

TOURO UNIVERSITY

EVALUATION STUDY



Using Mobile Technology and the
Footsteps2Brilliance® Academic Language
Program to Accelerate Vocabulary and
Comprehension for Early Learners

A 3rd Party Evaluation Study



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NapaLearns Digital Early Literacy (DEL) Project

Overview

A national literacy study found that 46 percent of children enter kindergarten at risk of failure and 88 percent of them never catch up.¹ When at-risk children are exposed to literacy from an early age, however, they are able to reach average to above average reading ability.² The goal of the NapaLearns Digital Early Literacy project in 2011-12 was to immerse Napa County kindergartners in a rich literacy experience through the use of iPad technology and applications. The study examined the effect of iPad use on student performance and teacher pedagogy and practice. Daily classroom instruction incorporated a blend of the technology-based language arts curriculum with traditional learning activities. On the iPads students participated in activities designed to develop their receptive language through a program by *Footsteps2Brilliance* (F2B) which proved to have a significantly positive effect on students' receptive language skills. Teachers were given support and training in the use of the iPads and this key application. They often worked collaboratively at their sites to support each other in learning to use the iPad and exchange ideas on how to incorporate the iPad applications into the Language Arts curriculum. Strategies for using iPads in whole class use, cross-grade collaboration and individualized instruction were explored. An unexpected benefit was that students demonstrated growth in the affective domain. Teachers reported greater self-confidence, risk-taking, and collaboration behaviors in their students. What follows is a description of the student-focused results.



Methodology

Nine classrooms formed the treatment group and four classrooms provided control group data. All classrooms were in the Napa County region of California. Risk factors for the sample population were well balanced between the treatment (iPad Users) and the control (traditional) groups as can be in the table below:

| Group | N | Gender | | Ethnicity | | EL Status | | FRM Status | |
|-----------|-----|--------|--------|-----------|-------|-----------|--------|------------|--------------|
| | | Male | Female | Latino | White | EL | Non-EL | Eligible | Not Eligible |
| Treatment | 161 | 54% | 46% | 57% | 37% | 51% | 49% | 38% | 62% |
| Control | 71 | 42% | 58% | 59% | 30% | 55% | 45% | 52% | 48% |

Treatment group classrooms were provided with iPads, headsets, and protective cases along with wireless access, technology support, and a range of applications (apps). All students in the treatment group used the *Footsteps2Brilliance* (F2B) Academic Language Support for Students (ALPS) app, which “teaches young children from Pre-K through third grade the 1,000 key words they need for school readiness through 18 interactive eBooks along with over 200 educational games.”³ A major advantage of the F2B program was that it collected usage data in the background. Data were collected on the number of word exposures, books read, and comprehension game performance. To provide an unbiased measure for comparing students' progress, the Peabody Picture Vocabulary Test IV (PPVT) was administered at the beginning and the end of the school year.

Results

Four schools and nine classrooms of ≈20 students participated in the iPad group. All teachers who responded to the survey (n=8) reported using the iPads once per day for 20 minutes with the exception of one teacher who used iPads in the previous year. She reported 25 minutes per day divided between two sessions. One teacher, who was a coach for the others at her site, did not respond to these questions. Students accessed the F2B program once per day in seven of the eight classrooms and three or more times per day in the remaining classroom. When asked, what percentage of the time on iPads did your students use F2B, the responses ranged from 20% to 90% with one teacher commenting that the time on F2B diminished as the school year progressed.

¹ U.S. Department of Education, National Center for Education Statistics, *Reading Literacy in the United States: Findings From the IEA Reading Literacy Study*. Washington, D.C.: 1996.

² Diener, M.L., Hobson-Rohrer, W., Byington, C.L. (2012). Kindergarten Readiness and Performance of Latino Children Participating in Reach out and Read. *J Community Med Health Edu* 2:133. DOI 10.4172/JCMHE.1000133.

