

Methodological Challenges and Impacts of School Closures on Data Quality for National Testing Agencies

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Objectives for Today

- Briefly summarize global issues regarding disrupted education systems
- Describe national assessment systems during Covid in US/Ohio and current issues Ethiopia
- Impact on data quality, data use
- Recommendations regarding exam and assessment data in times of education emergency

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Disrupted Education Systems

- Covid-19 has devastated education systems worldwide
 - 1.6 billion students affected (World Bank/UN Joint Report, 2021)
 - ECE, primary, secondary, vocational, university
 - Lost instructional time (health or system effects) has educational, economic, and quality of life consequences for students
 - Impacts are greater for our most vulnerable students
- All levels of system affected
 - Providers: Child-care workers, teachers, teacher-training, social workers/counselors, professors
 - Leaders: Ministries, state/regional, district/woreda, school-leadership
 - Accountability, examination and assessment/testing systems



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Education in Emergencies

- Covid-19 is only *one* event that has affected education systems
 - Others include natural disasters (flooding, earthquakes, landslides, drought, wildfires, weather); war; political upheaval; social/civil unrest; gun-violence; other epi/pandemics
 - “hidden” impacts: trauma, sickness, family job loss, loss of home/safety, hunger
- LMICs bear an unequal burden
 - Poverty, economic unbalance, food and/or health-system variability
 - Infrastructure for rapid adjustments, remote-access learning supports (teachers and students)
- Capacity to mitigate lost instructional time for all students
 - Varies by country, region
 - Vulnerable students are most at risk, and gap is widening

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Context of Impact (C-19) [1]

- Effectiveness of remote learning and of heterogeneity in use and access not yet clear
 - Teachers and students – both affected
- US Projections (Kuhfeld, et al., 2020) (MAP growth assess.)
 - Math loss (37% to 50% of expected gains) > reading loss (63% to 68% of expected gains)
 - Increase in variability among students in where they would start at beginning of school year (after closures)
 - Gaps between high-SES and low-SES schools expected to be wider

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Context of Impact (C-19) [2]

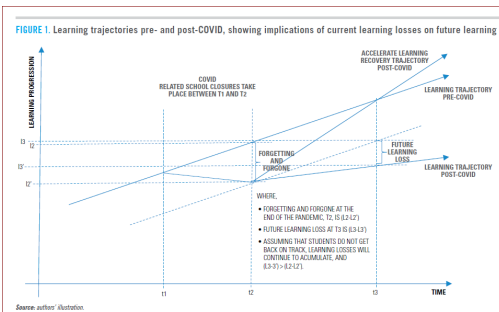
- Global projections (Azevedo et al., 2021) (multiple global data sets)
 - Duration of school closures vary
 - Mitigation efforts vary
 - School closures projected to bring loss of 0.3 and 1.1 years of schooling
 - Effective number of years of schooling reduced from average 7.8 years to 6.7 – 7.5 years

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Context of Impact (C-19) [3]

- **Global evidence** (The World Bank, UNESCO and UNICEF (2021); UNICEF, 2022;)
 - Projections corroborated and may be worse than estimated
 - Vary by country
 - LMICs: learning loss proportional to length of closures (each month closed = 1 month of learning loss) (average)



Learning Trajectories

- ← Pre-Covid
- ← Post-Covid

World Bank, UNESCO & UNICEF Joint Report (2021). The state of the global education crisis: A path to recovery.
<https://www.worldbank.org/en/topic/education/publication/the-state-of-the-global-education-crisis-a-path-to-recovery>

Context of Impact (C-19) [4]

- **Ohio data** (Kogan & Lavertu, 2021) (OH state-wide 3rd grade assessment)
 - Participation dropped by almost 15% (likely underestimated)
 - Average achievement lower by .23 SDs between Fall '19 and '20
 - Black students' declines 50% larger than the declines of white students
 - Larger declines in areas with greater job loss
 - Larger declines in districts with fully-remote instruction vs. hybrid or in-person

Figure 3. Changes in standardized scaled scores from fall 2019 to fall 2020, by race

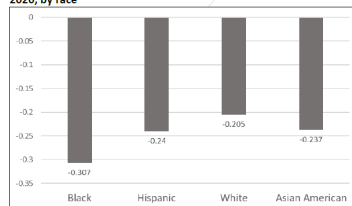
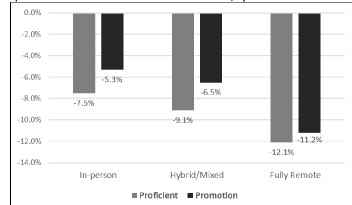


Figure 5. Changes in percentage of students scoring above "proficient" and "promotion" thresholds from fall 2019 to fall 2020, by mode of instruction



Sources of Data?

