
Perspectives

The Nature and Future of Literacy: Point and Counterpoint

Phil Hatlen and Susan Jay Spungin

[Editor's note: In keeping with a long-held tradition of the *Journal of Visual Impairment & Blindness* to highlight critical issues and offer readers commentary and discussions stemming from conferences and special events, this Perspectives column was developed from the remarks offered by Drs. Hatlen and Spungin at the Showcase Session of the last biennial Getting in Touch with Literacy Conference, which was held November 29–December 2, 2007, in St. Pete Beach, Florida. The opening introduction that follows and the conclusion was authored by Dr. Spungin.]

INTRODUCTION—SUSAN SPUNGIN

Literacy represents information and education, the currency of the future. All of us recognize that being able to manage and manipulate information is vital to our economic success, as well as to our dignity and perceived self-worth. It is therefore important that whatever educational system we have, we ensure that there is choice in learning and in access to information now and in the future.

Braille has become a symbol of much more than literacy; it is a symbol of the freedom to reach one's potential as an equal, contributing member of society, which is the right of all people. According to the National Adult Literacy Survey, of the National Right to Read Foundation, 42 million Americans cannot read, and 50 million are limited to fourth- and fifth-grade reading levels. One out of 4 teenagers drops out of high school, and of those who graduate, 1 out of every 4 has the equivalent of or less than an eighth-grade education. The number of functionally illiterate adults increases by 2.25 million each year.

More than half the Fortune 500 companies have become educators of last resort by providing reading and writing courses for their staff members, which has cost them more than \$300 million a year. The cost of welfare programs and unemployment compensation because of illiteracy is \$6 billion.

The English language consists of half a million words, 300 of which we use regularly, three-quarters of the time. The total population of the United States is 262 million. Most schools use a blend of two reading approaches: whole language or look and say and a systematic phonics-first approach. A study conducted by the American Foundation for the Blind indicated that of the 32% of people who are visually impaired (that is, are blind or have low vision) who have held jobs, 90% are braille literate (Kirchner, Johnson, & Harkins, 1997).

Demographic characteristics of people who are visually impaired

At present, there are more than 10 million people who are visually impaired and 1.3 million who are legally blind in the United States. This number is presently under debate, with some contending that it is as high as 20 million when people with refractive errors or who wear corrected lenses are taken into account. Of the total number of visually impaired individuals, 1 million are aged 65 and older. There are approximately 93,600 visually impaired or blind students, of whom 10,800 are deaf-blind and enrolled in special education programs. Children who use braille number 5,500, and adults who use braille number 80,000.

Both the American Council of the Blind and the National Federation of the Blind have advocated teaching braille to students with low vision on the grounds that reading large print is often slow and difficult and results in lower literacy rates, problems with eye strain, and limited employment options. In many states, this advocacy has

resulted in the passage of “braille bills,” which mandate that braille be taught by certified professionals to students who are “functionally blind.” These bills also require that electronic versions of textbooks be made available that can be converted into braille. Many of the bills also require teachers of students who are visually impaired to demonstrate competence in braille.

However, many factors need to be considered when determining the appropriate reading medium for a particular student who is visually impaired. Among these factors are reading speed, preferred reading distance and print size, length of time before the child tires, stability of the eye condition, portability of the skill, and academic achievement.

WHAT IS LITERACY?

Point—Phil Hatlen

I raised some eyebrows in Vancouver at the Getting in Touch with Literacy Conference four years ago when I urged my colleagues to consider a more liberal definition of literacy. I stated that if the only attributes of literacy are the ability to read and write print or braille, then two-thirds of the students at the Texas School for the Blind and Visually Impaired (TSBVI) would be classified as illiterate. I cannot accept that assumption for two reasons. First, every child at TSBVI is provided a means by which to communicate with others, and that, to me, is literacy. Second, the word *illiterate* is a dirty word in our culture. A highly respected colleague suggested that these students should be defined as “preliterate.” I cannot accept that suggestion because it implies that eventually these children will either read print or braille, but most of them will not.

Now, I am willing to consider the possibility that there are two levels of literacy—literacy and functional literacy. However, I have been told recently that the term *functional literacy* is already used to refer to the use of print and braille for such activities

as reading addresses, telephone numbers, labels, and recipes. So where does this leave the child who has cognitive challenges and is “literate” through the use of tactile symbols and a calendar box? Is that child illiterate?

