



# ABCmouse Significantly Increases Children's English Language and Digital Literacy Skills

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## Key Findings

- Elementary school children in a Spanish-speaking country using ABCmouse made significantly greater gains in English language knowledge in comparison to the control group that received business-as-usual English language instruction.
- The more activities students completed on ABCmouse, the greater their gains in English language knowledge.
- By using ABCmouse, both students and teachers developed greater facility in using technology as a tool for learning and teaching.
- Teachers expressed the desire to continue using the program in their classrooms, and students described how ABCmouse increased their interest and enjoyment in learning English.

## Overview

Today, more than 1.5 billion people worldwide are English learners, and English is the most widely spoken and written language in the world, with 94 countries where English is either the primary or secondary official language.<sup>1</sup> English is also the language that dominates the internet, and proficiency in English has become synonymous with better career opportunities.<sup>2</sup> Meeting the needs of

quality English language education worldwide demands extensive customization to local language and culture, and there is a need for scalable, affordable resources that can effectively serve learners in diverse settings.

Age of Learning, Inc.'s, ABCmouse *Early Learning Academy* is a comprehensive digital learning resource, primarily serving English-speaking children (ages 2–8) in the U.S. Age of Learning designed ABCmouse with more than 10,000 Learning Activities to help children build language and literacy skills, as well as to develop knowledge and skills across the subjects of math, science, health, social studies, art, and music.

For this study, Age of Learning partnered with the Costa Rican Ministry of Education and Creciendo Juntos (Growing Together). Creciendo Juntos is a local education nonprofit that serves elementary schools and high schools in Guanacaste, a touristic province with the highest levels of extreme poverty in the country. A primary goal of the study was to test the hypothesis that ABCmouse can effectively help children in a non-English-speaking context develop English language and digital literacy skills. A secondary hypothesis was that through ABCmouse, Costa Rican teachers could gain facility in using a mobile application to deliver English instruction. Age of Learning researchers designed the study and worked with educators from the Costa Rican Ministry of Education and professionals at the nonprofit, to collect, analyze, and interpret the data.

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1 Neeley, T. (2012). Global Business Speaks English. *Harvard Business Review*. <https://hbr.org/2012/05/global-business-speaks-english>; St. George International: The Language Specialists. How many people in the world speak English? <http://www.stgeorges.co.uk/blog/learn-english/how-many-people-in-the-world-speak-english>

2 Pandey, M. & Pandey, P. (2014). Better English for better employment opportunities. *International Journal of Multidisciplinary Approach and Studies*, 1(4).

## Program

Participating teachers used ABCmouse as a supplement to the standard English language learning curriculum in Costa Rica. Most teachers had tablets for their students to share (although each student had his or her own account and Avatar), and they usually supplemented the classroom resources with their personal smartphones and hotspots. Teachers used ABCmouse in a variety of ways, including having children repeat after the sentences in the app, having them sing along, reading English books aloud to the class, or assigning independent practice activities to reinforce whole-group lessons. In collaboration with the Costa Rican Ministry of Education, Age of Learning curriculum specialists identified Learning Activities within ABCmouse that support 1st through 3rd grade Costa Rican learning objectives. Curriculum specialists then created customized playlists of the Learning Activities best suited for English language learning, which teachers assigned

to their students. The activities included puzzles, videos, songs, games, audiobooks narrated by native English speakers, books that students could read independently, and comprehension checks following a lesson or book. As students navigated through ABCmouse, they encountered oral and written English throughout their experience, such as instructions for activities, guidance while modifying their Avatars, and pronunciations for items in their virtual classroom.

Figure 1 displays a playlist that teachers could assign to students as they worked on the Community Helpers unit, a topic set by the Ministry of Education. Figure 2 shows a book that students could read along with, focused on one of the community helpers. Since most children were beginner English learners, the curated ABCmouse content was comprised of activities originally designed for young native English-speaking children in the early stages of language development.

