



English Language Learners: Transition Through Technology



White Paper

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Abstract

One of the fastest growing groups in our schools, English Language Learners (ELLs) are estimated at over 9.9 million students with approximately 5.5 million classified as limited English proficient (LEP) under Title III assessments. In the last two decades alone, the number of ELLs has grown 169 percent, compared to a growth rate of just 12 percent in the general school population. While ELLs are a disparate group, speaking over 400 different languages, Spanish is by far the largest subgroup, spoken by more than 70 percent of ELL students.

Given the relative size of the ELL population, the challenge for educators and policymakers becomes more daunting as we forecast toward the future. By 2015, ELLs are expected to be 25 to 30 percent of the K-12 student population. Under No Child Left Behind (NCLB), districts are mandated to transition ELL students to mainstream classrooms with full proficiency against benchmarks by 2014. With resource constraints and limited expertise in ELL instruction, many districts are struggling to meet the needs of this special population.

In this paper, we examine the issues faced by schools in transitioning ELLs to mainstream curriculum, and consider how technology can provide a scalable means for educators to effectively target instruction. We will also look at best practices for the use of technology to meet the needs of ELLs, and discuss the alignment of the software programs the Academy of READING® and the Academy of MATH® to these requirements.

The Widening Gap

Educators on the front lines of the ELL literacy curve are, in many cases, already overwhelmed by the challenges in their classrooms. According to the National Center for Education Statistics in 2002, 41 percent of current teachers in the US had ELLs as students in their classrooms, but only 13 percent of those teachers reported receiving any instruction or professional development on the education of ELLs.

Meskill and Chen (2002) note "...core curricula for educators in training too often fall short of the depth and detail needed to successfully serve English language learner populations" (p. 1). The research accentuates an alarming disparity between the number of ELLs in classrooms and the percentage of teachers sufficiently qualified to teach them (Watson, Miller, Driver, Rutledge, McAllister, 2005).

With teachers inadequately prepared to meet the needs of ELLs, NCLB requirements for proficiency by 2014 become even more critical when we consider that ELLs perform significantly lower than their mainstream classmates in core reading and math skills throughout elementary and middle school and are statistically more likely to drop out of high school (Verdugo, 2006). Among the Spanish-speaking majority, research shows that Hispanic students in the United States are at especially high risk of reading difficulties. Despite progress over the past 15 to 20 years, they are about twice as likely as non-Hispanic whites to read well below average for their age (Burns, M. S., Griffin, P. & Snow, C. E. (Eds.), 1999).

Figure 1: 8th Grade ELLs: Reading Proficiency Scores

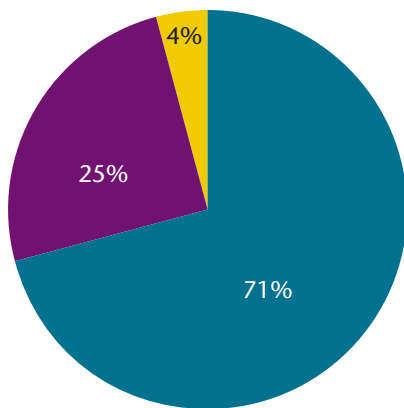
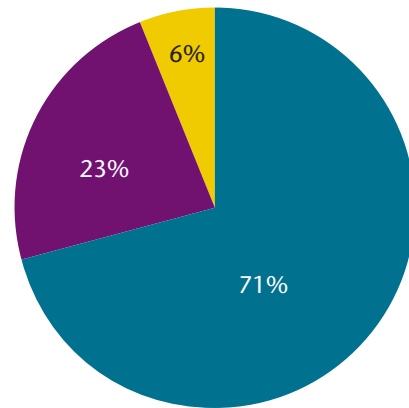


Figure 2: 8th Grade ELLs: Math Proficiency Scores



(Source: National Center for Education Statistics, 2005)

Research-based Intervention: Aligning Technology

Given the scope of the learning gap, and the urgency of the issue, there is a need for supplementary instructional approaches and scientifically based interventions to augment the existing curriculum. Research indicates that utilizing technology can be an effective strategy, enabling an individualized, student-centered environment that is engaging and inspires student responsibility (Verdugo, 2006). Further, given the rapid growth of the ELL population, technology can become a scalable, effective tool for administrators to engage “one on many” strategies that still address individual academic needs and allow for differentiated instruction – key success factors in achieving results with ELLs.