³ Ilene Rosenthal as cited in EdTechDigest. (2012, January 11). *Taking Footsteps2Brilliance with Ilene Rosenthal*. Retrieved from <https://edtechdigest.wordpress.com/2012/01/11/interview-taking-footsteps2brilliance-with-ilene-rosenthal/>

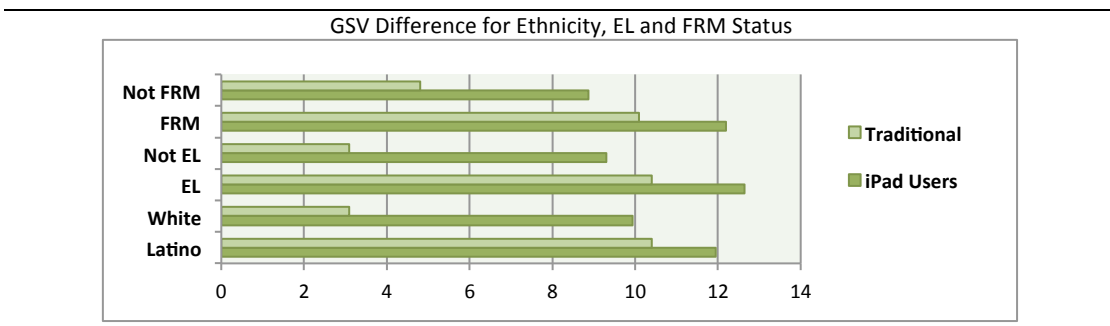
Footsteps2Brilliance Data for Treatment Group:

| | N | Mean | Min | Max |
|-----------------------------------|-----|--------|-----|--------|
| Word Exposure | 161 | 23,479 | 643 | 77,445 |
| Books Completed | 161 | 10.08 | 1 | 29 |
| Comprehension 1 st Try | 144 | 67.97% | | |
| Total Comprehension | 144 | 96.49% | | |

| Paired t-Test of 1 st Try Comprehension with Final Comprehension |
|---|
| Significant $t(143)=24.67, p<.001$ |

PPVT Data Comparison of Treatment and Control Groups :

The PPVT recommends the Growth Score Value (GSV) to track vocabulary over time. It is an equal interval scale for measuring growth over school years and to compare student ability to that of a reference group of all students in a grade level or age. The PPVT is not normed on a second language population so it is not recommended to use Standard Scores, age or grade equivalencies to compare student performance of EL students to English speaking students. The mean change in pre/post GSV scores (GSV Difference) and the demographic variables of ethnicity, EL, and FRM and gender are represented below.



Key Findings:

1. The iPad treatment had a significant effect on students’ receptive language as measured by the PPVT ($F(1, 207)=7.83, p<.05$).
2. Word exposure had a significant effect on GSV growth ($t(159)= 6.73 p<.01$).
3. Books completed had a significant effect on GSV growth ($t(159)= 7.85 p<.01$).
4. Students’ comprehension improved 29% from the beginning of the treatment to the end using the F2B program.
5. Both Latino and White students benefited from the treatment and there was a significant correlation between ethnicity ($F(1,193) =8.85, p<.05$) and EL status ($F(1,187) =12.91, p<.05$) and the positive effect of the treatment.
6. There was a significant correlation between FRM (poverty) status ($F(1,191) =8.12, p<.05$) and the positive effect of the treatment.
7. There was no significant difference between males and females in their performance ($F(1,191) =8.12, p<.05$).
8. The control group mean was higher on the pre GSV, but the treatment group mean was higher on the post GSV.

Next Steps

The project will expand in the 2012-13 school year to 11 schools. An additional variable, use of F2B versus other less costly apps, will be considered along with the use of the ST Math iPad application. The Expressive Vocabulary Test (a companion to the PPVT) will be used to assess language and we are considering adding a Math test as well. The affective domain will be assessed through rubrics; at this time Communication and Collaboration rubrics are in progress with the hope of adding critical thinking and creativity. Student work will be assessed through the use of a rubric. Teachers’ process of refining their thought and practices using the iPads and related technology will be tracked using focus groups, PLC participation, online community tools and surveys. We have plans to bring in a Parent component that includes bringing books and reading into the home.

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