System (in)coherence

Quantifying the alignment of primary education curriculum standards, examinations, and instruction in two East African countries

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Instructional coherence

• Instructional alignment is important for learning
  • e.g. Alignment of curriculum, materials, assessments, support, instruction
  • (Crouch and DeStefano, 2017; Piper et al., 2018; Banerjee et al., 2016; Crouch, 2020; Smithson and Collares, 2007; Gamoran et al., 1997; Porter, 2002)

• Teachers have many responsibilities – which may compete or be contradictory (Porter, 2002; Pritchett, 2015)
  • Completing the curriculum, preparing children for exams, ensuring children acquire the desired competences, among others.
Instructional coherence through a systems lens

The RISE systems framework characterizes the system through four relationships of accountability and five design elements.

Teachers may be delegated different tasks by different actors (curriculum body, exams body, parents) (B1 and B2 in figure).

Teachers may or may not be adequately supported to perform tasks (A1, A2, A3).

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<th>Five design elements</th>
<th>Principal-agent relationships of accountability</th>
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<td>Compact (Executive Authority to Education Authorities)</td>
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Instructional coherence

- Instructional components may be incoherent with each other, and/or incoherent for learning
  - Separate agencies + poor coordination in development of curriculum and exams (GoU, 1973; GoU, 1983; World Bank, 2012; Munene, 2017; GoT, 1973; GoT, 1975; MoEST, 2018)
  - Overambitious curriculum (Pritchett & Beatty, 2012)
  - Exams poorly designed or designed for selection (Allen et al., 2016; Burdett, 2016)

- How to measure instructional coherence and diagnose incoherence?
  - This presentation will illustrate a tool for diagnosing and exposing systemic challenges to improving learning at scale
Surveys of Enacted Curriculum (SEC)

- Tools for academic content analysis, alignment analysis, teacher support (Blank, Porter, & Smithson, 2001; Smithson, 2013)
  - Facilitates teacher reflection and professional development and education content reform

- Systematically analyze and quantify the content and coherence of primary curriculum standards, national exams, and teacher instructional content in Uganda and Tanzania.

- Implementation through partnership between Twaweza East Africa and Wisconsin Center for Educational Research/Center for Curriculum Analysis.
Surveys of Enacted Curriculum (SEC)

SEC inputs - outputs

- Taxonomy of topics/subtopics
- Performance expectations for students learning
- Teacher or expert judgement of content & practices
- Descriptive content maps
- User-friendly marginal charts
- Alignment tables & indices

SEC data analysis & processing

- Indiv. Data is processed into proportions, and normalized.
- Avg. across all teachers or analysts.
- Measures of rel. emphasis produced.

- Analysis results reported as alignment indices on a 0 – 1 scale
Primary English in Uganda

Across components

Alignment measures:
Standards vs. Exams 0.36
Standards vs. Instruction 0.34
Within a component

- Non-systematic articulation.
- Skip-and-reinstate coverage pattern, sometimes with cognitive leaps: critical reading, writing applications.
- Omits foundational literacy skills like phonemic awareness, phonics and vocabulary.
Primary Math in Tanzania

Alignment measures:
- Standards vs. Exams 0.44
- Standards vs. Instruction 0.44
- Instruction vs. Exams 0.33
Within a component

- Covers foundational skills in early years
- Extends level of cognitive demand in Standard 4
Alignment measures: Mathematics and English in Uganda and Tanzania

0.50 is considered reasonably well-aligned

- Standards vs. Exams: 0.57 vs. 0.36
- Standards vs. Teacher instruction: 0.65 vs. 0.44
- Exams vs. Teacher instruction: 0.33 vs. 0.11
Summary

• Low alignment measures across the three instructional components.

• Non-systematic articulation of curricular content across grades & cycles in the standards.

• Teachers tending to cover broad swathes of content and cognitive demand levels, not well aligned with curriculum standards nor exams.

• Internally well aligned national exams, with a tendency to over (under)-emphasize certain content areas – decreasing alignment with the curriculum standards.
• Our findings from Uganda and Tanzania suggest education system components that may be constraining efforts to improve learning at scale.

• Future work: alignment analyses in other developing country contexts, other aspects of SEC (peer-level teacher reflections, teacher prof. development, OTL analyses, etc.)

• Rather than taking a normative stance on what coverage should look like, SEC offers a positive diagnosis of what coverage does look like – descriptions of “what is”. SEC can be used by relevant education experts to inform content reforms.
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