Abstract: Professionals on IEP teams increasingly are considering the potential contributions of assistive
technology as they develop programs for students with disabilities. However, a significant technological
“generational gap” may exist between the members of these teams and the young people they seek to serve, as the
quality and quantity of student interactions with technology may differ dramatically from those of IEP team
members. This gap may manifest itself in the selections of technology that may impair social acceptance of
students with disabilities by their peers, or that students will not use. In this paper we suggest a variety of both
low-tech and high-tech tools that hold unique dual promise to (a) facilitate successful access to the general
education curriculum, and (b) enhance social acceptance by nondisabled peers.
preferences and expectations markedly. They are comfortable with using technology, and see it as a means to remain connected to the world around them (Raines).

Unfortunately, little is known about the technology use patterns and preferences of students with mild disabilities (Parette, 2004; Peterson-Karlan & Parette, 2005). Longitudinal analyses of technology use patterns of Millennials have revealed differential and growing usage of an array of technology on a daily basis (Miller & Norton, 2003; Tapscott, 1998). Similarly, studies have shown higher technology abandonment rates for school devices (that may be outmoded, such as tape recorders) among older students with disabilities (Riemer-Reiss & Wacker, 1999), along with disparate rates of computer and Internet use when comparing typical peers and persons with disabilities (cf., DeBell & Chapman, 2001; Kaye, 2000). More generally, however, technology use is deeply embedded in the lives of Millennial children on a regular basis, and in ways that are not completely understood by today’s education professionals (Parette).

Lack of understanding regarding technology use patterns and preferences of students with disabilities is further complicated by the lack of wide-scale application of universal design for learning (UDL) principles (Center for Applied Special Technology, 1999-2004; Rose & Meyer, 2000). The focus of UDL is on creating learning environments where students “have access to the learning itself, that they experience changes in their knowledge and skills and that they grow in their capacity to learn” (Rose & Meyer, p. 68).

If, in fact, education professionals are insensitive to the preferred technologies that students with disabilities may currently demonstrate that they can facilitate their learning and increase their access to the general education curriculum, they may inadvertently be inhibiting optimal learning experiences for these students. One recent approach to addressing such concerns has been development of a technology ‘toolkit’, i.e., compilations of an array of technology devices having broad applicability to many students with mild disabilities in a particular classroom (Edyburn, 2000; Parette & Wojcik, 2004; Puckett, 2004; Watts, Thompson, & Wojcik, 2004). For example, Parette and Wojcik described specific categories in which technology held potential utility to increase access to the general education curriculum and facilitate learning for students with mental retardation. Puckett described an approach to identifying software, equipment, and strategies to support students with mild disabilities in general education standards in math and language arts. Other studies have been conducted to develop toolkits for students with severe disabilities (Heart of Illinois Low Incidence Association Resource Academy, 2004), develop skills in literacy (Fonner & Marflitus, 2005), and create broad toolkits having applicability to a diverse range of students (George, Fulcher, & Nichols, 2001; Lahm, Bell, & Blackhurst, 2002). Such efforts reflect a movement toward better understanding the relationship between specific technology applications and positive classroom outcomes among students with disabilities.

Based on experiences of the authors of this article with regard to toolkit development and its applications in classroom settings, a range of technology devices have been identified that hold particular promise both from a UDL perspective, as well as a cultural perspective (i.e., sensitivity to Millennial children and preferences they may have for devices). We have termed these devices ‘cool’, or having appeal to current school-age students with mild disabilities given both their design and appearance, but their potential to facilitate learning and acceptance by typical peers who also use an array of technology solutions in their daily lives.