High-quality estimates (and projections) rely on high-quality data, typically from:

- **Education census data**
 - National annual exams, e.g. Ethiopia National Exams; US State tests; OH K readiness test; OH Graduation test (no longer used); OH grade-level or HS end-of-course exams (OSTs); PARCC or Smarter Balanced
- **Survey data – uses a sample**
 - e.g., Ethiopia National Learning Assessments, US NAEP
 - EGRA, EGMA, MELQO
 - Repeated multi-country surveys, with subsamples of students or regions
 - PISA, PIRLS, TIMSS
 - Young Lives, others

Note that previous studies rely on different data, and report learning loss in different ways.

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Role of Tests/Testing Agencies

- Exams/assessments are generally used for data-driven or evidence-based decision making (NAE, 2021; NEAEA Team, 2020):
 - Certification, promotion, readiness
 - Summarize educational needs, gaps
 - Resources, funding, monetary prioritizations
 - Student progress
 - Quality of schools, teachers/teacher training, curricula
 - Assuring equity (vulnerable children, girls)

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Ohio Context

District Settings	Districts	Percent	Enrollment	Percent
Traditional School Districts	610	100%	1,492,219	100%
Ohio 8 Districts	8	1.3%	182,419	12.2%
Other Urban Districts	47	7.7%	191,149	12.8%
Suburban Districts	123	20.2%	546,564	36.6%
Small Town Districts	200	32.8%	337,609	22.6%
Rural Districts	229	37.5%	243,298	15.7%
Other Districts	3	0.5%	181	<0.1%

Types of Schools	Schools	Percent
All Public Schools (as of Jan. 26, 2022)	3,648	100%
Traditional Public Schools	3,242	88.9%
Community Schools	315	8.6%
Vocational Schools	76	2.1%
State Supported Schools (Special Needs)	8	0.2%
STEM Schools	7	0.2%



- Ohio Department of Education (ODE)
- 11.58 million people
- 1.6 million public school students
- 18% Black, Hispanic, Asian, etc.
- 90% households w computer
- 85% with internet
- 13% in poverty
- 1.6% school dropouts (28K)
- Schools closed March 12, 2020; district variation after 3 weeks; 2020-21 school year varies by district

<https://education.ohio.gov/>

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OH Ed Testing [1]

- Ohio Graduation – Since 2014 Ohio has been phasing out the OGT (10th grade, 5 content areas) in favor of a curriculum and competency-based approach
 - In 2020 graduation based on three options
 - Curriculum and earning min points on Ohio end-of-course exams (7 subjects) OR \geq min pts on industry/workforce readiness test (external ACT assessment) OR min scores on ACT/SAT
 - Schools made modifications for graduation requirements in 2020
- Reasons for change/drop of OGT were based on common testing concerns:
 - Teachers teaching to the test (assessments driving instruction)
 - Test anxiety among students
 - Time spent preparing students for the tests took away from classroom learning

<https://education.ohio.gov/>

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OH Ed Testing [2]

- Annual testing (and all testing) was cancelled for spring and summer 2020
 - Modified dates for some tests ran through summer and following year with assurance of Covid-safety protocols
- For general education:

GRADES 3-8

	English language arts	Mathematics	Science
Grade 3	✓	✓	
Grade 4	✓	✓	
Grade 5	✓	✓	✓
Grade 6	✓	✓	
Grade 7	✓	✓	
Grade 8	✓	✓	✓

Note: all in Spring; 3rd grade ELA given *Fall* and *Spring*

<https://education.ohio.gov/>

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Ohio Ed Testing [3]

