An Evaluation of English Language Learners' Growth in Utah (2016-2017)

Imagine Learning ELL: Achievement, Findings, and Analysis

SEGMEASUREMENT
BUILDING BETTER ASSESSMENTS / EVALUATING PRODUCT EFFECTIVENESS

8/25/2017

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1 EXECUTIVE SUMMARY

1.1 OVERVIEW OF THE STUDY

Following the 2016-2017 school year, SEG Measurement evaluated the effectiveness of the Imagine Learning program use for improving language skills. Several research questions examined the extent to which English Language Learners using Imagine Learning showed growth in English literacy.

"ELL students in Utah schools who used Imagine Learning showed substantial gains in English literacy."

1.2 STUDY PARTICIPANTS

Seven hundred and seventeen English Language Learners in Utah who used Imagine Learning during the 2016-2017 school year participated in the study. The students were enrolled in grades 2-11, though nearly all the participants were enrolled at the elementary level. Twenty-six Utah districts were represented in the study.

1.3 SUMMARY OF DESIGN

The participating students used Imagine learning as part of their instruction during the 2016-2017 school year. Their literacy was measured at the beginning, middle and end of the year. Students' literacy at the beginning of the year were compared to their literacy at the end of the school year. Similarly, students' literacy at the middle of the year were compared to their literacy at the end of the school year. The annual results were examined by grade, where there were sufficient numbers of students participating for a given grade level. The literacy gains in this study were compared to those typically seen for students overall and at each grade level.

1.4 SUMMARY OF RESULTS

English Language Learners in Utah using Imagine Learning showed substantial gains in literacy. The gains made by Utah English Language Learners were statistically significant and educationally meaningful. Moreover, the gains for Utah English Language Learners using Imagine Learning were greater than those reported for the broader population.

Participating English Language Learners increased their literacy by 129 Lexile points on average between the beginning and the end of year. The 129 Lexile point gain exceeds the approximately 100-point annual increase commonly seen at these grade levels.

1.5 CONCLUSION

English Language Learners in Utah schools who used Imagine Learning showed substantial gains in English literacy. These gains were statistically significant and educationally meaningful. Moreover, English Language Learners in Utah who used Imagine Learning showed greater gains in English literacy than students typically do overall and at each grade level.

Comparison of Beginning and End of School Year English Langauge Learner Test Scores
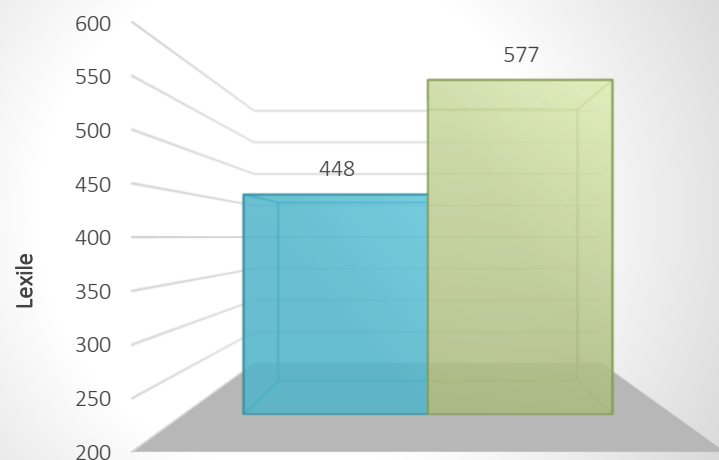
	English Langauge Learner Scores
Beginning of Year Literacy Scores	448
End of Year Literacy Scores	577

The results suggest that Imagine Learning is an effective tool for supporting ELL instruction. Additional research is being conducted to validate and extend this finding.

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2 INTRODUCTION

Following the 2016-2017 School Year SEG Measurement examined effectiveness of Imagine Learning product use by English Language Learners in Utah schools. The study investigated the extent to which English Language Learners using the Imagine Learning product increased their literacy over the course of the school year. Student progress from the beginning of the school year to the end of the school year as well as progress from the middle of the school year to the end of the year was examined.

The study examined the growth of literacy among English Language Learners in Utah who used Imagine Learning. Lexile gains using the Reading Level Assessment (an instrument developed by MetaMetrics) were determined by comparing initial test scores to end of year test scores and by comparing midyear test scores to end of year test scores. Comparisons were made overall and for individual grades (to the extent that sufficient numbers of students were available for analysis).

