New Caney ISD Case Study

Using Prodigy to Improve STAAR Exam Results while Cultivating Student Interest in Math

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Summary

Challenges

Brenda Lynch, the mathematics instructional specialist for New Caney Independent School District (ISD), needed students to build essential skills in time for the 2016 State of Texas Assessment of Academic Readiness (STAAR) exams. The exams make up an annual series of statewide assessments for grades 3 to 8, which mark performance as *Unsatisfactory*, *Satisfactory* or *Advanced*. To improve scores, she needed to make math more engaging and build struggling students' confidence levels.

Solution

Lynch introduced Prodigy -- a free, adaptive math game aligned to the Texas Essential Knowledge and Skills (TEKS) curriculum -- to her district. New Caney teachers assigned in-game content to help students build prerequisite skills and address problem areas.

Results

The percentage of students who reached or surpassed the *Satisfactory* benchmark on the STAAR math exams **increased from 62.3% to 75.9%**, according to results from the three teachers at each school whose students played Prodigy the most. Similarly, the percentage of *Advanced* students **nearly doubled from 6.5% to 12.5%**.

New Caney Independent School District (ISD) Quick Facts

District State:
Texas

Device Use:
1-to-1, using Chromebooks

Students of a Low Socioeconomic Status:
62.4%

Total Classes Playing Prodigy:
407

Number of Campuses Playing Prodigy:
15

Started Using Prodigy:
March 2015, after the STAAR exams

Methods of Using Prodigy:

- Assignments to reinforce lessons

- Assignments to build prerequisite skills

- 10-minute entry tickets in select classes

Challenges

Lynch needed to help teachers develop their students' fact fluency and skill mastery.

She not only aimed this initiative at strengthening the district's RTI (response to intervention) strategy, but improving how teachers reinforced and supplemented lessons.

This involved three main challenges:

Cultivating essential skills in time for the 2016 STAAR math exams

New Caney teachers identified deficiencies in math fact fluency and skill development after the 2015 STAAR exams. They therefore required a tool that reinforced in-class lessons and provided scaffolding tailored to each student.

Engaging students to make math more enjoyable

As many students who struggle with math are intimidated or uninterested in the subject, Lynch needed an activity that engaged them as they processed content and applied new knowledge. Recognizing her students' interest in video games, she sought a game-based learning program.

Delivering an RTI approach aimed at increasing confidence in math

Lynch wanted struggling students to feel confident with grade-level material. To do so, they required personalized instruction to build prerequisite skills. Providing devices on a one-to-one basis, teachers therefore needed a program that allowed them to adjust content according to a student's individual knowledge gaps.

Solution

Lynch first saw Prodigy at a booth at the 2015 TCEA convention.

"Prodigy instantly caught my eye at the conference ... Middle school teachers were complaining that students weren't fluent with their math facts. And so, we wanted something game-like that the kids would enjoy," she says.

The TEKS-aligned math game not only addressed the challenges of fact fluency and skill mastery. It helped Lynch's teachers easily engage students while building their confidence, eventually improving STAAR scores by:

- Identifying topics a student is struggling to master, automatically using adaptive learning and differentiated instruction principles to customize content and build prerequisite skills

- Allowing teachers to quickly adjust questions to support in-class lessons, as well as to review and preview material on a student-by-student basis

- Providing reports about (a) play time in and out of class, (b) how students are performing on questions and (c) data related to customizable in-game plans and assignments

> *"Prodigy gave us an avenue to help kids catch up ... If they think they're not good at math but love playing Prodigy, they'll quickly build the skills they need and realize how much better they've become."*

Results

Improved STAAR scores from 2015 to 2016

"Prodigy gave us an avenue to help kids catch up," says Lynch. "And the kids have certainly learned a lot."

Improvements are clear when comparing 2016 STAAR results with the previous year, as 75.9% of New Caney students reached or surpassed the *Satisfactory* benchmark. This is **a 13.6% increase**, as 62.3% of students met the mark in 2015.[1]

Furthermore, the number of *Advanced* students nearly doubled, **from 6.5% to 12.5%**.

Grade 3 teachers whose students answered at least 18,000 questions in Prodigy earned the biggest jump in *percent score* from 2015 to 2016.

