Classworks Achievement Study 2019

Reading and Mathematics

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After the closing of the winter testing window, an analysis was conducted to measure the impact of Classworks® instruction on student growth. The study analyzed Classworks usage and Renaissance® Star assessment data across 44 school districts and 50,000 students from fall to winter during the 2018-2019 school year.

Results

In Mathematics, students who used Classworks instruction averaged 92% more growth on the Star Math assessment than students without Classworks instruction. In Reading, Classworks users averaged 33% more growth on the Star assessment.

On average, Classworks students outperformed students who did not use Classworks by an average of 20 points across all grades in Math and 16 points in Reading. These differences were tested for statistical significance. Across all grades and subjects, the difference in average growth was significant at the $P<.05$ level.

Classworks Treatment Group

For the purposes of this analysis, Classworks users include any students meeting the following criteria:

- ✓ Completed Renaissance Star assessments during the fall and winter testing windows
- ✓ Averaged at least 12 minutes of Classworks instruction per week (August to February)
- ✓ Attained above a 70% average individualized learning assignment score*
- ✓ Completed a minimum of 10 Classworks assignments

Creating thresholds for time, mastery, and coursework allows us to control for students who have met the minimum standards of engagement necessary to benefit from Classworks instruction. The guidance provided to districts and schools would reflect these thresholds and exceed them in most cases.

**Individualized learning assignment scores are small quizzes taken at the end of each Classworks unit meant to assess a student's mastery over the unit concepts we recommend all students who score below an 80% be reassigned that unit until student mastery is demonstrated. This is not a measure of competence.*

Control Group

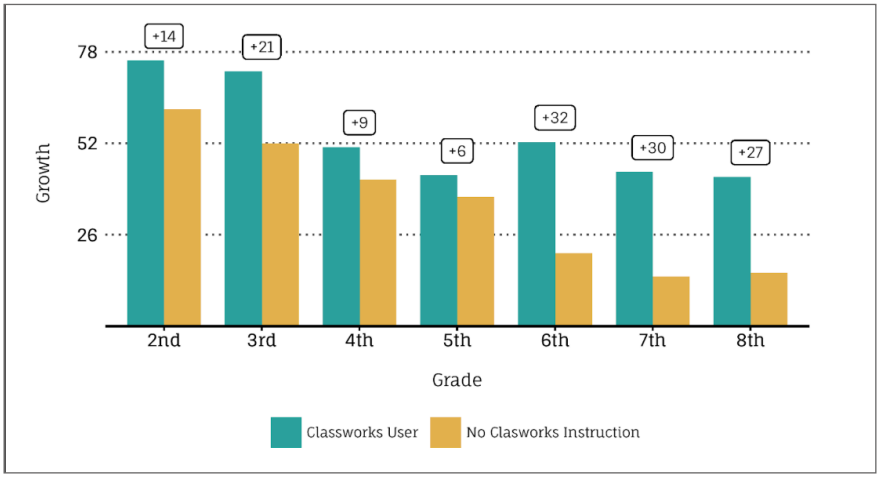
For the purposes of this analysis, students with no Classworks instruction include any students meeting the following criteria:

- ✓ Completed Renaissance Star assessments during the fall and winter testing windows
- ✓ Had zero Classworks instruction

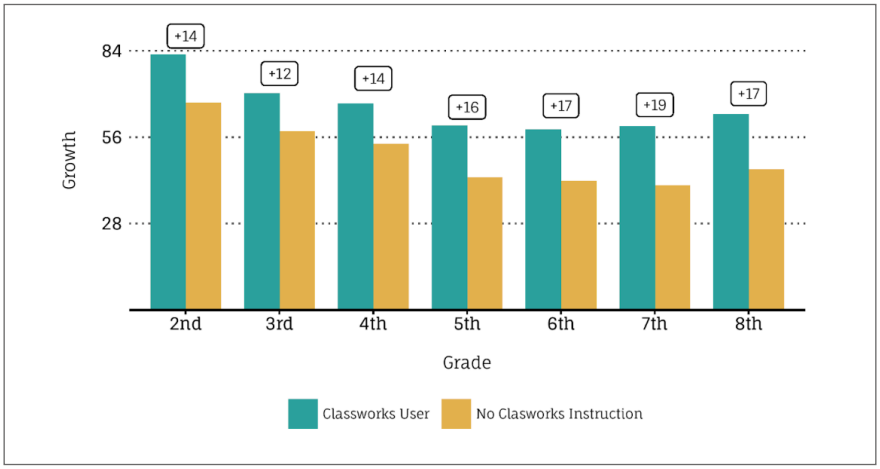
Classworks Users Experience Stronger Growth

Students receiving Classworks instruction saw significantly more growth from fall to winter in both Math and Reading. Among students who took both the fall and winter assessments, students who used Classworks averaged 60% more growth than students who did not.

