

National Study
Lexile Analysis Reveals
Dramatic Non-Fiction Reading Skill Increases

Overview

In August 2007, Achieve3000 conducted an analysis of Lexile performance gains for more than 28,000 students who used the KidBiz and TeenBiz differentiated literacy solutions during the 2006-07 school year. These students represented thousands of elementary, middle, and high schools in 29 different states.

The analyses demonstrated conclusively that Achieve3000's solutions have a statistically significant effect on students' non-fiction Lexile/reading performance. Students who used KidBiz and TeenBiz once per week made Lexile gains more than double expected growth norms. *Students who used the program twice weekly and followed recommended best practices more than tripled the expected growth norms.*

<p>At a Glance</p> <p>Evaluation period: 8/1/06-7/1/07</p> <p>29 States 232 Districts</p> <p>698 Schools 28,868 Students</p>
<p style="text-align: center;">Assessment Measure: LevelSet™</p> <p>Developed by Achieve3000 in conjunction with MetaMetrics Inc., the renowned psychometric research team best known for the Lexile Framework for Reading®, LevelSet offers a scientific means of matching students to informational texts.</p>
<p style="text-align: center;">Key Findings</p> <ul style="list-style-type: none"> • There is a statistically significant relationship between the number of reading sessions that students complete on Achieve3000 and students' Lexile/reading growth ($p < .000$). • Completing just one reading session each week yields Lexile gains that are more than double the expected growth norms. • Students who use the program twice weekly make the highest Lexile gains, more than tripling the expected growth norms. • The number of reading sessions that students complete on Achieve3000 is a statistically significant predictor of their Lexile performance gains. • There is a statistically significant difference between the Lexile gains of students who use the program less than once a week and the students who use it once or more per week. • The quality of the work that students submit on Achieve3000 is a statistically significant predictor of their Lexile performance gains.

Summary of Methodology and Findings

During the 2006-07 school year, KidBiz and TeenBiz were implemented with hundreds of thousands of students across the United States. All participating students completed the LevelSet pre-test in their first few sessions on the program. Students completed the post-test during May and June.

To determine the effects of KidBiz and TeenBiz on students' literacy development,

Achieve3000 designed a study which included nearly 30,000 students, including 18,432 elementary-, 6,209 middle-, and 4,227 high-school students from 698 schools in 232 districts in 29 states.

Using MetaMetrics' findings on expected yearly growth norms, Achieve3000 calculated the expected Lexile gains for each of the students. This calculation was based both on the number of weeks from the student's pre- to post-test as well as the student's initial reading level. Achieve3000 first used MetaMetrics' published expected growth norms to calculate the expected monthly growth for a student at that reading level. Achieve3000 then multiplied the expected monthly gain by the number of months the student spent on the program to arrive at an "expected Lexile gain score" for each student.

LevelSet Key Facts

Developed by Achieve3000 in conjunction with MetaMetrics Inc., the renowned psychometric research team best known for the Lexile Framework for Reading, LevelSet offers a scientific means of matching students to informational texts.

- Delivered automatically when students first log in.
- Adapts based on students' responses; ranges from five to seventy questions.
- Completed by most students in one forty-minute period.
- Administered once at the beginning of the school year, again halfway through, and last, at the end of the school year.

For more information, visit www.achieve3000.com/levelset.

Five Steps to Literacy Achievement

1. **Set a schema.** Students read and reply to an e-mail that sets the stage for what they are about to read.
2. **Read for information.** The e-mail directs the students to an appropriately leveled non-fiction current events article.
3. **Demonstrate mastery.** After reading the article, students answer questions that monitor comprehension and vocabulary mastery.
4. **Construct meaning.** Students build critical cognitive skills by writing responses to open-ended questions.
5. **Form an opinion.** Students also participate in a poll. about the article, so they can demonstrate opinions.

Achieve3000 recommends a prescribed five-step literacy routine for students using its solutions (see sidebar). For purposes of this study, submission of a multiple choice activity was considered a "reading session."