**What’s Cool**

In making decisions about the preferences of students with mild disabilities for specific types of technologies, multiple perspectives must be given consideration. First, the student’s perceptions of particular devices and their utility have to be considered. While research has yet to systematically examine student-perceived success in classrooms as a function of particular technology use, inferences have typically been drawn based on decisions made by education professionals and families in developing IEPs.
Cool Tools that May Assist in Writing

Students with mild disabilities often experience difficulty with one or more aspects of the writing process (Behrmann & Jerome, 2002). Conveying ideas using written language often presents challenges to students with mild disabilities (Johnson & Myklebust, 1967; Myklebust, 1973; Poplin, Gray, Larsen, Banikowski, & Mehring, 1980). Overall production may also be impeded. Students are frequently unable to write their thoughts quickly enough (De La Paz & Graham, 1995) which may limit the amount of ideas the student is actually able to commit to print. Graham, (1990) also noted that some students with mild disabilities experienced difficulty with text production skills as the mechanic of writing interfered with both the quantity and quality of their writing. “For individuals with learning disabilities, composing orally may allow them to circumvent transcription or text production problems (e.g., handwriting, spelling, and punctuation), which in turn may allow greater focus on higher-order concerns such as planning and content generation” (De La Paz, 1999, p. 173). All of these factors interfere with the writing process.

Low-Tech Solutions

There are a number of currently available technology-based tools that hold promise for assisting students with mild disabilities in the writing process. When looking at students who have difficulty with the mechanical process of writing, many low-tech solutions are available. Generally, low-tech solutions include devices that are easy to use, inexpensive, available, and require little training to use effectively (Parette, 2005; Parette & Brotheron, 2004). Examples of low-tech solutions that can assist students with writing include pencil grips, raised line paper, and line guides, such as those available from Onion Mountain Technology, Inc (http://www.onionmountaintech.com/).

Portable Word Processors

Many students with mild disabilities tend to find it easier to type than to write using long-hand. One tool that has tremendous power to assist in this process is a portable word processor, also known as a portable keyboarding device. Russell, Bebell, Cowan, and Corbelli, (2002) found that when students used portable word processors in the classroom, the quantity and quality of their writing significantly increased. Portable word processors offer many of the same features included in typical word processing programs, e.g., spell check; editing tools (cut, copy and paste); and saving drafts for later revision. Compared to a laptop, which is typically quite expensive and often heavy to transport across environmental settings, portable word processors are relatively inexpensive and usually are powered with common battery types, although some are rechargeable. Many portable word processors allow content to be saved and filed within the unit and later printed directly to a printer or transferred to a computer for further editing. Some portable word processors, such as those marketed by Alphasmart® (e.g., Alphasmart 3000 and Neo, http://www.alphasmart.com) allow add-on applications that can be installed and provide additional assistance the student. Some of these applications allow the student to download worksheets directly into the unit so that the student may type his or her own answers. Other portable word processors, like the Alphasmart® Dana operate using the Palm Operating System® allowing for increased functionality incorporating many different applications beyond word processing, e.g., date book management, calculators, and contact lists.

Talking Word Processors

Talking word processors are also useful tools to assist students with mild disabilities in the writing process. Talking word processors produce computer generated speech that corresponds to the text entered by the student. Speech may be generated after each letter, word, sentence or paragraph that is entered. This speech feedback has been proven helpful in assisting students to produce less spelling errors in their final products (Schlosser, Blischak, Belfiore, Bartley, & Barnett, 1998) as well as assisting in the revision and editing process (MacArthur, 1996).

Many talking word processors also provide talking spell checkers. When conducting a
spell check, a student is typically presented with a list of words that are possible corrections to an incorrectly spelled word. Talking spell checkers allow the student to hear each of the words presented in the correction list, thus increasing the chance that the student will choose the correct word from the list by reducing the demand of decoding each of the words presented (Lewis, 1998).

