Low-Income Data Diaries

How '**Low-Tech**' Data Experiences Can Inspire **Accessible Data** Skills & Tool Design

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csv,conf,v5,2020

Just in case you didn't know what I looked like (after showing my video), here's a blurry picture with half of my face in darkness.

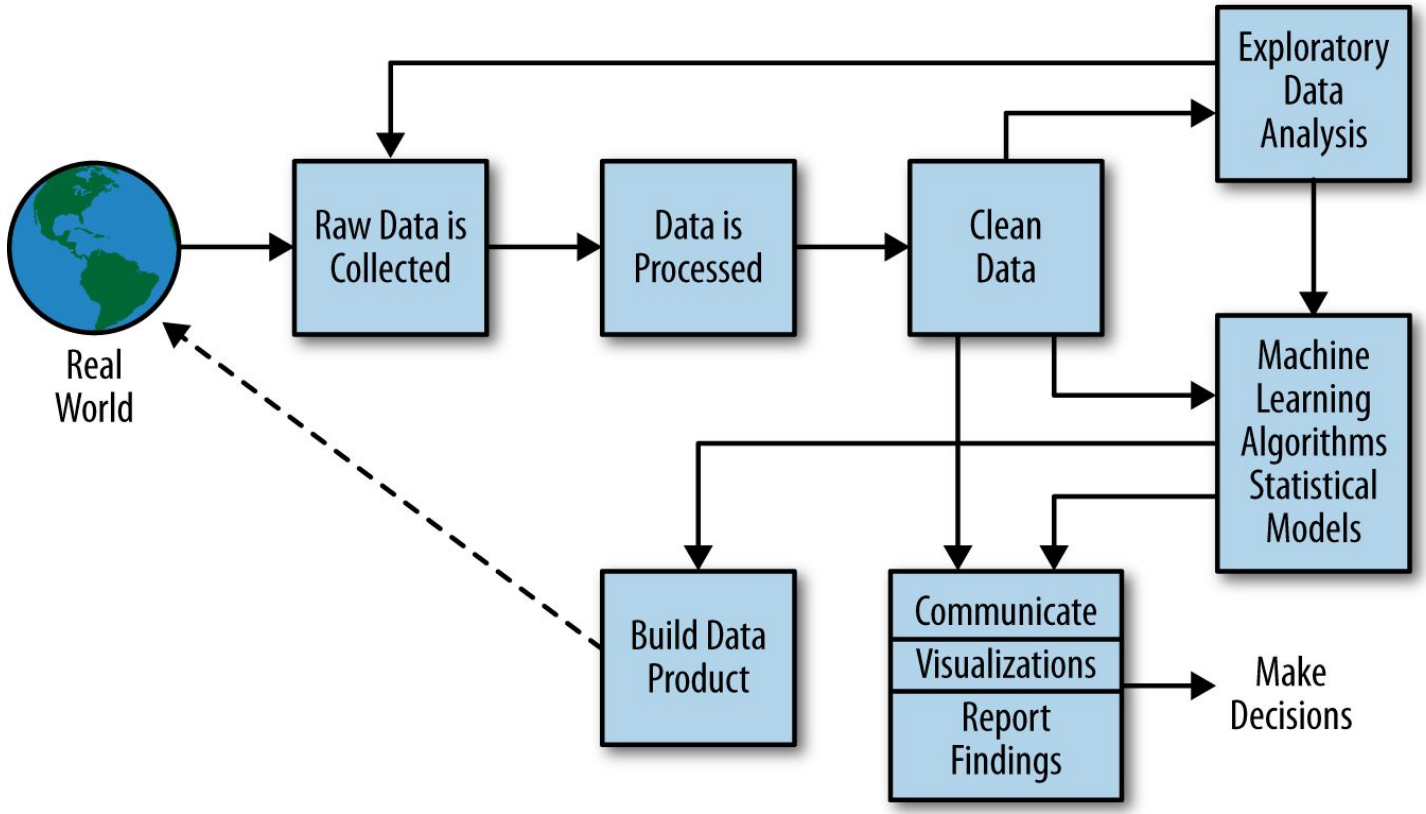
Self-appointed "Data Plumber"

Background: Biology, Computer Science Education

Experience: Software development, data science, training design, data strategy

Past affiliations: Meltwater Entrepreneurial School of Technology (2014-2016), School of Data (2015 - 2018), Open Knowledge Foundation (2016 - 2018), Open Contracting Partnership (2018-2019)

Stakeholders: Governments, researchers, journalists, advocacy groups, entrepreneurs, farmers, international development organisations



The Data Science Process, *Doing Data Science* by 2014 Rachel Schutt and Cathy O'Neil

If data is oxygen of the digital age...