The results showed that students using the Imagine Learning product showed statistically significant and educationally meaningful gains in literacy over the course of the year.

Gains were seen for the school year as a whole as well as from the middle of the school year until the end of the school year.

3 RESEARCH QUESTIONS

The study examined several important questions surrounding English Language Learner use of the Imagine learning program. The following four questions seek to identify the extent to which English Language Learners in Utah using Imagine Learning showed language skill gains.

1. To what extent do English Language Learners using the Imagine Learning program show growth in literacy from the beginning to the end of the school year?
2. To what extent do English Language Learners using the Imagine Learning program show growth in literacy between the middle and the end of the school year?
3. Do English Language Learners at different grade levels using the Imagine Learning program show annual growth in reading ability?
4. How does the growth level of English Language Learners in Utah using the Imagine Learning program compare to typical growth levels?

4 STUDY DESIGN

The Imagine Learning tool is a widely used tool to support teachers and students to develop literacy. One application of this program is research-based literacy instruction with native language support for ELLs. Additionally, the Imagine Learning program provides instruction for language development. This study examined the effectiveness of the Imagine Learning tools for developing English Language Learner literacy. Specifically, we explored the effectiveness of Imagine Learning use for improving Grade 2-11, English Language Learner literacy in Utah schools. The study employed a Treatment Group only design. The gains observed for the students participating in the study were compared to gains typically seen based on data from other studies using Lexile-based measures.

The study was conducted following the 2016-2017 school year. Schools throughout the state were provided access to the Imagine Learning tools (see description below) to support English Language Learner instruction under an agreement between the Utah State Board of Education and Imagine Learning. English Language Learners used Imagine Learning ELL throughout the year and were required to use the application at least six hours in total across the year to be considered an "Imagine Learning user".

The English literacy of English Language Learners using Imagine Learning throughout Utah were measured at the beginning of the school year, during the middle of the year and at the end of the year using a Lexile based measure of Literacy. The Lexile scale is the most widely accepted metric for evaluating the level of English literacy.

At the end of the year, we analyzed the test results to determine the extent to which English Language Learners participating in the study increased their English literacy. First, the scores achieved by English Language Learners on the assessment at the beginning of the year were compared to those achieved by those same students at the end of the year. Second, the scores achieved by English Language Learners on the Lexile-based assessment administered mid-year were compared to those achieved by those same students at the end of the year. The results were examined for the study participants overall and for individual grade levels (where sufficient numbers of students were available). Finally, we compared the results observed to typical growth levels.

5 ABOUT THE TREATMENT: IMAGINE LEARNING PROGRAM

Imagine Learning is an interactive language and literacy software program that accelerates English learning. Focused on the five essential components of reading—phonological awareness, phonics, fluency, vocabulary, and comprehension, Imagine Learning is used by more than 30,000 schools nationwide and provides oral language and academic vocabulary instruction for hundreds of thousands of students across the nation. Instruction is available for pre-K to upper elementary school students.

The program includes adaptive learning paths, scaffolded support, and rigorous content with motivational elements (games, avatars, reward points, and experiences) as well as language support for English learners. Also included are assessments and reports that drive instruction. Imagine Learning contains individualized instruction that matches every student, at every level and helps students across all grade levels begin to develop the critical skills and strategies they need for success in school, college, and beyond.

 Imagine motivates students to set goals, self-monitor their own progress, and stay on task. As students gain confidence alongside new skills, they are more likely to exhibit a growth mindset that helps them not give up when challenges arise. Over 4,100 engaging activities (media presentations, videos, games, songs, and performance-based rewards) teach critical language and literacy concepts such as basic vocabulary, academic language, grammar, listening comprehension, phonological awareness, phonics, and fluency. After students collect performance-based virtual Booster Bit tokens, they can customize their avatar or visit the Imagine Museum.

First-language support is provided in 15 languages to facilitate and enhance English language learning. As students become more proficient in English, this language support gradually fades. Along with strategic translations, the program also uses peer modeling to illustrate concepts more clearly: same-age peers explain what words and phrases mean via rich, contextualized examples.

