



# DIRECTIONS

*Technology in Special Education*

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## Working with WebQuests

Making the Web Accessible to Students with Disabilities

by Rebecca Kelly

*Source: Teaching Exceptional Children, Vol. 32, No. 6, July/Aug 2000*

*Editor: The following are excerpts from Ms. Kelly's article.*

Searching the Internet is becoming an everyday practice for most students. Students with disabilities, however, are sometimes put at a disadvantage when attempting to complete this task. One practice that has become invaluable to me as a special education/inclusion teacher is the use of the WebQuest format. This article describes how students are boosting their learning through teacher-led lessons on the World Wide Web.

One such type of lesson, the WebQuest, is especially helpful in meeting the needs of students with disabilities within general education classrooms. Students with special needs sometimes experience information overload when first learning about computer programs; consequently, they need lists or steps to follow. According to research, independent activity—including well-defined search options—works best with specified steps that help reinforce these skills (Hawes, 1998).

### What is a WebQuest?

The WebQuest is a teacher-created lesson plan in the form of a simple World Wide Web page with active, preselected Internet links and a specific purpose for students. It is designed to provide students with an independent or small-group activity that incorporates research, problem-solving, and application of basic skills. It can be created at no cost to the teacher and can be constructed on a computer with a minimum 486 processor that has Internet access. The lesson then provides guided research using the Internet while incorporating skills such as problem-solving skills. The WebQuest is a lesson design originated by Bernie Dodge of San Diego State University (<http://edweb.sdsu.edu/webquest/webquest.html>). The design incorporates the combination of sequenced steps and preselected, linked Web sites to guide



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the student through the lesson. The original model includes six components—Introduction, Task, Process, Resources, Evaluation, Conclusion—that guide students through the lesson. The components may be renamed or rearranged to meet the needs of the students. The WebQuest can be used as preceding information for a unit, extension of an idea expressed within the unit, or a culminating project.

WebQuest received the 1999 Project IDEA (Identifying and Disseminating Educational Alternatives) award from the Delaware Department of Education and the Exceptional Children and Early Childhood Group.

### Essential WebQuest Principles

The Center for Applied Special Technology (CAST) has suggested the following principles of universal design for learning: multiple representations of information, multiple means of expression, and multiple means of engagement (Orkwis & McLane, 1998; Stahl, 1999). These principles are met with the flexibility and design of the WebQuest and can be incorporated in the creation stage of the lesson. With the special education teacher's knowledge of his or her students' needs, two of the IDEA requirements can also be met with regard to accommodations and access to the general education curriculum. First, teachers can address goals of the individualized education program (IEP) to focus on accommodations and modifications to support the child's success in the general curriculum (Goldberg, 1999). Teachers can incorporate instructional support into the design of the WebQuest in the form of readability, larger text, and simpler

directions. Also, because schools and teachers are required to help the child be involved in and progress within the general education curriculum, the WebQuest format offers the opportunity to incorporate basic skills with higher-order thinking skills and other enrichment activities with peers without disabilities.

### Benefit to Students

We found many benefits to students from participating in the WebQuest. Homebound students with Internet access can be involved by including a link to the teacher's e-mail in case of questions concerning the lesson. In one case, a teacher sent the URL of the WebQuest to the mother of a student who requested information on missed assignments because of illness. The mother later said that she found the format easy to follow and that she had understood the directions and was able to help her son complete the activity. He returned to school the next week with his activity completed and was not behind in the classwork. Positive feedback received from students stated that they not only enjoyed the Internet search part of the lesson, but asserted that the project was "something that made sense." Many students commented that even though "having to think is hard—filling in the blanks is easier." They agreed they understood the subject better after looking at it from a new perspective and that it was a type of lesson that they would like to do again. In addition, the general education teachers involved liked the level of engagement and diversity the WebQuest offered. In the case of the S.O.S. WebQuest, the student writing samples showed deeper thought than previous letter-writing

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# Assistive Technology Resources in Your School

Part 2

Barbara J. Webb

Source: *Teaching Exceptional Children*, Vol. 32, No. 4, Mar/Apr 2000

## Getting Started

### *Developing the Database*

The AT student worksheet (see Figure 1) is used for identifying the needs of individual students. It summarizes the information obtained from the environmental and functional use assessments. Figure 2 gives a sample form to use for developing a schoolwide AT database. We determined our needs by initially listing the AT devices that were available or needed by students within the school. We developed a chart that listed the AT, what class it is assigned to, and what hours it is currently being used. We then identified the hours the AT is available to other students. Although many of the identified devices were designated to particular students, it was apparent that other students could benefit from them during the time the identified student was not using the device.

