DATA AS EVIDENCE: IMPLICATIONS FOR BUILDING AN EVIDENCE-BASE IN EDUCATION

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1. Outline

1. Introduction – Why frame data as evidence

2. What do we mean by "evidence" and where is it?

3. Approaches for putting evidence into practice
   1. Showcase one possible PD model for training on evidence-use
   2. Emphasize importance of integrating data-use and data quality for contributing to the evidence-base

2. Why should we frame data as evidence?

1. Continuing global emphasis on use of <u>evidence-based interventions (EBIs)</u> in education
   - Programs, practices, curricula, policies, etc., that have shown "demonstrated" results

2. Reliance on <u>data</u> by education stakeholders to justify or plan for educational change or to support choice/use of classroom practices/approaches

3. But: decisions on choice of practice, policy, or change are only as good as the data which feed into them

- Data quality is only <u>one component</u> of the evidence pipeline.

- Supporting actionable and high-quality data can contribute to local and global goals on <u>evidence for what works</u> in education

3. Evidence context also matters

- What works, how does it work and for whom?
  - Schools, classrooms, teachers, students vary
  - Countries, learning and school culture, vary
  - Practices or polices deemed "effective" in some settings may need considerable adaptations in another setting

- Recommendations related to use of education evidence are still evolving (e.g., Burns & Schuller, 2022; Gorard et al., 2020; Hayter & Broadbent (2024))

- Implementation can be challenging (Langer & Weyrauch, 2021)

- Learning how to work well with data – in the classroom or on a larger-scale – can itself be considered as an intervention

4. Quality Considerations for Data as Evidence

- Quantitative and Qualitative
- FAIR principles (data stewardship)
  - Findable
  - Accessible
  - Interoperable
  - Reuseable
- Trust and Rigor
  - FAIR +
    - Integrity
    - Validity
    - Reliability
   - Ethics protocols
    - Open-science guidelines

[Adobe stock image – Rutgers]

FAIR: Bowers & Choi (2023)
Open-Science: Mohanty et al (2025),
van Dijk et al. (2021)

5. Ecology of Education Data: Data-levels Map (Examples)

Systems Level

- Admin data for evidence-based decision-making
- Support policy decisions – either retaining or modifying
- Track system-level longitudinal proficiency goals for reading, math, etc.
- Inform teacher pay or reward systems
- Accountability – are all intended students being reached?
- Assess K or PK access across schools/regions
- Monitoring for meta-systems information (e.g., SDGs, etc.)
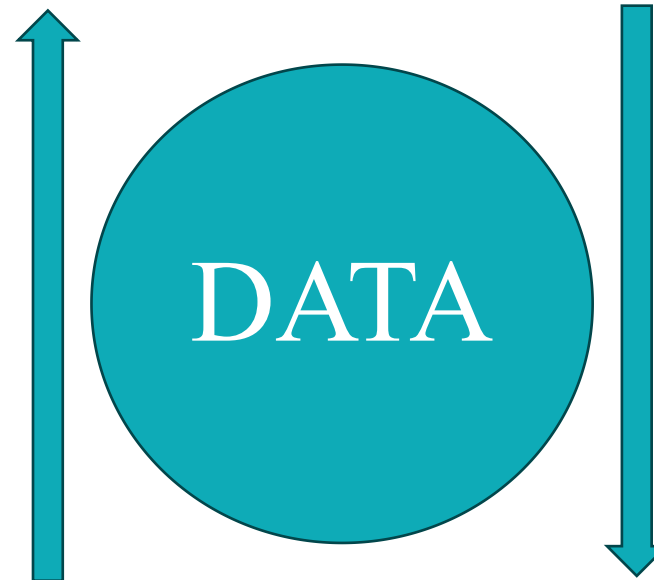
Teacher/Learner Level

- Strengthening teacher quality
- Transforming assessment and/or teacher practice
- Monitoring implementation of new curriculum
- Testing out or trying new approaches in classroom
- Understanding student learning or mislearning
- Engaging parents/community
- Identifying attendance challenges, and addressing them
- Student and teacher wellness, social/behavioral competencies
- Access to schooling and/or to learning resources

DATA

6. Recent reviews on "What Works" in Africa

- Evans & Acosta (2021) reviewed (quantitative) education research over prior 5 years in sub-Saharan Africa
  - 2 positive trends
    - Evaluations are improving over time (impact, causal)
    - Topic-specific growth in evidence (early childhood, instruction in mother-tongue, public/private partnerships
  - Distribution of studies uneven across countries
  - Most studies partnered with Ministries of Ed or NGOs
  - About **15%** were researcher-initiated (smaller, and on specific pedagogical strategies)

