- CICP -
DATA LITERACY
COURSE

ABOUT THE CEC

Data literacy is often described as the ability to examine, analyze, and communicate with data in a critical and ethical manner. Our aim is to increase participants' confidence in working with data while promoting critical and ethical reflection in data use.

Data literacy is broad, but it's principle is critical. Data is all around us and being able to collect, read, and communicate it is vital for informed decision-making. Especially today, where 'big-data' is growing increasingly, proper data-literacy is more important than ever for organizational success.

The following data literacy course is intended to help professionals working in the charitable and non-profit sector collect, read, and/or communicate data in a meaningful way. All modules are open to the public, free of charge.
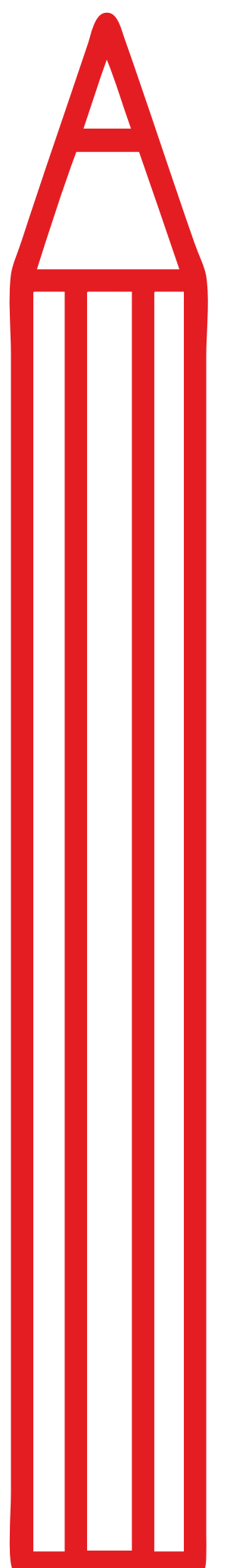
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Capsule 1: Defining Data

Learning Outcomes:
By the end of the lesson, learners will be able to:
- Define what data are
- Explain the reasons why data are useful
- Identify the different ways data are used in nonprofits and charities

Lesson Outline:

1. *What are data?*
   - Data are a collection of factual information, such as measurements or statistics. They comprise of raw facts or values that can be analyzed to gain insights and drive decisions.
   - Examples of data: They are all around us! From the text messages we send, the videos we watch, to the fundraising metrics of an organization, data come in many forms.

2. *Why are data important?*
   - Data equipe us with information that we may not know from intuition or past experience alone.
   - Intuition-based choices can be problematic; data can complement our decision-making processes.
   - Data provide facts and information, allowing us to make informed and effective decisions. This holds true for individuals, organizations, and society as a whole.

3. *How are data used by nonprofits and charities?*
   - Nonprofits and charities use data in numerous ways, such as to understand the needs of the communities they serve, measure the impact of their programs and services, and demonstrate their effectiveness to stakeholders and donors.
     Remember:
   - Data are everywhere and come in various forms: words, numbers, counts, social media posts, images, and more.
   - Always be aware of the context and assumptions underlying your data.

Useful Resources:
1. Clarke, E. (2022). Everything Data Analytics-A Beginner's Guide to Data Literacy: Understanding the Processes That Turn Data Into Insights. EBook: Kenneth Michael Fornari.
2. Daniel, K. (2011). Thinking, fast and slow. New York: Farrar, Straus and Giroux.
3. Morrow, J. (2021). Be data literate: The data literacy skills everyone needs to succeed. New York & London: Kogan Page.

Capsule 2: Understanding Connections between Data, Information, Knowledge, and Wisdom

Learning Outcomes:
By the end of the lesson, learners will be able to:
- Describe the DIKW (Data-Information-Knowledge-Wisdom) framework and its components: data, information, knowledge, and wisdom.
- Explain the transformation process of raw data to wisdom and its significance in research.
- Tell how the DIKW framework can be used by nonprofits and charities.

Lesson Outline:
1. *What: The DIKW Pyramid*
- We use an analytical framework developed in the field of data management and data sciences called the DIKW Pyramid, to understand the connections between data, information, knowledge and wisdom.
  - *Data (level 1):* Base of the pyramid, considered as raw facts.
  - *Information (level 2):* Formed by categorizing and contextualizing data.
  - *Knowledge (level 3):* Drawn from structured information and lived experiences.
  - *Wisdom (level 4):* Ultimate level of thinking, allowing for informed decision-making.
  A More Nuanced Understanding:
- While the DIKW model provides a structured approach to data, information, knowledge, and wisdom - a narrow and focused interpretation is not enough. A more nuanced understanding of these concepts can be achieved through comprehensive approaches that consider context, relationships, and culture.

2. *Why: Importance of the DIKW Framework*
- Collecting data is not the end of the learning process. It is simply the beginning. Data must undergo important transformations and interpretations to lead to sensible decisions in your organizations.

3. *How: Applying the DIKW Framework in the Nonprofit Sector*
- *E*xample given about organizations working on the unhoused crisis

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2. Morrow, J. (2021). Be data literate: The data literacy skills everyone needs to succeed. New York & London: Kogan Page.
3. Rowley, J. (2007). The wisdom hierarchy: Representations of the DIKW hierarchy. Journal of Information Science, 33(2), 163–180.

Capsule 3: Problem Definition

Learning Outcomes:

By the end of the lesson, learners will be able to:

- Define 'problem definition' and recall the steps involved in its formulation (What).
- Summarize the significance of problem definition in research and identify potential biases that may arise during this process (Why).
- Identify how problem definition can guide the formulation of research questions in a nonprofit context (How).

Lesson Outline:

1. *What is the problem we are trying to solve?*

- Defining a problem and related questions we are trying to address will guide how we design our data collection process. In other words, how we define the problem determines the data we must collect.

2. *Why is the problem definition important?*

- Defining the problem we would like to address guides the rest of the process in data work, from collecting data to analyzing it, deciding how best to solve it, and taking approporiate actions.
- Who defines the problem to solve and what to study tells us about the priorities of organizations and those engaged in research.
- For nonprofit and charitable organizations, defining the problem will guide program design, implementation, and evaluation strategies. It will also help to determine the type of funding organizations seek and the resources they need to address it in line with their core mission.

3. *How might the problem definition be applied to nonprofits and charities?*

- Stating a problem will involve determining goals, actions, and achievable outcomes.
- Problem definition will require determining who should be involved in the discussion and solution.
- For every problem we define, we can ask various related questions: what is happening (descriptive question), how is this possible, how can we address it (process questions), and why is this happening (causal questions).

Useful Resources:

1. Clarke, E. (2022). Everything Data Analytics-A Beginner's Guide to Data Literacy: Understanding the Processes That Turn Data Into Insights. EBook: Kenneth Michael Fornari.

2. Daniel, K. (2011). Thinking, fast and slow. New York: Farrar, Straus and Giroux.

3. Morrow, J. (2021). Be data literate: The data literacy skills everyone needs to succeed. New York & London: Kogan Page.

4. Shron, M. (2014). Thinking With Data: How to Turn Information into Insights. California: O'Reilly Media.