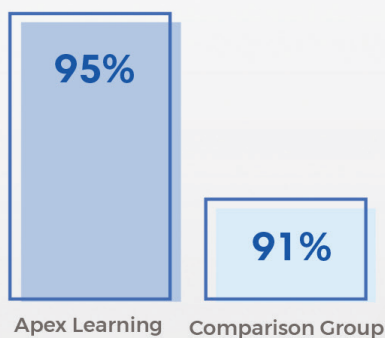




A Study of the Impact of Apex Learning Courses on the State of Texas Assessment of Academic Readiness

Texas School District

August 2019



Executive Summary

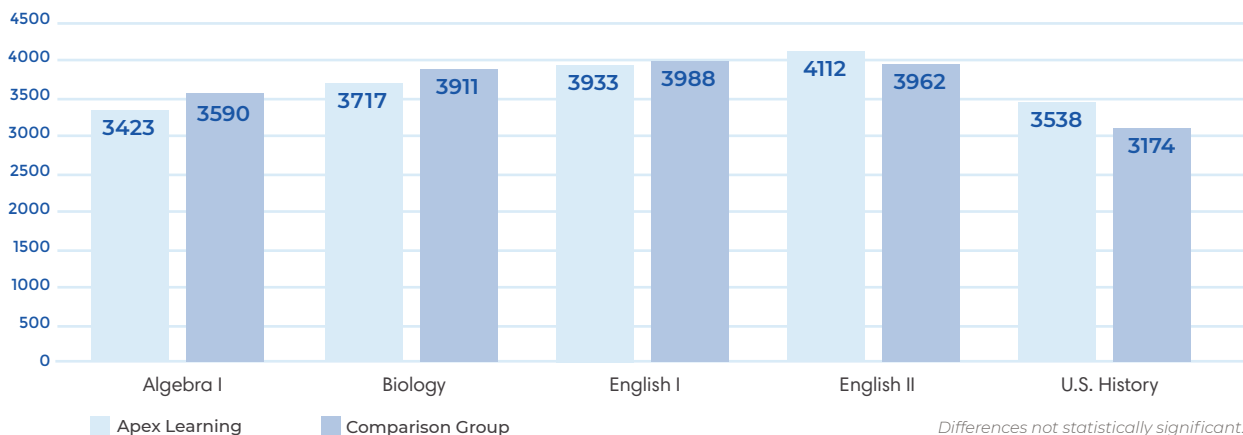
Struggling students in a large school district located in a major metropolitan area in Texas use Apex Learning Courses for credit recovery, initial credit, and remediation/intervention. To examine the impact of Courses on student outcomes, the achievement and promotion rate for struggling students using Courses was compared to that of students completing courses in traditional teacher-led classrooms. The comparison group of students was not identified as struggling and had similar prior ability and demographic characteristics as students using Courses.

The results suggest:

Struggling students using Courses achieved similar average Algebra I, Biology, English I, English II, and U.S. History STAAR End-of-Course scores as students enrolled in traditional classrooms.

Figure 1.1

Adjusted Average STAAR End-of-Course Scale Score

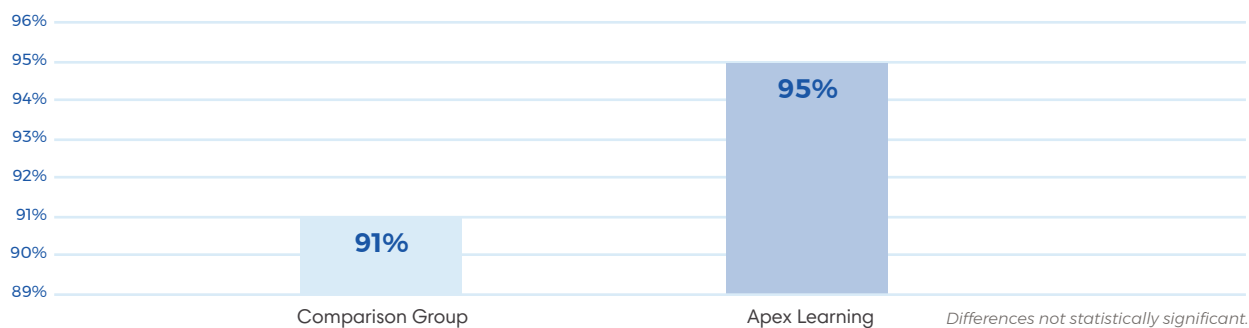


Differences not statistically significant.