While much more research needs to be done on the efficacy of computer-based instruction as part of an overall ELL strategy, field studies indicate that implementation in structured programs can have a significant impact on reading and math proficiency.

Since many of the teachers, coordinators and volunteers running ELL programs aren’t reading specialists, particularly in middle schools and high schools, research-based software can help to bridge the gap to quickly develop foundation reading skills in a systematic manner.

Reading Fluency

As research continues to be accumulated with respect to reading performance among ELLs, there is an indication that the great majority of these students who experience reading difficulties tend to struggle with skills related to fluency, vocabulary and comprehension (Lesaux, 2006).

There is little argument among researchers on the importance of explicit, systematic and intensive skill development in phonemic/phonological awareness, phonics and automatic word decoding. Indeed, research indicates that most reading difficulties occur at the level of the single word; therefore reading is characterized by slow and labored decoding and comprehension suffers due to inefficiency of decoding (Francis, 2003).

Phonemic Awareness

For the ELL student, fluency begins with phonemic awareness as it facilitates the development of word recognition skills in all alphabetic languages.

The importance of phonemic awareness in the sequence of skill development, for all readers and certainly for the ELL student, is commonly supported. Scientifically based research suggests that ELLs respond well to meaningful activities such as language games and word walls, especially when the activities are consistent and focus on particular sounds and letters. Songs and poems, with their rhythm and repetition, are easily memorized and can be used to teach phonemic awareness and print concepts to ELLs. These rhymes exist in every language and teachers can ask students or their parents to share culturally relevant and teachable rhymes with the class, and build phonemic awareness activities around them (Hiebert, et al., 1998).

In the Academy of READING software program, for example, students work on strategic skill development with motivational tools, using puzzle-oriented activities that focus on the particular sounds and letters as

well as blending, segmentation and rhyming exercises. The sequential development of the reading process continues with Sound-Symbol Association, which allows the student to map newly acquired phonemic, sound-based skills to the written characters in the English language, thereby ensuring mastery of the foundations of oral and written English.

Phonics and Decoding

The continuation of essential English reading skills acquisition should include phonics and reading subskill development. Phonics instruction stresses learning how letters correspond to sounds and how to use this knowledge in reading and spelling. The goal is to help children understand that there is a systematic and predictable relationship between written letters and spoken sounds (CIERA, 2001).

To supplement the development of important phonics skills, computer-based instruction can provide intensive, structured training that strengthens the neural pathways required for fluent reading. In the Academy of READING, students work on visual matching exercises and more complex auditory-visual matching to reinforce the sight-sound relationship, crucial to the success of the ELL student. The notion of predictable relationships between letters and sound evolves into high frequency, common letter patterns and their corresponding sounds. The program focuses on 13 high-frequency English letter patterns, incorporating numerous consonant and vowel combinations. These patterns form the basis of the vast majority of written English text and build the ELL student's ability to instantaneously decode sight words and new text.

The skills necessary to decode these visual and auditory-visual patterns, along with sight words, are automatized through rigorous repetition until mastery, at which point the student demonstrates proficiency in automatic text recognition and English decoding skills.

Vocabulary Development

As ELL students gain needed phonics skills, we can also see improved achievement in higher-order comprehension and vocabulary skills. The development of automaticity and fluency in decoding allows for greater student performance in all subject areas, as research indicates that individuals whose word-recognition skills are automatic can devote greater cognitive resources to comprehending the text (Francis, Rivera, Lesaux Kieffer, Rivera 2006).

As the ELL student's decoding and word recognition skills are improved, the Academy of READING ties recognition to meaning through the introduction of specific vocabulary development in the optional Vocabulary Assist™ segment of the program. Early vocabulary exercises include direct instruction of high frequency word definitions. At higher levels, students graduate to more comprehension-based structural analysis of words. Through the development of fluency in foundation reading skills, students experience performance gains in other subject areas, as many learners who struggle with reading also have difficulty with mathematics mainly because of the language demands that are embedded within each of these skills (Francis, Rivera, Lesaux Kieffer, Rivera, 2006).

