

# Technology-Driven Innovations for Teaching English Learners

By Sean Kennedy and Don Soifer



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## Executive Summary

For the growing number of schools across the United States struggling to meet the educational needs of English language learner student populations, the challenges frequently outweigh the new approaches and ideas for meeting them successfully. This paper discusses six promising, technology-driven innovations currently demonstrating encouraging progress meeting these challenges:

**Rocketship Education**, a network of high-performing blended-learning charter schools serving predominantly low-income and English learner families;

**HELP Math**, a web-based math curriculum designed for English learners;

**Montgomery County (MD) Public Schools'** highly successful instructional approach;

**ELlevation**, a software platform for managing ELL student data;

**Achieve Language**, a reading tool that individualizes content to students' comprehension levels, and

**Voki**, a novel, avatar-driven interactive environment that fosters constructive interaction.

Details follow.

# Table of Contents

Introduction.....	1
Rocketship Education.....	3
Voki.....	5
Montgomery County (MD) Public Schools.....	6
Achieve Language.....	8
HELP Math.....	9
ELLevation.....	10
Conclusion.....	11

## Introduction

Of all of the student populations attending public schools in the United States, perhaps no stronger case can be made that the success of any single group holds more important consequences for the nation's future than its growing population of 5.3 million English language learners (ELL).

And with the strengthening presence of education technology being utilized in schools, a similarly strong case could be made that few student populations could benefit more from harnessing its transformative power effectively to improve instructional efficiency and learning outcomes.

The highly unfortunate reality is that across most of America's school districts, each of these challenges are characterized more by missed opportunities than by realized potential.

The educational landscape for English learners in public schools has changed dramatically in one fashion: their outcomes, as measured by standardized assessments, have been included under the umbrella of mainstream school accountability systems. While for decades, progress in English learner education was ignored when it came to evaluating the public schools they attended, changes in federal law under provisions of the No Child Left Behind Act ensured that these students' progress would be measured along with those of all other children.

But that accountability calls attention to the fact that the gaps in educational achievement for English learners are closing slowly, when they are closing at all. There is much more research to indicate the specific challenges to serving this population than demonstrating how to do it effectively. Among the challenges: Households where the adults are English learners are twice as likely to live in poverty compared with those headed by proficient English speakers, and their median incomes are 60 percent lower on average. Higher mobility rates and less stable living arrangements at home further increase the challenges facing schools.

Most English learner students are not immigrants, contrary to some common perceptions. In fact, only one in four are foreign born themselves. This points to cycles of linguistic isolation that present both economic challenges to communities, as well as educational challenges to schools.

In the last two decades, the nation's English learner population has grown beyond those urban centers and school districts previously experienced in teaching large numbers of ELL students. New communities often struggle to design and implement effective ELL programs for these challenging student populations, frequently doing so in a climate where other priorities compete for their attention and resources.

"For these kids, the problem is that they aren't getting the supports they need to address the reading and writing skills they lack, and they also aren't getting access to the mainstream curriculum that they need to graduate and succeed," Patricia Gándara,

Co-Director of the University of California, Los Angeles Civil Rights Project, recently observed to *Education Week's* Lesli Maxwell.<sup>1</sup>

For English learners in the vast majority of school districts nationally, the prevalent reality remains that they are more likely to drop out of school than ever to become proficient in English, or in standards-aligned content areas.

A number of innovative school reformers and technology companies have risen to meet the challenge by introducing methods and programs to improve English proficiency and teach content to ELL students. This study highlights innovative practices and technologies that have either demonstrated success improving outcomes for ELL students or have great potential to do so. This study acknowledges that no one program is an unqualified success and more development and experimentation into these programs is necessary to reach the broad and diverse ELL student population.

Improving outcomes for English language learners is a dual challenge in that students' English proficiency and general academic competencies have to be addressed simultaneously. As a result, most methods focus on either proficiency or academic competencies, although overlap exists for both. Technologies and practices approach these problems differently including social networking, language drills including listening/speaking and reading/writing, and intuitive games and interfaces.

