

WIZCOM TECHNOLOGIES INC.

WIZCOM EDUCATION GUIDE

HAND-HELD LITERACY SUPPORT TOOLS

DESIGNED FOR TODAY'S 21ST CENTURY CLASSROOMS

5/1/2011

The Wizcom Education Guide provides supportive reading research as well as aligns New Common Core Standards and government funding opportunities with the company's hand-held literacy support tools.

WIZCOM EDUCATION GUIDE

TABLE OF CONTENTS

- I. INTRODUCTION**
- II. NEW COMMON CORE STANDARDS**
- III. LITERACY TOOLS**
 - a) READING PEN 2
 - b) READING PEN TS
 - c) QUICKTIONARY TS PREMIUM
- IV. WIZCOM PROGRAMS SUPPORT READING RESEARCH**
 - a) ENGLISH LANGUAGE LEARNERS
 - b) SPECIAL EDUCATION
- IV. CASE STUDIES & RESEARCH**
- V. GOVERNMENT FUNDING**

I. Introduction

Wizcom Technologies is a pioneer and world leader in personal, portable, and powerful text scanning Dictionaries and Reading Pens. Our breakthrough suite of hand-held literacy support tools are used to effectively boost vocabulary, phonemic awareness, fluency and comprehension among a wide range of reading levels and learning abilities -- including those who have limited English proficiency and those who have been identified as learning disabled -- and are utilized in thousands of 21st century classrooms throughout the U.S and around the world.

Wizcom products are developed using our unique expertise in linguistics (morphology, spellers & dictionaries) and image acquisition and processing. We have 'first' and 'best-of-breed' achievements in the fields of microelectronics, electro-optics (multiple patents and copyrights), and Optical Character Recognition (OCR) algorithm engines. Founded in 1995, Wizcom Technologies Ltd is publicly traded on the Prime Standard stock exchange in Frankfurt, German.

II. THE NEW K-12 COMMON CORE STATE STANDARDS

FOR ENGLISH LANGUAGE ARTS & LITERACY IN HISTORY/SOCIAL STUDIES, SCIENCE and TECHNICAL SUBJECTS WIZCOM PRODUCT ALIGNMENT BRIEF

The new K-12 Common Core State Standards For English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects, (“The Standards”) issued JUNE, 2010 which were developed by the Chief State School Officers (CCSSO) and The National Governors Association, have now been adopted by more than three-quarters of states, as a broad-based effort to ensure that all students K-12 are college and career ready in literacy no later than the end of high school.

As specified by CCSSO and NGA, the Standards are (1) research and evidence based, (2) aligned with college and work expectations, (3) rigorous, and (4) internationally benchmarked. The Standards set requirements not only for English Language Arts (ELA) but also for literacy in history/social studies, science and technical subjects. **Just as students must learn to read, write, speak, listen and use language effectively in a variety of content areas, so too must the Standards specify the literacy skills and understanding required for college and career readiness in multiple disciplines.** Literacy standards for grades 6 and above are predicated on the teachers of ELA, history/social studies, science and technical subjects using their content area expertise to help students meet the particular challenges of reading, writing, speaking, listening and language in their respective fields. **Students advancing through the grades are expected to meet the year’s grade specific standards, retain or further develop skills and understandings mastered in preceding grades,** and work steadily towards meeting the more general expectations described by the College and Career Readiness (CCR) standards.

KEY FEATURES OF NEW COMMON STANDARDS INCLUDE:

Reading: Text complexity and the growth of comprehension.

“The Reading standards place equal emphasis on the sophistication of what students read and the skill with which they read. Standard 10 defines a grade-by-grade “staircase” of increasing text complexity that rises from beginning reading to the college and career readiness level.

Language: Conventions, effective use, and vocabulary

The Language standards include the essential “rules” of standard written and spoken English, but they also approach language as a matter of craft and informed choice among alternatives. The vocabulary standards focus on understanding words and phrases, their relationships, and their nuances and on acquiring new vocabulary, particularly general academic and domain-specific words and phrases.

EXCERPTED SPECIFIC STRAND...

Reading Standards: Foundational Skills (K-5) These standards are directed toward fostering students' understanding and working knowledge of concepts in print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather they are necessary and important components of effective, comprehensive reading program designed to develop proficient readers with capacity to comprehend text across a wide range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with the concepts than struggling readers will. The point is to teach students what they need to learn and not what they already know – to discern when particular children or activities warrant more or less attention.

PRINT CONCEPTS “organization and basic features of print”; **PHONOLOGICAL AWARENESS** “demonstrating understanding of spoken words, syllables, and sounds (phonemes); **PHONICS AND WORD RECOGNITION** “know and apply grade-level phonics and word analysis skills in decoding words”; **FLUENCY** “read with sufficient accuracy and fluency to support comprehension.