Word Prediction Programs

Another useful category of tools that can assist in the writing process is word prediction programs. These programs apply complex algorithms including variables such as spelling rules, phonic rules, and/or grammar rules to predict what the student may write. Based on text entered by the student, word prediction programs provide a list of most probable words that the student may need next in his or her writing. Word prediction programs have been found to assist the student in generating text with less spelling errors (Minas, Biros, & Burenstein, 1995; Lewis, 1998; MacArthur, 1996, 1998a, 1998b). It is important to note that the algorithms used in various word processing programs are not identical (Marfilius & Fonner, 2003). In other words, some word prediction programs employ algorithms that depend solely on spelling rules while others take a more comprehensive approach incorporating multiple rules sets related to writing.

Computer Based Organizational Tools

Adding to our toolkit on writing, there are a number of tools that can assist students with the organization of their writing (Behrmann & Jerome, 2002). These tools employ research-driven practices, such as semantic webbing, to allow the student to visually plan and manipulate the content of his or her writing. Some tools, such as Inspiration and Kidspiration software distributed by Inspiration® Software, Inc., (http://www.inspiration.com) provide supports using visual semantic webs which can also be viewed as an outline. Other tools like Draft:Builder® marketed by Don Johnston, Inc. (http://www.donjohnston.com) and Writer’s Companion™ (http://www.writerscomp.com), provide additional scaffolding leading the student from the planning phases to a completed draft of his or her writing.

Speech Recognition

Speech recognition technology has improved greatly over the last decade and has become more accessible as well. Speech recognition programs allow a student to directly dictate into a word processing application. As the student dictates, his or her speech is converted into editable text. Some research suggests that speech recognition programs may allow students to better convey their thoughts by reducing the physical writing demands of traditional handwriting (De La Paz, 1999). Other studies have shown that overall written product tends to be of higher quality using speech recognition when compared to other methods of writing (Higgins & Raskind, 1995) and may even have added benefits in the areas of spelling skills and reading (Higgins & Raskind, 2000). Speech recognition programs may be (a) add-on programs working jointly with a standard word processor; or (b) included with the word processing software itself, e.g., Microsoft® Office Word XP and Microsoft® Office Word 2003 (http://www.microsoft.com).

Cool Tools that May Assist in Reading

A majority of students identified with mild disabilities have their primary academic difficulties in the area of reading (Bender, 2004; Katims, 2000; Lerner, 2003). Many of the difficulties associated with reading include perceptual difficulties, decoding problems, and comprehension difficulties. Fortunately, there are a number of tools that can be added to a toolkit that can assist students with mild disabilities in the reading process. These include (a) low-tech reading tools, (b) audible text, (c) text-to-speech, and (d) symbol-supported text.

Low-Tech Reading Tools

A number of low-tech tools are available to assist students with mild disabilities with reading. For example, students who experience difficulties with tracking may benefit from a line guide provided by a simple index card or
a commercially made reading ruler. Magnification devices enable print size to be increased, thus facilitating the reading process for those students requiring larger print. Finally, tools such as color acetate overlays may adjust the contrast in which the text is presented allowing students to better access the print.

**Audible Text**

Audible text conveys printed text in an auditory form. Audible text supports reading by supplementing the text with the opportunity to ‘read along’ or by supplanting the printed version completely, thereby allowing the student to capitalize on existing auditory comprehension strengths. In either case, audible text has been found to increase overall comprehension of text (Sudzina & Foreman, 1990). Books on tape can be accessed from Recordings for the Blind and Dyslexic® (RFB&D, http://www.rfbd.org/) and the National Library Service for the Blind and Physically Handicapped (NLS, http://www.loc.gov/nls/) in the Library of Congress. Taped textbooks are available from RFB&D, while taped leisure-reading books and magazines can be obtained from NLS. Taped books from these sources are available on loan and must be played on specially designed tape-recorders that also can be borrowed. Many trade books and school publications are now also being published in an auditory format either on tape or CD. Furthermore, services like Audible.com® (http://www.audible.com) provides entire books in auditory form that can be downloaded from the Internet and then played on a computer, transferred to an MP3 player, or even burned to CD and played on any radio having a CD player.

