

10-24-2008

# Using *Clicker 5* to Enhance Emergent Literacy in Young Learners

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### ABSTRACT

Best practices in emergent literacy instruction for young children acknowledge and facilitate the smooth progression between children's early engagement with print materials and subsequent fuller literacy mastery. In so doing, model programs target five key emergent literacy skills. The rapid rise in the breadth and depth of educational technology, including computer software, is offering early childhood education professionals new and powerful tools in teaching early literacy. This paper offers a brief review of best practices in emergent literacy, notes the growth of technology in this instruction, and examines the potential contributions of one specific software program, *Clicker 5*, in helping diverse emergent literacy learners acquire and practice initial reading and writing skills.

Over the past several decades professional interest in the development of emergent literacy skills in young children has grown markedly. The concept of emergent literacy emerged in the 1960s, and referred to the behaviors used by young children as they interacted with books and print materials, even prior to the children actually reading and writing in the conventional sense (e.g., Teale & Sulzby, 1986). Whereas the earlier concept of “reading readiness” suggested that there was a discrete maturational point in time when children were ready to learn to read and write, emergent literacy instead proposed that there was a smooth and continuous progression in children's literacy development between the early behaviors children displayed when interacting with print materials, and those displayed later once children could read independently.

The growing adoption of this philosophy has significant implications for early childhood educators, including those working with atypical young learners (e.g., those with disabilities or who are at risk). Rather than waiting for some sort of ‘readiness’ to emerge in young learners before considering reading instruction, contemporary early childhood professionals instead seek to provide experiences along a literacy continuum, planning structuring student interactions with text and pictures from an early point. It is these experiences that form the foundation for subsequent reading skills.

Contemporary understanding of emergent literacy incorporates several fundamental concepts about reading and writing skills with significant implications for educators. First, the skills of reading and writing develop both concurrently and interrelatedly in young children, rather than sequentially (e.g., Teale & Sulzby, 1986). Given this, effective emergent literacy instruction should seek to integrate reading and writing. Second, emergent literacy development is facilitated by experiences that permit and promote meaningful interaction with oral and written language (Morrow, 1993; National Reading Panel, 2000; Sulzby & Teale, 1991; Teale, 1982).

In addition, best practices in emergent literacy instruction in early childhood settings includes practices that support skill development in *five key emergent literacy areas*: phonemic awareness, word recognition, concepts about print, alphabetic principle, and comprehension. (See Table 1 for additional details on these key skills.) Effective emergent literacy programs seek to incorporate these concepts and practices.

### ***Atypical Young Learners and the Role of Computer Software***

When compared to typical learners, young children who are at-risk or have disabilities may require more intensive interventions to acquire emergent literacy skills (Cook, Klein, & Tessier, 2004; Katims, 1991; Lerner, Lowenthal, & Egan, 2003; Phillips, Clancy-Menchetti, & Lonigan, 2008). For a variety of reasons, computer based emergent literacy activities may be especially effective with these challenged learners. Literacy activities on the computer may be more accessible to these students, as new print displays can be accessed with a simple push of one computer key or button, rather than page turning. The text can have certain features highlighted on the computer screen (e.g., targeted words may blink or change colors) in ways that are not possible with traditional text.

In addition, computer presentation of literacy materials can offer enhanced interactive features for students with attention issues, including reading the material out loud for the student (e.g., Pierce, n.d.). In short, a small but growing evidence base supports the use of a computer-based technologies to enhance the development of emergent literacy skills, especially in young learners with disabilities or who are at risk (cf. Campbell, Milbourne, Dugan, & Wilcox, 2006; Dugan, Milbourne, Campbell, & Wilcox, 2004; Floyd, Jeffs, & Judge, in press; Judge, 2006).

### ***Grid Writing and Emergent Literacy***

As noted previously, emergent literacy emphasizes the interrelatedness of reading and writing with both processes acquired concurrently. However, the process of writing places a variety of unique demands on the beginning writer, including the difficult task of generating potential inherent word choice possibilities at

every step, and then selecting one of those possibilities. When faced with these demands, too often emergent literacy learners find their progress inhibited.

To minimize these issue, many software writing programs can present preselected writing element choice options (either printed words or even pictures) in a grid format. For purposes of this paper, we will define 'grid writing' as a 'software application that systematically visually or audibly presents groups of words or iconic symbols in a sequential manner on a computer screen from which students make writing choices.'