Photo by Samuel Ramos on Unsplash

...we need to move from a data-choked society...

...to one of data-enabled action

Images from www.measureevaluation.org/our-work/data-demand-and-use

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DATA LITERACY

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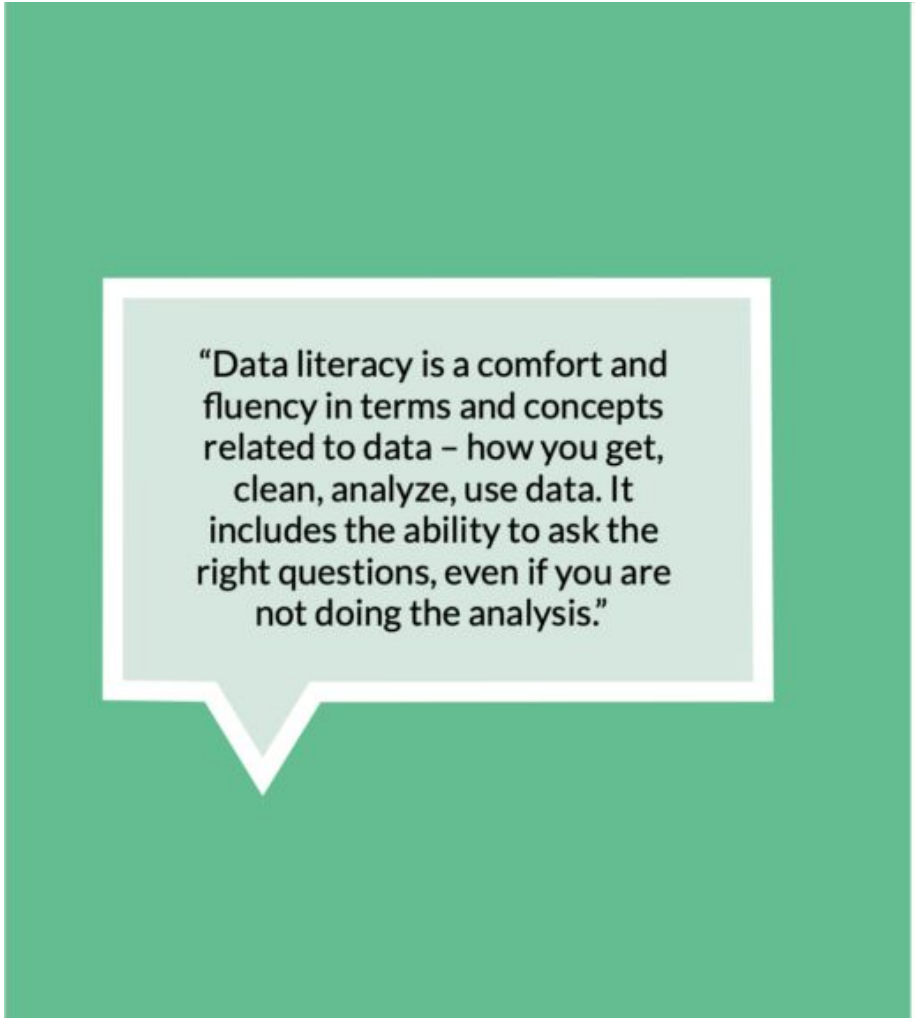


We Are All Data People: Insights From The Data Literacy Survey, The Centre for Humanitarian Data

"Data literacy includes the ability to read, work with, analyze and argue with data."

Dalberg | OCHA | centre for humdata

Data Literacy = Data Skills + Data Tools

Traditional data literacy efforts usually try **moving stakeholders to existing levels of data skills and tools**

Upskilling:

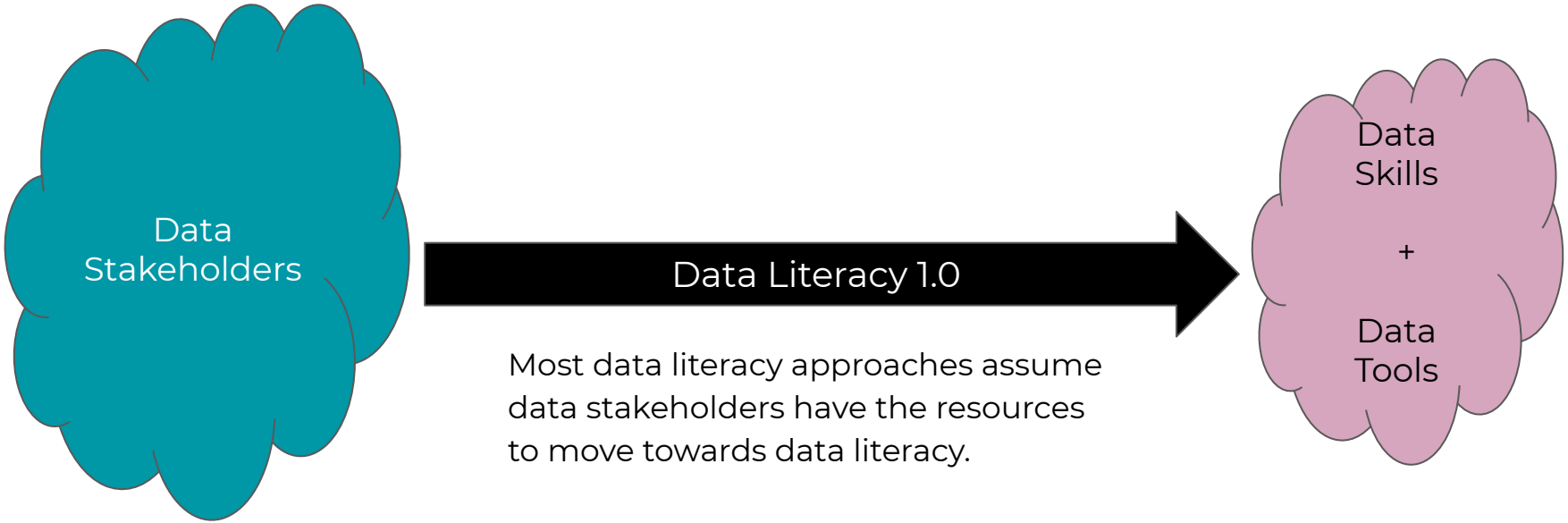
Where an data stakeholder is given skills that allow her to access existing data literacy paradigms

Ex: teaching a journalist how to scrape PDF data using Tabula

Uptooling:

Where a data stakeholder is encouraged or supported to access existing data tools

Ex: requiring a civic technologist to sign up for a bank card/account to access cloud services



Most data literacy approaches assume data stakeholders have the resources to move towards data literacy.

When traditional data literacy plans meet low-tech reality...

Dear [Data] Diary,

This week, we ran a data journalism training for 30 radio journalists. All was well until we got to the end of the data visualisation module, and one participant asked me:

"***How would you communicate a data visualisation through radio?***"

Dear [Data] Diary,

*My team has been working with a **US City Mayor's Office** to implement the Open Contracting Data Standard (OCDS) to improve public contracting. Significant technical effort is required to kick this off, which the Mayor's Office does not have the personnel and budget for this.*

"How do we demonstrate the full potential of the OCDS with these constraints?"

Dear [Data] Diary,

We are about to kick off a 3-month virtual data journalism training for 6 freelance journalists. My goal for today's call was to agree on the dates, and the curriculum I'd designed. I quickly learned that:

- ***Only one journalist had a laptop with a 4GB RAM and i3 processor***
- ***The internet kept cutting out on their end***
- ***There was a lot of background noise because of the open-shared space they used***
- ***They worried about how much income they will be losing from not being on the field for stories***

Dear [Data] Diary,

At today's introduction to data science meetup, only 5 (out of 30) participants were able to use the Amazon Web Services or Google Cloud Platform option for their model deployments. The rest did not have a bank card to create a cloud account.

"How do we increase access to such critical data resources for such participants?"

Dear [Data] Diary,

Today was the first day of training. Our plan was to learn how to use filters, formulas and eventually pivot tables for data analysis. Guess what we ended up doing for 6 out of the 8 hours? Learning how to install software, find files in Windows and navigate a spreadsheet interface.

The traditional data literacy approaches **do not work** in these **[low-income]** contexts

Historic and current income constraints limit the ability of stakeholders in low-income context from accessing current data literacy approaches

Current approaches sell a promise of long-term benefits of data literacy, and are not sensitive to the short-term realities of stakeholders in low-income contexts

Low-tech data gaps are prevalent in low-income contexts

Low technical data skills or knowledge

- Little or no exposure to non-smartphone operating systems (Windows, MacOS, Ubuntu)
- Low English (and other “popular” language) proficiency
- No programming background

Low access to **tech**nological tools or processes

- No formal bank account
- Limited internet connectivity
- No or slow computing device
- Manual data processes or systems

No! These are not edge cases

Low-tech contexts **do not only exist in low-income countries**.