This report focuses on several promising innovations being utilized in schools around the country. The innovations vary: a network of high-performing blended-learning charter schools serving predominantly low-income and English learner families, a web-based math curriculum designed for English learners, a combined approach utilized by a diverse, suburban Maryland school district, a software platform for managing ELL student data, a reading tool that individualizes content to students' various comprehension levels, and a novel, avatar-driven interactive environment that fosters constructive engagement.

It is hoped that the success of innovations like those described in this paper will lead to their growth, as well as to the development of newer tools to further benefit classrooms. Meanwhile, it is the authors' intent that drawing attention to their success and promise will permit other schools to adopt these or others like them, and even help to stimulate further innovation to bolster success rates with this crucial population.

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<sup>1</sup> Lesli Maxwell, "Raising Latino Achievement Seen as Demographic Imperative," *Education Week*, June 1, 2012.

## Rocketship Education (A School-Wide Approach)

Rocketship Education, a charter elementary school network started in San Jose, California with planned expansions into a number of Midwest and East coast cities, had to address the challenge of ELLs from the start. Over 90 percent of its 3,500 students in grades K-5 qualify for free or reduced lunch and over 75 percent are classified as ELL by the state of California.<sup>2</sup> Rocketship's proportion of ELLs from low-income families exceeds the district and most surrounding schools, and most come to the school between half-a-year and a year-and-a-half of academic progress behind their peers as measured by various assessment tools. To drive overall student achievement, Rocketship had to make improving English proficiency and academic outcomes for English learners a top priority, and their success rate suggests there is much worthy of emulating.

Rocketship's primary innovation is to individualize its student learning trajectories through blended learning. According to Rocketship's Charlie Bufalino, "Our blended learning model is one that seeks to empower the teacher by giving them a more accurate picture of their students' learning, as well as access to additional tools and instructional methods that can provide direct, targeted interventions for students at the appropriate developmental level. This approach to individualization helps our teachers specialize as well as fully own the academic achievement of each and every one of their students."<sup>3</sup>

Students take interim exams every eight weeks to assess their proficiency according to curricular standards and instructions which follow student needs.

**<http://www.rsed.org/>**  
*Promotes individualized student learning trajectories through blended learning.*

The schools' extended, 8-hour school day maximizes instruction time using a block schedule including two 100-minute classroom-based literacy instruction sessions, one 100-minute block for classroom-based math instruction, and a 100-minute block for time spent at computer workstations in Learning Lab.<sup>4</sup> The school's Response to Intervention program is based on small group tutoring.

Students, regardless of their ELL status, attend the daily learning lab, where they play games and interact with online content relevant to their grade level and progression. The data collected is integrated by teachers and learning lab instructors to drive interventions and small group lessons tailored to the individual student's level. Math classes can be subdivided into smaller groups – "hot," "medium" and "mild" for one math teacher at Rocketship Si Se Puede school – that structure work based on comprehension and level of difficulty. In smaller group study, teachers are better able to work with ELLs based on both English proficiency and content absorption.

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<sup>2</sup> Charlie Bufalino, email response to Sean Kennedy, October 5, 2012.

<sup>3</sup> Charlie Bufalino, email response to Sean Kennedy, October 5, 2012.

<sup>4</sup> "Blended Learning at Rocketship Education," Case Study by the Michael and Susan Dell Foundation, <http://www.msdf.org/programs/urban-education/initiatives/united-states/blended-learning/>.

For ELLs, Rocketship also employs the language software Rosetta Stone English so students can do listening, reading, and speaking exercises at their level and pace.