HOW WIZCOM PRODUCTS SUPPORT THE NEW COMMON STANDARDS**TEXT COMPLEXITY**

WIZCOM products can be used with any text type – core, independent reading or content-area curriculum, books, newspapers, and magazines - providing students with “supported” access to multiple text types – literature, poetry, dramas, myths, informational, historical, scientific and technical -- in an effort to help build and deepen students knowledge base and love of reading for pleasure and understanding.

WIZCOM READING PEN 2, READING PEN TS and QUICKTIONARY TS PREMIUM can be used with students at every reading level – and can be a quick and effective tool for educators to identify text “readability.” With historical look up of last 80 words reviewed – teacher can effectively gauge individual students just-right reading levels and adjust text selections accordingly – yet still allowing critical independent literacy support, for fluency, comprehension support with confidence.

READING FOUNDTIONAL SKILLS

WIZCOM products enable schools to integrate personal, portable and powerful hand-held assistive technology that unlock the essential components of reading – with powerful literacy supports to improve phonemic awareness, pronunciation, fluency and comprehension. Specific foundational literacy skills/product alignments are outlined in section III. *

Additional product features that support foundational skills include:

- Text-to-Speech Assistive technology supports essential decoding skills, pronunciation, fluency and comprehension.
- Instant definitions, synonyms, translations and spelling support help to

- make reading accessible and automatic.
- Displays syllabic division of selected word or phrasal verb.
- Direct look up of idioms/phrases, and identification of inflected words and display of their corresponding entries.
- Comprehensive translation support offers ELL's the opportunity to participate in general education curriculum with first-and-second language support.

III. LITERACY TOOLS

READING PEN 2
READING PEN TS
QUICKTIONARY TS PREMIUM

Wizcom Technologies Inc. suite of hand-held literacy support tools are used to effectively boost vocabulary, phonemic awareness, fluency and comprehension among a wide range of reading levels and learning abilities -- including those who have limited English proficiency and those who have been identified as learning disabled -- and are utilized in thousands of 21st century classrooms throughout the U.S and around the world.

III. LITERACY TOOLS

a. Reading Pen 2

READING PEN 2



K-6 students, ELL, Special Education students

Helping students master *reading fluency* with confidence! The **WIZCOM Reading Pen 2** is a personal, portable, and powerful hand-held tech-tool that scans text and provides beginning readers with instant word definitions, spelling and pronunciation support to boost the critical vocabulary, phonics, *fluency* and comprehension skills needed for student achievement in reading.

A perfect support for those students who have not yet mastered immediate decoding skills, the **Reading Pen 2** instantly reads scanned words aloud, spells words letter by letter, and provides definitions and translations from English to Spanish. This portable reading tool is the ideal device for K-6 teachers to use alongside core reading programs with small group instruction, provide as independent fluency support or can be easily integrated into Individualized Education Plans (IEPs). The **Reading Pen 2** can be used by students of all ages to increase comprehension and build CONFIDENCE!

- Supports *all* reading levels
- Provides instant individual and independent decoding support at any point in reading process
- Can work alongside/complement any chosen curricula and text type (books, magazines, newspaper)
- Helps educators meet special fluency needs and better match students to just-right-books and literacy materials
- Helps teachers identify vocabulary weakness and provide immediate corrective support
- Great for content-area classrooms for additional literacy support
- Provides school to home literacy support
- Helps educators meet Adequate Yearly Progress goals for students