Findings

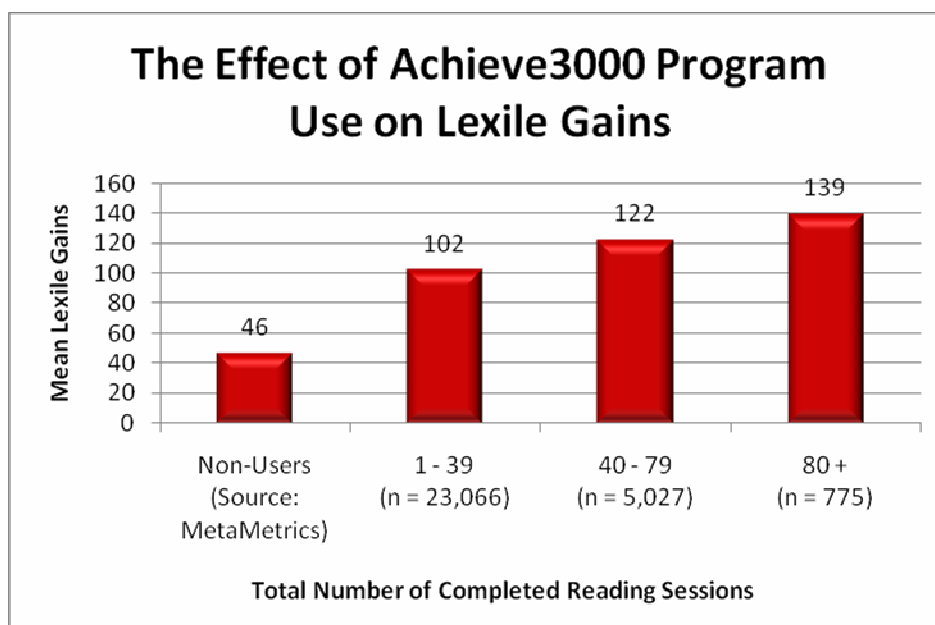
Effect of Frequency of Program Use on Lexile Gains

First, Achieve3000 analyzed the results of students' LevelSet scores as a function of the frequency of their use of KidBiz and TeenBiz.

In order to assess the effect of the frequency of use on students' Lexile gains, Achieve3000 assigned each student from within its study to one of the following categories:

- **Group 1 (1-39):** Students who completed less than 40 reading sessions over the 10-month school year. With approximately 40 weeks of school sessions, these students completed the equivalent of less than one reading session weekly.
- **Group 2 (40-79):** Students who completed 40 to 79 reading sessions over the 10-month school year. These students completed the equivalent of at least one but less than two reading sessions weekly.
- **Group 3 (80+):** Students who completed 80 or more reading sessions over the 10-month school year. These students completed the equivalent of two or more reading sessions weekly.

Achieve3000 found a statistically significant relationship between the number of reading sessions on Achieve3000 programs and students' non-fiction Lexile/reading growth ($p=.000$). Students who use the program twice weekly make the highest Lexile gains, more than tripling the expected growth norms. These findings were consistent with all students, regardless of grade level.



A linear regression was used to assess the relationship between program usage and Lexile gain. The regression yielded a statistically significant positive correlation between the number of reading sessions on Achieve3000 and students' Lexile/reading growth ($p < .000$). The number of reading sessions that a student completes on Achieve3000 is a predictor of their Lexile performance gains.

When a comparison of means was performed between the three usage categories (1-39, 40-79, 80+), a statistically significant difference was found between each usage group ($p = .000$). An analysis of variance (ANOVA) was performed to compare the group means (see ANOVA results below).

ANOVA

Lexile Gains

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2477208.961	2	1238604.481	50.241	.000
Within Groups	711621472.973	28865	24653.437		
Total	714098681.935	28867			

A Bonferroni post hoc test found that all three groups were statistically significantly different from each other (see below).

Bonferroni Test - Multiple Comparisons

Dependent Variable: Lexile Gains

(I) Overall Reading Sessions	(J) Overall Reading Sessions	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1-39	40-79	-19.929(*)	2.444	.000	-25.78	-14.08
	80+	-36.897(*)	5.734	.000	-50.63	-23.17
40-79	1-39	19.929(*)	2.444	.000	14.08	25.78
	80+	-16.968(*)	6.059	.015	-31.47	-2.46
80+	1-39	36.897(*)	5.734	.000	23.17	50.63
	40-79	16.968(*)	6.059	.015	2.46	31.47

* The mean difference is significant at the .05 level.

The analysis of variance confirmed that the three usage groups had significantly different Lexile gains.

