

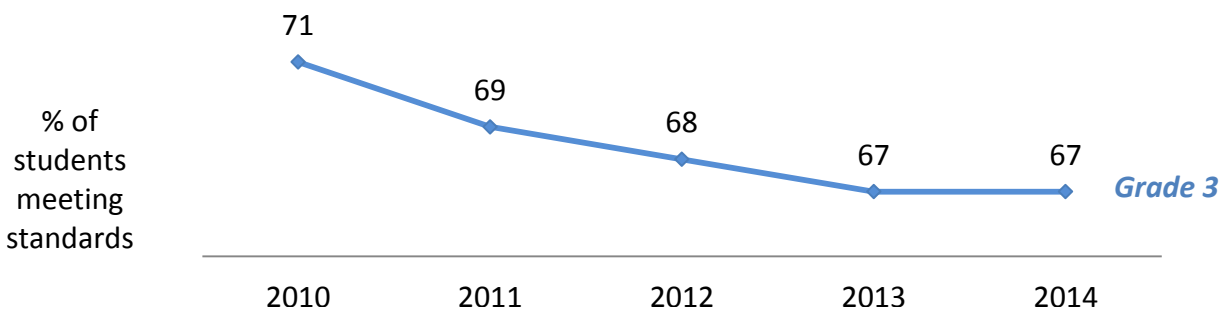
Can Game-Based Learning Increase EQAO Math Scores?

A Statistical Analysis in Kawartha Pine Ridge DSB

Scores are Declining

With Education Quality and Accountability (EQAO) math scores declining across the province, finding solutions that both engage students and improve outcomes has become the number one priority for several boards in Ontario¹.

Figure 1 – Decline in EQAO Scores Across Ontario Over 5 Years²

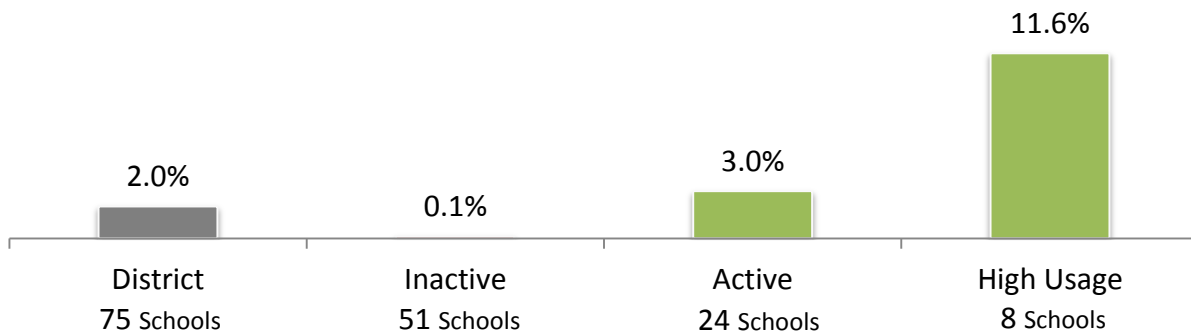


Rusty Hick, the Director of Kawartha Pine Ridge DSB (KPRDSB), saw potential in using a game-based approach for improving math engagement, and his team started informing schools about Prodigy early in the 2013-2014 school year.

Improvements on EQAO

Kawartha Pine Ridge DSB saw a 2% increase in the number of grade 3 students meeting provincial standards across all 75 elementary schools.