Students using Courses were promoted to the next grade level at a similar rate as students enrolled in traditional classrooms.

Figure 1.2

Grade Level Promotion Rate



Differences not statistically significant.

Introduction

One of the top ten largest school districts in the state of Texas uses Apex Learning Courses to support struggling students at risk of dropping out of school.

Students who use Apex Learning Courses failed three or more courses in the previous semester, would not meet graduation requirements or graduate by the end of the year, or receive student support services.

The district uses Courses in multiple programs including credit recovery, initial credit, and remediation/intervention. Regardless of the program, students complete Courses in a blended learning environment from the school computer lab and from home with teacher support.

Students complete the State of Texas STAAR EOC Assessment of Academic Readiness End-of-Course assessment upon completing Algebra I, Biology, English I, English II, or U.S. History Courses.

Figure 2.1

School District Demographic Characteristics

Number of Schools in this District	Over 150
Student Enrollment	Over 150,000
American Indian/Alaska Native	0.2%
Asian	3.7%
Black	24.4%
Hispanic	62.0%
Native Hawaiian/Pacific Islander	0.1%
Two or More Races	1.0%
White	8.5%
Female	49.2%
Male	50.8%
Students with Section 504 Only	2.1%
Students with Limited English Proficiency	30.2%
Free and Reduced-price Lunch (FRPL)	76.4%

Source: Civil Rights Data Collection 2015

Study Purpose

The purpose of this research is to study the effectiveness of Apex Learning Courses as used in a large city school district. Students who used Courses were compared to students not identified as struggling with similar prior ability and demographic characteristics. Students in the comparison group completed courses led by teachers in traditional classroom settings.

The research addresses two questions:

1. How does the achievement of students using Apex Learning Courses compare to that of students not using Apex Learning Courses?
2. How does the grade level promotion rate of students using Courses compare to students not using Courses?

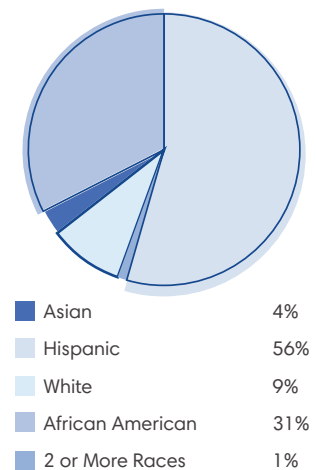
Data were collected from the 2016-2017 and 2017-2018 school years. Two hundred twenty-eight Course enrollments used by 207 students were included in the analytical dataset. Figure 3.1 located in the appendix shows the overall demographic characteristics by group.

In addition to the characteristics displayed in Figure 2.2, students in the study using Courses were:

- Economically disadvantaged (78%)
- Special Education (4%)
- Limited English Proficient (9%)