Mathematical Proficiency

Researchers and educators tend to agree that the core difficulty among ELL students with mathematics and, indeed, all other subjects, remains based in issues with reading and language. The frequent practice of relying on word problems to teach and assess mathematical knowledge reinforces the need for additional language and reading support. There is also some research consensus that, for success in math, much like reading, ELLs need early intensive, explicit instruction in the basic mathematics concepts, skills and the language of mathematics (Francis, Rivera, Lesaux Kieffer, Rivera, 2006).

Computer-based instructional approaches that address reading and math together in a systematic, sequential process provide an effective methodology to support developmental growth and skill acquisition. Regular, repeated exposure to high frequency words in both reading and math enhance the student's ability to recognize and master necessary academic language to improve core math abilities.

For example, the Academy of MATH incorporates an individualized, sequential process that allows educators to isolate student strengths and weaknesses, address specific skill deficits and promotes individual skill mastery along the developmental continuum. The ELL student may progress from basic numeracy to advanced problem solving across 10 subject areas and eight content levels as their abilities develop. In every exercise, there is a read-aloud option that the student can choose to help them understand what they are reading. Motivational principles are also incorporated as puzzle-oriented activities are supplemented by numerous encouraging "buddy" characters and rewards for skill mastery.

Individualized Instruction

By their very nature, ELLs are not a homogenous group. Varying ages, abilities and primary languages mean that a one-size-fits-all approach is unlikely to be very effective.

English learners differ in the languages they speak and the degree of fluency in English, in cultures they come from and in the type of prior schooling. Subgroups of ELLs include: under-schooled students, newly arrived, highly educated adolescents, and long-term English learners who have been in U.S. schools for six years or more (Olsen, 2006).

Given the differences among ELLs, individualized instruction is a key component of engaging these students. However, schools are operating under the very real limitations of time and resources in their efforts to provide high-quality instruction. Individual tutors, for instance, are a very effective instructional approach for ELL programs, but often these are volunteer resources or can only be utilized for a small number of students.

Technology can provide a mechanism to both tailor instruction and scale it to reach large numbers of ELLs. Automated assessments that place students into their unique training stream reduce the manual workload on teachers, while system-generated adjustments that respond to student progress enable instructors to facilitate larger groups. In addition, products that provide different user interfaces that are appropriate to varying age groups can help create a positive learning environment.

For example, the Academy of READING and the Academy of MATH provide each student with an initial benchmark assessment and follow with a dynamic individual education plan (IEP) that supports, intervenes

and modifies itself to the needs of the individual. These responsive interventions can include review of instructional and tutorial materials as well as modifications to address specific skill gaps as indicated by the individual student's performance.

Primary Language Support

Throughout ELL literacy research, there is a standing debate surrounding primary language instruction. Many believe that the initial stage of instruction should be aimed at achieving literacy in the student's first language and applying English later. At the opposite end of the spectrum is total immersion in English, regardless of literacy level in the primary language. While there is a lack of conclusive data that fully supports either side, there is empirical and testimonial evidence suggesting that students receiving some specialized language support in their primary language respond positively. There is also an advantage to be gained in the area of academic language with increased specialized language support (Verdugo, 2006; Francis, Rivera, Lesaux Kieffer, Rivera, 2006).