We identified the students' needs on the schoolwide AT database (Figure 2) and, from there, generated a list of additional needs that require purchase. This process has identified the AT in the school, specified when it is used, generated a list of availability, and determined further school needs. At this point, the team can cross-reference to a recommended list (see Figure 3 example) and discuss funding sources of additional needs. The following database checklist gives

the team a step-by-step procedure to complete this process.

### *Database Checklist*

\*Complete AT student worksheets (Figure 1).

\*Complete AT database (Figure 2).

\*List all unmet needs (Figure 3).

\*Develop wish list.

\*Develop cost list: minimal to top of the line.

\*Decide what fits your needs and look at funding sources.

Maintaining this database with quarterly revisions will establish an ongoing process to meet the needs of individual students. The school technology committee can designate which members will be responsible for providing data to the committee for the quarterly reviews.

Many schools have a person designated as a technology specialist, but this person is often unaware of many additional AT devices that are available today. The technology specialist duties may include designing, implementing, and maintaining computer hardware and software; teaching computer classes; assisting teachers with various computer needs; assisting administration in the budgeting process; and organizing the school technology committee.

A special education teacher on the school technology committee would facilitate an awareness of individual needs, identify additional AT supports available onsite, and explain how a sharing of these supports would benefit all students—from the gifted, the slow learner, to the student with a disability. The technology committee must also plan for the support of the students from diverse cultural and linguistic backgrounds. Therefore, this committee should include personnel with expertise in a variety of areas.

## Assistive Technology Packages

Schools can easily put together an AT package to fill the needs of all students and plan for future supports. Figure 3 provides a sample worksheet for the technology committee. We have filled in suggestions to begin the process; the key at the bottom notes the range that a package may cover (e.g., costs of "bare bones" items compared to "deluxe" items). The worksheet is not completed to avoid looking at the minimum necessary, but rather to expand the committee's ability to develop the best-case scenario and break it into workable parts. It must also be noted that companies and organizations are constantly developing new resources that need to be integrated into the educational environment. A list printed today is often outdated tomorrow.

Funding for AT can come through a variety of sources, including grants; it would be appropriate to develop several

package options, which may fit the requirements for various grants available. AT resources are growing yearly and include national and local agencies, educational companies, and an assortment of retail companies. The school librarian can assist with obtaining current catalogs, and Internet searches can assist in finding other sources. The technology committee could analyze what information is needed and form subcommittees to address the particular areas.

### Final Thoughts

Educators can facilitate the success of appropriate AT implementation and use by taking a proactive stance and developing a transdisciplinary team approach to design a schoolwide AT package that will address the majority of needs occurring throughout the school year. This team can also assist with a more comprehensive use of existing resources within the school. Active use of a wider range of AT resources across a broad band of students will facilitate a broader range of knowledge among the staff. It will accomplish our goal of accommodating for changing needs of individual students and increasing the potential for integrating students with disabilities successfully into general education classes.

*Figures mentioned in this article and references can be obtained by contacting DREAMMS For Kids, Inc. §*

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# A Framework for Aligning Technology With Transition Competencies

Part 5

A. Edward Blackhurst, Elizabeth A. Lahm, Elizabeth M. Harrison,  
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*Source: Career Development for Exceptional Individuals, The Council for Exceptional Children  
Volume 22, Number 2, Fall 1999*

## TECHNOLOGY APPLICATIONS TO SUPPORT TRANSITION COMPETENCIES

Melichar's (1979) seven functional areas cut across all of the previously mentioned domains. Consequently, this conceptualization becomes a useful framework for considering ways technology can be used to develop or support competencies related to transition. Definitions of each of these functional areas are presented in this section, accompanied by Table 1, which reflects some of the competencies required for successful performance in each area of functioning and examples of technologies that can be used to support those competencies. Table 1 provides examples of technologies that may be appropriate for people with varying abilities. These examples illustrate that the framework is suitable for addressing functional needs across a continuum of abilities. Two types of technologies are listed for each competency area. Items listed under Type I indicate that the technology can be used by individuals who have either low cognitive skills or have unique physical, sensory, or communication disabilities that prevent them from making complex, independent responses. Type II technologies may be particularly useful to individuals with higher cognitive, physical, sensory, or communication skills.

It is important to note that these categories are artificial ones and that the complexity of devices is better viewed on a continuum. Items have been placed in the categories solely to illustrate the range of options that are available in the technology continuum and that technologies can be applied across a wide spectrum of abilities. In addition, the categorization does not necessarily reflect the complexity of the devices that are listed in each category. A device that requires a simple response may be a complex high-tech device. Conversely, a device requiring a complex response may, in fact, be at the low end of the technology continuum.