Lexile Gains

	N	Mean
1-39	23066	102.01
40-79	5027	121.94
80+	775	138.90
Total	28868	106.47

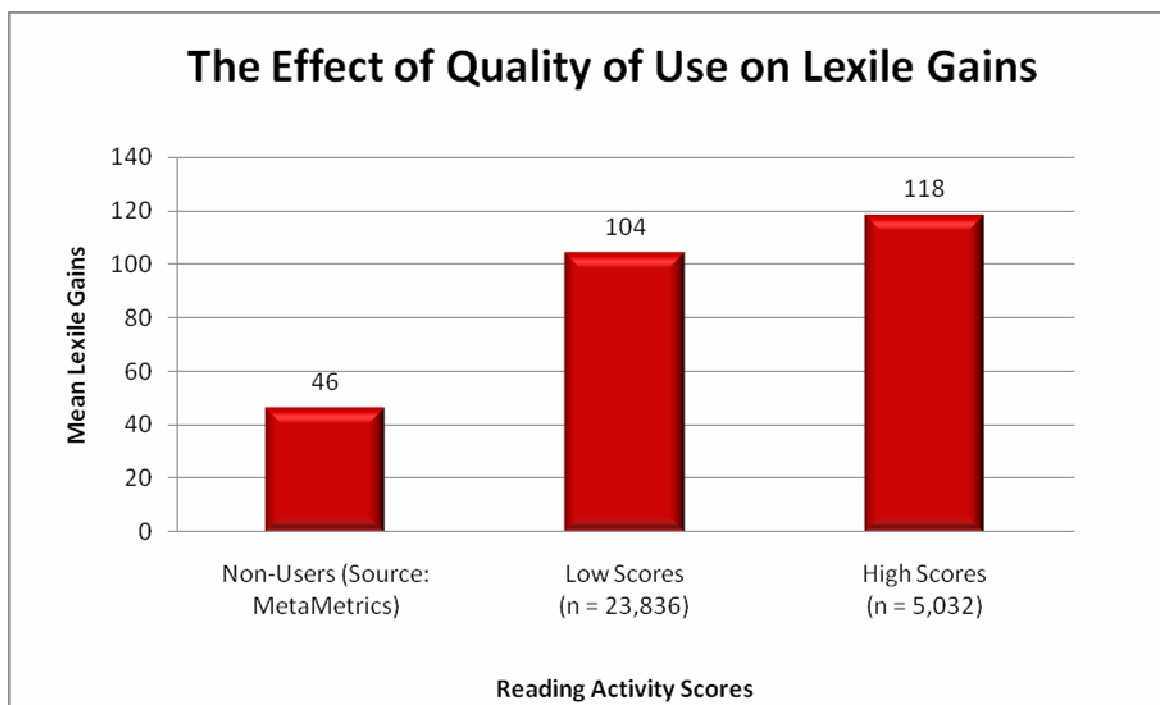
Effect of Quality of Program Use on Lexile Gains

In addition to analyzing the frequency of use, Achieve3000 also analyzed the quality of program use. The multiple choice activity is a critical component of the five-step routine and is a simple indicator of the degree to which students are applying themselves to the program.

To assess the effect of the quality of use on students' Lexile gains, Achieve3000 assigned each student from within its study to one of the following categories:

- **Group 1 (High Scores):** Students who scored higher than 80%, on average, on the multiple choice portion of the five-step literacy routine.
- **Group 2 (Low Scores):** Students who scored lower than 80%, on average, on the multiple choice portion of the five-step literacy routine.

Achieve3000's analyses found that students who scored higher on Achieve3000's reading activities made significantly higher Lexile gains.



A comparison of means (T-Test for Equality of Means) yielded statistically significant results ($p=.000$). The students who averaged 80% or higher on their activities had significantly more gains (see below).

Independent Samples Test – Lexile Gains

		t-test for Equality of Means					
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference
Equal variances assumed		-6.060	28866	.000	-14.687	2.423	-19.437 -9.937
Equal variances not assumed		-5.944	7327.074	.000	-14.687	2.471	-19.531 -9.843

Group Statistics

Average Activity Scores		N	Mean	Std. Deviation	Std. Error Mean
Lexile Gains	Score Less than 80%	23756	103.87	156.327	1.014
	Score 80% or Above	5112	118.55	161.110	2.253

Expected Gains

The analyses presented above were conducted with 28,868 students from all grade levels from second to twelfth grade, with 18,432 elementary-, 6,209 middle- and 4,227 high-school students.

The effect of frequency, as well as quality of use on Lexile gains, was the same in elementary, middle, and high school. The table to the right illustrates the expected yearly Lexile growth for each grade level.

Grade	Expected Yearly Growth
2	300L
3-5	100L
6-7	70L
8-9	50L
10-12	25L

To learn more about Achieve3000 and its proven solutions,
call 888-968-6822 or email office@achieve3000.com.

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