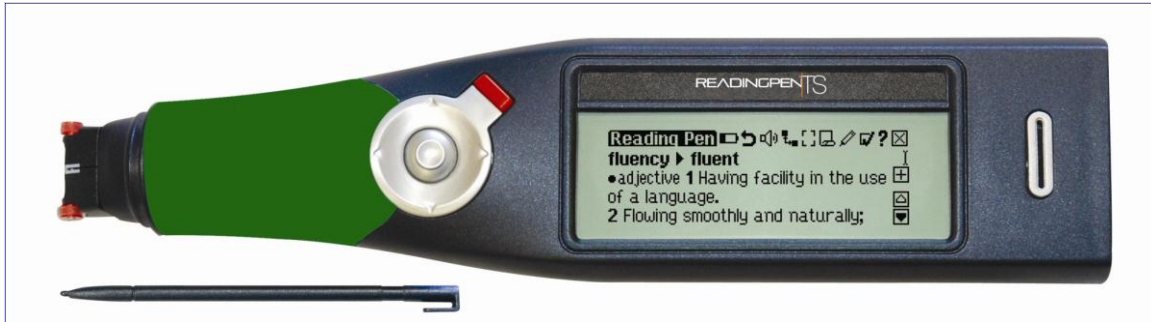
Product Components

- Scans single words or full lines of text.
- Displays selected word in large font to enable easier, clearer viewing.
- Displays definitions, synonyms and translations of the scanned text on the LCD screen
- Reads the scanned text aloud, including its definitions and synonyms with Text-to-Speech (TTS) technology using built-in speaker or earphones.
- Spells out scanned words, highlighting individual letters.
- Displays syllabic division of selected word or phrasal verb.
- Recognizes over 500,000 words from the American Heritage® College Dictionary, 4th Edition and Roget's II The New Thesaurus.
- Comprehensive Spanish translation that extends beyond the simple, most frequently used meaning of the word.
- Direct look-up of idioms/phrases.
- Identification of inflected words and display of their corresponding entries.
- History option enabling retrieval of the last 80 reviewed words.
- Recognition of a wide range of printed font types and sizes (6-22 points, up to 8mm).
- Recognition and automatic merging of hyphenated text.
- Two display modes: Toggle between abridged and complete definition/translation display.
- Easy to use buttons and straightforward menus.
- Built-in scanning tutorial to improve scanning technique.
- Right/left handed multi-direction scanning support.
- Auto shut-off feature to preserve battery life.

III. LITERACY TOOLS

b. Reading Pen TS

READING PEN TS



Grades 6-12, ELL, Special Education students

WIZCOM's **Reading Pen TS** is a personal, portable and powerful hand-held assistive reading technology tool designed for English Language learners and special education students to help boost vocabulary, *fluency*, and comprehension skills needed for reading autonomy, and confidence.

By scanning text, special need students can see and hear words or lines spoken aloud in English, and are instantly provided word definitions, synonyms, translations, spelling, and pronunciation via Text-to-Speech technology (built in speaker or earphones) to help make reading accessible. This breakthrough literacy support tool can be used with any classroom text, or with content-area courses and can be easily integrated into Individualized Education Plans (IEPs) giving special needs students the ability to unlock the reading process with support.

Any text can also be inserted via touch screen and virtual keyboard or uploaded from a PC onto this fully mobile, pocket-sized reading tech-tool, providing reading support in a variety of settings. With an intuitive icons and user-friendly interface, the **Reading Pen TS** can be a used with a wide range of at-risk students of varying reading levels, and is an ideal tool to incorporate into any comprehensive intervention curriculum plan.

- Supports *all* reading levels
- Provides instant individual and independent decoding support at any point in reading process
- Can work alongside/complement any chosen curricula and text type (books, magazines, newspaper)
- Helps educators meet special fluency needs and better match students to just-right-books and literacy materials

- Helps teachers identify vocabulary weakness and provide immediate corrective support
- Great for content-area classrooms for additional literacy support
- Flexible implementation for use in whole or small group and independent learning environments
- Provides school to home literacy support
- Helps educators meet Adequate Yearly Progress goals for students
- Text-to-Speech technology supports Universal Design for Learning principals
- Can easily be incorporated into Individual Education Plan (IEP) strategies
- Allows ELL students to participate in general ed. classroom learning

Product Components

- Displays up to 5 lines of text on a high resolution touch-screen
- Large display of scanned line
- Reads words, lines or paragraphs aloud
- Spells-out the scanned word, letter by letter
- Provides direct look-up of idioms/phrases
- Provides syllabication
- Provides audio word pronunciation (American pronunciation) with Text-to-Speech (TTS) technology using built-in speaker or earphones
- Contains American Heritage® dictionaries and thesauri
- History option enabling retrieval of the last 80 reviewed words
- Recognition of a wide range of standard printed font types and sizes (6-22 points, up to 8mm), including inverted text on contrasting backgrounds (except red on white, white on red, blue on black and black on blue)
- Recognition and automatic merging of hyphenated text
- Virtual keyboard for manual word insertion or text editing (using the included stylus)
- Auto-complete function when inserting words using the virtual keyboard
- Interactive games for practicing and enhancing vocabulary using reviewed words list (History) or entire dictionary list
- Right/Left handed multi-directional scanning support
- Auto shut-off

III. LITERACY TOOLS

c. Quicktionary TS Premium

QUICKTIONARY TS PREMIUM



Grades 6-12, ELL Secondary-School students and Adults

WIZCOM's **QUICKTIONARY TS Premium** is a personal, portable and powerful hand-held reading translation pen that allows English Language Learners (ELL/ESL) to scan and interpret text quickly and easily to increase vocabulary, fluency and reading comprehension and in turn grow in confidence and competence.

With its touch screen and icon-based menu the **QUICKTIONARY TS Premium** can scan, store and transfer up to 20,000 lines of text, offers 45 foreign language dictionaries, comprehensive translations, including idioms and phrases with up to 300,000 words/expressions per dictionary and transfers text directly into Windows-based applications on PC, PDA or Smartphones. Providing multilingual assistive technology support, (English Text-to-Speech via built-in speaker and earphones) K-12 bilingual students and adults alike can build language proficiency without embarrassment, and receive vocabulary support in *first and second languages* for increased aptitude and success.