Brief descriptions of the technologies are included in the next seven subsections to provide insight into the purpose of devices that are listed in Table 1 either by generic type or by brand name. The italicized items in Table 1 represent the brand names of commercially available products, while the other listings represent generic categories of devices. The Appendix to this article provides addresses of manufacturers or vendors of the devices listed in Table 1 to facilitate the location of additional information.

As noted earlier, space limitations preclude a complete listing of all possible competencies and technologies; however, sufficient information is provided to illustrate the relationships and the potential of technology to facilitate transition. The

roles of different professionals in providing services in each category are also identified. Inclusion of such individuals illustrates that both devices and services need to be considered when making decisions about technology applications.

### *Existence*

Competencies associated with existence are knowledge and skills that are needed to sustain life. These competencies include eating, elimination, bathing, dressing, grooming, and sleeping. In addressing the needs of adults, Eshilan, Haney, and Falvey (1989) place particular emphasis on personal health care, such as emergency safety skills, medication regulation, nutrition, hygiene, dressing, eating, and toileting; home care, such as payment of bills, insurance, and room temperature control; and interpersonal relationships. Assistance in using devices to support existence also may be provided by occupational therapists.

Students with goals in personal health care, as it pertains to the post-school environment, have a broad range of devices available. For students not yet toilet trained, a device that signals soiled underwear is available to assist in training. An

individual with impaired motor movements in the upper extremities may benefit from a hair brush with a built up handle, making it easier and less tiresome to hold. Those two devices, though fairly simple technologies or adaptations, can help some people achieve higher personal health care levels or grooming requirements found in different post-school environments. Home care, a necessary skill area for independent living, can be assisted through the use of many technologies, as well. Two such assistive devices are the *Food and Onion Chopper* and the *Mycroclean Envirocloth*. Students with poor fine motor control, low cognitive abilities, or with visual impairments cannot safely use conventional knives for chopping food in preparation for cooking. One simple device available on the commercial market that becomes an assistive device for these individuals is the *Food and Onion Chopper*. With this, the food to be chopped is placed into the container and the lid, equipped with chopping blades, is screwed on. The user chops the food by pumping the handle up and down, pushing the blades into the food. With this device, the task can be successfully completed without fear of injury to the user, thus contributing to independent living success.

A second device for a person with chemical sensitivities is the *Mycroclean Envirocloth*. This cloth is used for dusting and cleaning other surfaces without cleaning chemicals, enabling people with chemical sensitivities to clean their home without assistance.

A third competency under the functional area of existence is interpersonal relationships. While there is no technology that can directly

address this goal, many can be used to facilitate its development. For example, any device that facilitates communication can be used to support interpersonal relationships in social settings, educational, or work environments. Another example for those using wheelchairs is the *Totttime Fun-N-Fitness System*. This is a wheelchair-accessible jungle gym and climbing structure. Though its primary purpose is to provide people with opportunities to develop gross motor skills, it also creates a natural environment for social interaction. For a cognitively-able older student with behavior disorders, there are computer programs such as the *Social Skills Program*, that directly address interpersonal skills. This particular program teaches students to get along with others in many different environments, using a game board format. Skills addressed include sharing a bathroom, respecting privacy, handling anger, and appropriate touching.

### **Communication**

The reception, internalization, and expression of information are competencies included in the functional category of communication. Transition competencies in this area include the ability to communicate wants, needs, and interests. According to Coots and Falvey (1989), the following areas should be addressed: receptive understanding, expressive communicative behaviors, cognitive understanding, communicative functions, and interaction skills. The services of speech-language pathologists and audiologists might be necessary to support communication competencies.

Receptive understanding can be

addressed using computer-assisted instruction, with such programs as *Community Signs* and *Vocabulary Tutor*. Expressive skills can be addressed through many different augmentative or alternative communication devices. An example for a lower functioning student is the *Deluxe Talk Board*. This low-tech device uses symbols or pictures inserted into vinyl pockets to create a direct-select, portable, communication device for an emerging communicator. In a different capacity, the *ADDvox II* is a medium-tech device that assists with expressive communication by amplifying the voice of people who have difficulty projecting their voice.