They rose from an average of 47.8% to 62.3% -- **an increase of 14.5%.**
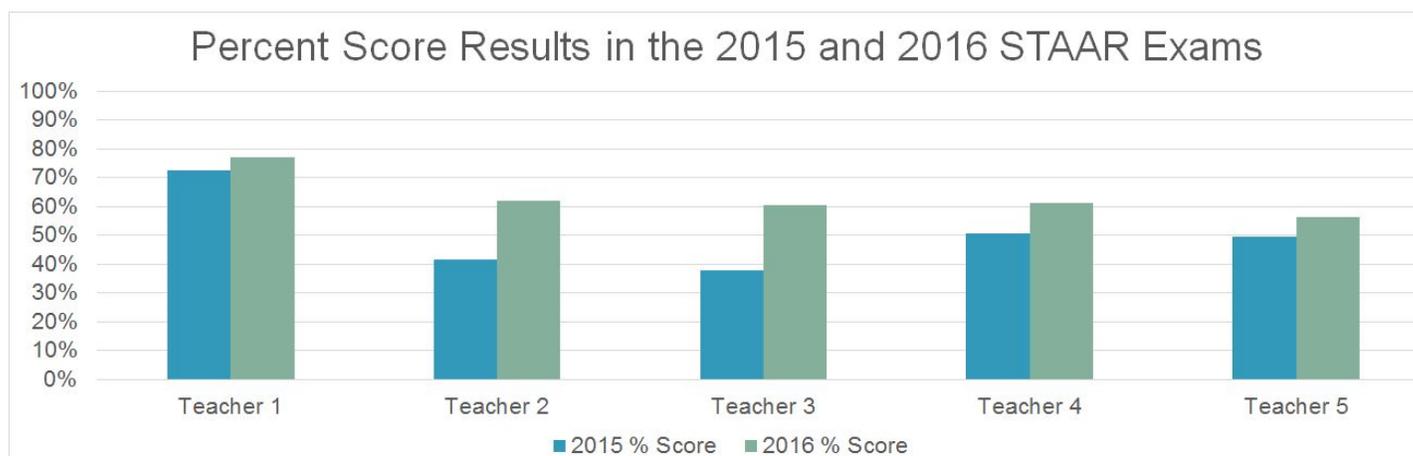

Figure 1: Grade 3 teachers whose classes answered at least 18,000 questions in Prodigy saw the biggest jump in percent score from 2015 to 2016.

Teacher 2's classes -- as illustrated in *Figure 1* -- answered the most Prodigy questions per student and had the second biggest improvement, increasing scores by an average of 20.3% while answering an average of 1,189 problems.[2]

Lynch says she credits the improved results to the Prodigy feature that allows teachers to set the focus of in-game content.

"They love assigning topics related to what they're teaching. Content is not just random, but targeted at reinforcing core material for (the STAAR exams)."

Results

Increased student interest in math

"Teachers love the engagement piece most ... And of course, so do students," says Lynch.

Between signing up for Prodigy in March 2015 and Thanksgiving 2016, New Caney students spent a total of 14,643 hours -- more than 610 days -- playing the game between school and home. This means **the average student played for 36 hours.**

In that time, students collectively **answered more than 2.1 million questions,** individually **mastering an average of 366 TEKS-aligned skills** in the process.[3]

Minutes Played	Questions Answered	Skills Mastered
2,158	5,257	366

Figure 2: The average New Caney student played Prodigy for 2,158 minutes in a period of one years and eight months, answering 5,257 questions and mastering 366 skills.

At one campus, Lynch says that Prodigy has even cut the frequency of students arriving late to class.

"In the first 10 minutes of each grade 6 math class period, students play the game," she explains. "This way, they look forward to coming and are never late, because they'll lose their Prodigy time."

Improved struggling students' confidence with math

"I think the main reason why Prodigy helped engage kids and increase scores is because it gave them confidence," says Lynch. "They can now say that math is fun and state, 'I can do math.'"

In a few clicks of the mouse, teachers could deliver in-game assignments focused on overcoming the trouble spots of entire classes and individual students in need of intervention.

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Results

Lynch emphasizes how students with a lower socioeconomic status benefitted from using Prodigy on a one-to-one level after 2015 exams, easily receiving personalized instruction through the game. Some of them don't enjoy such seamless access outside of school, as she says they don't have Internet at home.