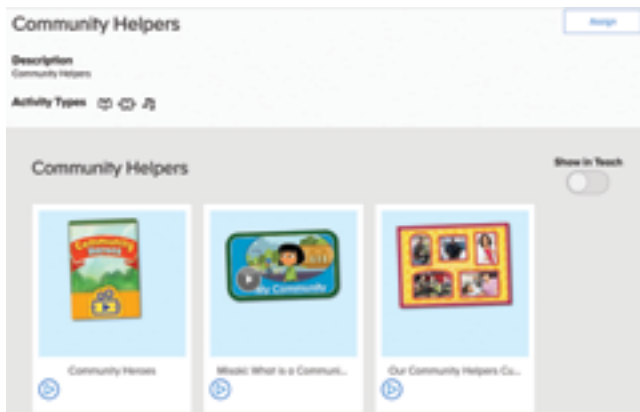


Figure 1. Teacher view of a playlist to assign



Figure 2. Sample read-along book for students

## Participants

A total of 1,043 students and 13 English teachers across 15 public elementary schools in Guanacaste used ABCmouse in school from May to October 2019.<sup>3</sup> We selected a sample of approximately 20% of the students in grades 1, 2, and 3 across the 15 schools (209 students) for assessment, of which 197 students participated in the pretest and 157 participated in the posttest.<sup>4</sup> Additionally, one elementary school in the same province with

comparable demographic characteristics as the treatment schools provided a sample of one English teacher and 187 students, of whom 151 participated in the pretest and 109 participated in the posttest. The final primary analytic sample (N = 266) included all students who completed both the pretest and posttest (157 treatment and 109 control students). All teachers agreed to complete a pre- and post-program survey, and most participated in interviews at the end of the program. A total of 19 parents participated in focus groups, as did 24 children.

<sup>3</sup> Six of the thirteen teachers taught at more than one school. The school year in Costa Rica starts in mid-February and ends in early December.

<sup>4</sup> We identified the comparison school after the selection of schools designated to implement ABCmouse; it was not possible to recruit other schools to increase the size of the comparison group.

## Design and Procedure

Treatment group teachers had full access to ABCmouse and were asked to use it in their classrooms for at least 45 minutes per week. Students in the treatment group also had access to ABCmouse for home use, but since most students did not have internet access at home or appropriate devices to use the program outside of school, home usage was very limited. Control group teachers continued with business-as-usual English language instruction, which included the use of resources from the internet, books, and some software.

The primary measure of students' language skills was *The Bilingual Verbal Abilities Test (BVAT)*.<sup>5</sup> The BVAT is a widely used standardized assessment of bilingual individuals' language abilities, validated across 16 languages. It contains three subtests: *Picture Vocabulary*, which measures an individual's ability to produce words for familiar and unfamiliar objects; *Oral Vocabulary*, which assesses a person's capacity to produce synonyms and antonyms of target words; and *Verbal Analogies*, which indicates one's aptitude to comprehend and verbally complete logical word relationships. Trained bilingual

(English and Spanish) assessors administered the pretest one-on-one to students at the end of March and the posttest in early November 2019.

Prior to using ABCmouse, teachers participated in an eight-hour in-person training, conducted in English and Spanish by a senior Age of Learning curriculum expert. Teachers also participated in monthly professional development webinars.

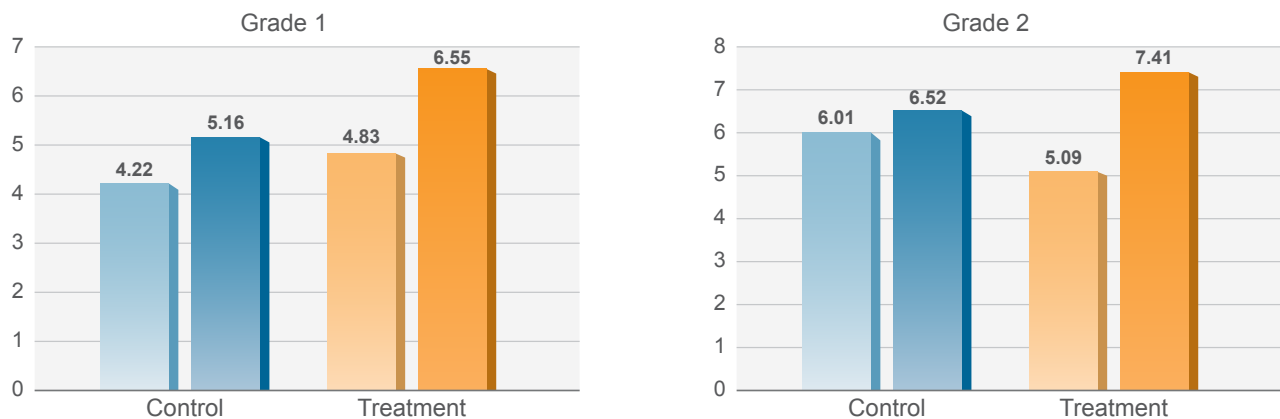
On average, all students across treatment and control groups had three 45- or 50-minute English lessons per week (a total of 2.25–2.5 hours/week). Over the study period, treatment group students completed, on average, 130 ABCmouse activities ( $SD = 153.4$ ) and spent a total of about 11.4 hours ( $SD = 13.4$  hours) using the program or 26.3 minutes ( $SD = 30.9$  minutes) per week for 26 weeks.