Counterpoint—Susan Jay Spungin

Literacy is the ability to comprehend, duplicate, and access information by writing and reading. For most people, it is the ability to recognize and create visual symbols that represent words. However, for those who are blind, this definition is not a good fit. For the reading aspect of literacy, I would suggest a definition that is broader than the processing of visual symbols. In the end, the purpose of reading is to be able to comprehend what someone else has written. Thus, reading could be defined better as the recognition, interpretation, and assimilation of the ideas that are represented by symbolic material, whether it is displayed visually, tactilely, or aurally (Tuttle, 1996).

Many believe that literacy can be achieved in many ways: through the use of regular print, enhanced or large print, optical hand-held devices with regular print, braille (refreshable or hard copy), assistive technology, and listening, an aural means. Some think that illiteracy is an incurable disease or educational malpractice. It is certainly a negative stereotype, and I hope that we will know on which side of the aisle we sit and move forward.

The problem with the word *illiterate* is that it carries with it such a negative stereotype. A colleague, Diane Wormsley, suggested the use of the word *preliterate*. I like that term, since it connotes the potential for learning, and, as educators, that is what we are all about.

IS LISTENING READING?

Point—Phil Hatlen

By the time that cognitively intact braille-reading students reach the 10th or 11th grade,

they will be using recorded materials or live readers for half or more of their reading assignments. Do we simply dismiss this use of reading by listening as not literacy? Most people who are blind would laugh at that assumption. The main sources on this topic in the literature of which I am aware were Dean Tuttle's 1996 "Is Listening Literacy?" essay and Emerson Foulke's series entitled "Reading by Listening," which appeared in the early 1970s in *Education of the Visually Handicapped*. Both authors are blind and both strongly support reading by listening. Sometimes I feel as though we sighted people make decisions for blind people that we have no right to make.

Counterpoint—Susan Jay Spungin

If we refer to someone reading a recorded book, disc, or flash card as literate, we are hindering the cause for literacy more than we are promoting it. By listening to audio, one is accessing information, not reading it. Writing is placing information in an accessible and permanent medium. Listening is a totally different skill. Listening opens up a world of information, but it is not literacy.

I want to stress an important point: Individuals who rely heavily on the auditory mode to meet their literacy needs find that they must, sooner or later, use additional modalities, such as braille, for some tasks. If I had to pick one system that would best serve as many of my literacy needs as possible, I would pick braille. Fortunately, I am not required to pick a single medium for reading and writing. In reality, most individuals who are blind use multiple modalities and tailor the medium to the demand of the literacy task they are undertaking.

Although Phil Hatlen has changed his mind since he wrote the following words, at the time of the writing he did an excellent job of summarizing why listening is not equivalent to being literate:

There are two important reasons why listening is not literacy. First, to say that a person who reads through listening is literate would require a change in the operational definition of literacy. Sighted persons who cannot read print are considered illiterate. Such persons may have exceptional skills in reading by listening, but these skills are not a part of the traditional definition of being literate. Second, the definition of literacy involves the ability to both read and write. There is no assurance that persons who claim to have achieved literacy through listening can write at all. (Hatlen, 1996, p. 175).

Listening is also slow, regardless of words-per-minute rates. The average sustained listening rate for children with visual impairments is 175 words per minute, and the reading rate in braille is, on average, 80 to 100 words per minute. The average sighted reader in this competitive world of ours, although reading at the fourth-grade level can read up to 350–400 words per minute, so neither listening nor reading braille will ever be competitive.

Observations about reading by listening include the fact that listeners receive information in serial form, which presents great difficulty for preview and review. One also needs to recognize the passive nature of listening, in contrast to the active nature of reading in print or in braille.

The impact of technology on literacy

POINT—PHIL HATLEN

I have usually been the first to state that although technology has opened countless opportunities for blind and visually impaired students, it will not take the place of a competent, creative teacher sitting next to a student who is blind, introducing him or her to the wonders of braille. But the Outreach

Department at TSBVI conducted a study on the effects of the Mountbatten Braille on beginning reading, and the results led me to rethink my attitude toward technology and literacy (Cooper & Nichols, 2007). The study found that there was no question that the Mountbatten Braille had a positive impact on beginning reading.

Then I read a “lesson plan” for using the BrailleNote as a tool for teaching braille reading, and I was impressed. The lesson plan was developed at the Iowa Braille and Sightsaving School, and it clearly illustrates the potential for a personal digital assistant to have a positive impact on literacy.

The moral of these experiences, for me, is that we have barely scratched the surface of what technology can add to the learning of literacy, whether it is literacy or functional literacy, and the future is bright (consider what Intellitools have done to help students achieve functional literacy.)