- Supports *all* reading levels
- Provides instant individual decoding support at any point in reading process
- Can work alongside/complement any chosen curricula and text type (books, magazines, newspaper)
- Helps educators meet special fluency needs and better match students to just-right-books and literacy materials
- Helps teachers identify vocabulary weakness and provide immediate corrective support
- Great for content-area classrooms for additional literacy support
- Flexible implementation for use in whole group, small group and independent learning environment
- Provides school to home literacy support
- Helps educators meet Adequate Yearly Progress goals for students
- Text-to-Speech technology supports Universal Design for Learning principals

- Allows ELL students to participate in general ed. classroom learning

Product Components

- Comprehensive translation that extends beyond the simple, most frequently used meaning of the word.
- Direct look-up of idioms/phrases.
- Identification of inflected words and display of their corresponding entries.
- Recognition of over 300,000 words and expressions per dictionary.
- History option enabling retrieval of the last 80 reviewed words.
- Audio word pronunciation in English with Text-to-Speech (TTS) technology using built-in speaker or earphones.
- Recognition of a wide range of printed font types and sizes (6-22 points, up to 8mm), including inverted text on contrasting backgrounds (except red on white, white on red, blue on black and black on blue).
- Recognition and automatic merging of hyphenated text.
- Two display modes: Toggle between abridged and complete definition/translation display.
- Displays up to 5 lines of text on a high-resolution touch-screen.
- Virtual keyboard for manual word insertion or text editing (using the included stylus).
- Auto-complete function when inserting words in the Quicktionary using the virtual keyboard.
- Interactive games for practicing and enhancing vocabulary using reviewed words list (History) or entire dictionary list (not available in all products).
- Easy to use buttons and straightforward menus.
- Quick and easy navigation using the included stylus.
- Supports various user-interface languages.
- Right/left handed multi-directional scanning support.
- Auto shut-off feature to preserve battery life.

IV. WIZCOM PROGRAMS SUPPORT READING RESEARCH

In 1997, the U.S. Congress asked the Director of the National Institute of Child Health and Human Development (NICHD)* at the National Institutes of Health, in consultation with the Secretary of Education, to convene a national panel --The National Reading Panel (NRP) -- to assess the effectiveness of different approaches used to teach children to read. On April 13, 2000, the NRP submitted its extensive work "*The Report of the National Reading Panel: Teaching Children to Read*," at a hearing before the U.S. Senate Appropriations Committee's Subcommittee on Labor, Health and Human Services, and Education. This document was used to inform the groundbreaking education legislation initiated by President George W. Bush entitled NO CHILD LEFT BEHIND, The Elementary and Secondary Education Act (ESEA), which is today a mandate of every school across the country to close the achievement gap.

According to the extensive review of research related to reading acquisition by the National Reading Panel, five skill areas have been identified to be emphasized when teaching children to read, as outlined in their guide *Put Reading First: The Research Building Blocks For Teaching Children to Read (2001)*

- A) Phonemic Awareness
- B) Phonics
- C) Fluency,
- D) Vocabulary
- E) Text comprehension

WIZCOM Reading and Translation Pens help educators support these essential components of reading instruction. The following materials outline each skill area needed to become a successful reader, and related strands of support gained with use of WIZCOM products, benefitting a wide range of reading levels and student populations. These hand-held tech-tools provide valuable support for students as they interact with text in meaningful ways; and can be effectively used to improve student achievement in reading.

A) PHONEMIC AWARENESS

1. Research/Evidence

*The development of phonological skills addresses the inability to identify speech sounds, which impedes spelling, word recognition and vocabulary development (Moats, 2001)*Research has shown that students who are taught to analyze speech sounds in words related them to their spellings progress faster in spelling and reading (Moats, 1995).

2. HOW WIZCOM PRODUCTS SUPPORTS THE SKILL

READING PEN 2 and READING PEN TS (QUICKTIONARY TS PREMIUM) provide individualized immediate decoding support for unknown words -(highlighted words – letter-sound patterns, and English Text-to-Speech support, where unfamiliar words can be read aloud -

offering both interaction with printed text combined with explicit attention to sound structure orally, providing personal phonemic awareness support.

B) PHONICS

1. Research/Evidence

*According to the International Reading Association (IRA) Phonics is knowing (decoding) the relations between specific printed letters or combination of letters and specific spoken language.

* When weak student decoding is evident there is little room left for comprehension to take place (Freedman and Calfee, 1984; LaBerge and Samuels, 1974 cited in Blevins, 1998).

