Data 101: The Language of Data

Introduction

The Data 101 Series is a part of ONN's [Data, Evidence-use, and Learning (DEAL) initiative](#), which aims to build a data strategy for the nonprofit sector. This series will introduce some of the fundamentals of data to support nonprofits as they explore their relationships to data.

What is data, anyway?

At the core of it, data is simply information. Nonprofits both produce and consume data. Information collected on programs, services, evaluation, funding reports, all of it is data!

There are two basic forms of data:

Quantitative: data that is measurable with numbers, like how many people attend a particular program. Quantitative data can be **cross-sectional** (showcasing a snapshot of variables at a particular point in time) or **longitudinal** (looking at the same variable over a time period).

Qualitative: data that is more anecdotal, less measurable, like how people feel about a particular program.

Ways to describe quantitative data

Data, like the nonprofit sector, has its own language. Some words you might see used to describe numerical data are listed below. If you want to see these words in action (and try to play with some data yourself), click here to check out our [examples](#).

VARIABLES

Often, nonprofits collect data because they want to know if their programs or projects had an impact or change. A variable is anything that can change and be measured.

ONTARIO NONPROFIT NETWORK

ANONYMIZATION

Many organizations take out information that can be used to identify individual people. Anonymizing data helps to protect people's privacy and reduce the risk of data misuse. One common method is to "clean" data of any information that can be linked to a specific person and to add a "key" (or "tag"), replacing the identifier. This is often a first step so data can be safely shared, stored, or used.

AGGREGATED DATA

Data aggregation refers to quantitative or qualitative data that has been pulled together from multiple sources and/or on multiple variables, measures, or people, and used in a summary report. It is often used to understand trends and compare different data sets, leading to new insights or information. Data aggregation can also help anonymize data.
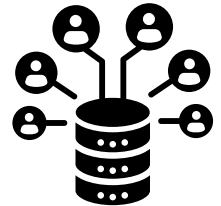
DEMOGRAPHIC STATISTICS

Information about who we serve, or who is in our communities, can be divided into different individual or group characteristics. This information can tell us more about people and may help us build a better understanding of how different factors influence each other. Some of the common variables nonprofits may be interested in include age, gender, ethnicity, income, and education.

DISAGGREGATED DATA

Disaggregated data is data that has been separated by different demographic variables. It is a useful tool in highlighting nuances in data. Sometimes, it can be used to better understand different groups of people through a particular demographic variable, such as age or gender. However, it works best with large data sets or variables that continue to ensure anonymity. Nonprofits might disaggregate data to understand who is using specific programs or to better understand the needs of a specific group of people.
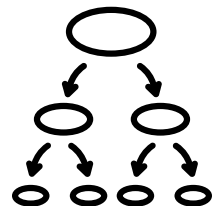
While data aggregation and disaggregation may sound like they are opposites, data must often actually be aggregated first to be disaggregated. Aggregation can help maintain individual anonymity, while disaggregation can help make sense/use of the data.

ONTARIO NONPROFIT NETWORK

OUTLIERS

Sometimes, we have a few points of information that do not make sense. They don't follow the same pattern or behaviour as other data points and are often dramatically different. These outliers may be ignored or dismissed. Other times, nonprofits may want to further investigate an outlier to gather more information. Outliers can skew information if they are used without discretion.
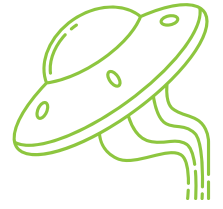
MEAN OR AVERAGE

One common statistic for a data set is the mean or average; these two terms can be used interchangeably. The mean points us to the centre of our data set, giving us a sense of what a "typical" data point might be. However, the mean can be easily skewed by outliers, so we may want to look at other statistics to help us understand our numbers. If our numbers are equally distributed, the mean or average is more useful.
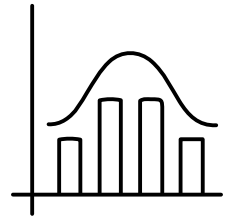
MEDIAN