Early Grades/Learning Assessments

- Kindergarten Readiness Assess. (KRA)
 - Used revised and shorter version in Fall 2020
- Grades 1 – 3
 - K and grades 1 – 3 reading diagnostic (screener), early Fall
 - Districts have option of screener to use
- Ohio's 3rd Grade Reading “guarantee”

<https://education.ohio.gov/>

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ET Context



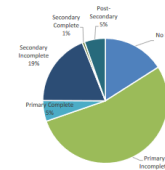
- 115 million people
- 21.5 million students in school (76% primary)
- Schools closed March 16, 2020; re-opened Nov 2020. Remote learning due to Covid approx. 7.5 mos.
- Broadcast/radio/Telegram mitigation for instruction
- Autonomy for schools in adjusting school schedules, approaches
 - Small class sizes; remote/blended learning
- Ministry of Education website <https://moe.gov.et/>

54% primary inc.

55% of girls at sec. age out of school

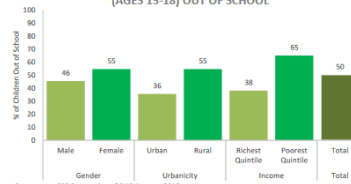
https://www.epdc.org/sites/default/files/documents/EPDC_NEP_2018_Ethiopia.pdf

FIG 3. EDUCATIONAL ATTAINMENT, YOUTH AGES 15-24



Data source: EPDC extraction of DHS dataset - 2016

FIG 5. PERCENTAGE OF CHILDREN OF SECONDARY SCHOOL AGE (AGES 15-18) OUT OF SCHOOL



Data source: EPDC extraction of DHS dataset - 2016

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Ethiopia National Exams [1]

The 10th grade Ethiopian General Secondary Education Certificate Examination (EGSECE) and the 12th grade/ University Entrance Examinations (EUEE) have been discussed in the examination policy framework.

EGSECE:

- Typically in May
- All students who have completed the first cycle of secondary school
- Students at this level take nine or ten subjects, depending on where they have been educated.
- For the students' score, letter grades A, B, C, D, and F are recorded.
- From 2001 to 2019, EGSECE was in place
- Terminated in May 2020

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Ethiopia National Exams [2]

EUEE: Ethiopian University Entrance Examination

- Typically in May
- All preparatory students who have completed the second cycle of secondary school
- At the start of grade 11, UEE exam takers are divided into Natural Science students and Social Science students.
- Each member of this group takes seven exams.
- Each exam's raw score is reported.
- In place since 2003

Issues:

- Widespread cheating/malpractice concerns (from 2016)
- May 2019 exam postponed to Feb 2020
- May 2020 EUEE postponed to December 2021
- The schedule for this May also postponed to October 2022

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ET National Learning Assessments [1]

Policy framework for national large-scale assessment outlined that:

- NLAs have been conducted at each cycle's exit levels (i.e., at grades 4, 8, 10 & 12).
- The 4th grade NLA covers Mother Tongue Reading, English, Mathematics, and Environmental Science (since 2000)
- Grades 8, 10, 12 cover English, Mathematics, Physics, Chemistry, and Biology (G8 started since 2000 and grades 10 and 12 since 2010).
- In Ethiopia, NLAs have been performed every 4 years for each cycle.
- In 2019 in accordance with GEQIP E, plan was to increase to every 2 years
- Postponements (one year) of NLAs for 2020-2021 assessments to 2021-2022

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ET Early Grades Assessments

- EGRA and EGMA (grades 2 and 3)
 - Early grades reading (literacy) and math (numeracy) assessments
 - EGRA 2010, 2014, 2016, 2018
 - EGMA 2014, 2020
- MELQO (pre-primary; readiness for primary)
 - Measuring Education Learning Quality Outcomes
 - Pilot study 2018
- Adjustments
 - EGRA/EGMA (2019/2020) activity postponed to (2020/2021)

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ET Impact

- Due to exam postponements from Covid and from conflict, we were not yet able to compare pre-2020 data to current data
- Expectations are that experiences and lessons learned from similar regions/countries can help suggest ways forward to assure highest quality education for all students
- Examination and assessment data are important, but processes to keep children safe, continue learning opportunities, and support teachers are critical
- In Jan 2020 (pre-Covid), the NEAEA (now, NAES) published Position Paper with comprehensive recommendations for assessment and testing, many we have incorporated into our Summary and Recommendations