Star Growth: Classworks Users Outperform Their Peers - Mathematics



Star Growth: Classworks Users Outperform Their Peers - Reading



Classworks Users and Star Growth Norms

Comparing Classworks users with non-users limits the scope of our analysis to the 44 school districts included in this study. In order to show Classworks users against national norms, we analyzed Classworks users against the Star growth norms, from fall to winter, for the 50th percentile students.

These results were significant at the P<.05 level. Across grades 2-8, on both Star Reading and Star Math assessments, Classworks users exceeded the Star growth norms by statistically significant margins.

Star Math single sample t-test results by grade comparing Classworks Users and Star Math Growth Norms:

	2	3	4	5	6	7	8
t-value	11.1	8.4	5.0	3.8	7.5	4.4	5.1
P-value	*P*<.001	*P*<.001	*P*<.001	*P*<.001	*P*<.001	*P*<.001	*P*<.001

Star Reading single sample t-test results by grade comparing Classworks Users and Star Reading Growth Norms:

	2	3	4	5	6	7	8
t-value	11.4	12.6	10.3	5.6	3.3	1.9	4.5
P-value	*P*<.001	*P*<.001	*P*<.001	*P*<.001	*P*<.001	*P*=.03	*P*<.001

Classworks Instruction: Effect Size

Effect sizes help to measure the impact of an educational intervention. The magnitude of effect sizes depends on what outcomes are being measured for interventions in education, effect sizes tend to be smaller.

For each grade and subject, the effect sizes are positive, meaning Classworks student's average growth exceeded the average growth of students without Classworks instruction. For reading, the effect sizes are considered to be moderate, while the math effect sizes are large for all Classworks users.

Effect size of the difference in mean growth of Classworks students and students with no Classworks instruction in Mathematics:

Analysis	All	2	3	4	5	6	7	8
Hedge's *G*	0.41	0.26	0.37	0.17	0.11	0.55	0.43	0.43

Effect size of the difference in mean growth of Classworks students and students with no Classworks instruction in Reading:

Analysis	All	2	3	4	5	6	7	8
Hedge's *G*	0.14	0.21	0.16	0.15	0.16	0.13	0.14	0.12

Significantly Greater Gains For Classworks Users

In order to test the significance of the differences in growth observed between Classworks users and non-users, while also controlling for selection bias, we conducted an analysis of covariance between students with and without Classworks instruction across grades 2-8 for both Star Reading and Star Math assessments.

The ANCOVA analysis included 15,000 students who took the fall and spring Star Math assessment and 16,000 students who took the fall and spring Star Reading assessment. We controlled for selection bias by using student's previous scores as a covariate in our analysis. Classworks users experienced significantly more growth than students with no Classworks instruction across all grades and subjects at the P<.01 level, excluding 6th grade Mathematics, which was significant at the P<.1 level.

Star Math ANCOVA results by grade comparing Classworks Users and Non-Users:

	All	2	3	4	5	6	7	8
F Statistic	147	22	48	11	3	58	14	16
P-value	*P*<.001	*P*<.001	*P*<.001	*P*=.001	*P*=.06	*P*<.001	*P*<.001	*P*<.001

Star Reading ANCOVA results by grade comparing Classworks Users and Non-Users:

	All	2	3	4	5	6	7	8
F Statistic	76	21	12	9	13	11	10	8
P-value	*P*<.001	*P*<.001	*P*<.001	*P*=.002	*P*=.001	*P*=.001	*P*=.002	*P*=.005

Conclusion

This analysis was conducted in order to measure the growth of Classworks students against Star growth norms and against students without Classworks instruction. To measure Classworks students against the Star norms, we simply used a single sample t-test to compare the average growth of a Classworks user against the Star growth norm for each grade and subject. We found that Classworks students exceeded these Star norms by statistically significant margins ($P<.05$) for every grade and subject.

We produced charts showing the average growth of Classworks students against students without Classworks instruction, which showed Classworks student's growth greatly exceeding the growth of non-users. However, to test the validity of these differences, we conducted an ANCOVA analysis to test the difference in mean scores while controlling for student ability. In all but one grade and subject, Classworks users had significantly higher gains from fall to winter at the $P<.01$ level. Lastly, to further analyze the mean difference in growth between Classworks students and students without Classworks instruction, we analyzed the effect size of the mean differences across each grade and subject.

The statistical analyses conducted in this report have clearly demonstrated the fact that, across 44 school districts, students receiving Classworks instruction saw greater gains from fall to winter than students not receiving Classworks instruction.

Learn more, go to curriculumadvantage.com/classworks-efficacy-2019
or email hello@classworks.com for the full study.