**Text-to-Speech**

Text-to-speech (TTS) may be considered a subcategory of audible text. These applications are computer software programs that generate synthesized speech based on digital text that may (a) assist students in better attending to the text presented (Hecker, Burns, Elkind, Elkind, & Katz, 2002), and (b) have a positive impact on comprehension (Scrase, 1997). The features associated with TTS applications are widely varied. One example of TTS is ReadPlease (http://www.readplease.com), a free application that will read any text that is pasted into the application by the student. Font size, the rate at which the text is read, and the voice that is used to read the text is all user-controlled.

Other TTS applications allow a student to scan printed text and then have the text displayed on the computer screen accompanied with synthesized speech output from the computer. The process by which this conversion from printed text to digital text occurs is called Optical Character Recognition (OCR). Examples of TTS applications that integrate OCR into their system include (a) WYNN™ (http://www.freedomscientific.com/WYNN/index.asp), (b) Kurzweil, 3000 for Windows® (http://www.kurzweiledu.com/products_k3000win.asp), and (c) Text Help! Read and Write Gold (http://www.texthelp.com).

Other TTS applications, such as Text Aloud (www.nextup.com) allow a student to convert digital text into a portable MP3 file that reads the text using synthesized speech. Finally, some TTS applications can be found on dedicated devices, or those designed for a specific purpose. Such is the case of the Reading Pen II and Quicktionary Pen marketed by Wizcom Technologies Ltd. (http://www.wizcom.com). Both of these devices are hand-held scanners that will read back one or more words scanned into them. The Quicktionary pen also has the added feature of accessing dictionary definitions that may also be read back to the student.

**Symbol-Supported Text**

Use of pictures to support the decoding of text has been applied to assist students in the reading process. A few technologies on the market support this process for students with mild disabilities. For example, BoardMaker (http://www.mayer-johnson.com) is a software program having an extensive searchable library of symbols paired with text. Symbol-text pairs can be positioned together to create sentences. Writing with Symbols 2000™ (http://www.mayer-johnson.com) is a symbol word processor that allows a person to type and automatically have symbols appear either above or below the words that are typed.
Finally, Slater Software, Inc. distributes PixWriter (http://www.slatersoftware.com) that allows text to be parsed with symbols creating strings of symbol-supported text.

Cool Tools that May Assist in Math

Tools to support students with mild disabilities in the area of mathematics may be the most underdeveloped set of toolkit technologies that have been given consideration by special education professionals (Wojcik, 2004). However, experiences of the authors have shown that there are several tools that may support students with mild disabilities effectively in the areas of (a) electronic worksheets, (b) electronic measuring tools, and (c) calculators. Each of these is described in the following section.

Electronic Worksheets

Electronic worksheets allow students to engage in mathematical processes in a computer based virtual environment. For example, Intellitools® distributes Mathpad™ (http://www.intellitools.com), a software program that allows students to set up and solve various mathematical algorithms (e.g., addition and subtraction) within a computer-based workspace. This workspace promotes alignment of columns appropriately, as well as making notations for operations like ‘carrying over’ and ‘regrouping’.

Inspiration® Software, Inc., markets Inspiration® and Kidspiration® (http://www.inspiration.com) that allow students to use a virtual environment to manipulate objects on screen to solve math problems. Finally, software applications like Intellimathics® (http://www.intellitools.com) also allow students to move manipulate virtual objects, but also allow the virtual environment to provide feedback, e.g., summation and feedback on various attributes of the manipulatives.

Electronic Measuring Tools

Some students with mild disabilities may have difficulty using traditional measuring tools because of the way the measuring tools are read. Small measuring marks and small numbers may be difficult to perceive and/or interpret correctly. Within the past decade, a number of tools have been developed, many available through local hardware stores, to assist in this process. For example, tape measures with digital read outs allow students to measure items just as they would with a typical tape measure. However, instead of reading the measurement on the actual tape part of the device, a digital read out provides the measurement. The display can often be toggled to show different units (inches vs. feet) or different measurement systems (British vs. Metric). Some measuring devices employ a laser to gauge the distance between the device and a specific object or location. In addition, there are number of these devices that have speech output as well as digital output.