A high-income country can have a low-tech context

Limited access to high computing power due to emergencies

Limited budgets due to prioritisation of other goals

Reduced access to high-tech tools or resources due to increased demand

Our current approach to data literacy education is largely inaccessible to a large population of data stakeholders...

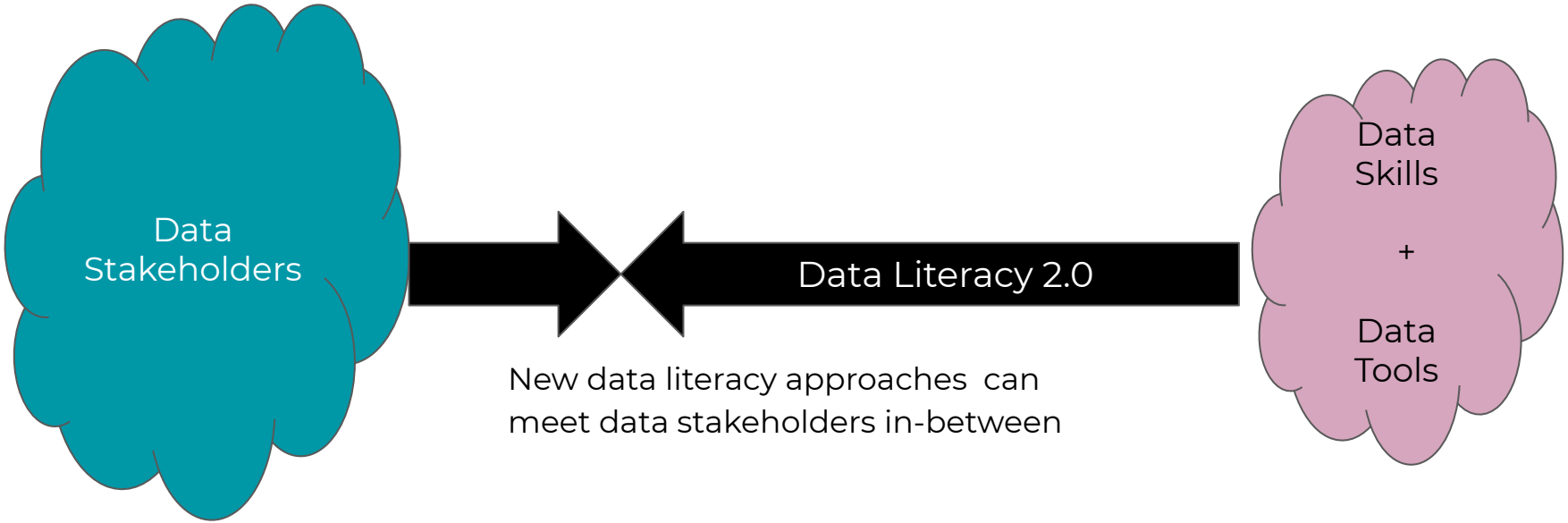
...and tend to function in limited context and with limited resources

New data literacy efforts benefit from designing for low-tech contexts

- Increased access to more data stakeholders
- Increased contextual innovation and affordability
- Increased resilience and simplicity

Lessons & Thoughts


Data
Stakeholders
Data Literacy 2.0
Data
Skills
+
Data
Tools
New data literacy approaches should
move towards data stakeholders



New data literacy approaches can meet data stakeholders in-between

We adapt our data literacy approaches to maximize long-term success...**IT IS NOT ABOUT YOU**!

Basic Skills
- Provide additional basic modules (introduction to computers, the Web, spreadsheets etc)

Prepare for slow or no internet
- Create a local network from a host computer for file sharing
- Share a docker file with all required software

Assess Competencies
- Pre-training surveys, quizzes

Plan for longevity
- Embedded data support (media houses, CSOs)
- Skills progress check-ins

The Science Set by Dext Technologies was designed and built in Ghana for under-resourced science classrooms, but is now being distributed to 500 UK Schools.

The Science Set, Dext Technologies

Zipline

Medical delivery drones designed, built and operated for robust contexts in Rwanda and Ghana may now **have applications in rural US communities during the COVID-19 pandemic.**

Shout Outs!


SCHOOL OF DATA


Open Knowledge
Foundation


OPEN
CONTRACTING
PARTNERSHIP


THE
CARPENTRIES

Thank you.

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@sdopoku

So how would you communicate a data visualisation through radio?

I left my job at the end of 2019 to find out...