Armed with newfound confidence to tackle tough questions, the percentage of students with a lower socioeconomic status who scored at the *Satisfactory* level or above **increased by more than 12%** -- from 57.5% to 69.7%.[4]

STAAR Performance of Students with a Low Socioeconomic Status
2015 vs. 2016

2015: Advanced 3.97%, Unsatisfactory 42.46%, Satisfactory 53.57%

2016: Advanced 8.37%, Unsatisfactory 30.32%, Satisfactory 61.31%

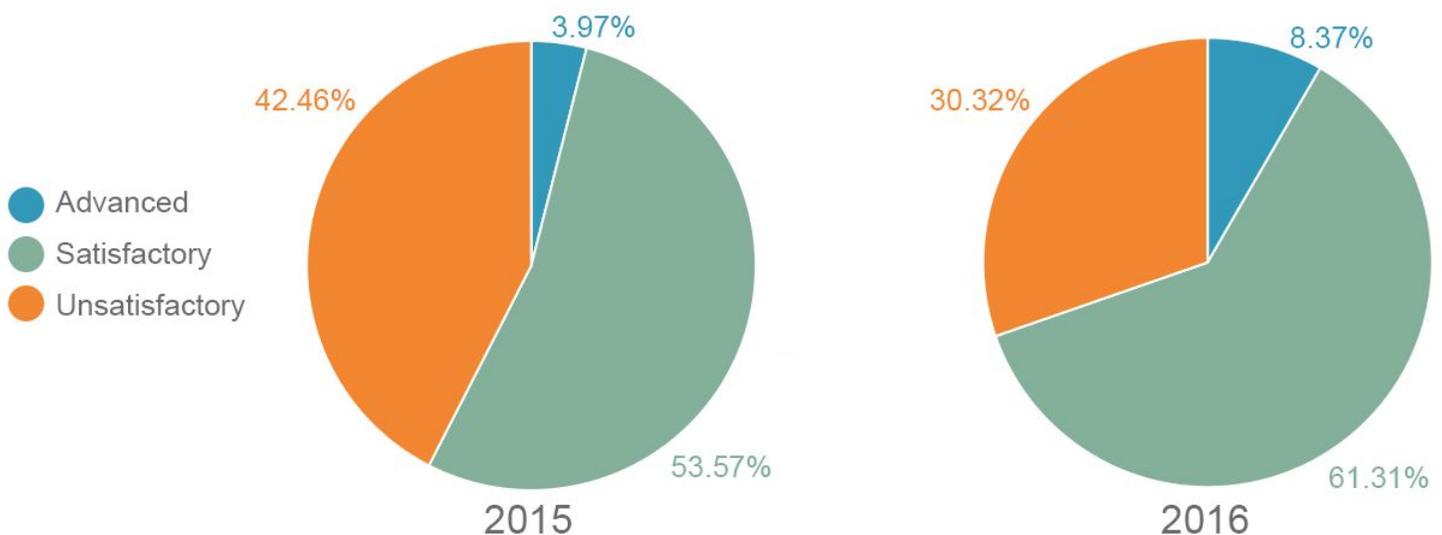Legend: Advanced, Satisfactory, Unsatisfactory

Figure 3: Among the top three Prodigy-playing classes at each New Caney school,
students with a lower socioeconomic status earned better STAAR results after starting Prodigy.

But the results go beyond numbers, says Lynch.

"One of my teachers had a young man who was a special ed student, and he answered far more questions than anyone else … She asked him what he thought of Prodigy and he said, 'I'm really feeling more confident. And now I understand more things in class.' He was truly beginning to feel smart," says Lynch.

"That's more proof of the confidence Prodigy can instill."

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Endnotes

1. This number is calculated by comparing the 2015 and 2016 STAAR results of three classes at each New Caney school. The three classes were identified for answering the most Prodigy questions at their given school in 2016, leading up to the STAAR exams.

2. STAAR results, New Caney.

3. This data is pulled from an administrative report, which contains data from each New Caney school with at least one class playing Prodigy.

4. STAAR results, New Caney.

Create Similar Results in Your School or District

Learn more about -- or request a demo of -- Prodigy.

It's a free, adaptive math game that adjusts content to accommodate player trouble spots and learning speeds. Aligned with US and Canadian curricula, it's loved by more than 350,000 teachers and 10 million students.