According to Bufalino, Dreambox, a math program used at some of the Rocketship schools, “uses many onscreen visual cues and

no text prompts, students who have difficulty with oral instructions can still figure out and learn from the activity. Language is a barrier which is really important to overcome when you consider the demographics of the populations we’re serving.”<sup>5</sup>

Rocketship’s differentiated staffing model also offers further opportunity for transformative innovation. Each school utilizes a team of certified teachers specializing in either literacy/social studies or math/science, along with non-certified Individualized Learning Specialists. Specialists staff the learning lab, serve as learning coaches working in tandem with online content, and provide small-group Tier II Response to Intervention instruction.<sup>6</sup>

Rocketship’s approach has placed its school among the top-performing elementary schools in California. For ELL students, the results have been especially dramatic, outscoring ELLs across the state on the California Standards Test. The average 2011-2012 Academic Performance Index score for Rocketship’s ELL population was 843, compared to a 762 statewide average for California’s ELLs.<sup>7</sup>

### **Related programs:**

*Dreambox by Dreambox Learning*  
*TenMarks Math by TenMarks*  
*Accelerated Reader by Renaissance Learning*

*Blended Learning:*  
*Education Elements*  
<http://www.edelements.com/>

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<sup>5</sup> Bufalino quoted in Dreambox case study, [http://www-static.dreambox.com/wp-content/uploads/downloads/pdf/DreamBox\\_Rocketship\\_21st\\_Century\\_School.pdf](http://www-static.dreambox.com/wp-content/uploads/downloads/pdf/DreamBox_Rocketship_21st_Century_School.pdf).

<sup>6</sup> Dell Foundation Case Study.

<sup>7</sup> Rocketship, “Rocketship Top-Performing School System in CA. Serving Low-Income Students,” October 16, 2012 <http://www.rsed.org/media/documents/1RocketshipAPI2012PressRelease--FINAL.pdf>.



## Voki

Voki is a speaking avatar which allows a student or teacher to record themselves or use an audio file and play back the result. Students can also type in text and hear the words repeated slowly. For English language learners, students can design their own avatar characters that look like them or their classmates, and create dialogues and practice lessons.

[www.voki.com](http://www.voki.com)

*Created by Oddcast, a New York-based company that has been designing online applications utilizing speaking characters for a number of years.*

*Facilitates traditional classroom exercises and independent learning by students.*

A 2007 practice guide published by the U.S. Department of Education's Institute of Education Sciences evaluated numerous approaches for developing English language literacy for English learners in the elementary grades. Among the strategies to which the guide assigned a "Strong Recommendation" was ensuring that teachers devote approximately 90 minutes per week to instructional activities which pair students at different English language proficiency levels to work together on academic tasks in a structured fashion. Technology-based solutions like Voki have the potential to enhance such opportunities effectively within a classroom environment.<sup>8</sup>

The program facilitates traditional classroom exercises and independent learning by students. It also allows the instructor to vary the difficulty of assignments.<sup>9</sup> To supplement instructor-created lessons, Voki offers a database that includes 160 lesson plans that utilize

Voki from science to English grammar.

In 2011, Voki launched an online Learning Management System to review student projects and grade assignments remotely.

Voki ([www.voki.com](http://www.voki.com)) is produced by New York-based company Oddcast Technologies.

### **Related programs:**

*Dragon by Nuance  
Kurzweil3000 by  
Kurzweil Educational Systems*

<sup>8</sup> Gersten, R., Baker, S.K., Shanahan, T., Linan-Thompson, S., Collins, P., & Scarcella, R. "Effective Literacy and English Language Instruction for English Learners in the Elementary Grades: A Practice Guide," December 2007, Institute of Education Sciences, U.S. Department of Education, p. 27.

<sup>9</sup> Voki, "About Voki," [http://www.voki.com/about\\_voki.php](http://www.voki.com/about_voki.php), accessed December 15, 2012.

## Montgomery County Public Schools – Start Early And Focus On English Acquisition First

Since most ELL students in Montgomery County, Maryland are American-born, not newcomers, schools there have an added advantage in reaching them early in their school career when their ability to acquire a new language is at its highest and support them throughout. Montgomery County’s public school district (MCPS), with a population of 22,000 ELLs, places an early emphasis on teaching English proficiency by the third grade, then transitioning them to English-only curriculum quickly.<sup>10</sup>

For pre-K through third graders classified as English learners, MCPS places students in mainstream, English-only classrooms and provides intensive in-class and out-of-class support that utilize technology. MCPS supports ELL students with instruction in clear, simple and direct English to immerse the child in an English environment and introduce complex ideas slowly to improve language acquisition.