The writer then chooses 'words' by clicking on the individual words or pictures from a screen that contains a limited number of word (or picture) possibilities (the 'grid') that best say what the writer wishes to communicate. The ease of writing by selecting from a limited number of possible words enhances writing ease and fluency.

### **Clicker 5: An Important Grid Writing Tool to Support Emergent Literacy**

One grid writing program rapidly gaining in popularity is *Clicker 5*, a writing support and multimedia tool designed by classroom teachers to support early literacy students, including those who are struggling with reading and writing and/or have disabilities. *Clicker 5* currently is being used in over 90% of schools in the United Kingdom, and rapidly is being adopted throughout the United States (Crick Software, Ltd., 2007). Worldwide, earlier versions of *Clicker* are being used in over 40,000 schools (Closing the Gap, 2005).

The basic *Clicker 5* screen is divided into a top half and a bottom half. The top half of the screen displays the 'Clicker Writer' word processor, with a screen that looks and functions much like the screen in any typical word processing program. The bottom half of the *Clicker 5* screen contains the 'Clicker Grid', a point-and-click writing scaffold with a number of individual 'cells' containing teacher-selected letters, pictures, words or phrases.

In order to 'write', the user simply clicks on the desired cells in Clicker's grid, sending the word(s) to the Clicker Writer. This allows the user to build simple sentences, in essence "writing" without having to independently generate the desired words, or even use the keyboard. The user may also click on associated pictures to illustrate words. The *Clicker 5* software can also be operated with simple switches as an alternative to keyboard input, so that even students with physical limitations that limit mouse and/or keyboard use can access and use the program. (See Figure 1.)

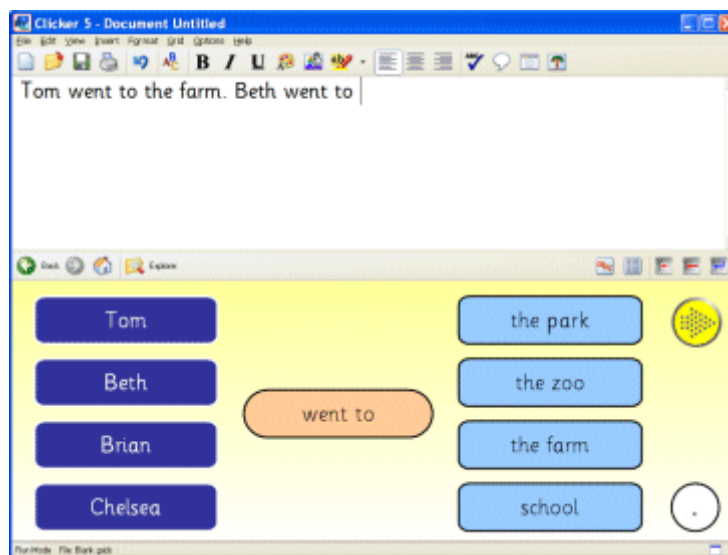


Figure 1. Clicker 5 screen showing the 'Clicker Writer' and 'Clicker Grid'.

*Clicker 5* can read aloud any text while visually highlighting each word when spoken so that students can follow along. This function allows students to (a) hear selected words spoken by realistic speech, and (b) hear the completed sentence(s) spoken back just as they were written. The provision of phonological and semantic cues facilitates the development of literacy skills in both typically developing children and children with specific language impairments (Gray, 2005).

*Clicker 5* also includes a 'talking books' function, in which complete illustrated stories (either teacher-developed or prepackaged) can be displayed, and even read aloud by the computer upon clicking a speaker icon. Students also are able to record their own voices for the text on each page to further enhance their engagement with the text. Teachers can also visually highlight important information within these books to facilitate comprehension (Crick Software, Ltd., 2007).

The research base for the efficacy of *Clicker 5* in emergent literacy instruction to date is limited. However, a number of completed reviews have strongly supported its use in school settings. For example, after examining *Clicker 5*, the ConnSENSE Bulletin (2005) concluded that it is a versatile program that can meet the individual needs of all students. Overall ConnSENSE gave the computer program a grade of "A+," and highly recommended it in both school and home settings. Additionally, in January 2007 the British Educational Suppliers Association (BESA) announced *Clicker 5* as a recipient of the prestigious BETT award for excellence in the "Special Educational Needs Solutions" category.