COUNTERPOINT—SUSAN JAY SPUNGIN

The following extract from a 2006 *Arizona Republic* article, for which the author interviewed various individuals representing consumer organizations, underscores the role of technology in the acquisition of information and literacy of people who are blind:

The reduction in braille literacy has been mollified by the fact that there are now more ways than ever for people who are blind to acquire information. Much of the world is moving away from words on a page and toward electronic-digital information. The proliferation of books on tape means that people who are blind no longer have to wait to “read” the latest best-seller. Talking computers have brought people who are blind to the world, and the world to them.

These advances have placed a generation of young adults and children who

are blind in an information paradox: They have more knowledge at their disposal, while their ability to read and write declines. (Faherty, 2006).

In addition, writing on the role of technology in early braille literacy by Tim Connell, an assistive technology manufacturer, questions the use of the Perkins Braille in modern classrooms of industrialized countries:

. . . There are very few school districts in developed countries that would present their sighted students with 50-year-old technology as the primary tool and foundation stone for developing their literacy skills. Yet we do this to blind students every day.

There is a need for a fundamental shift in the way we formulate our technology policies that reflects the literacy task, or the outcome needed by the student. We need to define outcomes in terms of basic literacy skills, but also in terms of the functional skills needed in a digital world. . . .

When we use older mechanical braille writing devices for early braille literacy, we are telling the blind student that braille is a separate and somehow less exciting experience. . . . The experience of first learning braille needs to be a stimulating and exciting experience. It also needs to be an integral part of learning the technology skills that they will need throughout life. (2002).

Mr. Connell goes on to offer his perspective on the three barriers to innovation in braille writing: attitudes of teachers, an underfunded personnel preparation system, and the lack of appreciation of the fact that the “free” Perkins Braille provided to students who are blind through federal quotas really are not free.

LOW VISION AND THE ROLE OF LARGE PRINT IN LITERACY

Point—Phil Hatlen

All of us have heard the rationale for weighing the benefits of large print versus optical devices before we decide what a child with low vision will use to access print. I recently spoke with a number of teachers of students with visual impairments about children with low vision. In no case did I hear a teacher or an orientation and mobility instructor say anything about the use of optical devices. We are a profession that is so entrenched in the provision of large print to students with low vision that we do not even listen to those in our ranks who say, "Wait, shouldn't you give optical devices a try before you settle on large print?" I have been away from teaching children for many years, so I cannot speak from recent experience on this topic, but I must say that the rationale for using optical devices is compelling since, as low vision students progress through the grades, large-print books, because they are large, become more and more stigmatizing for these students. I have heard many stories about high school-aged low vision students refusing to take large-print books to regular classrooms. In addition, the dearth of large-print books for recreational reading speaks in favor of optical devices. When appropriately prescribed, optical devices have the capacity to make most print accessible to low vision students. Perhaps it is not a matter of either/or, but assisting students in the use of both large print book as well as optical devices.

I have a good friend who was the director of a postsecondary living-skills program for many years. Several times he told me that young adults who were braille readers used their skill to do recreational reading, but that young people who were large-print readers seldom, if ever, read recreationally.

Counterpoint—Susan Jay Spungin

There has been little scientific research in this area with the exception of a *Journal of Visual Impairment & Blindness* article written by Anne L. Corn, Robert S. Wall, Randall T. Jose, Jennifer K. Bell, Karen Wilcox, and Ana Perez (2002). The general outcomes of this important study were that initial reading speeds across grade levels show the points at which children with low vision are at risk of developing into students with low literacy skills. However, the children in the study who received optical devices increased their silent reading speeds and comprehension rates. The findings revealed that optical devices are beneficial for deciphering text but not for learning the mechanics of reading.

First and foremost, all children who are visually impaired should receive learning media assessments, but they are not. Teachers of students with visual impairments need training and support not only to become proficient in various braille codes, but so they can refer more students for low vision evaluations. The print size needed by a particular student must be based on objective data and reading rates, and comprehension must be based on objective data. Determinations of the foregoing study determined that oral reading does *not* demonstrate levels of reading and those relating to comprehension skills and that the main effect of using optical devices is not in the mechanics, but in the ability to decipher text. Training in the use of optical devices is needed in the education of children who can benefit from them.

