



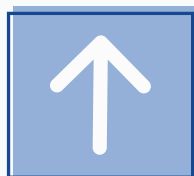
# A Study of the Impact of ACCUPLACER® Tutorials on Student Achievement

School Year 2017–2018

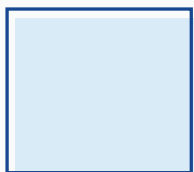
October 2018

ACCUPLACER® Tutorials improved student achievement by

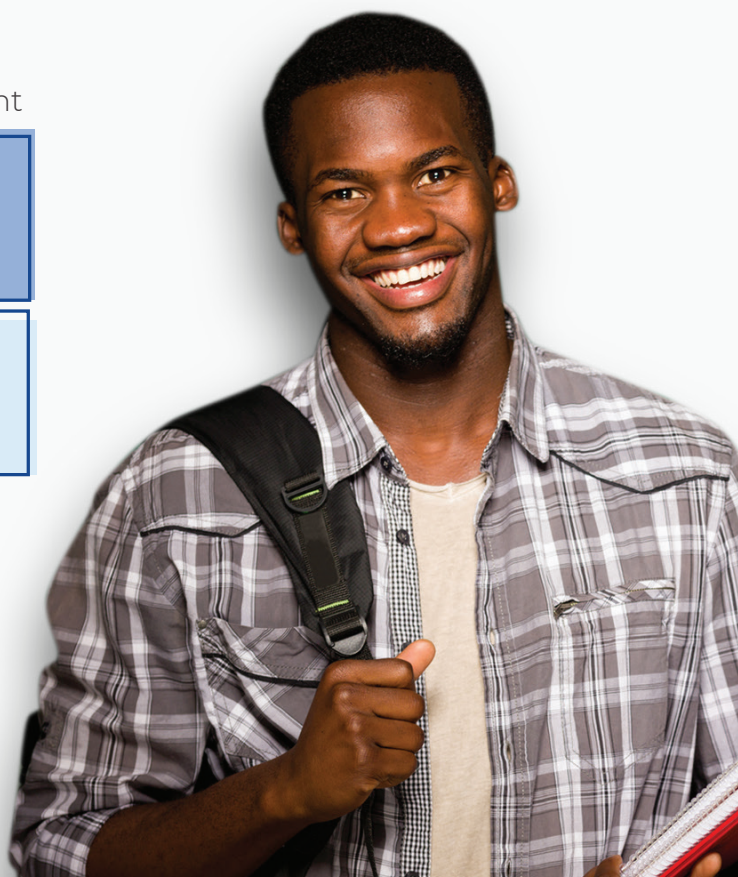
**59%**



Pretest



Posttest



## Introduction

The purpose of this study is to examine the impact of Apex Learning ACCUPLACER® Tutorials on student learning during the 2017–2018 school year. During the 2017–2018 school year, students from across the nation used more than 29,000 ACCUPLACER® Tutorials modules, and this study examines the impact of ACCUPLACER® Tutorials on student posttest achievement.

ACCUPLACER® Tutorials provide instruction, practice, and assessment aligned to concepts assessed by ACCUPLACER® math, reading, and language arts subject tests. Tutorials for each subject-area test provide students with a personalized course of study that includes direct instruction and practice based on the results of unit pretests. The course of study continually adapts to students' unique learning needs as they complete unit modules and formative assessments.

After completing 100% of the unit modules, students complete a unit posttest assessment to evaluate their progress. The results of Tutorials assessments link students' performance to concepts assessed by the ACCUPLACER® tests, quickly identifying where students have demonstrated content mastery and where they still need to focus their learning.