Figure 2.2

Apex Learning Users



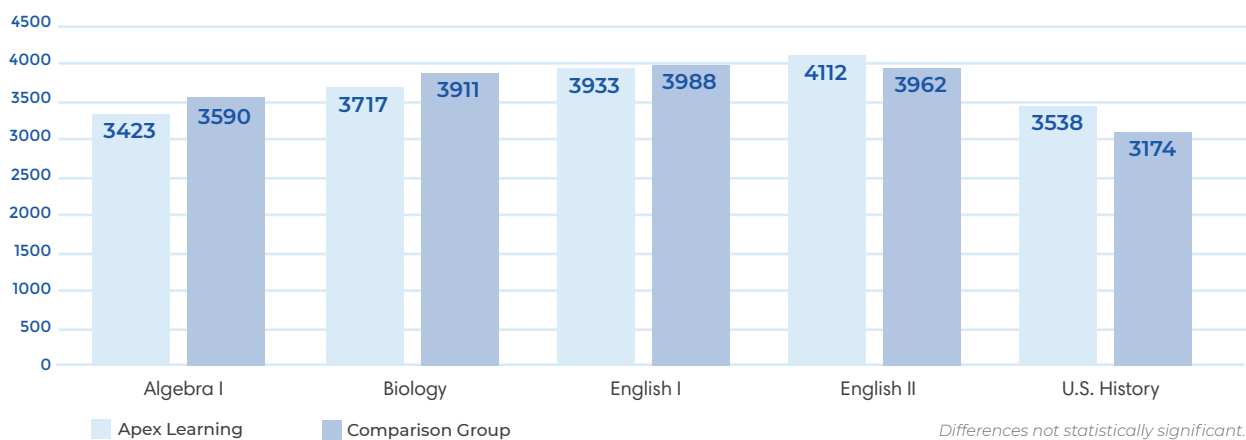
Results

Struggling students using Apex Learning Courses achieved similar average scores as students enrolled in traditional district courses.

Struggling students using Apex Learning Courses achieved average scores on par with students enrolled in traditional classrooms on the STAAR EOC Algebra I, Biology, English I, English II, and U.S. History assessments. The difference between the average scores for the groups was not statistically significant.

Figure 2.3

Adjusted Average STAAR End-of-Course Scale Score



The promotion rate for struggling students using Courses trended higher than that of students enrolled in traditional district courses.

The percent of students promoted to the next grade level trended higher for struggling students using Apex Learning Courses compared to students completing courses in teacher-led classrooms. The difference between the promotion rate for the groups approached statistical significance.

Figure 2.4: Grade Level Promotion Rate

School Year	Group	Total N	Promoted	
			N	Percent
2016–2017	Apex Learning	144	137	95%
2016–2017	Comparison Group	81	74	91%

Significant $p=0.13$.

Conclusion

A large city school district in Texas uses Apex Learning Courses to support struggling students at risk of dropping out of high school. Academic outcomes were compared between struggling students using Apex Learning Courses and students not identified as struggling with similar prior ability and demographic characteristics completing district courses in traditional teacher-led classrooms.

The findings suggest:

- **Struggling students using Courses achieved similar average scores as students not identified as struggling on the STAAR Algebra I, English I, English II, Biology, and U.S. History End-of Course exams.**
- **The percent of students promoted to the next grade level trended higher for struggling students using Courses than for students completing district courses in traditional teacher-led classrooms.**

Data and Methodology

Data

STAAR EOC Data

A large city school district in Texas provided 140,303 deidentified student-level records containing STAAR EOC exam results, STAAR 8th Grade Reading and Mathematics results, and demographic characteristics including at-risk status, special education status, limited English proficiency status, economic disadvantage, gender, race/ethnicity, grade level, and date of birth. Data was provided for all students completing a STAAR EOC during the 2015–2016 or 2016–2017 school years.

Student-Level Courses Data

Apex Learning provided 492 student-level enrollment records for Apex Learning Courses for titles including Algebra I, English I, English II, Biology, and U.S. History. Students could have up to five rows of data, one for each subject.

Methodology

The data provided by Apex Learning was matched to the data provided by the school district. Eighty-six percent of Apex Learning records (421 out of 492) matched to the data provided by the district. A missing data analysis showed that .19% of 140,724 total cases (421 Apex records and 140,303 district records) were missing pre-test data. Multiple imputation was used to impute missing data.

An inspection of the types of programs for which Courses were used revealed that some students were using elements of Apex Learning Courses as a supplement to regular course instruction. These records were dropped from the file before generating a comparison group of students who did not use Courses. This left a total of 228 enrollments for use in the Apex Learning group.

Next, stratified random sampling was conducted for each subject to generate a comparison group of students with similar characteristics as students using Courses. The sample of records were stratified by prior ability quartile, economic disadvantage status, at-risk status, minority status, limited English proficiency status, and special education status. A total of 211 students were sampled from the district file of students not using Apex Learning Courses.

A linear mixed model was applied to each assessment to generate parameter estimates used to calculate the adjusted average score for each outcome variable. All models controlled for prior ability and demographic characteristics. Pretest ability, minority status, gender, date of birth, limited English proficiency, special education program participation, economic disadvantage, at-risk status, and grade level were fitted as main effects. School was fitted as a random effect. An F-test was used to determine the significance of the difference between adjusted average scores by treatment group. Cohen's *d* was used to estimate the effect size of the mean difference.