Figure 2 – Grade 3 EQAO Improvements for Inactive, Active, and High-Usage Schools



¹ Source: Math: Number one problem for Ontario school boards – The Toronto Star (http://www.thestar.com/yourtoronto/education/2014/08/27/math_number_one_problem_for_ontario_school_boards.html)

² Source: Education Quality and Accountability Office (<http://www.eqao.com>)

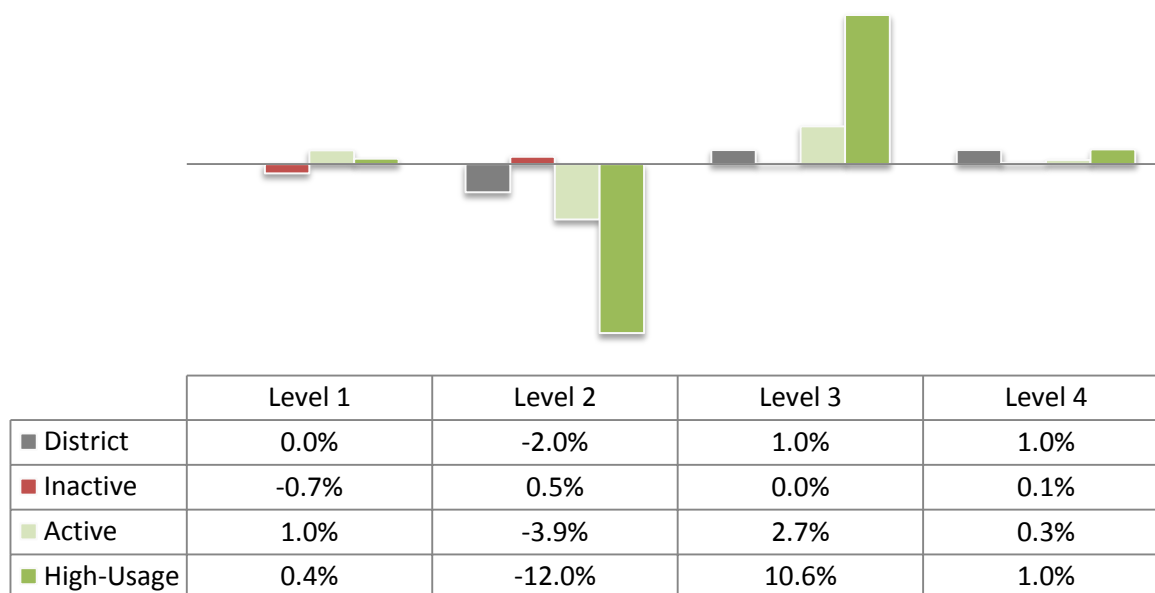
However, when categorized by activity, a weighted average of the 24 schools that were active on Prodigy³ showed a 3.0% increase in students meeting standards versus only a 0.1% increase for the 51 schools that were inactive. This represents a 2.9% improvement over inactive schools.

Furthermore, schools where over 85% of grade 3 students were active on Prodigy saw an average increase of 11.6% in the number of students meeting standards. This is an 11.5% improvement over schools not using Prodigy!⁴

Distribution of Scores Across Levels

EQAO uses an achievement scale of 1 (low) to 4 (high) for student scores, with level 3 being the provincial standard⁵. In grade 3, schools that were active on Prodigy saw 2.7% more students move into level 3 from lower levels compared to the previous year, while there was little movement in inactive schools. The biggest change was in high-usage schools, where over 10% of students moved from level 2 to level 3 compared to the previous year.

Figure 5 – Change in Distribution of Scores Across Levels for 2013-2014 (Grade 3)



Conclusion

Overall, schools that were active and highly active on Prodigy saw a 3.0% and 11.6% improvement on grade 3 EQAO scores respectively compared to a 0.1% improvement for schools that were inactive. These results suggest that along with classroom instruction and proper implementation, Prodigy’s game-based approach to learning can have a positive impact on EQAO scores!

³ A school is classified as active if they have at least one classroom that has answered a combined 10,000 math questions on Prodigy (roughly 10 hours of gameplay per child).

⁴ For a more detailed analysis and calculations, please refer to the full version of this whitepaper, titled “Can Game-Based Learning Increase EQAO Math Scores? A Statistical Analysis in Kawartha Pine Ridge DSB”

⁵ Source: <http://www.eqao.com/Parents/FAQ.aspx?Lan>