## Results

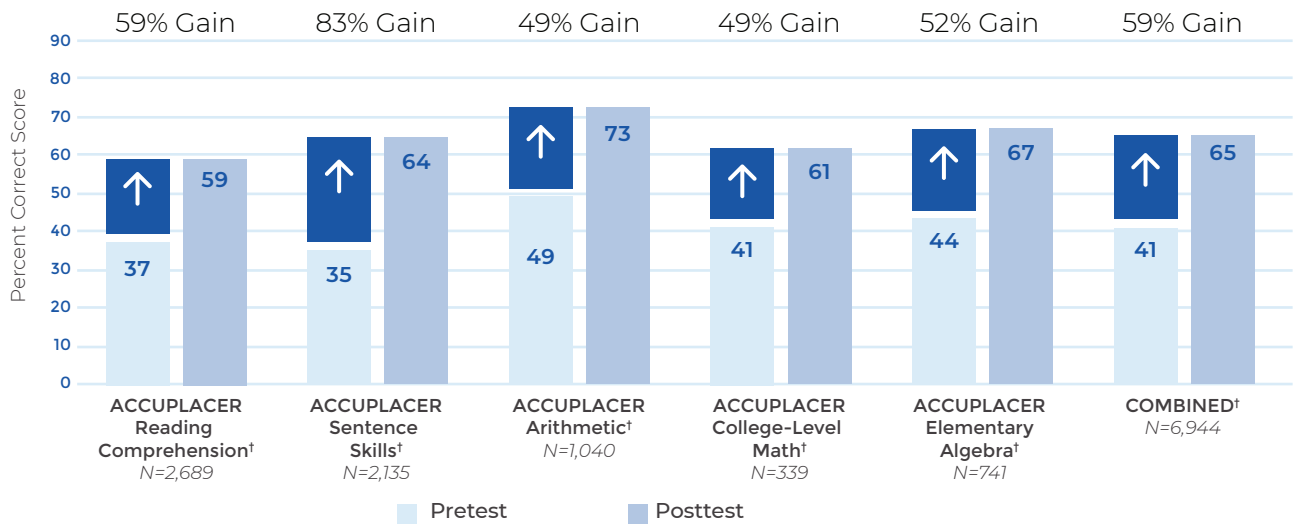
*Apex Learning Tutorials significantly improve student achievement on ACCUPLACER® Tutorials posttests across subjects.*

Results of paired-samples t-tests (Table 2) suggest that ACCUPLACER® Tutorials had a statistically significant impact on Tutorials posttest achievement compared to pretest performance. The findings suggest:

- Student achievement improved 59% from pretest to posttest following use of ACCUPLACER® Tutorials subject areas combined (Figure 1).
- The gain from pretest to posttest was equivalent to 30 percentile points for subject-area Tutorials combined (Figure 2).

Figure 1 shows posttest improvement ranged from 49% to 83% by subject and 59% combined following use of ACCUPLACER® Tutorials. Table 1, located in the appendix, shows pretest, Test It, and posttest descriptive statistics.

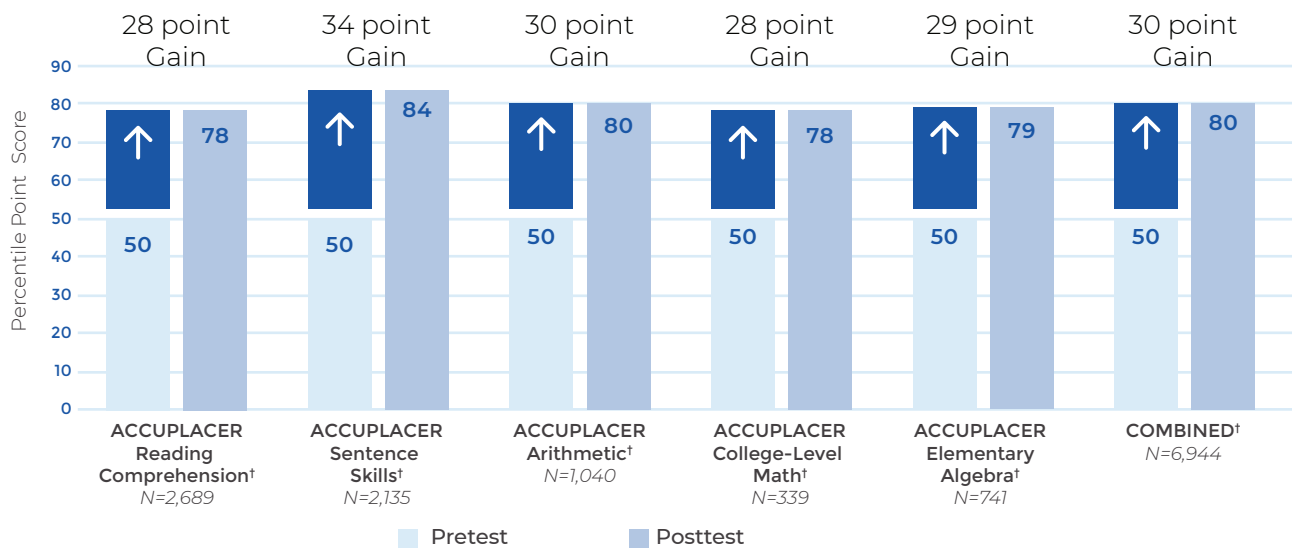
**Figure 1**  
ACCUPLACER® Tutorials Average Pretest and Posttest Percent Correct Scores and Gain