- Zavale & Schneijderberg (2022) conducted thematic classification of n = 6,483 publications in higher-education in Africa from 1980 to 2019
  - 18 themes (e.g., policy, T&L, access and equity, gender (girls educ), research methodology, etc.)
  - Imbalance in HEI research across countries
    - 41% articles, books focused on South Africa, 18% Nigeria, 18% Africa overall
    - **3%** from Ethiopia, Ghana, Uganda, respectively

- Getting to "What Works" in individual countries and Africa overall needs a stronger investment in educational studies that are country-specific, fit local context, and address local issues

- Formats for sharing and disseminating the evidence are also vital

7. Where is the evidence and how do we accelerate its use?

- How do teachers and school-leaders <u>learn about</u> "what works"?
  - Mandate from "above," or word of mouth from a trusted source (Gordon & Conaway, 2020)
  - Meta-analyses, systematic reviews, individual research studies, <u>evidence repositories</u> (O'Connell et al., 2024; Hayter & Broadbent, 2024)
  - They could learn through their teacher preparation program or through continuing professional development (Ilhan, 2021; Gore, 2021)
  - Promising approach is via Research/Practice Partnerships – university education researchers partnering with local schools on problems of local importance (Cooper et al., 2023; Coburn & Penuel, 2016)

- Currently there is not consensus on the "best" way to get evidence into practice in education (Gorard, 2020; OECD, 2022)

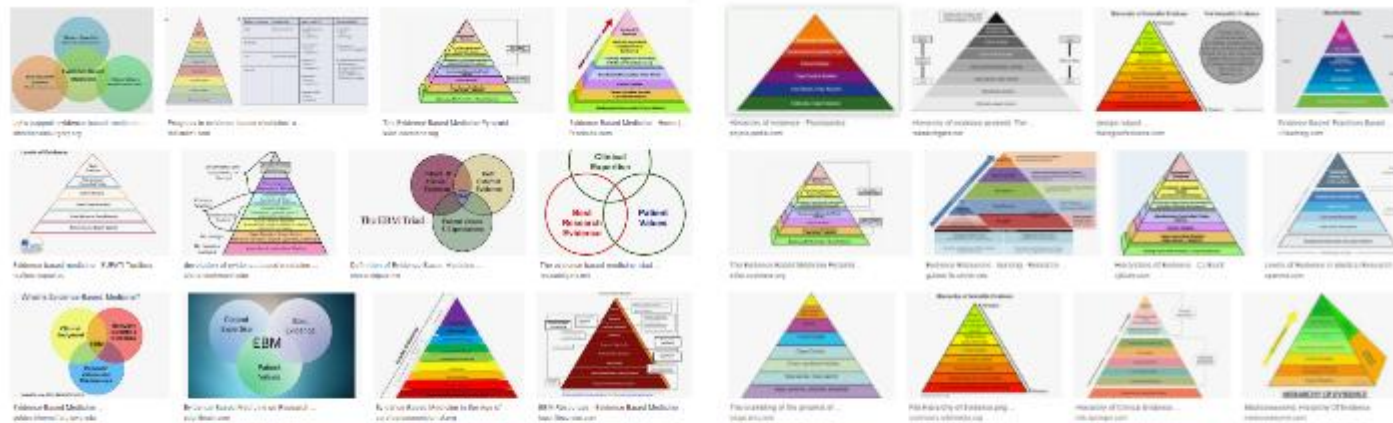# 8. An Over-abundance of Pyramids of Evidence

Figure 1: Google Images search results for the search terms "Evidence-Based Medicine" and "Hierarchy of Evidence", respectively, as of 07/07/2022.

https://cjblunt.com/the-pyramid-schema/

Who gets to decide what evidence feeds the pyramid?

- Over-reliance on RCTs?

- How to strengthen the process of getting evidence into use – as well as <u>contributing</u> to evidence?

