Essential tools of the trade: *An occupational therapist shares her toolkit*

By Sally Fennema-Jansen and Dave L. Edyburn

In many professions, part of advanced training involves studying the "classics." Classics have stood the test of time and have been validated within a discipline as contributing to the core knowledge base of a field. While the field of assistive technology is a bit too young to fill a bookshelf with classics, a number of products have distinguished themselves. This series has profiled selected professionals in order to understand the core tools that support interdisciplinary work in assistive technology.

In this article we introduce readers to the first author who works as an occupational therapist. Sally briefly describes her experience with technology and the context of her work. Then, we examine the types of tools she has selected for her technology toolkit and describe how these tools enhance her professional productivity.

Meet Sally, a technology-using Occupational Therapist

For the past fourteen years I have worked as an occupational therapist in a school district in Southeastern Wisconsin serving approximately 2500 students with disabilities, ages 3 through 21, in 37 schools. My interest in assistive technology began when I was work-

ing with students with multiple disabilities and striving to find ways in which they could communicate and control their environments. I attended my first workshop related to assistive technology on constructing a switch. That simple switch was put to good use over the years and opened my eyes to the possibilities that technology had to offer. With heavy caseloads and limited time, a speech therapist, special education teacher, and I decided we needed more equipment and a portion of our day dedicated to our expanding vision of how assistive technology could be used to meet the needs of students. Our administrators were supportive, and suggested we try our hand at grant writing. Through a Wisconsin Department of Public Instruction Discretionary Grant, we were awarded enough money to devote one day per week to assistive technology and to begin purchasing necessary devices. The quest for knowledge continues. My training has been informal, consisting of reading and participating in study groups; attending state and regional workshops, annually attending Closing the Gap, and occasionally a national conference; and completing a few university courses.

Along with a colleague who is a speech therapist, I now spend nearly all of my time working to assure that students with disabilities within our district have access to needed technology, as well as adequate training

in its use. The speech therapist and myself, as the technology team, work with the school based therapists, special and general education teachers, the parents, and student to determine appropriate assistive technology tools. The SETT framework, developed by Joy Zabala (1995), has been a valuable tool used to facilitate the collaboration process. It encourages us to focus on the important curricular tasks and determine the tools needed to make certain that students have access to important learning opportunities within a variety of environments.

Essential Tools of the Trade

In deciding which tools are at the core of what I do, I reflected on my work and I see my responsibilities as falling into five primary roles: 1. evaluation of assistive technology needs; 2. intervention in the use of needed assistive technology; 3. consultation and collaboration with team members, students, and families; 4. staff development; and 5. equipment and resource management. The toolkit I present will focus primarily on the tools I use to complete these roles. Although I have additional tools available, I selected the toolkit based on those tools which I use on a daily basis; without which I would have a difficult time completing my job.

Because our school district uses primarily Macintosh computers,

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the toolkit I present is Mac-based. Some of the tools selected are included because they are relatively inexpensive and still provide the essential features required during the evaluation. Some are selected because they happen to be the product for which my district has a site license. For example, another word processor may meet my needs, but *ClarisWorks* (Claris) is readily available in each school I visit, so that is the one I use.

1. Evaluation of assistive technology needs

During evaluation, training, and as a means of documenting progress, our team frequently videotapes students. Therefore, a *video camera and tripod* are an essential part of my toolkit. The videos allow us to share information among team and family members and to examine the impact of intervention techniques and device use.

As an occupational therapist, my role in an evaluation generally focuses on determining the best method(s) for the student to access and control the tools and devices they need for participation in the educational curriculum and in daily functional tasks. Therefore, a number of the tools I use are designed to provide alternative access to the computer, to learning tasks, or to the environment (see Table 1).