Certainly additional rigorous empirical research on the effectiveness of *Clicker 5* in facilitating the development of emergent literacy skills in typical and atypical young learners is needed. Nevertheless, the potential of this software to help young learners acquire literacy skills is clear. The remainder of this paper further how early childhood professionals can use *Clicker 5* to support each of the five key emergent literacy skills.

### ***Phonemic Awareness***

Phonemic awareness (the recognition of sounds) can be developed through associated specific sounds with pictures and/or words (e.g., Strasser & Seplocha, 2007). In *Clicker 5*, the Clicker Grid function can be used to have learners match pictures to their corresponding initial sounds and/or letters (Crick Software, Ltd., 2007). For example, a teacher initially might ask a student to choose one of several presented pictures on the *Clicker 5* screen (e.g., a tent, a bee, and the sun) that begins with the /s/ sound. As needed, the student might also click on a presented /s/ symbol to initiate the software's speech function to produce the /s/ sound as a cue. The student would then click on the picture of the sun, and then move on to the additional sets of pictures, symbols, and sounds.

#### ***Word Recognition***

*Clicker 5* can help build word recognition skills in young literacy learners by combining the visual presentation of a single written word with its aural counterpart via the program's speech feature. When presented with the written word, the student might first say the word, and then click on the word to hear it pronounced correctly. To further enhance student engagement with this instruction, teachers have had students prerecord their own (correct) pronunciation of targeted words, so that when the word is selected by a student, he or she hears his or her own voice correctly pronouncing the word.

### ***Concepts About Print***

The Clicker Grid in *Clicker 5* can help teach emergent literacy learners the 'left-to-right' conventions of reading and writing (Treiman, Cohen, Mulqueeney, Kessler, & Schechtman, 2007). In a 'forced order' writing activity, only some of the cells in the grid are active and able to be chosen by students. For example, as shown in Figure 2, the teacher might require students to first select the word on the far left in the Clicker Grid, then the word to its immediate right, and so on. When a word from the left-hand column is correctly chosen, it moves up into Clicker Writer, and the next column of words in the Clicker Grid becomes available. Words that are active and available for selection appear in color, while those words

which are unavailable appear in gray. These activities gives students invaluable experience in working from left to right, while also ensuring that the subsequent student-generated sentences make grammatical sense.