# 9. Evidence Organizations/Repositories: Africa/Global (Examples)

- What Works Hub for Global Education
  - https://www.wwhge.org/
- World Bank: Building Evidence in Education B2E
  - https://www.worldbank.org/en/topic/education/brief/building-evidence-in-education
- Africa Evidence Network
  - https://africaevidencenetwork.org/
- Education Sub-Saharan Africa (ESSA – Africa)
  - https://essa-africa.org/
- African Education Research Database (AERD)
  - https://essa-africa.org/AERD
- International African Institute
  - https://www.internationalafricaninstitute.org/repositories
- KIX Africa 19 Hub Digital Repository
  - https://www.gpekix.org/blog/kix-africa-19-hub-digital-repository-bridging-knowledge-worlds
- eBase Effective Basic Services (Cameroon/Africa; health and education)
  - https://ebaseafrica.org/
- What Works Clearinghouse (US)
  - https://ies.ed.gov/ncee/wwc/
- Evidence for ESSA (US)
  - https://www.evidenceforessa.org/

10. African Education Evidence Continues to Build

- Africa Education Research Database (AERD)   (Mitchell, Rose & Asare, 2019)
  - Collaboration between ESSA-Africa and the Research for Equitable Access and Learning (REAL) Centre, (U Cambridge, UK) focuses on research over past 10 years

- Powerful evidence in the AERD is driven by African scholars and demonstrates the importance of locally-driven work

- Vision: *Education Sub-Saharan Africa* (ESSA 2024):

  - Sufficient investments in education research from Africa
  - An African-led education research agenda
  - Education Research Chairs
  - Strengthen admin capacities for research
  - Ed Research training and PD
  - Thriving and growing community of collaborative education researchers
  - Communications platform
  - Communications training and knowledge exchange

Guide to Using the AERD:
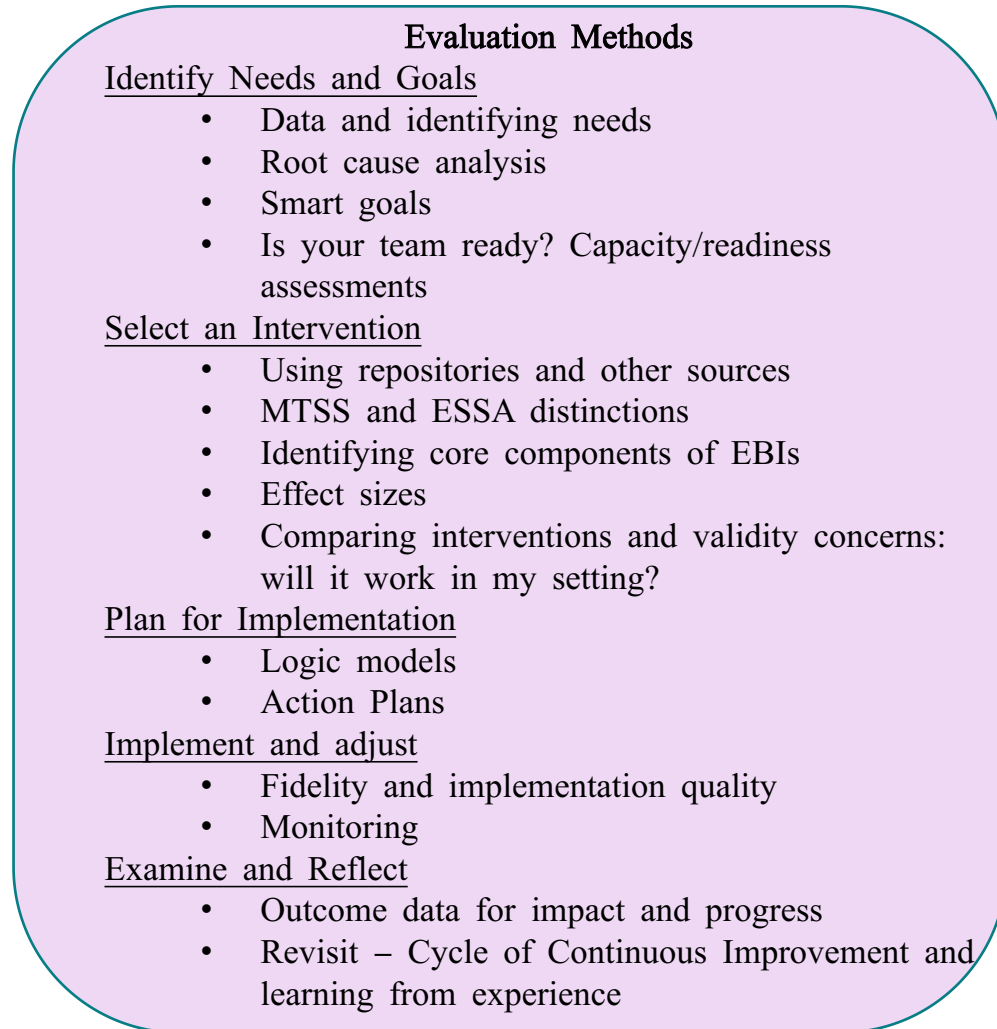https://essa-africa.org/node/1939
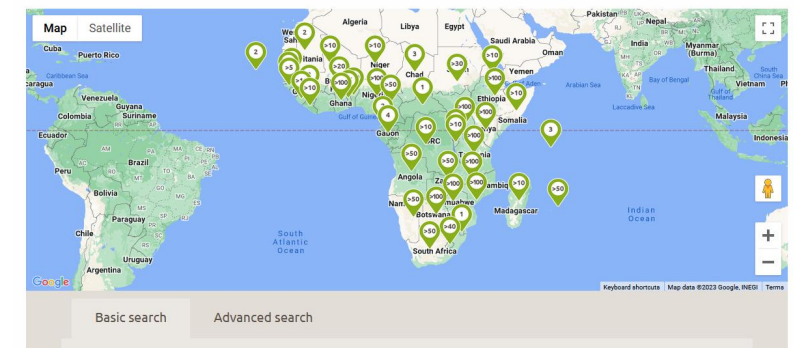
11. Evidence Repositories – Cautions and Benefits