2. HOW WIZCOM PRODUCTS SUPPORTS THE SKILL

By assisting in the reading process the READING PEN 2, the READING PEN TS (QUICKTIONARY TS Prem) allow individuals to break down words and sound blends, offering the ability to hear words read aloud, spelled out as well as view syllabic division of words like (reading) to provide powerful decoding support.

C) FLUENCY

1. Research/Evidence

Students can improve their fluency by (Put Reading First, 2001)

- a.) hearing models of fluent reading
- b.) repeated reading with guidance
- c.) combining reading instruction with reading practice at their independent level of reading ability

2. HOW WIZCOM PRODUCTS SUPPORT THE SKILL

Wizcom's READING PEN 2, READING PEN TS and QUICKTIONARY TS PREMIUM allow students multiple opportunities to practice (supported) reading fluency. Providing students with opportunities to see it, hear it and then read it – users can build pronunciation and decoding skills, thus increasing sight word recognition and ability to read more smoothly with increased fluency and automaticity.

D) VOCABULARY

1. Research/Evidence

*Repetition and multiple exposures to new words are crucial for vocabulary development (National Reading Panel, 2000)

*Vocabulary provides both definitions and contextual information – to improve reading comprehension (Honig, Diamond and Gutlohn, 2000)

2. HOW WIZCOM PRODUCTS SUPPORT THE SKILL

READING PEN 2, READING PEN TS and QUICKTIONARY TS PREMIUM PENS provide immediate and continuous vocabulary support for students of a wide range of reading skills – offering definitions,

synonyms and comprehensive translations that extend beyond frequently used meanings of words. Other key features that support vocabulary development include:

- Retrieval of last 80 words reviewed for teacher review and ongoing practice (RP2/RPTS)
- Interactive games for vocabulary practice
- Spanish translation support at every stage.
- recognizing over 500,000 words from the American Heritage® College Dictionary and Roget's II The New Thesaurus (RP2 and RPTS)
- recognizes over 300,000 words and expressions per 45 language specific dictionaries (Q-TSP)
- direct look-up of idioms/phrases

E) COMPREHENSION

1. Research/Evidence

*With automatic word recognition, the child does not have to concentrate on words and can concentrate fully on the meaning of text. Chall, 1996; Dowhower, 1987; Ehri, 1995; LaBerge & Samuels, 1974; Perfetti, 1985; Samuels, Scherner & Reinking, 1992

*Reading comprehension is the product of decoding skill and language comprehension skill. Snow, Burns, and Griffin, 1998.

2. HOW WIZCOM PRODUCTS SUPPORT THE SKILL

READING PEN 2, READING PEN TS and QUICKTIONARY TS PREMIUM each allow students to interact with text in meaningful ways. Reading research indicates that good readers are actively involved in the reading process; WIZCOM's hand-held literacy support tools offer personal, portable and powerful assistance – helping students move from decoding to fluent pronunciation to reading for meaning. RP 2 and RPTS can help educators identify appropriate text level for students to optimize text “readability.” Definition and translation support available with these products help build confidence and competence.

IV. WIZCOM PROGRAMS SUPPORT READING RESEARCH
a. ENGLISH LANGUAGE LEARNERS

ENGLISH LANGUAGE LEARNERS, ELL/ESL

Based on the definition provided in Title IX of No Child Left Behind (ESEA), an English Language Learner (ELL) is a person between the ages of 3 and 21 who is enrolled or plans to enroll in a US school, who is a non-native speaker of English, and who lacks the English language skills (reading, writing, speaking, or listening) necessary to participate meaningfully in a school setting where English is the language of instruction. Like all other students, ELLs have a right to high quality education opportunities and states, districts, and schools are required to provide services to help these students attain English language proficiency. Through the 'English Language Acquisition, Language Enhancement, and Academic Achievement Act' within ESEA the federal government recommends the following structure and goals in order to help ELL attain proficiency:

(1) to ensure that children who are limited English proficient, including immigrant children and youth, attain English proficiency, develop high levels of academic attainment in English, and meet the same challenging State academic content and student academic achievement standards as all children are expected to meet;

(2) to assist all limited English proficient children, including immigrant children and youth, to achieve at high levels in the core academic subjects so that those children can meet the same challenging State academic content and student academic achievement standards as all children are expected to meet, consistent with section 1111 (b)(1);

(3) to develop high-quality language instruction educational programs designed to assist State educational agencies, local educational agencies, and schools in teaching limited English proficient children, including immigrant children and youth, to enter all-English instruction settings;

ELL Research/Evidence

*Research shows that English learners can benefit from English literacy instruction well before they have developed full control of the language orally. In other words, oral and written English can develop more or less simultaneously (Hudelson, 1984, 1986; Goodman, Goodman, & Flores, 1979; Urzua, 1987).