<sup>†</sup> Statistically significant,  $p < .001$   
N=number of modules included in the analysis

Figure 2 shows the equivalent percentile corresponding to the average ACCUPLACER® Tutorials pretest and posttest score, and the gain between assessments. Student posttest achievement improved between 28 and 34 percentile points by subject and 30 percentile points overall following ACCUPLACER® Tutorials use (Figure 2).

**Figure 2**  
ACCUPLACER® Tutorials Average Pretest and Posttest Equivalent Percentile Scores and Gain



<sup>†</sup> Statistically significant,  $p < .001$   
N=number of modules included in the analysis

## Apex Learning Adaptive Tutorials Description

ACCUPLACER® Tutorials provide targeted instruction, practice, and review of content and skills assessed by subject-area tests included in ACCUPLACER®. Pretests and embedded formative assessments build an individualized course of study for each student that includes direct instruction, practice, review, and assessment that continually adapts to each student's unique learning needs.

### Study Description

#### Study Design

A pretest posttest single group design was used to evaluate the impact of Tutorials use on posttest performance.

#### Participants

During the 2017–2018 school year, students from across the nation used more than 29,000 ACCUPLACER® Tutorials modules. Student enrollments with completed unit pretests, 100% of unit modules, and unit posttests were included in analytical dataset.

#### Data Preparation

Apex Learning provided 29,358 records of student level module data. Unit pretest and posttest scores were distributed across modules by corresponding objectives tested. Twenty-four percent (24%) of records containing pretest, Test It, and posttest scores were included in the analytical dataset.

#### Analysis

Paired-samples t-tests were used to determine if the average module posttest score was significantly greater than the average module pretest score by subject area and subjects combined. Cohen's d was used as a measure of effect size.

#### Limitations

A single group design was used to analyze the impact of Tutorials use on pretest to posttest gain. Single group design studies are limited by not having a comparison group to control for events unrelated to the intervention that could impact posttest performance. Events unrelated to the intervention include participant maturation, testing, instrument decay, and regression to the mean.

#### Outcome Measures

The outcome measure used in this study is the Tutorials posttest score reported at the module level.

Table 1. Module Level Descriptive Statistics								
Subject		Enrollment ID	Initial Pre-test Score		Max Test It Score		Max Post-test Score	
		Count	Mean	SD	Mean	SD	Mean	SD
English	ACCUPLACER Reading Comprehension	2,689	37.30	27.53	65.24	30.21	58.56	33.37
	ACCUPLACER Sentence Skills	2,135	35.48	28.78	68.49	30.18	63.79	34.09
Math	ACCUPLACER Arithmetic	1,040	49.06	28.25	72.15	28.37	73.04	28.47
	ACCUPLACER College-Level Math	339	40.52	25.92	70.65	26.42	60.71	29.06
	ACCUPLACER Elementary Algebra	741	44.03	28.23	66.91	28.89	67.16	30.64
Combined		6,944	41.28	27.74	68.69	28.81	64.65	31.13

Table 2. Paired-Samples T-Tests						
Subject		Mean	t	df	Sig. p	Effect Size D
English	ACCUPLACER Reading Comprehension	21.26	28.87	2,688	0.00†	0.77
	ACCUPLACER Sentence Skills	28.31	31.86	2,134	0.00†	0.98
Math	ACCUPLACER Arithmetic	23.97	25.77	1,039	0.00†	0.85
	ACCUPLACER College-Level Math	20.20	11.45	338	0.00†	0.78
	ACCUPLACER Elementary Algebra	23.13	20.78	740	0.00†	0.82
Combined		23.37	53.88	6,943	0.00†	0.84

† Statistically significant,  $p < .001$



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