- **Variability in:**
  - Quality criteria, methods, measures/<u>assessments</u>, target populations
  - Effectiveness/results across multiple studies
  - Adaptation information, implementation/fidelity, training needs
  - Content or topics studied

- **Opportunities:**
  - Focuses attention on educational equity and gaps
  - Replicating a promising education practice or program can lead to innovation, changes or adaptations that <u>strengthen</u> student outcomes in new contexts
  - Improving the landscape for <u>innovative</u> education research
  - Training next generation of education researchers
  - Improving context-driven teaching and learning

12. Evidence into Use: Example Training Program: EBITE

- Evidence-based Intervention Training in Education (EBITE)
  - IES-funded (US) methods training program
  - 3 cohorts, n = 111 educators and education researchers (team-based and individual training) – First cohort was fully online

- Weeklong workshop with <u>coaching</u> during academic year
  - How to use evidence repositories and how to put research into practice
  - How to use data to support practice/intervention need, choice, implementation

- Part of our goal was to support <u>partnerships</u> between ed researchers and teachers/schools/districts on their use of evidence-based practices/interventions
  - contributing to research on <u>context-specific</u> evidence generation and use

EBITE Model

Evidence-based Interventions Training for Education

RUTGERS–NEW BRUNSWICK
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Evaluation Methods

Identify Needs and Goals
- Data and identifying needs
- Root cause analysis
- Smart goals
- Is your team ready? Capacity/readiness assessments

Select an Intervention
- Using repositories and other sources
- MTSS and ESSA distinctions
- Identifying core components of EBIs
- Effect sizes
- Comparing interventions and validity concerns: will it work in my setting?

Plan for Implementation
- Logic models
- Action Plans

Implement and adjust
- Fidelity and implementation quality
- Monitoring

Examine and Reflect
- Outcome data for impact and progress
- Revisit – Cycle of Continuous Improvement and learning from experience