*Among other things good ESL products provide help for students in their native language, immediate and corrective feedback (Bishop, 2001).

HOW WIZCOM PRODUCTS SUPPORT ELL/ESL STUDENT

America's ethnic profile is rapidly changing. In 2000, 1 of every 3 persons in the United States was a member of a minority group or had limited proficiency in English. With cultural differences and academic vocabulary deficits, English language learners need specific pronunciation, definition and spelling support in order to achieve reading success. WIZCOM's READING PEN TS AND

QUICKTIONARY TS PREMIUM provide immediate hand-held literacy support to unlock the essential components of reading without embarrassment for those identified as having limited English proficiency.

With its Text-to-Speech technology – ELLs can immediately hear words, lines or paragraphs spoken aloud in English, to improve phonemic awareness, pronunciation fluency and comprehension. Comprehensive translation support offers ELLs the opportunity to participate in general education curriculum with *first-and-second* language support. READING PEN TS and QUICKTIONARY TS PREMIUM both effectively support literacy achievement and help students at every reading stage make Adequate Yearly Progress (AYP) gains.

IV. WIZCOM PROGRAMS SUPPORT READING RESEARCH
 b. SPECIAL EDUCATION

SPECIAL EDUCATION POPULATIONS

According to The Individuals with Disabilities Education Improvement Act (IDEA) of 2004, a 'specific learning disability' is defined as a disorder in 1 or more of the basic psychological processes involved in understanding or using language, spoken or written, which disorder may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations. Such term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. Today, IDEA serves approximately 6.8 million children and youth with disabilities, and was enacted designed to assess, and ensure the effectiveness of, efforts to educate children with disabilities.

As highlighted within the IDEA law (5) Almost 30 years of research and experience has demonstrated that the education of children with disabilities can be made more effective by--

(A) having high expectations for such children and ensuring their access to the general education curriculum in the regular classroom, to the maximum extent possible, in order to--

(i) meet developmental goals and, to the maximum extent possible, the challenging expectations that have been established for all children; and

(ii) be prepared to lead productive and independent adult lives, to the maximum extent possible;

SPECIAL EDUCATION Research

*Studies suggest that young, poor readers with and without an IQ-achievement discrepancy perform similarly on many reading-related cognitive tasks as well as demonstrate phonological processing deficits that are correctable with appropriate instruction. Fletcher (1994) and (1995); Foorman, Francis & Fletcher (1995); Stanovich & Seigel (1994); Stanovich (1999); Torgesen, Morgan & Davis (1992); Vellutino et al. (1996)

*Research-based direct instruction for those students categorized as learning disabled included the following techniques: breaking down a task into small steps; supplying repeated feedback; allowing independent practice and individually paced instruction; breaking instruction down into simpler phrases; instructing in a small group; and having the teacher provide new materials, according the *Keys to Successful Learning* (1999) document sponsored by NCLD with OSEP, the NICHD.

WIZCOM PRODUCTS SUPPORT SPECIAL EDUCATION STUDENTS

WIZCOM's READING PEN TS AND QUICKTIONARY TS PREMIUM provide immediate hand-held literacy support to unlock the essential components of reading without embarrassment for those identified as learning disabled. With its Text-to-Speech Assistive technology (built-in speakers and earphones) special education students can immediately hear words, lines or paragraphs spoken aloud in English, to improve phonemic awareness, pronunciation fluency and comprehension. These personal, portable and powerful literacy tools can work with any text type and provide the critical reading support as well as definitions, synonyms, translations, spellings and pronunciation needed to make reading accessible and automatic. Products can be easily incorporated into RTI (Response to Intervention) instructional plans.

WIZCOM's assistive technology literacy support tools "maximizes accessibility to the general education curriculum for children with disabilities." Key features include: lightweight and portable, user-friendly icons and touch screen; adjustable speech rate, volume and speed; works with Individual Education Plans (IEP) for content-area classrooms; works for school to home settings; offers word games, spelling and vocabulary lists for additional opportunities to interact with vocabulary.

V. WIZCOM EDUCATIONAL CASE STUDIES & RESEARCH

CASE STUDIES

The Compensatory Effectiveness of the Reading Pen ® on the Reading Comprehension of Students with Learning Disabilities by Eleanor L. Higgins, Ph.D. and Marshall H. Raskind, Ph.D.

The study investigated the compensatory effectiveness of the Quicktionary Reading Pen II® (the Reading Pen), a portable device with miniaturized optical character recognition and speech synthesis capabilities. Thirty participants with reading disabilities aged 10-18 were trained on the operation of the technology and given two weeks to practice decoding single words and using various dictionary functions during independent silent reading in the classroom and other settings.

