and (c) promotes self-determination and independence.

Video-based Simulations Can Promote Community-based Training and Transition

It often has been reported that one of the benefits to using computers in education comes from their ability to simulate real life activities and use graphics and sounds to embellish content. The article by Wissick, Gardner, and Langone describes ways that transition-related contextual barriers can be removed through the use of technology. The authors discuss how opportunities for community-based training can be enhanced through the use of anchored instruction and multimedia. Using properly designed multimedia technology that incorporates video-based depiction and simulation of realistic/natural learning environments and performance of authentic outcomes, students may be able to learn functionally relevant transition-related concepts or skills more effectively. In this case, either as a precursor to community-based learning and/or as a way to promote maintenance, the context of the community is simulated via technology applications in a classroom environment. For example, rather than going shopping in the community, students go shopping via an interactive multimedia-based computer simulation.

Wissick et al. are careful to point out that the ultimate goal of using simulations are not to supplant performing relevant skills in the real world, but to use technology and multimedia as a means to replicate community situations that enhance the

learning environment for students and teachers. Multimedia-based simulations, relying on features of authenticity and anchored instruction, can assist learners in becoming as independent as possible within the simulation classroom environment. In turn, new, simulation-based skills are practiced in the real world to promote smoother and more reliable generalization. In order to provide effective instruction using simulations, designers and teachers must consider a variety of specific factors related to instruction design and delivery, which are discussed in the article.

Teachers can be Prepared for Transition Services via the World Wide Web

In the article by Smith and Jones, technology is used to enhance instruction and remove barriers to instruction for service providers in the transition field. By accessing web-based scenarios depicting authentic case studies of students facing transition dilemmas, participants have the opportunity to confront issues and to pose solutions to these problems in real time. The authors utilize the dynamic nature of the web to present information and mediate group discussion and problem solving. Through their web site, "Transitions," preservice and inservice teachers are developing a better understanding regarding the concepts and principles behind transition as they become active participants in an electronic forum, virtually linked with other students.

One of the things that is significant about the way that Smith and Jones are delivering instruction that addresses the transition process has to

do with the virtual nature of their web-based approach. Accessing the world wide web and the "transitions" web site provides diverse learners a forum to explore, experience, and construct a firm understanding of transition from any location in the world. The "Transitions" web site provides something that these individuals may not be able to obtain in a traditional classroom or training environment—the ability to achieve anonymity. As Smith and Jones describe, learners construct a deeper understanding about person with disabilities and transition because communication between learners becomes less inhibited, discourse between individuals is shared and enhanced, and they experience multiple perspectives to problems and issues.

Visual Enhancement Makes Transition Information More Meaningful for Deaf Persons

An example of how technology can be used to remove individual barriers caused by deafness is discussed by Davis. Davis introduces a clear and compelling problem: the principal medium through which deaf learners acquire information is through signed communication, but traditional transition curricular materials and assessment tools do not provide this capability. The research described by Davis includes a video orientation to assist both multimedia instruction and transition planning for deaf students and focuses on the importance of providing different forms of visual access and enhancement to support deaf students' performance of transition competencies.

Davis describes ways in which

technology can successfully improve deaf students' transition skills. By adding signed communication to video tape, videodisc, CD-ROM-based, and digital video applications, deaf students achieve significantly higher understanding and comprehension of transition-related information. The increased comprehension greatly improves the reliability and validity of the testing situation and provides a more accurate data understanding of a student's transition competencies. In instructional situations, curriculum materials that deliver signed information using CD-ROM and/or digital video can be combined with computer managed instruction to create an effective and interactive learning environment in which to teach transition-related competencies. §

Part 6, the final segment, will be in our July issue

Conferences

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Family Center on Technology and Disability

We have been providing information on the Family Center for quite some time. Here is a synopsis of the organization.

What is the Family Center on Technology and Disability?

United Cerebral Palsy Associations and their project partners, Alliance for Technology Access, Parent Advocacy Center for Education Rights (PACER), Academy for Educational Development and InfoUse have formed this organization.

The Family Center represents the major organizations in the country dedicated to providing information about technology to families of children with disabilities.

The primary goals of the Center are: to use their collective strengths to build and maintain a broad network of organizations that want to receive and disseminate information about technology for children and youth with disabilities and to increase the knowledge and abilities of organizations

to help families gain access to appropriate technology for children with disabilities.

The activities of the Family Center on Technology and Disability are funded through a contract with the U.S. Dept. of Education, Office of Special Education Programs.

Purpose

To help other programs and organizations provide information and support to families of children and youth with disabilities on accessing and using assistive technology.

Network

The Family Center on Technology and Disability works with a broad-based network of programs and organizations whose constituencies include parents and families of children with disabilities.

The Center can be contacted at: United Cerebral Palsy Associations, 1660 L St. N.W., Suite 700, Washington,

DC 20036, 800-872-5827. You can also email the project director, Susan Goodman, Esq., at Sgoodman@ucpa.org.

The invite you to join as a Network Member free of charge. There are many advantages to being a member of the Family Center on Technology and disability Network. Network Members will:

*Receive technology-related information that they can then disseminate as a service to their members.

*Be linked to the Family Center's Website whenever feasible.

*Have access to information about technology-related materials including written materials, audio and video tapes, computer software, and other forms of materials and media.

*Be kept current on latest developments in technology that can benefit the families and individuals served. §



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