## Results

We examined the effect of ABCmouse on students' English language skills while controlling for differences in students' pretest scores, grade level, and gender, using a method that accounts for the nested structure of the data.

### Finding 1. Students using ABCmouse made significantly greater gains in English language knowledge compared to the control group.

As shown in Figure 3, there were no statistically significant differences between the two groups at pretest, but at posttest, 1st and 2nd grade students who used ABCmouse outperformed the control group ( $p < .05$ ). Third graders started out at a significantly higher level at pretest than those in lower grades, and the posttest difference between the treatment and control groups was not significant.

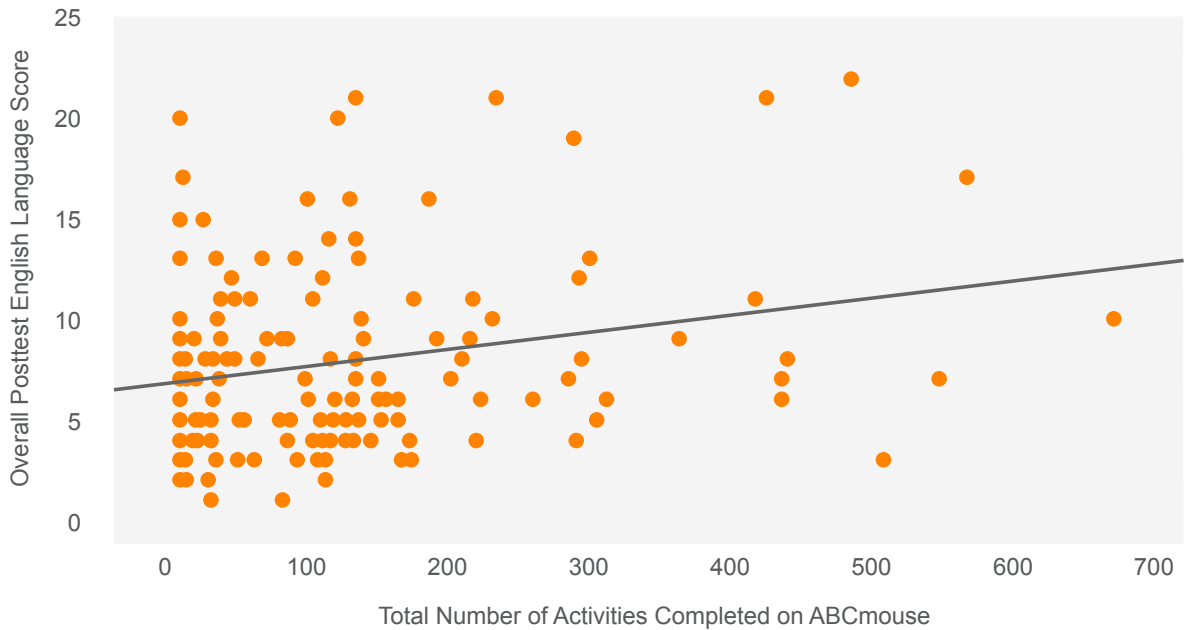


**Figure 3.** Average pretest and posttest performance on the English section of the *Bilingual Verbal Abilities Test* for treatment (1st grade = 36, 2nd grade = 51) and control group students by grade (1st grade = 32, 2nd grade = 27). Grade 1 effect size (Cohen's  $d = .36, p < .05$ ); Grade 2 effect size (Cohen's  $d = .26, p = .12$ ). Lighter shades represent pretest scores; darker shades represent posttest scores.