References

Civil Rights Data Collection (2015). Retrieved from Ed.gov on 3/05/2019.

STAAR Performance Standards (2017). Retrieved from:

<https://tea.texas.gov/student.assessment/staar/performance-standards/>.

Appendix

Student Subgroups		Comparison Group		Apex Learning	
		Count	Column N %	Count	Column N %
Sample Size		211	100%	228	100%
Grade Level	9	137	65%	141	62%
	10	47	22%	58	25%
	11	17	8%	26	11%
	12*	10	5%	3	1%
Gender	Female	108	51%	96	42%
	Male	103	49%	132	58%
Race/Ethnicity	Asian	3	1%	9	4%
	African-American*	45	21%	71	31%
	Hispanic*	142	67%	127	56%
	American Indian/Alaska Native	2	1%	1	0%
	White	19	9%	20	9%
Economic Disadvantage	YES	166	79%	178	78%
LEP	YES*	6	3%	21	9%
Special Education	YES	10	5%	10	4%

*Significant $p < .05$

	Comparison Group			Apex Learning		
	Count	Mean	SD	Count	Mean	SD
STAAR GR8 ELA	139	1649.69	104.45	148	1642.98	98.17
STAAR GR8 Math	72	1634.85	110.76	80	1627.94	105.33

Table 3.3: Average Unadjusted Posttest Scale Score by Group

	Comparison Group			Apex Learning		
	Count	Mean	SD	Count	Mean	SD
STAAR EOC Algebra I	72	3780.24	410.59	80	3716.85	428.95
STAAR EOC Biology	29	3939.62	436.92	29	3867.64	471.30
STAAR EOC English I	51	3898.39	378.15	55	3911.61	268.04
STAAR EOC English II	42	3953.60	472.71	44	3957.47	411.41
STAAR EOC U.S. History	17	4055.76	401.21	20	3983.85	435.03

Table 3.4: Average Apex Learning Course Use Measure by Subject

Subject	N	Time Spent (Hours)	Activity Complete (%)	Quality of Work
		Mean	Mean	Mean
Algebra I	80	36.14	89.37	81.13
Biology	29	30.71	95.04	77.43
English I	55	22.16	95.58	79.79
English II	44	25.01	94.69	80.85
U.S. History	20	19.21	96.60	75.43

Table 3.5: Average Apex Learning Course Use Measures by Subject and Program					
			Time Spent (Hours)	Activity Complete (%)	Quality of Work
Subject	Program Type	Count	Mean	Mean	Mean
Algebra I	Credit Recovery	29	28.23	95.84	81.38
	Initial Credit	1	.	.	.
	Intervention/Remediation	50	41.20	85.45	80.76
Biology	Credit Recovery	28	31.40	94.87	77.21
	Initial Credit	1	.	.	.
English I	Credit Recovery	34	24.90	94.54	78.59
	Initial Credit	2	.	.	.
	Intervention/Remediation	19	22.54	97.07	82.09
English II	Credit Recovery	24	22.14	94.38	81.38
	Initial Credit	2	.	.	.
	Intervention/Remediation	18	27.15	94.74	80.31
U.S. History	Credit Recovery	19	17.94	96.42	74.72
	Initial Credit	1	.	.	.

Note: Statistics for groups with fewer than 5 students not shown.

Table 3.6: STAAR EOC Score Statistics				
STAAR EOC	Variable	Regression Coefficient	Partial Eta Squared	Sample Size
Algebra I	Treatment	-167.00	0.02	152
Biology	Treatment	-193.87	0.03	58
English I	Treatment	4.35	0.00	106
English II	Treatment	150.45	0.04	86
U.S. History	Treatment	364.22	0.07	37

Differences not statistically significant.



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Contact

Apex Learning

1215 Fourth Ave., Suite 1500

Seattle, WA 98161

Phone: 1 (206) 381-5600

Fax: 1 (206) 381-5601

ApexLearning.com