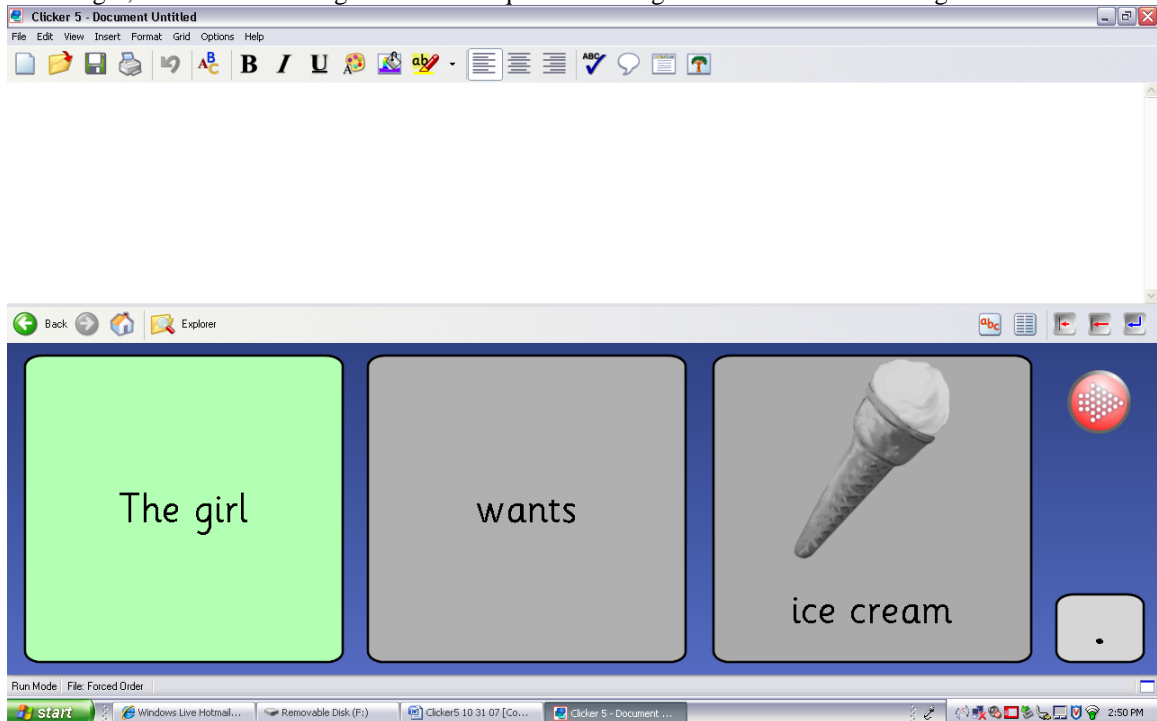


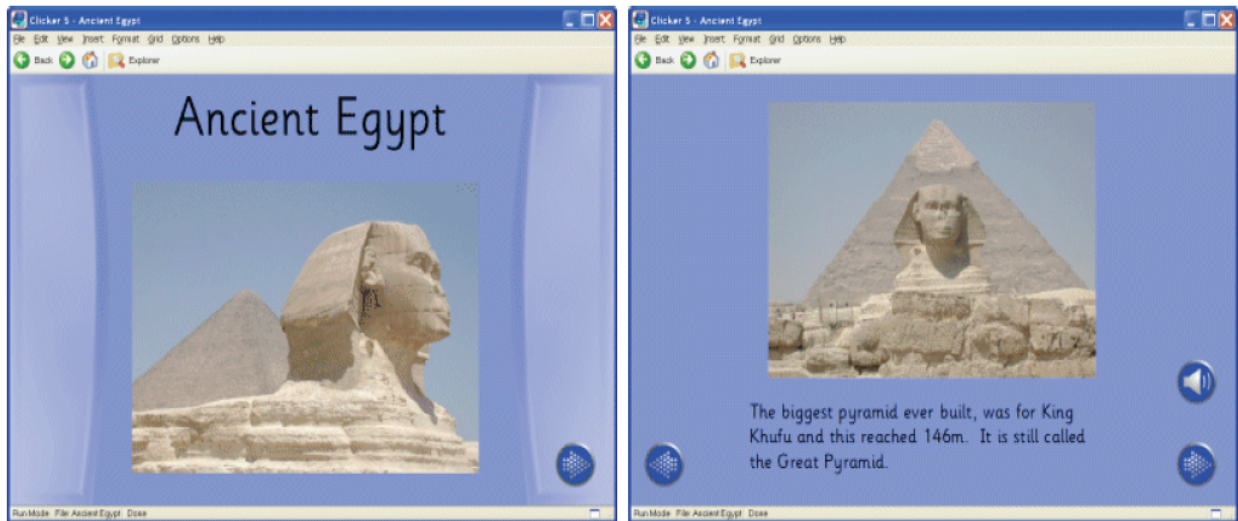
Figure 2. Students complete ‘forced order’ sentences by clicking on the highlighted words/phrases to learn left to right conventions.

Teachers have also used *Clicker 5* to display model sentences to ensure students understand such additional concepts about print as words and word order, sentences, capitalization and punctuation marks, and spaces between words in sentences. For example, teachers have created sample sentences to initially let students see correctly structured sentences, which might also be read aloud by the software. Then the students might actually construct a sentence, and determine if their sentence looks correct when compared to the teacher’s sample, and if their sentence sounds ‘correct’ when read back.

### ***Alphabetic Principle***

Student understanding of the correspondence between printed symbols and their associated sounds (phonemes) can be initially developed in *Clicker 5* through the creation of Clicker Grids in which individual letters are clicked to activate the associated sound of each letter. This can be followed by doing the same with letter combinations and blends, and then whole words and sentences.

After basic alphabetic principles are established, students can move to the prepared ‘talking books’ that come with *Clicker 5*. Using this feature, students can have the computer read the stories as the text and associated pictures are presented on screen. Many more talking books are additionally available for download on the associated program websites (see Table 2). In addition, teachers can create their own books. Finally, students can then develop their own talking books as their skills in literacy allow. These talking books can incorporate text, sounds, pictures, and even videos to enhance their impact. Students can listen to the complete piece by clicking on the speaker icon in Clicker Writer, or listen to any unfamiliar individual word by clicking on that word separately.