Instruction “focuses on academic English and is aligned with rigorous content standards.”<sup>11</sup> In 2010, over 70 percent of ELL students were classified as advanced or proficient in third grade reading compared to only 40 percent in 2004.<sup>12</sup> By third grade, English learners that complete the program successfully transition to proficiency in English and no longer require additional support and are fully integrated into English-only classes.<sup>13</sup>

### **MCPS goal:**

*By 3<sup>rd</sup> grade, ELLs that complete the program successfully transition to proficiency in English and no longer require additional support and are fully integrated into English-only classes.*

According to the Fund for Childhood Development, which studied the MCPS program, its success is made possible by “a culture of collaboration at all levels of the district [that ensures] that preK-3rd grade ELL students are well supported in every school.”<sup>14</sup>

Norka Padilla Ratnavale, who coordinates ELL instructional programs for MCPS, believes that technology can enhance that culture and student outcomes. She encourages ELL instructors to use technological resources to help students improve proficiency and comprehension of core content materials.

<sup>10</sup> Norka Padilla Ratnavale, (MCPS, ESOL Instructional Specialist), Interview by Sean Kennedy and Don Soifer, December 13, 2012.

<sup>11</sup> Geoff Marietta, Foundation for Child Development, “Lessons for PreK-3rd from Montgomery County Public Schools,” December 2010, <http://fcd-us.org/sites/default/files/FINAL%20MC%20Case%20Study.pdf>.

<sup>12</sup> Marietta, p.3.

<sup>13</sup> *Ibid.*

<sup>14</sup> Marietta, p. 18.

At Westland Elementary in Bethesda, Maryland, where Ratnavale previously ran ELL programs for MCPS, she implemented a blended learning program through Coursesites. ELL reading proficiency jumped from 79 percent to 90 percent after one-year of implementation.<sup>15</sup>

The district also uses Edline, an electronic bulletin board which allows students and parents to access assignments and supplementary materials outside of class so students can learn on their own time and parents can participate in their child's education. School site Resource Teachers are trained in various tools so they can assist classroom teachers directly. Students are able to access online content from various sources, allowing schools to take advantage of innovative tools developed externally. Ratnavale explains free online content like Khan Academy "is great because you can teach yourself and at your own learning pace."<sup>16</sup>

**Related programs:**  
*Edline by Blackboard Engage*  
*Google Translate*  
*Khan Academy,*  
<https://www.khanacademy.org/>

For Ratnavale and MCPS, technological innovations are improving communication with both students and parents and boosting proficiency. Teachers in MCPS can speak with parents in almost any language via Language Line, a conference call system that provides real-time translation in dozens of languages. Google Translate offers an application for iPhones as well that allows quick spoken translation in a dozen languages, "I even had a very substantive conversation with a parent in Mandarin Chinese."<sup>17</sup>

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<sup>15</sup> Data provided by Nora Padilla Ratnavale, email to Sean Kennedy, December 14, 2012.

<sup>16</sup> Norka Padilla Ratnavale, (MCPS, ESOL Instructional Specialist), Interview by Sean Kennedy and Don Soifer, December 13, 2012.

<sup>17</sup> *Ibid.*

## Achieve Language

Achieve Language / ELL Success is a web-based software program designed specifically for English learner students to improve English proficiency by individualizing content and assessment to the student's comprehension level. The program utilizes an internal assessment tool, LevelSet, to gauge a student's skill and adapts content delivery accordingly.

The program puts a special emphasis on developing academic vocabulary in English, then asking those students to demonstrate knowledge through simultaneously developed writing and reading skills. The program complements four ELL teaching programs -- Immersion, English as a Second Language, bilingual, and dual language -- with embedded functions that support school district requirements for native language usage.