For students who are potential switch users, a *variety of switches* are needed to determine which will best meet the student's needs. In determining the switch access site with the greatest isolated voluntary control, the use of a *Universal Switch Mount* (AbleNet) is helpful. *UltraStik Adhesive* (AbleNet) provides a secure yet temporary means of attaching a switch when attempting to determine the best switch placement. When working with a new student, the availability of *battery operated toys and devices* that provide a range of sensory inputs is important to ensure that at least one input is highly desirable. Thus, I like having a massager, a fan, a variety of taped music, and toys that move and make noise available. A *computer switch interface* is another important tool allowing a variety of great children's programs to be used to train cause and effect, as well as for more advanced applications of switch use. (A separate switch interface would not be essential if either an *IntelliKeys* (IntelliTools) or *Discover:Kenx* (Don Johnston) were available. However, the

small size and ease of use make it a valuable part of my toolkit.) Of course, if you want to engage students at the computer, software that provides a variety of visual and auditory effects is essential. I frequently use *Living Books* (Broderbund) and the *Edmark Early Learning Series* (Edmark) for younger children. KidPix (Broderbund) is an perennial favorite and spans a wide age range. Because of the variety of features available, it can be used for simple cause/effect training, to train mouse use, as a adaptation in an art curriculum, with templates for math and science activities, for written and graphical expression in response to reading material, etc.

An alternative keyboard can be used for a range of purposes including reducing the cognitive load of a task, changing the physical demands, providing a mouse alternative, and providing a larger keyboard display. The *IntelliKeys* (IntelliTools) with a set of *keyguards* is a part of my toolkit because of the ease and flexibility of its use. To gain the greatest versatility, I consider *Overlay Maker* (IntelliTools) and *ClickIt* (IntelliTools) to be essential because they provide the ability to customize overlays and setups for programs.

A Macintosh *keyguard*, used to provide greater physical access to the computer for persons with limited control, is a frequently used tool, yet a fairly simple adaptation.

Because using a mouse can be difficult for some students, I appreciate having a variety of alternatives available. Given the tremendous number of options on the market, I've had to pick and choose a few that will meet the needs of many students. I include a *Touch Window* (Edmark), *trackball*, *joystick*, and *trackpad* in my toolkit. For students who require mouse control using a single switch, *Click It* (IntelliTools) or *Discover:Kenx* (Don Johnston) scanning set ups are helpful. Lending libraries and vendors are used to access less frequently used or more expensive items.

Discover:Kenx (Don Johnston) is a product that can be used to meet the needs of a variety of students and allows access to any application program. Because multiple input options can be used, the standard keyboard and mouse can be bypassed. Common input options include a single switch for scanning or Morse code, an on-screen keyboard, and alternate keyboards

(expanded and mini). Because of the flexibility of this product, it is a valuable part of my toolkit.

Table 1 – Evaluation Toolkit
Video camera and tripod
Switch Use Tools
    Don Johnston Lt. Switch
    BASS Switch (Don Johnston)
    AbleNet Jelly Bean
    AbleNet Big Red
    TASH Tread
Universal Switch Mount (AbleNet)
UltraStik Adhesive (AbleNet)
Computer Switch Interface
Battery Interrupter
    Battery operated toys and devices providing various sensory inputs: massager, fan, tape ecorder and a variety of types of taped music
Software
    KidPix (Broderbund)
    Living Books (Broderbund)
    Edmark Early Learning Series
(Edmark)
Alternative Input Tools
    Alternative Keyboard
        IntelliKeys (Intellitools)
        Instant Access Overlays
        Keyguards for IntelliKeys (Intellitools)
    Control Enhancers
        Keyguard (Don Johnston)
    Mouse Alternatives
        TouchWindow (Edmark)
        Trackball
        Joystick
        Trackpad
        Switch for Scanning (Click It, or Discover:Kenx)
Written Communication Tools
    Software
        IntelliTalk (Intellitools)
        Co:Writer (Don Johnston)
        Inspiration (Inspiration Software)
    Portable Word Processor
        AlphaSmart (Intelligent Peripheral Devices)
Augmentative Communication Tools
    Co:Writer (Don Johnston)
    Discover:Kenx (Don Johnston)
    IntelliKeys with Overlay Maker (Intellitools)
    Boardmaker Software (Mayer-Johnson)
    Speaking Dynamically (Prentke Romich)
    AlphaTalker (Prentke Romich)

For evaluation in the area of written communication, *IntelliTalk* (IntelliTools), *Co:Writer* (Don Johnston), and *Inspiration* (Inspiration Software) are programs that I like to have on hand. An *Alphasmart Pro* (Intelligent Peripheral Devices) is also a part of my toolkit as it represents a simple to use and inexpensive portable word processing option. Of course, it may be necessary to explore other word processors. However, the information gained from the tools in the toolkit will help pave the way for a more specific feature-match process.