As students begin the program, they complete an Initial Placement Test, which determines a developmentally appropriate (or grade-equivalent) starting point for instruction. As students work through their individualized learning pathway, ongoing user-friendly assessments gather data on predictive and evaluative checkpoints. These checkpoints determine which upcoming lessons and instructional support options are best for each student. Teachers may also enable tri-annual, third-party measures for students via the Reading Level Assessment (RLA) and the Annual Growth Test (AGT) through the Imagine Learning Portal, and run reports on individual and class progress.

5.1 FIDELITY OF TREATMENT: PRODUCT USAGE

Ensuring that the Treatment (Imagine Learning use) occurred as intended is important. The study results are most useful when there is a good match between actual and intended use. This match is referred to as treatment fidelity. Fidelity, in this study, was operationalized by assessing the amount of product usage. Usage data was collected to ensure that the product was used sufficiently. Students were required to use the Imagine Learning application at least six hours across the school year. Eighty-seven students failed to meet this criterion and were removed from the final analyses.

6 STUDY PARTICIPANTS

This study examined 717 students who used the Imagine Learning product and who took both the end of year Lexile assessment and either the beginning of the year assessment or middle of the year assessment (or both). Specifically, to be included in each analysis for the study, the student was required to have taken the end of year assessment and either the beginning of the year or middle of the year assessment. The number of students included in each analysis may differ, due to student absence, student attrition, and other factors.

The 717 students examined came from twenty-six Utah School Districts. The list of participating is provided in Appendix A.

6.1 NUMBERS OF PARTICIPANTS BY GRADE

Students in grades two through eleven participated in the study. Most participating students were in the elementary grades, with grade two (36%) and grade three (25%) contributing the largest numbers of participants. Of the remaining grades, grade four (14%) and grade five (16%) had the highest number of participants. The number of participants per grade available for any given analysis will be lower, since not all students had both a beginning and end of year or middle and end of year test results.

Table 1: Number of Study Participants by Grade			
Grade level	Frequency	Percent	Cumulative Percent
2	258	36.0	36.0
3	179	25.0	60.9
4	99	13.8	74.8
5	111	15.5	90.2
6	46	6.4	96.7
7	10	1.4	98.0
8	7	1.0	99.0
9	5	.7	99.7
10	1	.1	99.9
11	1	.1	100.0
Total	717	100.0	

7 MEASURES

The measure used to assess literacy in this study was the Imagine Learning Reading Level Assessment (RLA). The Imagine Learning Reading Level Assessment (RLA) incorporates The Lexile® Framework for Reading, a scientifically-based developmental scale of reading ability. The test was developed by MetaMetrics and is designed to measure a reader's ability to comprehend texts of increasing difficulty. The RLA consists of reading passages that are associated with test items and is appropriate for students in Grades 2 through 6. Students' performance on test items is reported on the Lexile scale, which is research-based and scientifically valid and reliable.

8 ANALYSIS OF GAINS

We examined the extent to which Imagine Learning users increased their English literacy as measured by the RLA Lexile Framework measure. To gain a broad perspective on growth, we examined Lexile gains from the beginning until the end of the school year as well as from the middle of the school year to the end of the school year. While the results from the middle to the end of the year reflects a shorter time frame and less time to achieve gains, it offers an opportunity to examine a larger population since the narrower time frame provides a greater number of matched test results as a consequence of reduced impact of student mobility.

English Language Learners in Utah that used Imagine Learning achieved substantial gains in literacy. Both the beginning to end of year gains and middle to end of year gains were statistically significant and educationally meaningful.

8.1 BEGINNING TO END OF YEAR GROWTH IN LITERACY

Students were administered a test of literacy at the beginning of the school year and were again tested at the end of the school year. The growth in literacy was operationalized as the difference between the beginning and end of year test scores. A Paired sample t test was conducted to determine the statistical significance of the level of growth observed across students.

Students using the Imagine Learning product showed significant gains in literacy from the beginning to the end of the school year, with an average gain of 129 Lexile points. One hundred and sixty-seven students took an assessment at both the beginning and end of the school year. The average (mean) score for students at the beginning of the year was 448.20; the average (mean score) for students at the end of the year was 576.74. The average (mean) gain in literacy test scores was 128.553 (Standard Deviation=261.165). This difference was statistically significant (t= 6.36; p<.001).