This issue is so critical to students with low vision that it requires national attention to the same extent that the lack of braille literacy has enjoyed. Teachers, parents, and people with low vision themselves need to lead more research studies to answer the question of the role of large print in literacy. Most often, the findings will show that large print is needed to learn to read and that once a child with low vision learns to read, optical devices should

be introduced. Training programs for teachers at both the preservice and in-service levels to determine whether print or braille should be used is one of the most important requirements for learning how to educate children with low vision. Unfortunately, large print continues to be misused for children with visual field losses and prevents others from learning braille. Defining the issues in this area is critical and needs much research.

I believe that the issue of large print and its appropriate use is one of the most important considerations for determining how to educate children with low vision. The American Printing House for the Blind should, and I understand will, take the lead in this area.

THE UNIFIED ENGLISH BRAILLE CODE AND ITS FUTURE

Point—Phil Hatlen

I am not up-to-date on this topic. I know the Unified English Braille Code (UEBC) is in use in other countries, but thus far there has been little movement toward adopting the code in the United States. My source on this topic was the late Emerson Foulke, who was a cautious advocate for the adoption of UEBC. My impression is that many adult braille readers do not like the concept of UEBC, and while that attitude prevails, UEBC probably will not go far in the United States. This is not to say that we do not need changes in the Nemeth Code for Mathematics and Science Notation.

Counterpoint—Susan Jay Spungin

Initiated in 1992 by the Braille Authority of North America (BANA), for countries that were English speaking, UEBC combines three official codes: literary braille, mathematics and scientific notation, and computer braille. In 1993, the UEBC project expanded and adopted the International Council for English Braille to unify all English-speaking

codes in the United States, Britain, Australia, South Africa, Canada, New Zealand, and Nigeria. Presently the only braille code that is universally accepted is the music code. Although UEBC is controversial, it is being implemented in Australia and several other English-speaking countries. I hope that the UEBC issue is not seen as the 21st century's "war of the dots"!

BRAILLE OR PRINT?

Point—Phil Hatlen

After some years of uncertainty on the issue of providing braille or print to visually impaired students, it seems to me that we have at least come to some conclusions. We will not call reading 20 words per minute on a closed-circuit television literacy. We will not condone teaching children in 42-point print. We will reach out, even to children in rural areas, so that children who will be better readers with braille will receive appropriate instruction. By "appropriate instruction" I mean more than one hour a week from an itinerant teacher of students with visual impairments.

We will also not teach every child who is "legally blind" braille. We will carefully analyze each child's etiology and prognosis and the stability of his or her vision. For all children who are "borderline," we will require a learning media assessment. We will then make a decision among print, braille, or print and braille.

Counterpoint—Susan Jay Spungin

I agree with Phil on this issue and believe that our field has made great progress with respect to braille and its meaning for the literacy of those children who are blind who need it. The field has shifted to the belief that braille should be treated not as a second choice to print, but as equal to print for those who need to be both independent and literate in society.

NEUROSCIENCE AND THE IMPACT OF BRAIN PLASTICITY

Point—Phil Hatlen

This issue was not in the original outline Susan and I developed for this talk, but it is fascinating, especially with respect to the function of the visual cortex in handling tactile and auditory information. Maybe, after his death, we will find that Paul Bachy-Rita and his theory on sensory substitution systems was right all along.

Counterpoint—Susan Jay Spungin

It is now known that the brain can make new connections, which has implication for braille reading, tactile perception, auditory perception, and instruction in general for people who are blind. The brain can reorganize and, in effect, rewire for learning when damage to a specific area of the brain occurs. Much new and exciting research and discussion in this area concern the largest preschool population of visually impaired children in the United States—those with cortical (or cerebral) visual impairment—and the many soldiers with brain injuries who are returning from the wars in Iraq and Afghanistan. The concept of having only an early window of opportunity for rehabilitation to improve the progress of children and adults with brain injuries has been called into serious question, leaving all of us pondering the wonder of this organ's reparative ability.

CONCLUSION

During the last 20 years of the 20th century, students who are visually impaired were introduced to one specialized piece of technology after another. The earliest devices had robotic voices that provided screen-reading features and feedback about data entered on braille keyboards or QWERTY keyboards. Next, one refreshable cell and multiple dynamic braille displays appeared on the scene. For the first time, braille users could access

written text independently. Synthetic speech, braille displays, computer interface options, and software programs have steadily improved since then. The advantages of adapted technology for people who are blind have been enjoyed primarily by individuals who are able to learn easily and execute complex commands.

The future is now, and the advantages for all of us are unimaginable, but without the ability to access and convey information, many will be left in the past. This is why discussions like this one must continue, but with greater input from blind consumers who are truly the only ones who can control, with some help from professionals, the future of literacy for people who are visually impaired in the 21st century.

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