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Summary and Recommendations



<https://openknowledge.worldbank.org/handle/10986/36393>

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Recommendations

Data Quality Considerations

■ Common concerns

- Data quality – what does this mean?
- Teacher trauma/well-being
- Student trauma/well-being
- Need to know weeks of lost schooling
- Need to know degree of access to remote access learning
- Teachers' training in remote technologies and classroom assessments
- Prevention of cheating
- Who is being missed? Why?
- Protecting children's (and teacher's) data

Maslow
before
Bloom

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Recommendations [1]

- ANLAS Ethiopia Country Report (2019)
 - Analysis of NLA Systems
 - Contextualized recommendations for Ethiopia are provided
- Missing data – Relationship to *Opportunities to Learn*
 - Who is missing and why? compared to characteristics of missing (from previous years) - by subgroups
 - Track duration of instruction (days) by school
 - Track access to remote instruction by school
 - May vary in how it's used by student
- Connect examination data with student safety, well-being
 - Different factors may affect performance and participation
 - Provides context for learning and performance
 - Requires safeguards for student data

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Recommendations [2]

- Frame the use of assessments as *improvement*-focused rather than *deficit*-focused
- What have/are other countries doing in times of emergency?
 - Emergencies beyond Covid
 - Refugees, displaced children, trauma
- Use effect size measures that are easy to interpret (Baird & Pane, 2019; Kraft, 2019)
- Support effective teaching and in-class assessments
 - Support for use of varied instructional modes
 - Support for how to adapt assessments – to keep students motivated, to inform curriculum adjustments
 - Not the same as large-scale exams or standardized assessments but equally as important for improved learning outcomes of their students

Data must be contextualized to be useful.

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Thank you!



Please reach out
for questions or
feedback!

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Tracey Stuckey

References: <https://u.osu.edu/oconnell.87/ethiopia/>

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Selected Resources

- REDS survey: Responses to Educational Disruption Survey
 - <https://en.unesco.org/themes/learning-assessments/reds>
 - Burkina Faso, Denmark, Ethiopia, India, Kenya, Russian Federation, Rwanda, Slovenia, Uganda, United Arab Emirates, Uruguay, Uzbekistan
- Global Education Recovery Tracker (up to Feb 2022)
 - <https://www.covideducationrecovery.global/>
- World Bank Joint Report (2021)
 - <https://www.worldbank.org/en/topic/education/publication/the-state-of-the-global-education-crisis-a-path-to-recovery>
- Education Policy and Data Center:
 - https://www.epdc.org/sites/default/files/documents/EPDC_NEP_2018_Ethiopia.pdf
- UNICEF: Education and Covid-19
<https://data.unicef.org/topic/education/covid-19/>
- UNICEF: Education in Emergencies
<https://www.unicef.org/education/emergencies>

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SUMMARY FROM THE NEAEA POSITION PAPER, JAN. 2020

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Testing Agencies

Challenges in National Learning Assessment and Examinations

The following challenges or gaps were identified in the Ethiopian National Learning Assessment (ANLAS) country report (2019).

- The Ministry has paid little attention to the assessment system, particularly in terms of funding, disseminating, communicating, and utilizing assessment results.
- There is a skill gap in the use of various softwares for analyzing and interpreting assessment data.
- The assessment systems do not adequately address 21st century skills because both NLA and national/regional examinations use only multiple-choice test items that do not allow for the assessment of performance skills.

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Continued...

- NLA data are not well aligned with education policy priorities.
- Listening, speaking, and practical activities are examples of competencies that are not assessed in NLA
- Failure to disseminate assessment results to various key stakeholders on time.
- Lack of accountability for assessment findings
- Limited use of assessment data for intervention
- The assessment capacity of experts in related fields such as psychometrics in charge of the NLA and Examinations is limited.

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Continued

- There are outdated policy frameworks for both NLA and Examinations, but no assessment frameworks exist.
In addition, the draft position paper on NLA and Examinations stated that
- The paper-pencil examination method is highly susceptible to malpractices.
- There is no item bank where piloted test items are stored.
- In the absence of a legal basis, there are no mechanisms in place to control malpractice.
- The amount of money paid for exam administration personnel is so small that it is a source of dissatisfaction.

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