When assessing the need for augmentative communication (AC), many of the tools previously mentioned would be important depending on the needs of the student. For example, the tools for switch use might all be used as a part of an AC evaluation. IntelliKeys (IntelliTools) and *Overlay Maker* (IntelliTools) could be used to create a nonportable communication device. *Discover:Kenx* (Don Johnston) and the tools for written communication might be needed. In addition, *Boardmaker* (Mayer-Johnson) is an essential tool in my practice. We have a wonderful volunteer who uses the program at least eight hours each week to create boards, develop cheat sheets, and adapt books. *Speaking Dynamically* (Mayer-Johnson) allows us to evaluate and train the ability to use dynamic display strategies to access messages. Once this skill is in place, we are able to look more closely at the variety of dynamic display devices available and match their features to the student's needs. We have a variety of portable voice output devices available for assessment and trial, but if I were starting from scratch I would want at least one such device. An *AlphaTalker* (Prentke Romich), for example, could be used because of the variety of input options available, the ability to use it as a level-based device or for *Minspeak* (Prentke Romich), using the icon prediction feature, and the ability to save programmed vocabulary to disk.

2. Intervention

Although selection of appropriate technology is an important process, ensuring that the technology is used to enhance functional skills and integrated into the total instructional program of the student is essential, and an ongoing challenge. We currently have approximately 90 students on the assistive technology caseload. The level of service provided to the students varies based

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Table 2 – Intervention Toolkit
ClarisWorks: Word Processor (Claris)
Boardmaker (Mayer-Johnson)
Flash It (Symantec)
PowerLink Control Unit (AbleNet)
Access to Math (Don Johnston)
Math Pad (IntelliTools)
FileMaker Pro (FileMaker Pro)
Geometer's Sketchpad (Key Curriculum Press)

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on individual needs. For some, intervention is active with weekly contact initially and then the contact tapers off. For others, service is delivered primarily on a consultative basis, with little time spent working directly with the student. Because provision of assistive technology services is a process, we attempt to support application of assistive technology during intervention by providing periodic follow up visits with the student, team, and family members as needed. This also allows us to work with the student to monitor and modify the technology and intervention strategies as needs change. Table 2 illustrates some of the products in my "Intervention Toolkit."

A common tool used to facilitate the intervention process is the "cheat sheet." These sheets are designed to provide simple instructions for any task for which the facilitator or student needs reminders or directions. The cheat sheet might provide instructions on how to change levels on a communication device, or how to use a certain software application. It might delineate a prompt hierarchy to be used during training, or provide symbol sequences for targeted vocabulary. In addition to using *ClarisWorks* for word processing, *Boardmaker* (Mayer-Johnson) and *Flash It* (Symantec) are frequently used to design cheat sheets.

In addition to the tools used during evaluation, there are a few tools that I use a great deal for intervention within the classroom. The *PowerLink Control Unit* (AbleNet) is used frequently by students with multiple disabilities in general education classrooms as well as in the early childhood classrooms. *Access to Math* (Don Johnston), *Math Pad* (IntelliTools), *Geometer's Sketchpad* (Key Curriculum Press), and *FileMaker Pro* (FileMaker Pro) math templates are helpful in facilitating access to the math curriculum.

3. Consultation and collaboration

When supporting the provision of assistive technology services, regular collaboration with members of the student's team and family is important. Depending on the student, this takes a variety of forms. With some teams, monthly meetings are scheduled to review progress and collaborate regarding the next step. With others, classroom observation or co-treatment sessions provide the format for collaboration. Often, periodic videotaping of the student offers opportunity to discuss the student's needs. Team planning charts are designed using a spreadsheet in *ClarisWorks* (Claris) and help us in tracking responsibilities and commitments made during a collaborative session. As more and more staff members use e-mail on a regular basis, we have been able to save time and gain efficiency through its use. Table 3 outlines some of the consultation and collaboration tools I use.