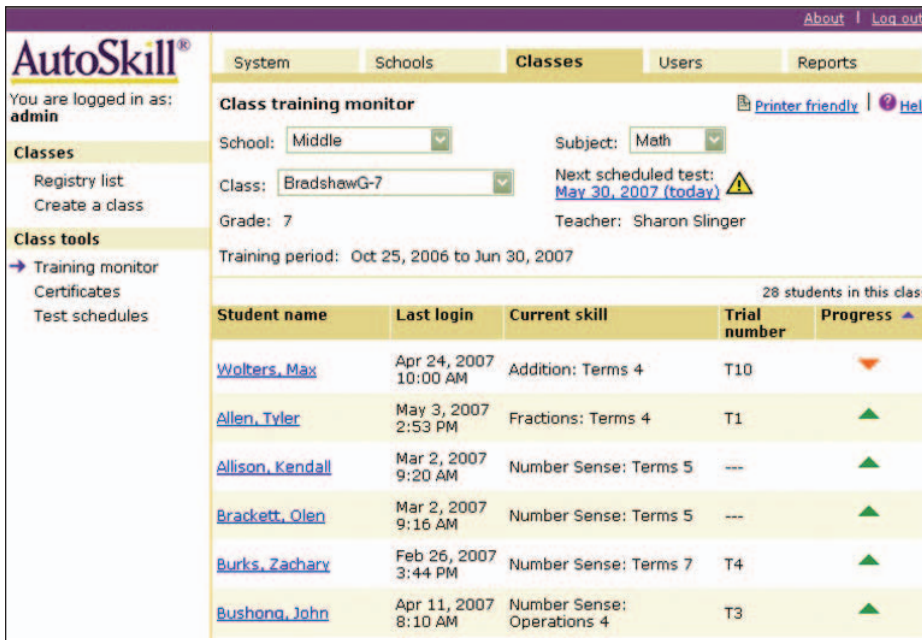
Taking the transition approach to ELL reading instruction, the Academy of READING and Academy of MATH allow the educator diversity in terms of instructional language. With the SpanishTutor™ option, educators can provide tutorial support in Spanish through animated tutorials and supportive motivational elements from numerous "video guides." The intent is to supplement the intensive English reading and math development with motivational, informative assistance in Spanish. Teachers have full control over when and where to apply the SpanishTutor, activating access on a per-user basis from the centralized management system. All actual training is conducted in English, ensuring that the student demonstrate proficiency in the mastery exercises.

Real-time Progress Monitoring

To further support the needs of the individual ELL student while addressing the requirements of the NCLB act, access to data – both formative and summative – drives most programs. For ELLs, getting up to proficiency levels in reading and math is a critical and ongoing factor of their success in school. Frequent progress monitoring is essential to make sure that students are getting the instruction they need and are responding appropriately to that instruction. To be truly effective for ELLs, data should extend beyond simple scored or graded performance to allow the educator to fully understand the specific skills deficit that the student may have.

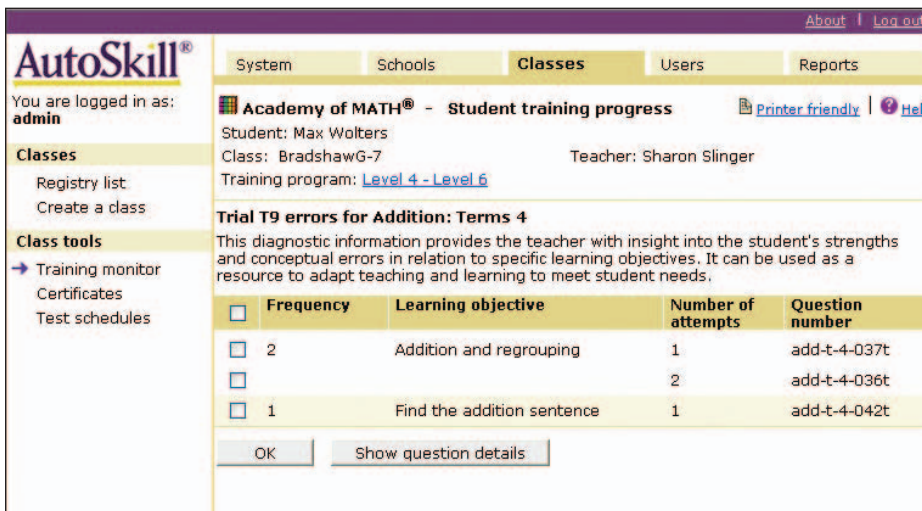
Within the Academy of READING and the Academy of MATH, the reporting system provides summary and detailed views of student progress in real time. District, school and class reports all offer high-level views of how students are doing overall. In addition, training monitor tools enable teachers to drill right down to the individual student level to see specific error records. Classroom and additional supplemental instruction can be adjusted to address individual areas of weakness before they become barriers to learning.