### "Ancient Egypt"

Figure 3. Students can auditorially access print materials by clicking on the speaker icon or by clicking on each word individually.

### **Comprehension**

Teachers have found a number of *Clicker 5* features support the development of literacy comprehension skills in emergent readers. For example, teachers have highlighted important information within the books in a different color to help ensure student attention to and comprehension of specific critical information. The realistic speech feature ensures that students can access and understand all text regardless of the students' specific reading skill level. In addition, pictures may be uploaded from the students' own collections. The inclusion of these personalized features helps develop stronger personal connections between the student and the text to increase engagement and comprehension (Denner, Rickards, & Albanese, 2002). Finally, students may print off these stories to read them away from the computer.

*Cricket 5* also lends itself to supportive and/or evaluative comprehension activities after students have completed a story. For example, after a story is read (individually or in class), teachers may identify and target key vocabulary terms from the text for comprehension mastery. In the teacher-developed page taken from a text about musical instruments (Crick Software, Ltd., 2007) illustrated in Figure 4, students looked at pictures of key vocabulary words from the preceding story, clicked on the empty text boxes, and chose from the drop-down menu the vocabulary word that best fit each picture.

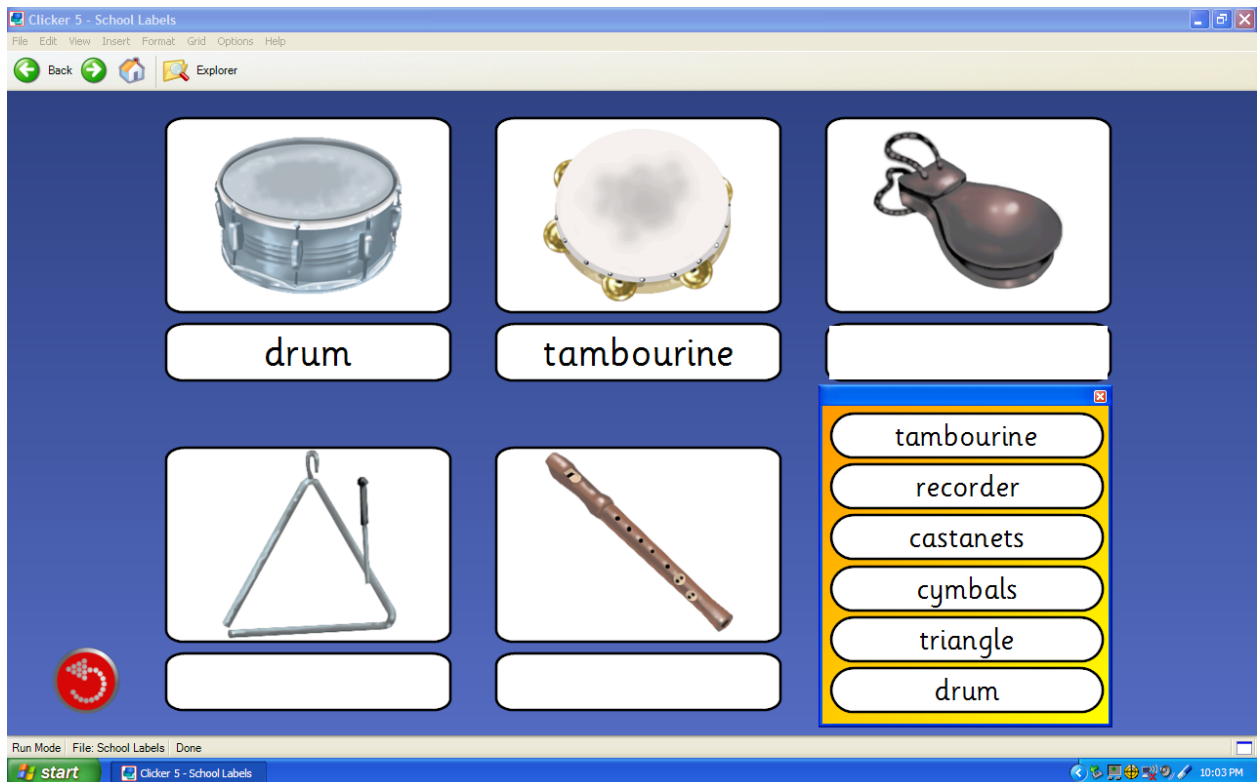


Figure 4. Students demonstrate comprehension skills by matching pictures from a story to the correct vocabulary word from a drop down menu.