5 Muñoz-Sandoval, A.F., Cummins, J., Alvarado, C. G., & Rueda, M. L. (1998). *Bilingual Verbal Abilities tests (BVAT): Comprehensive Manual*. Itasca, IL: Riverside Publishing.

**Finding 2. The more activities students completed on ABCmouse, the greater their English language gains.**

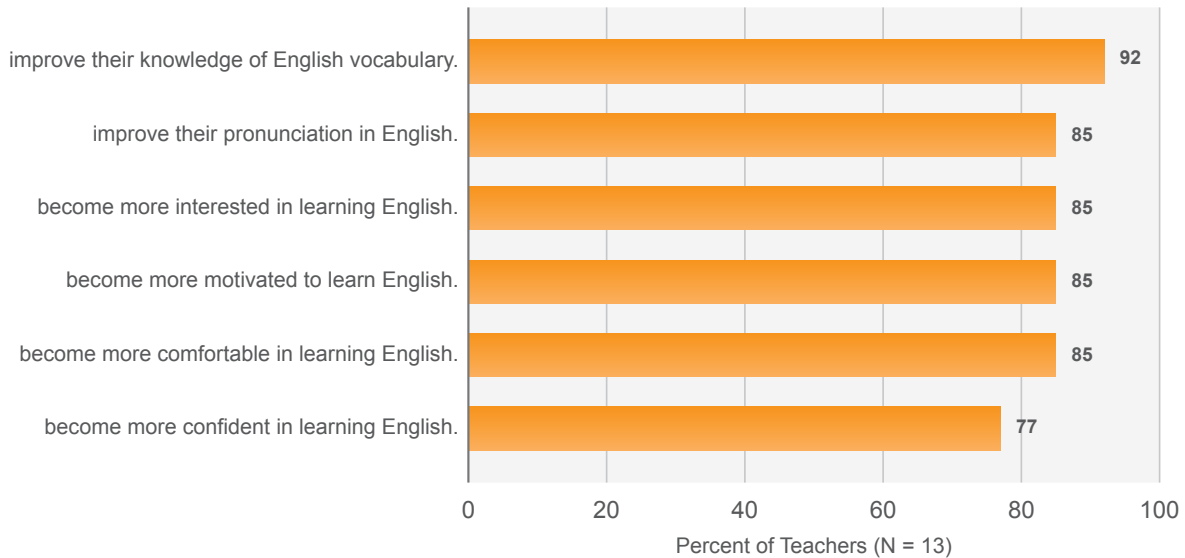
To understand whether progress within ABCmouse was related to growth in English language skills, we examined the relationship between the number of activities completed in the program and students' performance on the posttest. The correlation between the overall posttest English language score and the total number of activities completed on ABCmouse is significant, though modest:  $r = .26$  (see Figure 4 below).



**Figure 4.** Correlational relationship between the total number of activities students completed on ABCmouse and their performance on the posttest English sections of the *Bilingual Verbal Abilities Test* ( $r = .26, p < .001$ ).

The survey, focus group, and interview data further highlighted the effect of ABCmouse on students' English language learning. Nearly all treatment group teachers (12 of 13) indicated that ABCmouse helped their students expand their English vocabulary, and 11 reported that their students' pronunciation in English improved by using ABCmouse. Additionally, teachers indicated that the program helped their students become more interested, motivated, comfortable, and confident in learning English (see Figure 5). They further emphasized the value of having students exposed to native English speakers through ABCmouse and the variety of activities they can use to reinforce their lesson objectives.

I believe that ABCmouse has helped my students...



**Figure 5.** Percent of teachers indicating the extent to which they agree that ABCmouse has helped their students develop English language skills (1 = “strongly disagree”–5 = “strongly agree”). The percentages represent those who responded “agree” or “strongly agree.”

All 19 parents who participated in focus groups also reported that their children made substantial gains in their English language knowledge, especially in vocabulary. Thirteen parents indicated that ABCmouse helped their children become more comfortable speaking English, and ten commented on the notable improvement in their children’s pronunciation skills since using ABCmouse.

