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Global and Local Research Excellence in
Africa: New Perspectives on Performance
Assessment and Funding

R. Tijssen and J. Winnink*
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*University of Stellenbosch, South Africa



HELMHOLTZ
RESEARCH FOR GRAND CHALLENGES



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Perspectives and Approaches of this Reader

Perspective: Global North / WEIRD (Western, Educated, Industrialized, Rich, Democratic)

Roles/Agendas: Equal opportunity and diversity officer + recruitment assistant

- examine reasons for inequity - raise awareness – reduce barriers
- increase diversity – exchange/collaboration with researchers from Global South
- how is „excellence“ measured for individuals applying for positions?

Approach: practical - how can we operationalize findings?

Background

- Recognition that higher edu. sector crucial for socio-economic development
 - Expectations of universities:
 - deliver skilled graduates for employment in local/regional markets (education)
 - address local/regional needs (community engagement, application-oriented research)
 - Challenges:
 - Resource constraints and underdeveloped framework conditions
 - Difficult to combine providing mass education with gaining international scientific reputation
 - Pathways to stimulate growth in scientific disciplines:
 - Research cooperations with Global North
 - Emulating Global North science policies and incentives to improve research performance
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Background

Meanwhile....

- Interest in the concept of „excellence“ in Africa - establishment 2015 of Africa Research Excellence Fund - vision that connects local dimension of conducting scientific research to global impact
 - ...but also critical voices: ‘Excellence: what is it good for?’ - tensions between performance standards from Global North and limited capacity within Africa’s science systems and universities to meet them.
 - Performance measure of world university rankings gives rise to Centres of Excellence in sub-saharan Africa
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Research design and questions

Two concepts of research excellence:

- **Global research excellence** usually viewed as, e.g., international prestige, knowledge creation, citations, awards, and large research grants
- **Local excellence** – applied segment of science addressing local issues

Concepts interconnected, but advantages in looking at them as different concepts for developing fit-for-purpose quality criteria + performance indicators in African unis and CoEs

Research design and questions

Two main research questions:

- How can one define and operationalise both types of excellence while taking into account their interrelationship and general characteristics of science in Africa?
 - What are the possible implications of implementing such a distinction for science funding and evidence-informed research performance assessment frameworks in Africa?
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Methodology and information sources

Capturing global excellence – big data analytics of knowledge production:

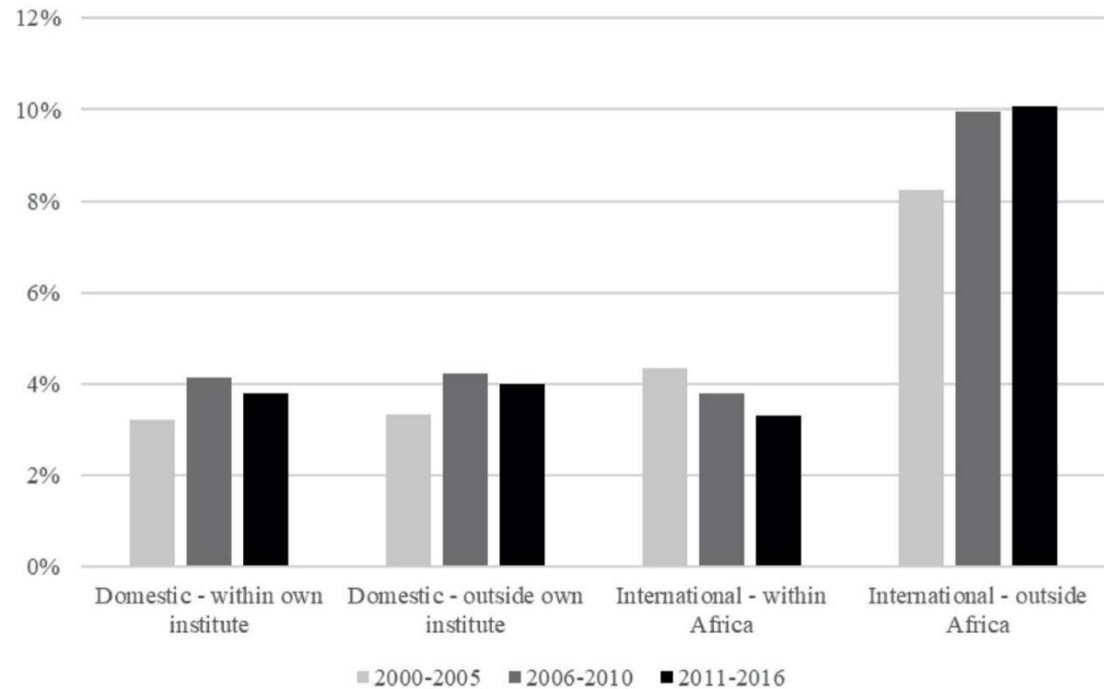
- Essential to determine how much of science done in Africa is connected to/dependent on scholarly community of Global North
- Quantitative bibliometric approach - info from hundreds of thousands of research publications
- Looked at all research publications with at least one author address in Africa
- Used citation-based metrics as a performance indicator (e.g. top 10% most highly cited)