Students can also demonstrate more global comprehension skills by retelling the story using *Clicker 5*. To do this, the teacher might first write out the first part of the story in *Clicker Writer*. Then the teacher sets up the Clicker Grid with a partial sentence as a prompt at the top of the grid, and several options for completing the sentence listed below. Students then click on cells in the Clicker Grid to recreate their stories in the Clicker Writer, in the process demonstrating their fundamental understanding of the storyline (see Figure 5).



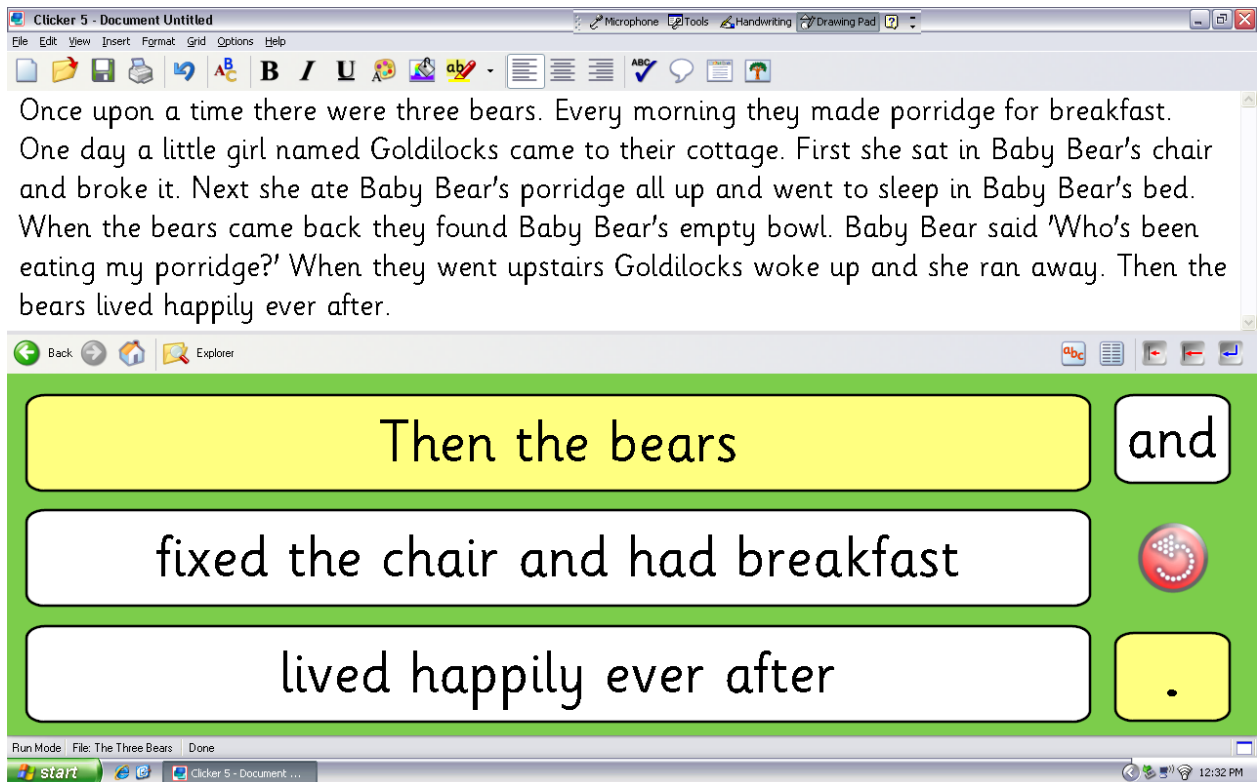


Figure 5. Students demonstrate comprehension skills by clicking on phrases in the *Clicker 5* grid.

## DISCUSSION

In the 21<sup>st</sup> century, all young learners, including those who are at risk or have disabilities, increasingly engage with an ever-growing variety of technologies, in school, at home, and in the community. Realistically there is no longer any legitimate question of whether or not to use technology in the schools for students with disabilities (e.g., Rathbun & West, 2003), as the Individuals with Disabilities Education Improvement Act of 2004 (20 U.S.C. 1401 § 614(B)(v)) requires that assistive technology be considered for all children with disabilities.