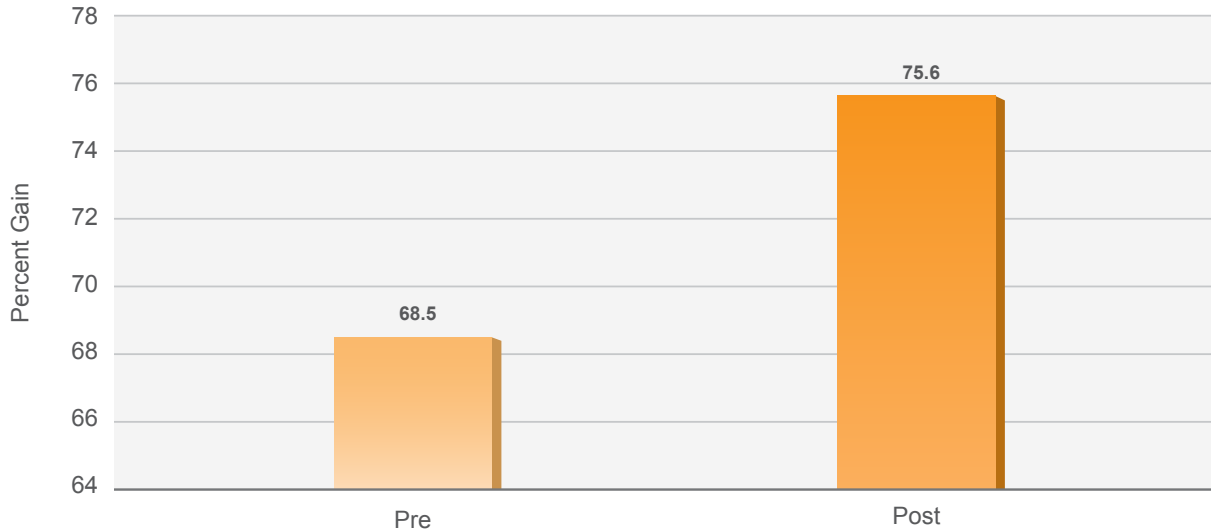
*“At the store, the American was looking for some carrots, and he was really lost there, and [my daughter] showed him the way and said, ‘Here are the carrots,’ in English.... Then, at church, it was a Sunday, there were some American women who greeted her, and [my daughter] said, ‘Very well, and you?’ and ‘Thanks for coming.’... She really surprised me.”*

—Parent of a 1st grader

**Finding 3. By using ABCmouse, students made notable improvements in using technology as a resource for learning. Teachers also reported developing greater facility in using technology in their classrooms.**

ABCMouse had an effect not only on students’ English language skills, but also on their ability to use technology as a tool for learning. On surveys completed before and after using ABCmouse, teachers reported on the extent to which their students could independently complete a series of tasks involved in using a tablet/mobile device (e.g., finding apps, dragging items across the screen, showing others how to use the device). We compared the weighted average scores,<sup>6</sup> indicating students’ level of technology use knowledge before and after using ABCmouse, and the results showed a statistically significant difference between the two scores (Pre = 68.5%, *SD* = 21.7; Post = 75.6%, *SD* = 11.6;  $t(125) = -2.6, p < .01$ ), indicating that ABCmouse helped students significantly increase their knowledge and comfort in using technology (see Figure 6).

6 The number of students for each teacher served as the weight in the averages.



**Figure 6.** Average level of technology use knowledge before and after using ABCmouse ( $t(125) = -2.6, p < .01$ ).

In focus groups, parents spoke with pride about their children’s increased ease in using technology to support their learning and claimed that they too were benefiting as their children used ABCmouse. While they generally reported having trouble using technology and admitted having limited knowledge of English, 10 of the 19 parents indicated that ABCmouse had motivated them to learn English. ABCmouse was a resource for the entire family, and parents enjoyed learning and exploring the activities in the program with their children, while gaining greater facility in using mobile devices.

*“I have noticed a big change in [my son]. Apart from improving his use of tablets and cell phones and technology, he knows how to use them better than I do... And sometimes they give him homework in English... he writes down what the teacher gives him and looks up the words on Google translator.”*

—Mother of a 3rd grader

Even teachers reported that they learned a great deal about using technology through ABCmouse. Of the seven interviewed teachers, none had ever used tablets in their teaching; for some, the only technology they had used before was a projector.