Table 2: Paired Samples Statistics for Students with Beginning and End of Year Test Scores				
Measure	Mean	N	Std. Deviation	Std. Error Mean
Beginning of Year Score	448.20	167	278.368	21.541
End of Year Score	576.74	167	256.757	19.868

Table 3: Analysis of Growth (T test) for Students Beginning and End of Year Test Scores								
	Paired Differences					t	df	Sig. (2-tailed)
	Mean Difference	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Beginning of Year Score Compared to End of Year Score	128.533	261.165	20.210	168.434	88.632	6.360	166	.001

8.2 MIDDLE OF YEAR TO END OF YEAR GROWTH IN LITERACY

We also examined the extent to which English Language Learners using the Imagine Learning product showed growth in literacy from the middle of the school year to the end of the school year. This time frame is particularly useful to look at since the number of students with both middle of the school year test scores and end of year test scores is much greater than the number found with both beginning and ending test scores due to the narrower time frame and reduced losses from student mobility.

Students using the Imagine Learning product showed significant gains in literacy from the middle of the school year to the end of the school year, with average gains of 62 Lexile points. Four hundred and eleven students took an assessment at both the middle and end of the school year. The average (mean) score for students at the middle of the year was 516.05; the average (mean score) for students at the end of the year was 578.25. The average (mean) gain in literacy test scores was 62.202 (Standard Deviation=215.888). This difference was statistically significant (t= 5.841; p<.001).

Table 4: Paired Samples Statistics for students with Mid Year and End of Year Test Scores				
Measure	Mean	N	Std. Deviation	Std. Error Mean
Middle of Year Score	516.05	411	274.615	13.546
End of Year Score	578.25	411	274.424	13.536

Table 5: Analysis of Growth (T Test) for Students Mid Year and End of Year Test Scores						t	df	Sig. (2-tailed)
	Paired Differences							
	Mean Difference	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Middle of Year Score Compared to End of Year Score	62.202	215.888	10.649	83.135	41.269	5.841	410	.001

8.3 COMPARISON OF PROGRESS FROM BEGINNING TO END OF YEAR BY GRADE

The student results for those grades where at least 25 students with both an initial measure and an end of year measure were available were compared. The analyses completed were like those completed for the population overall, but focused on students at specific grade levels.

8.3.1 Grade 2 Language Growth Comparisons from Beginning to End of Year

Students in Grade 2 using Imagine Learning achieved significant gains in literacy between the beginning and end of the school year, with average gains of 131 Lexile points. Forty-six grade 2 students took an assessment at both the beginning and end of the school year. The average (mean) score for students at the middle of the year was 501.20; the average (mean score) for students at the end of the year was 631.96. The average (mean) gain in literacy test scores was 130.761 (Standard Deviation=246.892). This difference was statistically significant (t= 3.592; p<.001).

Table 6: Paired Samples Statistics for Students with Beginning of Year and End of Year Test Scores (Grade 2)				
Measure	Mean	N	Std. Deviation	Std. Error Mean
Beginning of Year Score	501.20	46	271.917	40.092
End of Year Score	631.96	46	272.473	40.174

Table 7: Analysis of Growth (T Test) for Students Beginning of Year and End of Year Test Scores (Grade 2)						t	df	Sig. (2-tailed)
	Paired Differences							
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Beginning of Year Score Compared to End of Year Score	130.761	246.892	36.402	204.079	57.443	3.592	45	.001

8.3.2   Grade 3 Language Growth Comparisons from Beginning to End of Year

Students in Grade 3 using Imagine Learning achieved significant gains in literacy between the beginning and end of the school year, with average gains of 161 Lexile points. Forty-three grade 3 students took an assessment at both the beginning and end of the school year. The average (mean) score for students at the beginning of the year was 498.37; the average (mean score) for students at the end of the year was 659.42. The average (mean) gain in literacy test scores was 161.047 (Standard Deviation=294.122). This difference was statistically significant (t= 3.591; p<.001).