The median is the middle value of a data set. When the numbers we are looking at are equally distributed, the difference between average and median is not significant. If our data set contains outliers that skew the data, the median is a better indicator of a "typical" or "normal" value. For large and complex data sets, these measurements can help us highlight inaccuracies or misconceptions.
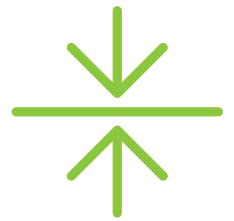
Ways to describe qualitative data

Many nonprofit organizations use a variety of qualitative methods to collect data, particularly about their programs, services, or projects. These can include:

- Surveys
- Interviews
- Focus groups
- Polls or feedback forms with open-ended questions
- Case studies
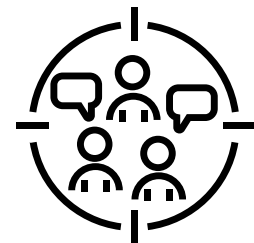
Qualitative data is just as important and valuable as quantitative data, and may be more culturally relevant or significant. As people, we communicate with each other with words and stories, which impart our histories and values. These narratives, stories, and oral histories are all opportunities to better understand our world - even if it does not always fit neatly into a table or graph!

ONTARIO NONPROFIT NETWORK

Data reminders

When it comes to data, there are three things to always keep in mind:

1. **Data should have a purpose.** Always start with the question of why you need this data and how it will be used. That will help you decide what kind of data you need and where you might find it (or if your organization needs to generate it).
2. **Correlation is not causation.** Simply put, you cannot link two variables together even if they appear to be influencing each other. This is particularly important because as people, we like to connect things together to make sense.
3. **Qualitative and quantitative data are equally important.** Why would nonprofits assume it's better to prioritize quantitative data? Because of funder requirements, board requests, and transparency for donors, nonprofits may prioritize quantitative numbers over qualitative feedback. But qualitative data can help us tell a compelling story and improve our understanding of complex issues.

How are nonprofits using data?

Nonprofits use data regularly, including looking at census data to better understand the communities they serve or adjusting their programs and services to match seasonal trends.

Nonprofit organizations are swimming in an ocean of data, but that does not mean that the data is easy to find, easy to use, or that we know how to make sense of it.

Nonprofits' data use may be internal (to measure performance, track spending, etc.) and/or external (with funders or stakeholders who want to see how programs or services are performing).

Internal data use may include:

- Financial and internal operations (Budgeting, volunteer hours, staff training, etc.)
- Outreach, communications, and fundraising (# of new donors, website hits, etc.)
- Programs and services, outcomes, and evaluation (attendance, client demographics, number of repeat program users, etc.)

External data use may include:

- Data from external sources, usually for advocacy or research (anything generated by Statistics Canada such as census data, Canadian Mortgage and Housing Corporation data, etc.)

ONTARIO NONPROFIT NETWORK

- Administrative data (operational records that governments and service providers keep on the people they serve such as tax records, high school completion records, health records, etc.)

RELATED RESOURCES:

Data Glossary: This glossary defines and explains dozens of terms related to data and data management that are relevant to the nonprofit sector, quoting a specific source from the web, which you can follow for more information.

The State of Nonprofit Data: This report from NTEN outlines challenges nonprofits face when it comes to using data.

Maximizing Impact through Administrative Data Sharing: This document from Powered By Data serves as an introductory resource on administrative data use in the social sector.

Information and Data Collection Involving Gender and Sexuality: This guide from the Center for LGBTQIA+ Student Success at the University of Iowa outlines recommendations and best practices on collecting information and data related to gender and sexuality.

The Data Lifecycle: This tool from PolicyWise is meant to help an organization proactively plan its data journey. It provides a bird's eye view of how data can evolve from inception to reporting and beyond.

What's the DEAL?: Subscribe to our quarterly newsletter to keep up with news and resources on all things data for nonprofits.

ONTARIO NONPROFIT NETWORK