Capturing local excellence – case studies of Centres of Excellence:

- Following examples from Global North, CoEs have sprung up in last 15 years in Africa as physical/virtual networks
 - CoEs aim to enhance public value of science through capacity building, education, and local development
 - Little empirical information, underdeveloped quality criteria and performance indicators for local excellence
 - Authors look at case studies of how CoEs conceptualize + operationalize notions of local and global excellence
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Empirical findings

- Four categories of „African science“
 - in cooperation with partners in Africa, share in top 10% most-cited pubs declined to 3%
 - cooperations with partners outside Africa: 10% share
- Int'l cooperations play key role in research that gets highly cited.
- Global excellence more likely to emerge from engaging with partners outside Africa



Empirical findings

- Assessed int'l dimension of research in top 1% most cited papers worldwide:
 - Location of co-authoring research partners
 - Origin of citations
 - Institutional funding sources
- Highly cited research produced by ARUA (CoE)
African universities seems critically dependent on non-African collaborative partners

Geographical Distributions Related to Top 1% Highly Cited Research Publications Produced by ARUA Universities

<i>Co-authoring research partners^a</i>	
• Domestic—outside own institute	2.8%
• International—within Africa	1.0%
• International—outside Africa	96.2%
<i>Citing research publications^b</i>	
• Domestic—outside own institute	2.6%
• International—within Africa ^c	14.2%
• International—outside Africa	83.2%
<i>Institutional funding sources^d</i>	
• Within Africa	2.6%
• International agencies (private foundations, charities)	12.3%
• Other sources (rest of world)	85.1%

Source: CWTS Web of Science database (Leiden University).

Note: ^aPublications in years 2003–2013.

Local and global excellence: varied objectives of Centres of Excellence

Citation-impact data are the only available source of comparative data on impact on worldwide science

Challenge: Citations deliver one-sided information

- Strongly geared toward discovery-oriented, peer-reviewed basic research
- Citation impact does not necessarily reflect crucial features of core organisational missions

Looking at CoEs in Africa reveals more nuanced view of how global excellence is embedded in African science and education systems - Nature of pursued excellence in CoEs comprises local and global elements

• Challenges of local assessment:

- CoE programs have different perspectives, present heterogeneous collection of expectations and goals, and may change over time.
 - Currently no systematic data or comparative statistics on local impacts of African universities or their CoEs.
 - Hard to distinguish betw. global and local excellence at aggregate level of CoEs
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Transforming research assessment frameworks

Goal:

- balanced assessment approach to research excellence in Africa: local component featured more prominently
- Not only should differences between Global North and South be taken into account in expectations and development strategies, but also the difference between internationally oriented scientific knowledge production and research that addresses local issues

To do this:

- This distinction requires a deep understanding of „local excellence“
 - Africa’s funding and assessment systems should make a clearer distinction between global and local in terms of quality criteria, recognition and awards
 - Assessment frameworks: mix of metrics-based performance indicators and qualitative „show-case“ narratives
 - Choice of performance indicators and excellence benchmarks should always be context- and goal-dependent
 - Frameworks for assessing research excellence should be flexible to incorporate changes in local context and priorities
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Transforming research assessment frameworks

- Providing education to large numbers of students will remain priority - only small group of leading research-intensive universities will continue to pursue global excellence
 - This pursuit comes with heavy reliance on non-African sources of funding, where donors may decide what local or global excellence should entail - trade-off between striving for international prestige and „decolonisation“ of education and research activities
 - However, global and local can be seen as complementary – with basic discovery-oriented science producing knowledge for worldwide community (including Africa), applied problem-oriented research relevant at local level
 - This aligns with research interest portfolio of many African researchers who are often globally and locally engaged
 - **FINAL THOUGHT: Africa needs to transform the Global North’s views and rhetoric on excellence – where global and local excellence should be treated as mutually supporting components of the research endeavor**
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Thank you!



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