Assistive Technology for Adults with Reading Challenges: The Reading Pen Option by Paul J. Gerber, Ph.D.

Assistive technology has provided tools for adults with learning difficulties to improve their quality of life, especially in the areas of reading, mathematics and writing. The Quicktionary Reading Pen was used by a group of adult students and their tutors to discover its utility in increasing reading decoding and comprehension. Subjects who participated in the study were all enrolled in a metropolitan adult literacy program. Results were mixed. The Quicktionary Reading Pen was found to be very useful for some adult students while others did not find it to be helpful at all. These results were also corroborated by tutors.

To Pen or Not to Pen: That is the Question by Karen J. Ash

The results of this study indicate that across grade levels, in both science ($P < 0.001$), and social studies ($P = 0.014$), the Readingpen significantly improved comprehension levels as shown by an increase in number of correct answers on given tests. On average, the Readingpen increased science scores by 18 percentage points and social studies by 10 percentage points.

Comparison of Increases in Reading Accuracy by Lisa Quandahl

Three students with reading difficulties learned to use the Quicktionary Reading Pen during the initial reading of passages. Their accuracy and fluency of the subsequent reading of the passages was compared to subsequent readings of passages with which the Reading Pen had not been used. The results indicated a consistently greater increase in reading accuracy after the initial use of the Reading Pen, than with repeated reading without the use of the pen.

Final Results of Readingpen II Research Study by Kim Miller

I included 4th, 5th, and 6th graders in my study. There were 6 students selected from each grade, 3 students with reading difficulties and 3 students reading at grade level according to the classroom teacher. The students were all trained on

how to use the Reading Pen II. Then they had one week to use the Pen during their reading period.

Increasing Vocabulary and Comprehension with the use of a Reading Pen by Andrés Henríquez

Six reading disabled students were given an assistive technology to see the impact it would have on their reading comprehension. The Reading Pen, a small hand held device, scans and reads words students have difficulty with. Students were given two reading passages to read. The first was read without the apparatus and the second passage was read with assistance of the Reading Pen. Miscues, reading rate, comprehension and word recall were measured. Students' time and comprehension of stories decreased with the use of the pen. However, students were able to recall and pronounce many of the words they had scanned with the Reading Pen, words which they previously could not pronounce. Students showed great enthusiasm for the tool and the Pen holds promise for schools wanting to integrate technology and comprehension instruction.

Does the Oxford Reading Pen enhance reading accuracy and comprehension for students with reading difficulties in a classroom environment by Ian Johnson

This implementation trial sets out to identify if the Oxford Reading Pen (ORP) is an appropriate and effective compensatory ICT to assist students with reading difficulties in their classrooms.

EDUCATIONAL RESEARCH REFERENCES

Al Otaiba, S., & Fuchs, D. (in press). Who are the young children for whom best practices in reading are ineffective? An experimental and longitudinal study. *Journal of Learning Disabilities*.

Blevins, Wiley Phonics from A to Z. New York: Scholastic Professional Books, 1998.

Center for Applied Special Technology, "Summary of Universal Design for Learning Concepts." Available at www.cast.org. INTERNET.

Coles, G. (1987). *The learning mystique: A critical look at learning disabilities*. New York: Pantheon.

Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects; Common Core State Standards Initiative Preparing America's Students For College and Career, www.corestandards.org. INTERNET.

Drucker, Mary J. (2003). What reading teachers should know about ESL learners. *The Reading Teacher*: Vol. 57, No. 1, September 2003.

Fletcher, J.M. (1995). *Diagnostic utility of intelligence testing and the discrepancy model for children with learning disabilities: Historical perspectives and current research*. Paper presented at the IQ Testing and Educational Decision Making Workshop, National Research Council, National Academy of Sciences, Washington, D.C.

Fletcher, J.M., Shaywitz, S.E., Shankweiler, D.P., Katz, L., Liberman, I.Y., Stuebing, K.K., Francis, D.J., et al. (1994). Cognitive profiles of reading disability: Comparisons of discrepancy and low achievement definitions. *Journal of Educational Psychology*, 86, 6–23.

Foorman, B.R., Francis, D.J., & Fletcher, J.M. (1995). *Growth of phonological processing skill in beginning reading: The lag versus deficit model revisited*. Paper presented at the Society for Research on Child Development, Indianapolis, IN.

Fuchs, D., Fuchs, L.S., & Compton, D.L. (2004). Identifying reading disability by responsiveness-to-instruction: Specifying measures and criteria. *Learning Disability Quarterly, 27*, 216–227.

Fuchs, Douglas and Lynn S. New Directions in Research Introduction to Response to Intervention: What, Why and How is it? *Reading Research Quarterly*, Peabody College of Vanderbilt University, Nashville, TN

Lyon, G.R. (1995). Research initiatives in learning disabilities: Contributions from scientists supported by the National Institute of Child Health and Human Development. *Journal of Child Neurology, 10*(suppl.1), S120–S126.