Table 8: Paired Samples Statistics
for Students with Beginning of Year and End of Year Test Scores (Grade 3)

Measure	Mean	N	Std. Deviation	Std. Error Mean
Beginning of Year Score	498.37	43	317.375	48.399
End of Year Score	659.42	43	266.869	40.697

Table 9: Analysis of Growth (T Test)
for Students Beginning of Year and End of Year Test Scores (Grade 3)

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Beginning of Year Score Compared to End of Year Score	161.047	294.122	44.853	251.564	70.529	3.591	42	.001

8.3.3   Grade 4: Language Growth Comparisons from Beginning to End of Year

Students in Grade 4 using Imagine Learning achieved significant gains in literacy between the beginning and end of the school year, with average gains of 133 Lexile points. Twenty-eight grade 4 students took an assessment at both the beginning and end of the school year. The average (mean) score for students at the beginning of the year was 362.68; the average (mean score) for students at the end of the year was 495.18. The average (mean) gain in literacy test scores was 132.500 (Standard Deviation=250.357). This difference was statistically significant (t= 2.800; p=.009).

Table 10: Paired Samples Statistics
for Students with Beginning of Year and End of Year Test Scores (Grade 4)

Measure	Mean	N	Std. Deviation	Std. Error Mean
Beginning of Year Score	362.68	28	219.159	41.417
End of Year Score	495.18	28	212.509	40.160

Table 11: Analysis of Growth (T Test) for Students Beginning of Year and End of Year Test Scores (Grade 4)								
	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Beginning of Year Score Compared to End of Year Score	132.500	250.357	47.313	229.578	35.422	2.800	27	.009

9   COMPARISON OF UTAH ENGLISH LANGUAGE LEARNER LITERACY GROWTH TO TYPICAL GROWTH PATTERNS

It is useful to examine the results of this study in relation to growth rates seen in the broader population to place the Utah results in context. However, caution needs to be used in making comparisons across student groups, geographies and classroom settings.

English Language Learners in Utah achieved language skill gains greater than those typically seen in the broader population. For English Language Learners in Utah, we saw annual gains for the overall study group of about 129 Lexile points. For the elementary grade levels, where there was a sufficient number of students for analysis, we saw gains ranging from 130-161 Lexile points. This is greater than what is commonly reported.

According to a study by Williamson (2006) conducted in North Carolina, year over year growth in the elementary grades ranged from about 88-113 Lexile points. Growth rates seen at the middle school level were more modest ranging from 64-76 (Williamson, 2006). Our review of other Lexile growth data released by educational publishers suggest similar growth patterns, with Lexile gains of about 100 points at the Elementary level and more modest gains of about 50-75 points at the Middle school level. Again, these results are across a wide range of classroom settings and students and are not limited to English Language Learners, so caution should be used in making comparisons.

10 DISCUSSION/SUMMARY

Following the 2016-2017 school year, SEG Measurement examined English Language Learners the effectiveness of the Imagine Learning program for improving literacy among English Language Learners in Utah. Several research questions examined the extent to which English Language Learners using Imagine Learning showed growth in literacy.

English Language Learners in Utah schools used the Imagine Learning program during the 2016-2017 school year. Their literacy were measured at the beginning, middle and end of the year. Students' literacy at the beginning of the year were compared to their literacy at the end of the school year. Similarly, students' literacy at the middle of the year were compared to their literacy at the end of the school year.

English Language Learners in Utah using Imagine Learning showed substantial gains in literacy. These gains were statistically significant and educationally meaningful. Moreover, the gains for Utah English Language Learners using Imagine Learning were greater than those reported for the broader population.

Caution should be used in interpreting these results. The participants in this study were not randomly sampled. Because the application is made available to all schools for use with English Language Learners, it is a self-selected sample. We compared the results to reported patterns of literacy gains in the broader population; but, this study only examined Imagine Learning users and did not compare the growth of those users to a control or comparison group that used other instructional methods. Current research being conducted by Imagine Learning employs this study design.

11 REFERENCES

Williamson, Gary L. (2006) What is Expected Growth? A white paper from MetaMetrics® , Inc. by Gary L. Williamson, Ph.D., former Senior Research Associate

Alpine District

Beaver School District

Box Elder District

Cache County School District

Canyons School District

Emery County School District

Grand County School District

Granite School District

Iron District

Jordan School District

Kane County School District

Logan City District

Millard School District

Morgan District

Murray City School District

Nebo District

North Sanpete School District

Ogden City School District (UT)

Park City School District

Piute School District

Provo District

Rich School District

South Sanpete District

South Summit District

Tooele District

Uintah County School District