Calculators

Calculators are perhaps the most common mathematical technology tools used in the classroom. However, a range of calculator options must be considered before choosing an appropriate calculator for a student with mild disabilities. Standard calculators offer support in mathematical computation, and vary both in shape and size while offering a variety of display options.

Talking calculators provide speech feedback with relation to the keys pressed and the final answer provided. Some talking calculators provide answers as they would be read. For example, the number ‘101’ would be read as ‘one hundred one.’ Other calculators read answers as a string of individual digits where ‘101’ would be read as ‘one zero one.’ Some students with mild disabilities may benefit more from one of these styles over the other.

Specialized calculators have limited scope of performance but are designed to assist with particular mathematical tasks. For example, the Attainment Company, Inc. (http://www.attainmentcompany.com/) has developed the Coin-u-Lator that is designed with realistic looking buttons corresponding to quarters, dimes, nickels, and pennies. By sliding a switch and pressing the appropriate buttons, students are able to either add or subtract monetary values.

Finally, there are a number of software-based calculators having other unique features that would be helpful for students.
with mild disabilities. The calculator collection from Edmark software (http://www.riverdeep.com) has features that allow students to retrieve information about numbers such as whether a number is prime or composite, odd or even, and its factors and multiples. It also allows for graphic displays of fractions and currency. The algebra calculator, also from Edmark software, allows students to (a) enter an algebraic expression with a single variable, (b) enter a value for the variable, and (c) evaluate the expression using the entered value. The algebra calculator also shows all of the steps necessary to evaluate the expression.

Cool Tools that May Assist in Memory and Organization

Memory and organization often pose difficulties for students with mild disabilities (Behrmann & Jerome, 2002; Edyburn, 2000). Particular problems encountered in this area may be grouped in three main categories: (a) physical organization, (b) procedural organization, and (c) temporal organization (Wojcik, 2004). Physical organization refers to a system of organization used by the student. This system may include such low-tech tools as manila folders, binders, slotted pouches, and other like items. Procedural organization refers to actually using one’s organization system. This might include such actions as immediately placing homework assignments into folders corresponding to relevant academic subject areas so that it could easily be retrieved on returning home. Temporal organization refers to organizing oneself in relation to time. This would include being able to prioritize tasks in such a way that each task is completed by the time they are due.

In looking at technology tools for organization, there are many low-tech solutions, such as materials commonly available at local office supply stores (e.g., folders, binders, filing systems, labeling systems, etc.). However, there are also a variety of powerful higher technology tools that can assist students with mild disabilities, including (a) electronic organizational tools, (b) Web organizational resources, and (c) hand-held tools. Each of these is discussed in the following sections.

Electronic Organizational Tools

Electronic organizational tools include set of devices that assist in one or more aspects of organization. Tools such as the StepPad (http://www.attainmentcompany.com/) or the Step by Step (www.ablenet.com) allow voiced messages to be recorded in a sequence. The voiced messages are played back in the same sequence in which they were recorded. This can be very helpful for students who have difficulty remembering a sequence of steps for a given task. Other devices like the TimePad (www.attainmentinc.com) allow voiced messages to be recorded and delivered back at a specific time which can be helpful for student who need reminders at specific times throughout the day. Simple tape recorders or digital voice recorders can aid a student by allowing recording of reminders for an audio ‘to do list’.

