A Systems Approach to International Education: How Administrative Data is Being used to Track the Progress of USAID's Education Strategy

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A Systems Approach to International Education: How Administrative Data is Being used to Track the Progress of USAID's Education Strategy

Abstract
While rigorous evaluation of donor funded education interventions are quite common in developing countries, the data collected and analyzed to assess the interventions are not always published. Even when published, the data often lack codebooks and technical documentation, guidance on how to correctly use the data, and most frustratingly only contain meta-information pertaining to the design of the intervention and evaluation in free text in PDF reports. Such practices reduce the overall quality of the data and meta-data making it very difficult to be used for secondary analysis to answer policy relevant questions. To address such challenges, this paper describes the integrated data system developed to securely receive, review, harmonize, ingest, curate, and publish standardized public use Early Grade Reading Assessment data and meta-data to track the progress of the 2011-2015 USAID Education Strategy. The paper discusses the underlying methodological framework for systematically reviewing the data for quality and completeness as well as the approach to profile the design of the intervention and evaluation to assess its rigor using the system. Lastly, the paper illustrates how the meta-data created through the systematic review process combined with the data collected and processed through the system can be used for developing dynamic data products that reduce the technical barriers for such data to be used by a wide range of stakeholders to inform critical policy decisions.

Comments
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A Systems Approach to International Education: How Administrative Data is Being Used to Track the Progress of USAID’s Education Strategy

Sadaf Asrar
ADRF Conference
November 13, 2018
Agenda

• USAID Education Strategy & SART’s scope of work
• State of data and documentation observed by SART
• Approach to create, curate, and publish open administrative data
• Operationalizing the approach
• Administrative data as an innovation to bridge the North-South gap
• Illustrative example of data explorer using open administrative data
The 2011-15 USAID Education Strategy plays a significant role in promoting sustainable development around the world. The strategy has three major goals:

- Goal 1: By 2015, improve reading skills for 100 million children in primary grades

- Goal 2: By 2015, improve the ability of tertiary and workforce development programs to produce a workforce with relevant skills to support country development goals

- Goal 3: By 2015, increase equitable access to education in crisis and conflict environments for 15 million learners
SART’s Scope of Work

• The USAID Secondary Analysis for Results Tracking (SART) contract aims to tell the story of the progress toward Goals 1 and 3 of the USAID Education Strategy

• SART collects information from USAID Missions and implementing partners to:
  – Track the reach and overall progress of the goals
  – Understand and profile the reading activities
  – Validate and process data and meta-data
  – Create standardized public-use open data
  – Serve as a resource for the community of practice
SART’s Workflow

Contact Missions & partners working on Goals 1 & 3

Receive in-bound data & documentation

Produce harmonized data & documentation

Systematically process the information received

<table>
<thead>
<tr>
<th>Sex</th>
<th>Language</th>
<th>School type</th>
<th>Grade</th>
<th>ORF</th>
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<td>Rural</td>
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<td>Rural</td>
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<td>50</td>
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</tbody>
</table>
State of Data and Documentation Observed by SART

- Quality of data received varies widely
  - Variables measuring key reading constructs are often generated inconsistently
  - Weights and other survey settings are not fully recorded
  - Codebooks & technical notes are not always shared
  - Summary statistics including sample sizes often do not match reports

- Documentation is not uniform
  - Not all aspects of the intervention or the evaluation are always documented
  - Reports do not have a uniform structure making navigation difficult
  - Reports for the same activity sometimes present different findings
  - Findings at times cannot be replicated using the data shared
SART’S Approach to Create, Curate, & Publish Open Administrative Data

• Systematically review and record the design of the intervention by coding
  – Scope of the activity
  – Treatment foci
  – Evaluation design
  – Sampling approach
  – Assessment design and test equation
  – Validity and reliability of findings
  – Limitations and course corrections
SART’S Approach to Create, Curate, & Publish Open Administrative Data (Cont’d)

- Review and validate assessment data
- Harmonize & standardize data to a common codebook
- Publish data and meta-data of the overall activity and the reading assessment in non-proprietary open source format in accordance to the 2014 DATA Act
2011-2015 USAID Education Strategy

Target Results Data


This site serves as a public access point for data and documentation used by the USAID Office of Education to measure progress towards the targets of the 2011-2015 USAID Education Strategy:

- **All Children Reading (ACR):** Improved reading skills for 100 million children in primary grades.
- **Education in Crisis and Conflict (EICC):** Increased equitable access to education in crisis and conflict environments for 15 million learners.

This site also serves as a vehicle for USAID Missions and implementing partners to submit reading assessment data and documentation. To submit data and documentation click here.
Operationalizing the Approach Using SART ED (Cont’d)

USAID SART

Warning

Do not submit personally identifiable information (PII) to SART Ed. For an explanation of what PII is please see the SART Ed Data Security and Privacy Guidelines.

