EQAO

STATISTICAL STANDARDS

EQAO's Data Quality Framework

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EQAO's data quality processes use clearly defined guidelines, business rules, methodologies and protocols to ensure that data quality is maintained at all stages, including the collection, processing, and analyzing of educational data and the reporting and sharing of data and results. These processes are essential for transparency and evidence-informed decision-making to support the quality and accountability of publicly funded education in Ontario.

In line with principles offered by Statistics Canada, EQAO understands data quality to be multi-dimensional, requiring a continuous improvement approach built into key processes and relying on team efforts. The agency's approach is documented in the EQAO Data Quality Framework.
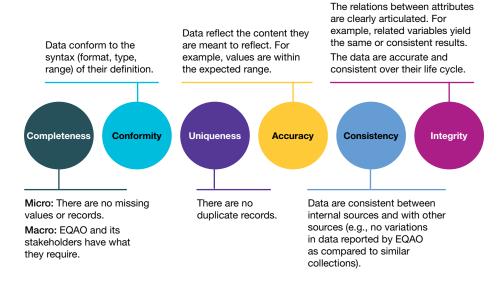
EQAO's Data Quality Validation

The EQAO Data Quality Framework allows for the generation of *trackable, quantifiable, reliable* and *auditable* metrics on data quality. This Framework provides systematic and methodological rigour to the agency's data quality validation processes at each stage of EQAO's business, which includes the following:

- design and administration of assessments
- collection of student and educator information
- accuracy in the capture and scoring of responses
- determination of accurate and reliable outcomes
- generation of reporting and analytics
- dissemination of data through reporting and other knowledge-sharing activities

EQAO's Data Quality Dimensions

Data quality is multi-dimensional, meaning that it must be assessed against a range of defined criteria. EQAO uses six dimensions of data quality assurance that apply to each stage of the business processes.

Figure 1: EQAO Data Quality Dimensions and Definitions

Data conform to the syntax (format, type, range) of their definition.

Data reflect the content they are meant to reflect. For example, values are within the expected range.

The relations between attributes are clearly articulated. For example, related variables yield the same or consistent results.

The data are accurate and consistent over their life cycle.

| Completeness | Conformity | Uniqueness | Accuracy | Consistency | Integrity |

Micro: There are no missing values or records.
Macro: EQAO and its stakeholders have what they require.

There are no duplicate records.

Data are consistent between internal sources and with other sources (e.g., no variations in data reported by EQAO as compared to similar collections).

[1] Statistics Canada. (2019). Statistics Canada Quality Guidelines, Sixth edition—December 2019. Retrieved from https://www150.statcan.gc.ca/n1/en/pub/12-539-x/12-539-x2019001-eng.pdf?st=2-qjagcH

Validation against these dimensions helps to ensure the high quality, accuracy and reliability of EQAO data. In addition, when sharing data with external users, including school boards, schools and researchers, EQAO follows the data quality dimensions outlined by Statistics Canada to evaluate fitness for use.

Table 1: Additional Data Quality Dimensions to Evaluate Fitness for External Use

Dimension	Definition	EQAO Approach
Relevance	The degree to which data meet user needs. Data are relevant when they relate to the issues users care about most. However, assessing relevance is subjective because it depends on various user needs.	• Ongoing consultation and outreach with data users and stakeholders • Tracking and monitoring data requests
Accuracy	The degree to which statistical information correctly describes the phenomena it was designed to measure. Related to accuracy, **reliability** reflects the degree to which statistical information, consistently over time, correctly describes the phenomena it was designed to measure.	• EQAO Data Quality Framework
Timeliness	The delay between the end of the reference period to which statistical information pertains and the date on which the information becomes available. **Punctuality** refers to the difference between planned and actual availability.	• Annual reporting schedule aligns with stakeholder needs (i.e., school and school board improvement planning)
Accessibility and clarity	The ease with which users learn that information (including metadata) exists and find it, view it and import it into their own work environment.	• Publicly accessible data definitions • Data portal to access EQAO data
Coherence and comparability	The degree to which data can be reliably combined and compared with other statistical information within a broad analytical framework over time. To improve coherence, it is important to use standard concepts, classifications and target populations as well as a common methodology across surveys.	• EQAO methodology and psychometrics are well-defined and consistent • Availability of linking variables
Interpretability	The availability of supplementary information and metadata necessary to understand, analyze and utilize statistical information appropriately.	• Methodological information and metadata provided with all data requests

Source: Statistics Canada. (2019). Statistics Canada Quality Guidelines, Sixth edition—December 2019.
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