Moats, Louisa C. "When Older Kids Can't Read. *Educational Leadership*, vol. 58, no.6 (2001):36.

Morris, R.D., Stuebing, K.K., Fletcher, J.M., Shaywitz, S.E., Lyon, R.G., Shankweiler, D.R. Katz, L., et al. (1998). Subtypes of reading disability: Variability around a phonological core. *Journal of Educational Psychology, 90*, 347–373.

National Reading Panel, *Teaching Children to Read: An Evidence-Based Assessment of the Scientific Research Literature on Reading and its Implications for Reading Instruction*. Washington, DC: National Institute of Child Health and Human Development, 2000.

No Child Left Behind Act of 2001, Pub. L. No. 107-110

Put Reading First: The Research Building Blocks for Teaching Children to Read. Washington DC: The National Institute for Literacy, 2001.

Snow, C.E., M.S. Burns, and P. Griffin, eds. *Preventing Reading Difficulties in Young Children*. Washington DC: National Academy Press, 1998

Stanovich, K.E. "Matthew Effects in Reading: Some Consequences of Individual Differences in Acquisition of Literacy," *Reading Research Quarterly, 21* (1986)

Vaughn, S., Linan-Thompson, S., & Hickman, P. (2003). Response to instruction as a means of identifying students with reading/learning disabilities. *Exceptional Children, 69*, 391–409.

Vellutino, F.R., Scanlon, D.M., Sipay, E.R., Small, S., Chen, R., Pratt, A., & Denckla, M.B. (1996). Cognitive profiles of difficult-to-remediate and readily remediated poor readers: Early intervention as a vehicle for distinguishing between cognitive and experiential deficits as basic causes of specific reading disability. *Journal of Educational Psychology, 88*, 601–638.

V. STATEMENTS REGARDING GOVERNMENT FUNDING OPPORTUNITIES FOR WIZCOM PRODUCTS

No Child Left Behind

ESEA- Title 1 A – Improving the Academic Achievement of the Disadvantaged

- Wizcom products help states meet criteria of Title 1, A by providing assistive technology literacy and translation support tools that meet the educational needs of **low-achieving children, limited English proficient children, children with disabilities and young children that are in need of reading assistance.**

No Child Left Behind

ESEA -Title 1, B – Reading First

- Wizcom products **support the five essential components of reading instruction** -- phonics, phonemic awareness, fluency, vocabulary and comprehension -- as outlined in the Reading First legislation and can help ensure that all children can read by the end of third grade.

Individuals with Disabilities Education Act

IDEA- Response to Intervention (RTI) Office of Special Education Programs OSEP Part B,

- Wizcom products can be used to assist states and local education agencies (LEA's) in their Response To Intervention models, using a process based on a child's response to scientific, research-based interventions (RTI) to help determine the existence of a child's learning disability (LD).
- If a child does not achieve adequately for their age or meet state-approved grade-level standards, Wizcom's technology-based literacy support tools can help pinpoint key designated areas including: Listening comprehension, **Basic reading skills, Reading Fluency Skills, Reading comprehension skills**, in addition to other comprehensive and data-driven analysis needed to determine disability.
- Additionally, assistive technology literacy support tools – can be an essential supplemental educational component of a child's IEP once LD eligibility has been determined.

Individuals with Disabilities Education Act

IDEA – Special Education

- Wizcom hand-held literacy support tools can help fulfill IDEA's efforts to provide special education students with the supplementary aids and services that enable them to **be involved in and make progress in** the general education curriculum "**least restrictive environment**" (614 e, 5)
- Use of Wizcom products can help states **to improve the use of technology in the classroom by children with disabilities to enhance learning. To support the use of technology including universal design principles and assistive technology devices to maximize**

accessibility to general education curriculum for children with disabilities. (118 Stat 2668).

No Child Left Behind

ESEA –Title II, Part D

Enhancing Education Through Technology (Ed Tech)

- Wizcom products help states fulfill the federal Ed Tech program whose primary goal is to **improve student academic achievement through the use of technology in elementary and secondary schools**. These hand-held assistive technology literacy tools can be easily and effectively integrated into curricula and instruction in order to improve teaching and learning.

No Child Let Behind

ESEA - Title IV, Part B

21st Century Community Learning Centers (2011-2012 TBD)

- Wizcom products are easily integrated and uniquely suited for the federal program 21st Century Community Learning Centers providing technology based literacy and translation support tools for **low-performing and ELL students as well as critical translation support for their limited English proficient families (adult members)**. Wizcom products can be used by states as an effective supplemental literacy support in any content area enrichment program in-or-outside of school.