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Warning - Restricted access

Please choose

- I am a gov’t employee and I agree with the above text
- I am a non-gov’t employee. I agree with the above text and the end-user license agreement
- I do not agree

Username

Password
Operationalizing the Approach Using SART ED (Cont’d)

Program Checklist Page.

Program Checklist Data

Fields indicated with an * are required.

- **Country**: Please select one.
  - Comment(s)
- **SART program name**: Please select one.
  - Comment(s)
- **Intervention (choose all that apply)**
  - United States of America | United States of America | (APKWDSD) A Program
  - Comment(s)
- **Cohort (choose all that apply)**
  - United States of America | United States of America | (APKWDSD) A Program
  - Comment(s)
Operationalizing the Approach Using SART ED (Cont’d)

Document the methodological approach.
Operationalizing the Approach
Using SART ED (Cont’d)

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<th>Data File Basic</th>
<th>Survey In-bound</th>
<th>Transformation</th>
<th>Normalization</th>
<th>Ingestion</th>
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| Data for same country | Please select one. | | | | | Comment(s)
| Data for same program | | | | | | Comment(s)
| Data for same dataset type | | | | | | Comment(s)
| Data for same phase | | | | | | Comment(s)
| Are there embedded notes in the data file? | Please select one. | | | | | Comment(s)

**Code the assessment data metadata**
Operationalizing the Approach Using SART ED (Cont’d)

Data Header/Field Alignment

Aligning File: C:\inetpub\ftp\root\localuser\testuser\moz-0001A-284-Linha de Base (Fev.-Mar 2013)-normdataset.csv

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<th>classe</th>
<th>TIPO_DE_TRATAMENTO</th>
<th>CODIGO_PROVINCIA</th>
<th>NOME_DA_PROVNCIA</th>
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Process and align data to a standardized codebook
Challenges & Possible Solutions

• Challenges of the current approach
  – Documentation is created and transmitted after the fact not during each task which creates a delay
  – Data for different phases of the same activity are coded differently which needs to be harmonized
  – Turnover of project and evaluation staff leads to loss of institutional knowledge
  – Quality and completeness of the data shared may not always be a top priority
  – Data and documentation standards are suggested and not enforced
  – Third-party review and profiling is difficult, time-consuming, and expensive

• Possible solutions
  – Implementers and evaluators should use a single methodology to systematically profile their activity in a centralized system
  – Record and submit the documentation during and not after the activity
  – Conduct third party review of data entered by partners during the life-cycle of the activity
How Open Administrative Data can be an Innovation to Bridge the North-South Gap

Better understand past interventions to inform future activities using indexed data of activity and evaluation design

- Query how many students were reached and the treatment they received for a given activity
- Filter which students in what grades and languages were assessed and how they were selected
- Identify which schools to select for future interventions and assess whether they received any treatment from a past activity
- Understand what challenges past interventions faced and how they could be possibly overcome
How Open Administrative Data can be an Innovation to Bridge the North-South Gap (Cont’d)

- Reduce technological barriers & foster capacity building
  - Public use open data do not require proprietary software to be used
  - Dynamic dashboards using open source tools can be developed to understand and explore the data without knowing any programming
  - Publishing the data to the general public can lead to third-party reviews, meaningful feedback, and possible improvements to the data

- Open data analyzed through point-and-click data explorers could increase the understanding and use of data in policy decisions
Illustrative Example: *G1 Beneficiary Data Exploration Using Indexed Activity Meta-Data*

- **Objective**: Identify the number of beneficiaries reached by activities that met the following criteria:
  - Community focused treatment
  - Language of instruction was French
  - Quasi-experimental evaluation design
Beneficiary Data Explorer for 13 Activities Using Tableau Public

Total Beneficiaries Reached: 2011-2015

Beneficiaries by Year

<table>
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<tr>
<th>Year</th>
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<th>3M</th>
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</table>

Funding by Country & Activity

- Tanzania
- Liberia
- Egypt
- DRC
- Yemen

Total Beneficiaries by Sex

- Female
- Male

Region
- Country
- Activity
- Scope
- Grades of Instruction
- Languages of Instruction
- Treatment Foci Group
- Treatment Foci Mode
- Evaluation Design
- Grades of Assessment
- Languages of Assessment

© OpenStreetMap contributors
Select: “Community” under Treatment Foci Group
Select: “French” under Languages of Instruction
Select: “Quasi-Experimental” under Evaluation Design
1,934,417 beneficiaries reached through the DRC PIEQ/PAQUED activity
Illustrative Example: G1 Beneficiary Data Exploration Using Indexed Activity Meta-Data

• Explore the dashboard and the data on the web at:
  https://optimalsolutionsgroup.com/beneficiary-trends-1/

• Download the dashboard and embedded data to create your own visualizations for analysis

• Provide feedback for the beta testing at:
  info@optimalsolutionsgroup.com
Thank you!