Thus the true issue confronting early childhood education professionals working in inclusive programs for both typically and atypically developing young children is to develop professional knowledge of and skills in instructional technology, including software that supports the development of the critical skill of emergent literacy in these young learners. These education professionals must then systematically integrate the use of that technology in the early childhood curriculum. Given that literacy skills provide the foundation for subsequent school success (e.g., Strong, Silver, Perini, & Tuculescu, 2002), it is vital that education professionals in early childhood education programs use whatever literacy tools are available to support their students' subsequent academic success.

While empirical data to date are limited, the *Clicker 5* software offers great promise to enhance emergent literacy in young children, especially those who are at-risk or who have disabilities. It allows emergent readers with only minimal literacy skills to nevertheless create their own written work, in the process developing fundamental concepts about print. The program's speech capabilities allows young readers to access written work both visually and aurally, enhancing phonemic awareness, word recognition, and comprehension.

*Clicker 5*'s incorporation of pictures, including those supplied by teachers and students, increases student interest and engagement in literacy enhancement activities. The inherent flexibility of the program allows teachers to develop a variety of unique and individualized emergent literacy lessons. In addition, a wide variety of teacher resources that support the use of *Clicker 5* in emergent literacy instruction (e.g., free 'Clicker Grids') is available on the internet (see Table 2).

Certainly significant classroom instructional decisions, including the incorporation of such technologies as *Clicker 5*, should be made on the basis of a solid empirical foundation of educational efficacy whenever possible. However, the rapidity of the evolution of many educational technologies means that only a partial emergent research base may exist at any given time.

In such cases, instructional decisions must be made to some degree on the 'face validity' of the technology; that is, a professional determination as to how consistently the proposed technology appears to support known best practices in the field. In emergent literacy instruction, *Clicker 5* holds great promise for the development and enhancement of five key emergent literacy skills.

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Table 1

*Five Key Emergent Literacy Skills*

Key emergent literacy skill	Description and development
<i>Phonemic Awareness</i>	Recognition of individual sounds in words (National Reading Panel, 2000). Developed through listening activities, games, and worksheets (Abbott, Walton, & Greenwood, 2002).
<i>Word Recognition</i>	Quick identification of the form, pronunciation, and meaning of words previously met in print or writing (Carnine, Silbert, Kame'enui, & Tarver, 2004; McGee & Richgels, 2006; McKenna & Stahl, 2003). Developed by exposing students to words while giving definitions or other attributes of the words (National Reading Panel, 2000).
<i>Concepts About Print</i>	Conventions and characteristics of written language (Harris & Hodges, 1995), including directional movement, one-to-one matching of spoken and printed words, and the proper way to hold and open a book (Gately, 2004; Justice & Pullen, 2003). Developed by exposing students to print, books, storybook reading, and writing (International Reading Association and the National Association of Education for Young Children, 1998).
<i>Alphabetic Principle</i>	Distinctive written representations of the speech sounds or phonemes of a language (Hutinger, Bell, Daytner, & Johanson, 2006; McKenna & Stahl, 2003). Developed through a child's engagement with letter activities such as alphabet books and alphabet puzzles (International Reading Association and the National Association of Education for Young Children, 1998).
<i>Comprehension</i>	Understanding of spoken and/or written language (Justice & Pullen, 2003; Pierce & McWilliam, 1993). Developed in part through shared storybook reading (Justice & Kaderavek, 2002; Justice & Pullen; Stahl & Yaden, Jr., 2004), the use of imagery, question-generating, and prediction to gather meaning from text (National Reading Panel, 2000).