Web Organizational Resources

There are a number of personal information management systems on the World Wide Web that can be assistance to students with mild disabilities (Edyburn, 2000). One such tool is MyYahoo!® (http://www.yahoo.com). Although not a unique service as similar services exist from MSN, there are features existent in these services that may be very helpful. For example, MyYahoo!® provides an online calendar. This calendar can be accessed from any location with Internet access. It also generates a daily event list that can be accessed on the web and/or by email and may be printed for access away from the Internet. The calendar function may help students organize assignments and other events. MyYahoo!® also provides a briefcase function that allows students to upload and store files. This feature provides a way for students to have a ‘virtual backpack’ allowing them to access and download files on which they are working. Again, these files can be accessed from any place in which internet access is available.

Handheld Devices

Handheld devices provide a portable way of storing and retrieving vast amounts of information. Most handheld devices, regardless of
operating system, automatically come outfitted with basic personal information management applications like a date book, contact list, and notetaker. These applications often require individuals to be able to input the information and then read it at a later time when the individual need to retrieve the information. This can cause some issues for some students who have difficulties for written expression or reading. However, some companies like AbleLink Technologies (http://www.ablelinktech.com) have developed applications that can assist individuals by creating picture and speech-based reminders. These reminders may take the form of a step-by-step task list, or may be a time delivered message that combines picture, text and speech cues. These applications have been found helpful in assisting individuals with disabilities in completing tasks and managing events in their lives (Davies, Stock, & Wehmeyer, 2002a, 2002b).

Cool Technologies That are Up and Coming

While many technologies already exist that may assist students with mild disabilities, there are many new technologies being developed daily. Not surprisingly, many of these technologies involve the Internet or some other form of networking. Four technologies that are important to note as holding great potential for students with mild disabilities include (a) blogs, (b) Wikis, (c) Webcollaborator, and (d) RSS Site Summary.

Blogs

Abbreviated from the term ‘web logs’, a blog is defined as “a frequent, chronological publication of personal thoughts and Web links” (Blog definition, 2004). Blogs allow students to post textual content to a public space, and are hosted by a number of services such as Bloglines (http://www.bloglines.com) or Blogger (http://www.blogger.com). Any post to a blog by a student can have the option to have comments posted related to the student’s post. This can be helpful in a number of ways. A blog can serve as a (a) common place for questions and answers, (b) way to do dialogue journals, or (c) way to collect and aggregate information when doing research. Since the blog is on the Web, it can be accessed and modified from any location having Internet access.

Wikis

Another powerful emerging technology that holds great promise for students with mild disabilities are Wikis. A Wiki is “a piece of server software that allows users to freely create and edit Web page content using any Web browser” (What is Wiki, 2002). Since Wikis are collaboratively built live web pages (see e.g., Wikipedia, http://www.wikipedia.com, an online collaboratively built encyclopedia), they may be especially helpful in assisting students with mild disabilities complete a collaborative writing project in which peers and the teacher can provide feedback.

WebCollaborator

WebCollaborator (www.webcollaborator.com) is a free technology that uses a Wiki as its core that (a) coordinates collaborations automatically, (b) keeps backups of every revision ever made to a project, (c) allows users to see who made changes to a collaboratively created project, and (d) allows users to privatize their collaborative space by only letting permitted individuals access the document. WebCollaborator automatically saves the changes in separate version files that can be accessed at any time. Again, this provides a common space for students and teachers to discuss and revise writing. This can also be an interactive place for teachers and students to communicate for a dynamic ‘to do’ list. Literally, the possibilities for classroom applications are constrained only by one’s imagination.

RSS Site Summary

RSS (RDF Site Summary; formerly called Rich Site Summary) is defined as a method of describing news and other Web content that is available distribution or syndication from an online publisher to Web users (RSS, 2001-2004). More generally, RSS stands for “really simple syndication,” and provides a means for Websites desiring to ‘publish’ some of its content (e.g., news headlines or stories, discussion forum excerpts, software announcements,
and any form of content retrievable with a URL) by simply creating a description of the content and specifically where the content is on its site in the form of an RSS document. The publishing site then registers its RSS document with one of several existing directories of RSS publishers. A user with a Web browser or a special program that can read RSS-distributed content can read periodically-provided distributions (RSS).

