EQAO #DataInAction Symposium

November 23, 2023

On November 23, 2023, EQAO held its second #DataInAction symposium for school board staff working in research and data analytics. Teams developing board and school Math Achievement Action Plans also attended. This symposium was dedicated solely to mathematics. EQAO staff presented the agency's most recent research on mathematics achievement and introduced a new set of mathematics materials for educators titled Resource: Released Questions for each mathematics assessment or component by grade.

EQAO's research and numeracy teams presented the initial results of a research project that provides detailed information on Ontario students' strengths and needs in mathematics. The presentation focused on Grades 3 and 6 students who achieved Level 2 on the mathematics components of EQAO's 2022–2023 primary and junior assessments.

Unveiling Potential: Strengths and Areas for Growth Among Students Who Achieve Level 2

EQAO presenters reported several themes that emerged as consistent strengths or areas for growth in their research. For example, Grade 3 students who achieved Level 2 appeared to be able to add and subtract accurately some of the time, skip count by 10s and understand the concept of something being "certain" or "impossible." Examples of strengths of Grade 6 students who achieved Level 2 included being able to add and subtract accurately in single-step tasks and to complete given computations accurately (the action of mathematical calculation).

Based on their analysis, the EQAO team reported that similar themes had emerged as areas for growth for both Grades 3 and 6, although they manifested differently for each grade and across mathematics strands. It was noted that these findings underscore why student achievement tends to be similar across strands and skills, as there are underlying mathematical abilities required across all the strands, although the skills need to be applied differently across strands.

The five themes observed were computation, proportional reasoning, algebraic reasoning skills, mathematical vocabulary and mathematical strategies. Presenters highlighted that proportional reasoning was a consistent area of challenge for students who achieved Level 2 in particular. Additionally, it was noted that these findings matched previous research in mathematics learning, which has consistently found that proportional reasoning skills are critical to developing mathematics ability over time.

The presenters also showed examples of released questions and discussed

- how students who achieved Level 2 and Level 3 were likely to respond to each question (according to an analysis of operational questions).
- how students' responses give indications about the mathematical processes students may have been using.
- what instructional implications can be drawn from this information.

At the conclusion of the presentations, learning implications from the research findings and possible learning strategies for early gap closure were discussed. For further insight and evidence-based recommendations, educators are encouraged to explore EQAO's research reports.

Three Categories of Ideas Discussed:

Following the presentations, guiding questions sparked conversations among attendees, resulting in insights grouped into three main categories:

1) What other data is your school board looking at or collecting to support math achievement?

- Data from diagnostic math assessments, either formal (e.g., running records, PRIME diagnostic assessments, the Early Math Assessment @ School) or informal (e.g., math block check-ins)
- Results from surveys of principals and teachers on teaching strategies and subsequently observed changes
- Report card data

2) What professional development has your school board undertaken in response to Math Achievement Action Plans?

- Professional learning communities for mathematics
- Cross-grade professional development, including instructional coaching (coaching from the sidelines, "Learn at the Student's Desk" sessions where board staff work with teachers and model a focus-specific lesson, etc.)

3) What other strategies is your school board putting in place to support math achievement?

- Board-wide scope and sequence models
- Learning cycles for effective data utilization (e.g., group instruction planning)
- Spiralling models of instruction
- Celebrations of increases in achievement
- Tiered mathematics interventions with in-school math facilitators as needed

Conclusion

EQAO's second #DatainAction Symposium was an excellent opportunity to generate new insights and ideas about using EQAO data to support mathematics achievement and for researchers and data analysts from across Ontario's public school system to network.