ELL students in grades K-12 receive a daily email on a "topic of the day" related to the student's background and experience, to provide the student with a grounding in the content and subject of the day's lesson. Each student also receives a non-fiction article differentiated to the student's reading and vocabulary level and appropriate grade-level content. Embedded functions provide the student and teacher with strategies to support the day's assignment. The students then complete activity questions and assessments to demonstrate reading comprehension aligned to academic standards.

The program polls students on their opinions about real-world events related to the content. Teachers reinforce the reading and ask the students to apply their knowledge of the content and language they learned in discussions. Students are then asked to reflect on the concepts and vocabulary they mastered and apply them through a "Thought Question" prompt.<sup>18</sup>

Achieve Language / ELL Success's 5-step process differentiates language and assessment-level based on standardized content. Differentiated text is provided in two languages. This innovation allows a teacher to support each student at their own level, while promoting interaction and understanding among students at different levels through identical content.

The program directly administers formative and diagnostic assessments, and provides easy to use reports to teachers and officials on student progress. The program also delivers prescriptive assignments automatically based on student needs, relieving the burden for

*Developed by New Jersey-based Achieve3000, private company founded in 2000.  
[www.achieve3000.com](http://www.achieve3000.com)*

*Promotes English proficiency and literacy by individualizing content and assessments to student's level.*

### **Related programs:**

*Read180 by Scholastic  
Imagine Learning*

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<sup>18</sup> Achieve3000, "Achieve Language: Enhanced instruction to accelerate ELL success," [www.achieve3000.com](http://www.achieve3000.com), accessed December 15, 2012.

intense preparation, differentiation, and intervention on behalf of ELL students.<sup>19</sup> Results: Students using Achieve3000's Achieve Language / ELL Success program improved their English proficiency scores at twice the rate of expected gains from traditional instructional methods. Students reading two or more years below grade level at the beginning of the school year closed the achievement gap by year end. The higher the frequency of the program's use the greater the gains posted in student averages.<sup>20</sup>

## HELP Math

HELP Math is a web-based, supplementary curriculum program that delivers math instruction guided by assessments to students with limited English proficiency.

The grade-level content, aligned with national standards, is presented in interactive multimedia lessons designed to introduce the academic language and concepts at the ELL student's level. Like other programs that use intuitive cues, HELP Math uses "synchronized audio, visual, text, and interactivity to create a visual connection between words and meaning." The program builds English proficiency as students learn math concepts, and are introduced to academic vocabulary and context.

Digital Directions (developer of HELP Math) provides training for teachers, other instructional staff and computer lab teachers and facilitators to implement and supervise the program. Students (as well as their parents and teachers) can access their HELP Math report card online, but the system also generates reports as well as teacher alerts for students failing to master particular content.<sup>21</sup>

The program includes 73 module lessons, with over 200 hours of instruction, so students can repeat the lessons or accelerate depending on their comprehension and mastery. The federal Department of Education's What Works Clearinghouse reviewed HELP Math in 2012 and found that after a 10-week program, scores for participating students "were statistically significantly higher than students in the comparison condition on the math

*Developed by Digital Directions  
International*

*<http://www.helpprogram.net>*

*Provides grade 3-8 English  
learner students with language  
level-appropriate math  
instruction and assessment.*

*Based on Sheltered Instruction  
principles, targets student content  
and vocabulary deficiencies.*

### **Related programs:**

*Dreambox by Dreambox Learning  
TenMarks Math by TenMarks*

<sup>19</sup> Achieve3000, "ELL success," [www.achieve3000.com](http://www.achieve3000.com), accessed December 15, 2012.

<sup>20</sup> Achieve3000, "English Language Learners: 2008–2009 Lexile Study," 2010.

<sup>21</sup> [http://www.helpprogram.net/public/?page\\_id=43](http://www.helpprogram.net/public/?page_id=43).

achievement posttest.”<sup>22</sup> The study, which examined programs in three Colorado school districts, was cited as evidence for a federal Investing in Innovation (i3) grant.

