

Canadian School Administrators' Statistical Reasoning about Probability, Effect, and Representativeness

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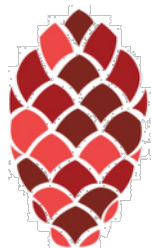
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Abstract

How do Canadian school leaders interpret data to inform their decisions? How do they reason with probability concepts? These are the questions we are investigating in the first year of this longitudinal bilingual project conducted in Alberta, British Columbia, and Ontario. Our theoretical framework is inspired by the semiotic perspective of Charles Sanders Peirce (1839-1914) which suggests that interpretation is a triadic process integrated in a social context that puts in relation a sign, an object, and an interpretant. To this end, we conducted two individual interviews in which we asked 10 English-speaking school leaders and 9 French-speaking school leaders some questions about data presented in a tabular form (mock data on class level student performance and school level health data), line graph (PISA 2018 report on reading scores from 2009 to 2018) and box plots (mock data on student performance in reading in different countries). Our preliminary results reveal that principal's reason abductively when it comes to interpreting statistics and want to know the context or the story behind the numbers before making any decisions. Also, they prefer to interpreting data collaboratively with their colleagues and feel more comfortable with data grouped in tables and line graphs. They considered themselves "data-driven" but not statisticians and use verbal terms rather than ratios or percentages (e.g., high probability, high likelihood, high odds) to express probabilistic ideas. In the next years, we will study how their professional experiences influence their conceptions of causality and how they reason about sampling and representativeness.

Key points

- School administrators' reason abductively when it comes to interpreting school data (They want to know the context or the story behind the numbers before making any decisions).
- They prefer to interpreting data collaboratively with their colleagues and feel more comfortable with data grouped in tables and line graphs.
- They consider themselves "data-driven" but not statisticians and use verbal terms (e.g., high probability, high likelihood, high odds) to express probabilistic ideas instead of ratios or percentages.



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