The *Dial Scan* communication device is one that assists students with low cognitive abilities. A limited set of pictures or symbols is placed on a display panel and a clock-like hand moves around the panel pointing to each picture. The simplicity of this device makes it easy to teach the meaning of pictures or symbols, increasing the individual's cognitive understanding of pictures as representations of objects and actions. The *AlphaTalker* is a highly sophisticated alternative communication system that also can be used to address cognitive understanding. Using the *Minspeak* system that accompanies the *AlphaTalker*, users assign their own meanings to icons, using a highly sophisticated system for coding language. Users sequence these icons to produce sentences. Such devices can enable those who are unable to speak to communicate with others in a variety of post-school environments. Among the many competencies that relate to the communication function, one that is important for people with disabilities to

have as they move to more independent living settings, is the ability to secure help when it is needed. This competency pertains to emergency situations as well as less urgent daily living situations like cooking, assembling a device, or help with homework. One very basic device is the *Call-For-Assistance* alert system. This device can be mounted on a wheelchair and is activated with or without a switch. When activated it provides an auditory and/or visual alert signal to others in the same setting. On the other end of the technology and cognitive continuum, the *DEUCE Environment Control System* provides users with access to the phone system, allowing them to call out of their immediate environment for assistance. Such devices can provide important supports for those who are living independently. Technology that promotes interaction between people addresses another competency area of transition. One software program that is available to train early interactive

communication is *Talk:About*. The program teaches through structured conversations and explains how to initiate discussions. For the higher functioning individual, e-mail can be used to facilitate interactive communication. Available at the user's convenience and tolerant of the user's pace, e-mail can be used to maintain conversations with people outside the user's immediate environment. Clearly, the use of high-tech systems such as e-mail and the World Wide Web are becoming an increasingly-important part of the business, higher education, and leisure-time activities of many adults. §

*Look for part 6 in next month's issue*

*WebQuest continued from page 2*

exercises in class. Student interest was also evident when some even offered to help type the WebQuest on Netscape Composer and helped find and save images from the Internet for inclusion into the Web page itself. Duration of the WebQuest is at the teacher's discretion and can last from a few days

to a few weeks, depending on the class size, ability, and class time schedule. As a special education teacher in an inclusive classroom, I have observed the engagement of all students in the learning process through the use of the WebQuest design—including students with visual impairments, hearing impairments, learning disabilities, and no disabilities. Each student brings his or her best to the lesson and is able to participate in class without watering down the content. The WebQuest is not only a *design*, it is a *device* through which participation without frustration makes learning fun, exciting, and accessible to all students—which is just as it should be.

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# Family Center on Technology and Disability Update

We welcome the following new members to the Network:

School District of Lee County County, Assistive Technology, FL.

Children's Hospital, Assistive Technology Clinic, CO.

Asociacion de Personas Impedidas, Centro Artesania Cotui, Puerto Rico

## Family Center Model Programs

### *The Assistive Technology Resource Center of Hawaii (ATRC)*

Through extensive collaborations with community-based organizations and private partners, ATRC works to fulfill its goals of promoting increased awareness and greater access to assistive technology, and increasing consumer and provider skills, involvement and empowerment with technology. Consistent with the requirements of the Technology Act, its activities focus on helping rural and underserved communities gain access to technology. Visit: <http://www.atrc.org>

### *The United Cerebral Palsy of Greater Suffolk's Mobility Opportunities Via Education (MOVE)*

The Children's Center, a division of UCP of Greater Suffolk, New York incorporated the MOVE program into its services in 1997. MOVE is a therapeutic and educational program designed to help people learn the skills needed for sitting, standing, and walking. This collaborative program utilizes the services and knowledge of parents, educators, therapists and other support personnel to help participants learn and practice skills while engaged in activities of daily living. visit: <http://fctd.ucp.org/fctd/site6.htm>

## Resources

*Benefits Management for People with Disabilities*, an Advocate's Manual, Year 2000 edition is a manual designed as a reference book for attorneys, advocates, rehabilitation professionals, persons with disabilities and others concerned with how work affects benefits. You can view portions of this manual at <http://www.nls.org/2000edtn.htm>.

## News

The Assistive Technology Expo, an event focussed on enhancing the well-being and status of persons with disabilities will be held at the North Raleigh Hilton, November 30 - December 1 this year. The Expo showcases vendors, demonstrations, exhibits, product information, how-to classes, seminars, and hands-on computer software training. There is a charge for classes, but the vendor fair is free. A silent auction will be held on Day 1 to raise money for consumer sponsorships (for the year 2001 Expo). There will be a family fun room and winners of this year's photo contest will be announced. The Expo is truly a unique opportunity for people with disabilities and those in disability-related professions to collaborate, attend workshops and view exhibits on assistive technology, including cutting-edge technology. E-mail: [assist@pat.org](mailto:assist@pat.org)

All it takes to join the Family Center network of organizations is an e-mail message to Susan Goodman at [Sgoodman@ucp.org](mailto:Sgoodman@ucp.org) §



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