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Table 3 – Consultation and Collaboration Toolkit
Video camera and tripod
ClarisWorks: Spreadsheets (Claris)
Netscape Navigator (Netscape)

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4. Staff development

Staff development opportunities have included traditional inservice classes, financial support for attending conferences, and study groups. Our district offers inservice credit to groups who join together to study and discuss topics pertinent to their work. We encourage people with similar questions and concerns to meet to explore a question relevant to the use of assistive technology with the students with whom they work. This encourages diving into relevant literature which might otherwise remain in the "to read" stack.

Beginning this year, we are offering the opportunity to receive inservice credit for guided independent studies in assistive technology. An individualized plan will be developed by the participant and the therapists working in assistive technology to provide encouragement and incentive for teachers to take time to learn about the ever expanding field of technology. Learning activities may include reading articles, viewing videotapes, peer coaching sessions, research activities,

exploration of new computer programs, etc. While this new approach will provide a mechanism for self-study, we are most hopeful about its potential for small groups which have not fared well in the past due to minimum enrollment requirements.

Tools used as a part of my role in designing and delivering staff development include *ClarisWorks* (Claris) for word processing and to design slide shows, and *Inspiration* (Inspiration Software) for the design of handouts and overheads (see Table 4). A *television and VCR* provided by the school are used to view videotapes of successful assistive technology use by students. We have found videos to be helpful in addressing attitudinal barriers to the implementation of assistive technology.

5. Equipment and resource management

Our assistive technology team is responsible to assure that students have the equipment they need and that it is in working order. We procure funding for school equipment through grant writing and IDEA funds. Report templates save time when documenting students' personal equipment needs for insurance companies and Medical Assistance. The tools we regularly use for equipment and resource management are listed in Table 5.

In order to keep track of the software and equipment, we maintain a database using *ClarisWorks* (Claris) as well as a card catalog checkout system. Because we only have

one computer in our office which is in use most of the workday, we use the card system for checkouts. This system is easily accessed and understood by other staff members, such that they are able to use the system without assistance. We are quickly able to track dates of purchase, repairs, and upgrades using this system. Year-end reports include a summary of equipment used, as well as teacher/therapist level of use.

In addition to managing equipment, our team serves as coordinator of resources for equipment, funding sources, and services. The use of *Netscape Navigator* (Netscape) has been invaluable for finding needed information on the Internet. E-mail allows us to communicate with vendors, assistive technology resource people, and participate in listserves.

Concluding comments

Our purpose in preparing this article was to describe one vision of how technology enhances the work of an occupational therapist and the specific tools that she considers essential for her work. We believe that the opportunity to explicitly describe our vision of how technology enhances professional productivity will contribute to the process of developing consensus about the core tools of our profession. We encourage readers to join the conversation by sharing frameworks describing the tools they use and productivity strategies that illustrate the value of specific tools.

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References

Zabala, J. (1995). "The SETT framework: Critical areas to consider when making informed assistive technology decisions." Closing the Gap Preconference Workshop.

Products

AbleNet, Inc. 1081 10th Ave. S.E., Minneapolis, MN 55414-1312; Phone 800-322-0956; Fax 612-379-9143

Broderbund Software Inc. 500 Redwood Blvd., P.O. Box 6121, Novato, CA 94948-6121; Phone 800/521-6263; Fax 415/382-4582; WWW <www.broderbund.com>

Claris Corp. 5201 Patrick Henry Dr., Santa Clara, CA 95052-8168; Phone 800-544-8554; Fax 408-987-7563; E-mail <help@claris.com>; WWW <http://www.claris.com>

Don Johnston Inc., P.O. Box 639 1000 No. Rand Rd., Wauconda, IL 60084-0639; Phone 800-999-4660; Fax 847-526-4177; WWW <http://www.donjohnston.com>

Edmark Corporation, 6727 185th Ave. N.E., P.O. Box 97021, Redmond, WA 98073-9721; Phone 206-556-8400, 206-556-8439 (TTD) or 800-426-0856; Fax 206-556-830; E-mail<edmarkteam@edmark.com>; WWW <http://www.edmark.com>

FileMaker Inc., 5201 Patrick Henry Dr., Santa Clara, CA 95054; Phone 408-727-8227; E-mail <webmaster@filemaker.com>; WWW <http://www.filemaker.com>

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Intelligent Peripheral Devices, Town Center Ln., Ste 270, Cupertino, CA 95014; Phone 408-252-9400; WWW <http://www.ndiap.org>

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