*“At first, I was afraid because I didn’t know how to use a tablet or computer... So ABCmouse for me is a tool to learn to use technology... I learned how to use the app, how to use the projector, and the computer... Sometimes I call my colleague to figure out how to do something in ABCmouse, and little by little, we are learning.”*

—English teacher

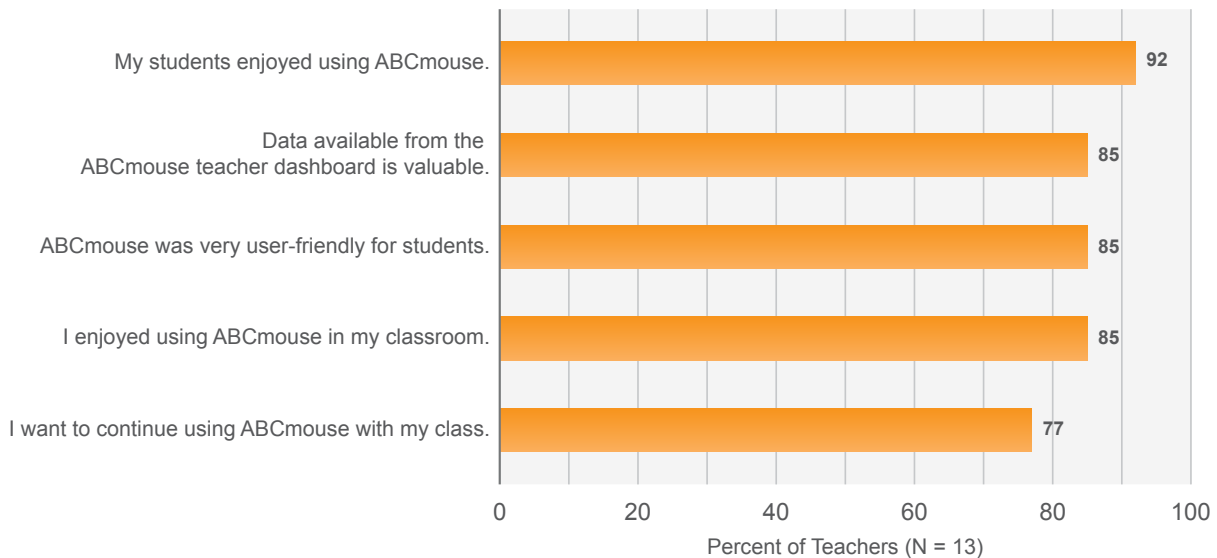
**Finding 4. Students enjoyed using ABCmouse to learn English, and teachers wished to continue using the program in their classrooms. Students also attributed their greater interest in learning English to ABCmouse.**

Data collected through surveys, interviews, and focus groups indicated that both teachers and students had a positive experience using ABCmouse:

- Twenty-three of the twenty-four focus group students reported that ABCmouse led them to enjoy learning English.
- Fourteen of the twenty-four focus group students shared that using ABCmouse has inspired them to become English teachers when they grow up.

Students also described how using ABCmouse affected the way they use technology and how they think about their future. ABCmouse led them to become more interested in using the internet and other media (e.g., films, television shows) to access content in English; they also reported career aspirations, as well as a greater interest in communicating with foreigners and traveling abroad.

Figure 7 shows teachers’ survey responses on items describing their experience with using ABCmouse in their classrooms.



**Figure 7.** Percent of teachers reporting “agree” or “strongly agree” with statements about their experience with using ABCmouse (1 = “strongly disagree”—5 = “strongly agree”).

When asked if they would recommend ABCmouse to others, all seven interviewed teachers reported that they would recommend it to their colleagues as well as to parents.

*“ABCMouse is the best tool I ever had teaching English.... And ABCmouse is a great application for the family... not only for the kid, because it can involve all the members of the family to learn English, to learn mathematics, to learn social studies.... It’s a familial application for everybody to learn.”*

—English teacher

## Conclusion

This is the first study to examine the effectiveness of ABCmouse in helping non-native English-speaking students develop their English language knowledge. Students used a customized set of playlists containing content aligned to the English language curriculum set by the Costa Rican Ministry of Education. Results showed that in comparison to business-as-usual instruction, ABCmouse is effective in helping build the English language skills of early elementary students who are learning English as a foreign language, especially their vocabulary and pronunciation skills. Using ABCmouse also helped students and teachers to develop greater comfort in using technology as a tool to support learning and teaching. The results of this study suggest that a digital learning program designed for native English-speaking children, with modest adjustments and collaboration with local partners, educators, and parents, can meaningfully improve English language skills in non-English-speaking communities.