In addition to meeting the federal Department of Education’s highest quality standard, an independent study conducted by the Colorado Department of Education found that HELP Math student scores increased 42 percent while the control group’s scores increased only 4.6percent.<sup>23</sup> Sixth and seventh grade student groups showed the greatest math gains of 75 percent and 71 percent respectively.

HELP Math’s success delivering core academic content to ELL students points to it as a promising innovation for schools struggling to provide grade-level content in English to English language learners.

Digital Directions notes that funds for implementing HELP Math are available to school districts under Titles I, II, III and IV of the Elementary and Secondary Education Act as well as through Individuals with Disabilities Education Act funding.

## ELlevation

ELlevation is a web-based application now working in 110 school districts and 12 states, the product of an education technology startup headed by former New Schools Venture Fund partner Jordan Meranus, entrepreneur Teddy Hill and longtime English language learner educator Carrie Hill.

This innovation differs from the others in this report because it is essentially for educators, rather than for their students directly, and as a new startup it lacks a definitive record of accomplishment. But it shows considerable promise addressing an area of particular need in English learner education: transparency for progress with individual students.

ELlevation, [www.ellevationeducation.com](http://www.ellevationeducation.com), offers a platform for educators and administrators for managing ELL student data that includes entering and sharing data. Teachers and coordinators can access district-wide student information systems, monitoring students after exit, and integrating ELL performance with standards. ELlevation notes that it works closely with the World-Class Instructional Design and Assessment Consortium (WIDA), to integrate student data with standards while integrating the Consortium’s prescriptions and learning goals. The application can also provide remote support services, including document translation in 20 languages and track ELL program compliance requirements.<sup>24</sup>

### Related programs:

*Milestones by Heinle ELT*

<sup>22</sup> Department of Education’s What Works Clearinghouse, “WWC Review of the Report “Help with English Language Proficiency ‘HELP’ Program Evaluation of Sheltered Instruction Multimedia Lessons,” October 2012, <http://ies.ed.gov/ncee/wwc/SingleStudyReview.aspx?sid=10021>, accessed December 15, 2012.

<sup>23</sup> Tran, Z. (2005). Help with English Language Proficiency “HELP” program evaluation of sheltered instruction multimedia lessons [White paper].

<sup>24</sup> Teddy Rice, Co-founder of ELlevation, interview by Sean Kennedy, December 12, 2012.

## Conclusion

The technology-based innovations discussed in this report differ in substantial ways, but are each organized around evidenced-based principles in ways the authors believe hold considerable promise for helping educators meet the challenges of serving English language learner student populations.

The 2007 Institute of Education Sciences study noted earlier, in its evaluation of small-group instructional methods designed for ELLs in the elementary grades identified some that it found deserving of a 'Strong Recommendation.' "Despite the different names and some differences in lesson content and sequencing, [the] interventions have many features in common: fast-paced, intensive, highly interactive small-group instruction; frequent review; frequent opportunities for students to respond; heavy emphasis on systematic teaching of phonological awareness and phonics principles; use of decodable text; and emphasis on fluency as well as comprehension."<sup>25</sup> The technologically-based innovations described here can help educators provide more opportunities to expose students to such practices within their classroom environment.

Technology and programs designed to improve instruction and proficiency for English language learners are still in development and lack the robustness of many of the leading general blended learning and education technology applications. Given the vast size of the English learner population in the United States, and its steady and rapid growth, it would seem that market dynamics would recognize this as an attractive market and solve challenges like startup capital needs based on the potential for return on investments. But given the unreliability of education budgets for new investments, and the diffuse nature of investment decision-making across the public education sector, the needs of this crucial student population continue to go underserved.

As school districts around the nation struggle to meet the challenges of growing English learner populations, more resources and attention are needed to develop adaptive programs and software that contribute to accelerating progress, improving transparency, and utilizing data to guide differentiated instruction.

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<sup>25</sup> Gersten, R., p 24.

**Also by the Lexington Institute:**

*The Value of English Proficiency to the United States Economy,*  
by Amber Schwartz and Don Soifer, December 2012.

*English Language Learners and NAEP: Progress Through Inclusion,*  
by Don Soifer, March 2012.



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