Figure 3: Classes Tab – Training Lab



The Class Training Monitor gives teachers a snapshot of all students in a class, showing their current skill, the last time they logged in, as well as the number of trials for that skill. Graphical intervention flags are presented, guiding the teacher in terms of how the student is doing on the current skill. Details on any student can be viewed by clicking on their name.

Figure 4: Classes Tab – Error Details



Teachers can view details right down to the individual errors that students make in trials. An easy error analysis can be completed by clicking on the *Errors* link.

Armed with the ability to immediately access and report on student error-specific data, ELL teachers can effectively target instruction to areas of weakness. The individualized nature of technology can also illustrate the need for additional levels of support for some students engaged in the learning process.

Implementation Best Practices

In preparing to address the complex needs of ELL students in the classrooms of today's and tomorrow's schools, educators need to use research-based principles in the development of best practices. While by no means exhaustive, the following is a checklist of success factors taken from research and best-practices ELL classrooms.

- Leadership** – The front-line teacher is still the greatest influence of success for ELLs. Teachers must be the leaders within the classrooms and be supported by administrative leaders at school and district levels. The growth of the ELL population suggests that commitment to progressive and adaptive leadership will be required to meet benchmarks.
- Ongoing Professional Development** – As teachers are essential to nurture successful ELL students, ongoing professional development is essential. Research, technology and instructional methodology continue to grow and adapt to the ELL population and require that teachers be kept up to date in order to maximize their positive effects.
- Detailed Initial Assessments** – Baseline literacy levels should be determined for each student to prescribe the optimal program. For example, students who are proficient readers in their first language (L1), and if that language follows alphabetic principles, are learning English equivalents to already learned processes. The nature of their instruction will differ from that of a student at a beginner literacy level in both L1 and English.
- Effective Modeling** – In both one-on-one and group settings, ELL students need extensive modeling to achieve fluency, correct pronunciations, cadence and rate, and expressive, meaningful interpretations of text and prosody. Students who participate in group modeling and self-evaluation of their own reading are more engaged and accept greater responsibility for their education.
- Cultural Connections** – In particular, older students respond positively to instructional content that is connected to subjects of historical or social relevance specific to the ELL students primary language and culture. Incorporating cultural significance to the literacy process allows the student to feel more connected to their culture within the English learning environment.
- Community Links** – Successful ELL programs typically incorporate ways to engage parents and the broader community. Access to progress reports, extended-day programs for students and their families, and home connections are just some of the methods schools can use to broaden the reach of their programs.
- Scalable Technology** – Rising numbers and differing needs of ELL students continue to expand beyond the capabilities of conventional classrooms and teachers. When selecting technology solutions to integrate into an ELL program, educators need to ensure that they are both adaptable to individual needs and scalable to reach large groups of students.

Conclusion

English language learners represent a large – and growing – population of students in our schools. Finding ways to help them accelerate their learning curve is critical. To succeed in academics and beyond, ELL students need to rapidly acquire foundation reading and math skills to move from solving problems to problem solving and from learning to read to reading to learn.

Current research suggests that best practices for ELL programs need to incorporate a consistent, structured approach to skill development in reading and math. Further, some of the essential components of effective implementations include individualized training that targets the unique gaps of each ELL student and formative data that enables educators to monitor progress in real time and continually assess student response to instruction.

Scientifically based technology solutions can play a key role in the development of effective ELL programs – particularly as they scale with the rising numbers of ELLs. Careful planning and analysis will help educators choose the right products and implementation models to meet the needs of ELLs in their schools.

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About AutoSkill® International

AutoSkill creates award-winning intervention solutions to help close the achievement gap in K-12 schools. For over 17 years, its research-based programs have helped at-risk students to build fluency in the foundation skills of reading and math.

The company's core products, Academy of READING and Academy of MATH, deliver rapid, permanent gains so students progress in their education and administrators meet AYP targets. For more information, visit www.autoskill.com.

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