Cycle of Continuous Improvement

Examine and reflect

Identify needs and goals

Implement and adjust

Select an intervention

Plan for implementation

Local Context

Networking

Collaboration

Essential Features for Continuous Improvement

EBI Use and Evaluation Methods

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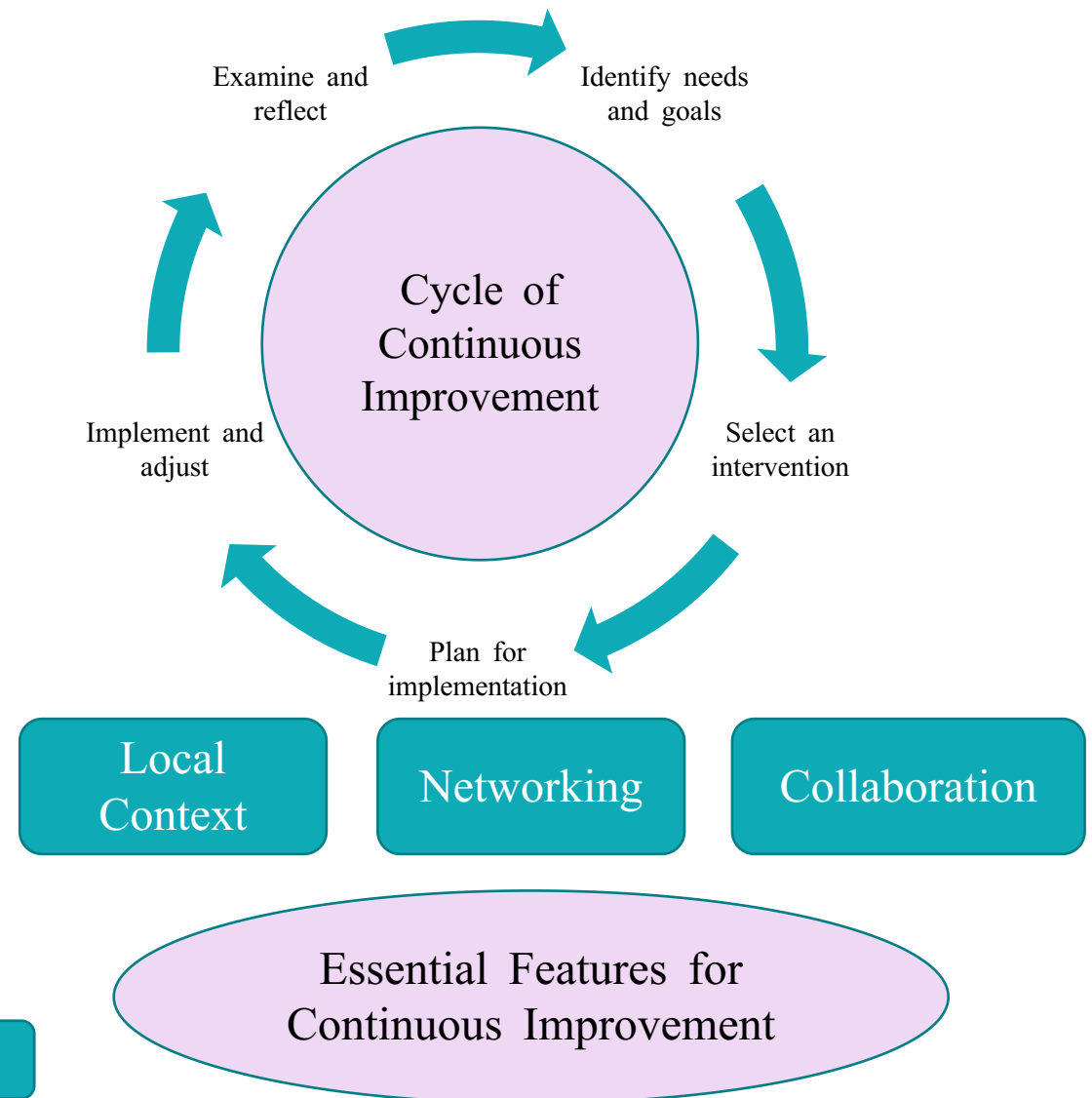
14. What We Learned/Evaluation Results

- Each team or participant group had their own locally-informed goals and needs

- Development and use of Logic Models was found effective for "new" education focus or for use of data and for implementation of an established EBI.

- Positive change for participants across all areas targeted by our training model.

- However, Interpreting/sharing results, and Networking/Collaboration or Learning from others – most challenging.
  - We recommend more intensity to Coaching
  - Need intentional platforms for networking and sharing on a wider scale

- Patience needed to truly benchmark change in capacity. One year may not be sufficient to build <u>sustainable</u> capacity

15. Summary and Take-aways

1. Our training shows promising results and could be adapted for other countries/regions and for focusing on importance of local contexts

2. Data quality is crucial for all aspects of Education Research Evidence

3. Enhancing education <u>researchers</u> and education <u>research</u> has benefits for data use in schools and for incorporating data into evidence for "What Works"
   1. Recommendation: Partnerships with education researchers, universities, other stakeholders
   2. Education Researchers need opportunities for sharing and learning – and understanding how context can drive the progress of a practice or intervention in schools

4. Education Research globally has not enjoyed the same funding supports or training opportunities as other scientific fields (e.g., nursing, or public and global health)
   1. Education needs this investment for greater evidence on "what works"

5. Capacity building for data-use and evidence-use requires <u>active</u> engagement in the research process!

6. Use the AERD – and be sure your own work is included there!
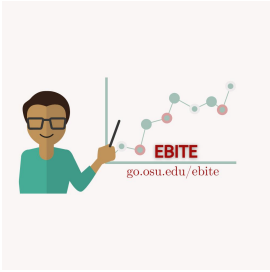
THANK YOU!

EBITE WEBSITE:
HTTPS://U.OSU.EDU/EBITRAINING/

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