Many websites are now publishing RSS feeds which are XML based information lists that are updated as the website is updated. An RSS reader interprets and displays the RSS feed allowing the student to view a condensed list of topic specific information that is recent in nature. Since the information is already compiled in one place, this reduces the amount of text a student would need to sift through on a given topic. Since RSS feeds, by their nature, are updated as new content are added and are, therefore, always presenting new information, some RSS feeders will aggregate new postings over a period of a few days and others will only show the RSS feed that is current for the website.

Conclusion

Advances in technology and decreases in general cost to consumers will insure that such supportive and cool technologies as discussed above will continue to emerge. These will add to and change the potential of our ‘toolkit’ to benefit students with learning and academic disabilities. But potential will be realized only if certain key issues are addressed. First and foremost, research examining the educational outcomes of technology use is needed to confirm the educational benefit suggested by the initial studies. Designs which permit the direct measurement of technology-enabled versus non-technology enabled educational outcomes (Smith, 2000) on (a) curriculum-based measures (Center for Applied Special Technology, 2002; Hall & Mengel, 2003); (b) classroom performance (e.g., work completion, homework submission, quantity of work); (c) classroom-based evaluation (e.g., exams, writing samples, reports, projects); and (d) performance on standards-based district and state educational progress assessments.

In parallel with educational outcomes, the preferences of Millennial generation students for these existing and emergent technologies must also be determined. At the elementary school level, it might be assumed that functionality and improved educational performance would trump cool and, further, that as students approach adolescence cool trumps function, but it is unknown at this point when cosmesis, the self-perceived acceptability to others (King, 1999), actually influences the acceptance, rejection or abandonment of beneficial technologies.

Interacting with students’ perceptions of the acceptability of using the technology may be the visibility (King, 1999) of the technology, i.e., the obviousness of its use as a disability-related product. Audio text delivered via the same MP3 player used by peers to listen to their music would be virtually invisible; recordings for the blind accessed through variable speed tape recorders would be highly visible. The portable keyboarding device, while effective and efficient for reducing the demands of handwriting may be rejected or abandoned by the pre- or early adolescent because it is visible and perceived to be unacceptable only to become acceptable again later. Only longitudinal research into patterns of rejection and abandonment (and perhaps later ‘reinstatement’) can address these speculative developmental concerns.

To realize the potential of cool technology, the adults who educate these students must also embrace and use them. As a start, the use of such technologies as presented here must be permissible and acceptable to both special education and general education teachers, and, it is already known that there are differences in the way that adaptations and accommodations are deemed permissible and acceptable (Scott, Vitale, & Masten, 1998). Two factors that may affect such decisions are the familiarity of the teacher with technology and the perceived role of the technology. Research is needed that will clarify the role familiarity and general competence with technology has upon acceptance and permissibility; such research, should examine the generational influences among younger and older teachers.

As the boundaries between assistive and educational technology become blurred, another permissibility issue that is emerging is
the role of technology. Instructional or remedial technologies are those that are used to develop skills among students, while compensatory technologies are those that produce enhancement of function possible over the life span (Edyburn, 2002). While it might be speculated that at the elementary grade levels, and possibly up into early middle school, that technologies for writing, reading and math, are acceptable and permissible because they are seen as more clearly having an instructional or remedial role, the status of such technologies for compensatory use at the secondary level are not yet known. Thus, the potential for educational benefit may be lost if the use of the technology is discouraged or rejected in or outside of the resource room as being an “unfair advantage” to the student with learning or academic disabilities.

We feel that the cool technologies discussed herein hold great potential to contribute to the optimal academic success for many students with mild disabilities in classroom settings nationwide. However, much remains to be done by both practitioners and researchers to fully understand the roles of newly emerging technologies in academic settings, as well as the outcomes of their implementation.

References