Table 2

*Clicker V Resources for Education Professionals*

Web Site	URL	Description
Crick Software	<a href="http://www.cricksoft.com/us/products/clicker/default.aspx">http://www.cricksoft.com/us/products/clicker/default.aspx</a>  <a href="http://www.cricksoft.com/us/ideas/case_studies/">http://www.cricksoft.com/us/ideas/case_studies/</a> <a href="http://www.cricksoft.com/uk/products/clicker/case_studies/">http://www.cricksoft.com/uk/products/clicker/case_studies/</a> <a href="http://www.cricksoft.com/us/ideas/using_clicker/">http://www.cricksoft.com/us/ideas/using_clicker/</a> <a href="http://www.cricksoft.com/us/products/books/">http://www.cricksoft.com/us/products/books/</a>	Description of software and links to ideas for classroom usage and various tutorials U.S. case studies using Clicker U.K. case studies using Clicker Clicker in the classroom guide <i>iClick For Clicker 5</i> textbook by Daniel Herlihy & Darlene Brodbeck
Atomic Learning Home	<a href="http://movies.atomiclearning.com/k12/clicker_5">http://movies.atomiclearning.com/k12/clicker_5</a>	Free sample tutorial movies for PC and Mac
The Learning Centre	<a href="http://www.setbc.org/setbc/access/access_clicker5_resources.html#top">http://www.setbc.org/setbc/access/access_clicker5_resources.html#top</a>	Free presentations, support materials, demonstrations
Kent NGfL County Council	<a href="http://www.kented.org.uk/ngfl/software/clicker/ClickerTutorial/index.htm">http://www.kented.org.uk/ngfl/software/clicker/ClickerTutorial/index.htm</a>	Free interactive tutorial - need Flash Player to download
Crick Software Learning Grids	<a href="http://www.learninggrids.com/WelcomePage.aspx?siteId=2">http://www.learninggrids.com/WelcomePage.aspx?siteId=2</a>	Free resources and sample grids
Wikispaces	<a href="http://clicker5lifeskills.wikispaces.com/">http://clicker5lifeskills.wikispaces.com/</a>	A place to share Clicker 5 ideas, projects, grids, etc.
Spectronics	<a href="http://www.spectronicsinoz.com/library.asp?article=22250">http://www.spectronicsinoz.com/library.asp?article=22250</a>	Free updates for many areas of original Clicker 5
HIAT Accesible Technology	<a href="http://www.montgomeryschoolsmd.org/departments/hiat/tech_quick_guides/Clkr_QG.shtm">http://www.montgomeryschoolsmd.org/departments/hiat/tech_quick_guides/Clkr_QG.shtm</a>	Free quick guide for using pictures, creating word banks, and making ebooks; also, free written tutorial and 'cheat sheet' for common tasks

Special Education Technology	<a href="http://setbc.org/setbc/access/clicker5_intro_workshop_2006.html#top">http://setbc.org/setbc/access/clicker5_intro_workshop_2006.html#top</a>	Free 2006 Clicker 5 workshop downloads
ICT Learning Experience	<a href="http://www.tki.org.nz/r/ict/ictpd/junior_writing_e.php">http://www.tki.org.nz/r/ict/ictpd/junior_writing_e.php</a>	Example lesson plan using Clicker 5
Aidis Trust	<a href="http://www.aidis.org/support/documents/Clicker_5_User_Guide.pdf">http://www.aidis.org/support/documents/Clicker_5_User_Guide.pdf</a> <a href="http://www.aidis.org/support/documents/Clicke_5_Install_Guide.pdf">http://www.aidis.org/support/documents/Clicke_5_Install_Guide.pdf</a>	Free basic user guide Free installation guide
Assist-it	<a href="http://www.assist-it.org.uk/assets/word/extending_Clicker5_Penfriend.doc">http://www.assist-it.org.uk/assets/word/extending_Clicker5_Penfriend.doc</a>	Free written tutorial
ATbyMJM	<a href="http://www.atbymjm.com/Using_AAC_devices_with_Clicker_5.html">http://www.atbymjm.com/Using_AAC_devices_with_Clicker_5.html</a>	Simple Directions for making Clicker 5 AAC accessible
ConnSense	<a href="http://www.connsensebulletin.com/">http://www.connsensebulletin.com/</a>	Searchable reviews of Clicker
Kent County Council	<a href="http://www.kented.org.uk/ngfl/software/clicker/resources.htm">http://www.kented.org.uk/ngfl/software/clicker/resources.htm</a>	materials created in the UK's largest Local Authority of 600 schools
Accessible Book Collection	<a href="http://www.accessiblebookcollection.org/NewEasyReader%20formats.html#RANGE!A1">http://www.accessiblebookcollection.org/NewEasyReader%20formats.html#RANGE!A1</a>	Repository of hundreds of books built in Clicker 5 format created by educators in the U.S., using existing published material.