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How equitable are South-North partnerships in education research? Evidence from sub-Saharan Africa

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Abstract: This article explores equity with respect to South-North partnerships in the context of education research involving scholars based in sub-Saharan Africa.

Drawing on large-scale bibliometric analysis of over 1,000 publications published in English between 2010 and 2018, it finds that participation in such partnerships favours a relatively small number of countries in sub-Saharan Africa. These collaborations appear to be reproducing gender imbalances in authorship.

Complemented by interviews with 31 researchers based in the region, it further identifies examples of asymmetrical relationships alongside more positive partnerships and practices. Scholars based in sub-Saharan Africa were more likely to view partnerships initiated by researchers based in the region as equitable.

Keywords: education; South-North research partnerships; Sustainable Development Goals; sub-Saharan Africa

Introduction

Efforts to engender and enhance partnerships between Southern and Northern institutions and scholars are increasingly prioritised in international development, with research funders and donor agencies commonly encouraging such practices (Ishengoma 2017; Fransman and Newman 2019; Georgalakis & Rose, 2019). Much of this recent literature focuses on partnerships between policy actors, NGOs and researchers, for example as a means to ensure the relevance of the research for policy and practice. This article focuses on partnerships between researchers based in sub-Saharan Africa and those based in the North. The aim of this focus is to inform our understanding of the extent to which research partnerships exist and how equitable they are.

The analysis draws on large-scale bibliometric analysis of publications in the field of education together with interviews with researchers. We have chosen to prioritise the perspectives of African-based researchers due to their limited visibility in global policy and

practice debates, while our focus on education reflects its centrality in achieving global and continental policy priorities (African Union 2015).

The article considers in particular whether South-North collaboration involving researchers in sub-Saharan Africa favours particular countries or institutions in the region. In addition, it assesses the extent to which such partnerships promote equity within them, notably with respect to the participation of female researchers, as well as in terms of the forms of engagement of Southern researchers from the perspective of African-based researchers.

The paper starts by reviewing the policy context and literature on South-North research collaborations, before introducing the design of our study. Patterns in participation in international research partnerships are considered and lessons are drawn for more equitable future collaborations with implications for researchers and funders.

South-North research partnerships in education: current policy context

Research in international development settings is often conducted through South-North research partnerships. Such partnerships have become more explicitly promoted in recent times, including through UK-funded research programmes such as the Global Challenges Research Fund (GCRF) and ESRC-DFID's Strategic Partnership, that includes the Raising Learning Outcomes in Education Systems programme. Launched by the UK Government in 2015, GCRF is a £1.5bn 5-year programme which aims to:

“encourage and support *new and existing partnerships* between UK and developing country researchers...It allows UK research excellence to be deployed in a strategic and coherent way to understand and suggest *solutions to the most significant and complex problems* faced by the developing world, while at the same time *strengthening research capability in developing countries*. It promotes *meaningful and equitable relationships* between UK research institutions and developing country partners...” (GCRF 2017, p.1, our italics).

GCRF shares several characteristics with other funded research initiatives in recent years. Firstly, the research problems are located in the South, with funding provided by Northern donors which set eligibility criteria and decide which studies will receive funding (Samoff and Carrol 2004; Mlambo and Baxter 2018). Secondly, funding is directed towards applied, interdisciplinary research addressing “significant and complex problems” (Crossley and Holmes 2001; Bradley 2017; Tabulawa 2017). In the case of GCRF, these problems are

framed with reference to the Sustainable Development Goals (SDGs). Thirdly, the partnerships are charged with strengthening Southern research capacity (Barrett et al. 2011; Ishengoma 2017), although GCRF also emphasises capacity development in the North. Fourthly, it is hoped (and sometimes asserted, as in the quotation above) that funded projects will engender “meaningful and equitable” research partnerships.

While the definition of an ‘equitable partnership’ is often not explicitly stated, its implications can be inferred from the way in which it is treated in related documentation. For GCRF this entails Southern partners identifying issues of local concern and collaborating in the design and development of research which leads to actionable knowledge of local value (Grieve & Mitchell 2020, p. 516). Similarly, in a blog titled *Making the rhetoric of equitable partnerships a reality* (Dalton 2018), a senior DFID official refers to the need to ensure agenda setting is a shared process, funding is available for all partners (with accountability not skewed towards Northern funders), and appropriate credit of all partners in research outputs. UK government agencies’ commitment is indicated by the commissioning of the *Promoting fair and equitable research partnerships* (RRC 2018) study funded by United Kingdom Research and Innovation (UKRI). This study notes that the ‘use of the term ‘equitable’ rather than ‘equal’ is an acknowledgement of imbalance in the financial realities of different partners, which means that they are rarely equal and are unlikely to become so. We can, however, strive for greater equity in partnerships’ (RRC 2018, p3). The emphasis given to equity in these statements should be understood against a backdrop of historic inequities in these partnerships (discussed below).

As noted above, appropriate credit of all partners in all research outputs is one of the features of an equitable partnership. In sub-Saharan Africa, as in many parts of the world, criteria for academic career progression are increasingly linked to measures of publication (Thomas 2017; Fussy 2018) and revenue generation (Chipindi and Vavrus 2018). Given the limited local sources of funding with extremely low investment in research by national governments in the region (Gévaudan, 2017; Asare et al. 2018), these factors contribute to the appeal of engagement in externally-funded international research partnerships (RRC 2018).

However, as mentioned above, there is evidence over many years that these partnerships have typically been marked by inequities between Southern and Northern actors in ways that mirror historic colonial power asymmetries (Hountondji 1997; Tikly 2004). Conditionalities attached to Northern funding tend to foster ‘donor-recipient’ relationships which position

Southern researchers as subject to Northern leadership (Carbonnier and Kontinen 2014; Ishengoma 2017). For example, Northern funders have tended to specify the thematic areas for which funding is available, the types of research methods and disciplines eligible for funding, and the means through which research is conducted (such as networks or partnerships). Previous studies have suggested that these conditionalities limit the capacity of Southern academics to develop independent research programmes based on their own perspectives and priorities (Maclure 2006). As Bradley (2017) argues:

donors influence the development of research agendas by requiring the studies they support to be explicitly ‘policy relevant’; by concertedly supporting multidisciplinary, multi-stakeholder projects; and by constantly revising or scuttling certain programmatic priorities, which can impede researchers’ efforts to create coherent, long-term research plans. (p.46)

The extent to which funding decisions are informed by Southern agendas varies between projects (Dodson 2017). For example, the ‘demand-driven’ model of international research partnership which emerged in the Netherlands in the 1990s directs funding towards thematic priorities identified by panels of Southern stakeholders (Bradley 2017). In the case of the GCRF, research agendas are specified in relation to the Sustainable Development Goals (SDGs), which could be argued to be representative of Southern agendas to some extent given their formulation was more participative than previous global agreements, involving member states globally in determining the priorities (Unterhalter 2019).

Previous studies have flagged concerns about Northern academics dominating international partnerships, leading projects as principal investigators, establishing research agendas, designing studies, specifying others’ roles, and managing budgets (Carbonnier and Kontinen 2014; Bradley 2017; RRC 2018). By contrast, Southern researchers have tended to occupy supporting roles, reflected in titles such as “collaborator”, “partner”, “co-investigator”, “contract researcher” or “advisory board member” (RRC 2018, p.19). An investigation of practices within the European Association of Development Research and Training Institutes reported a division of labour between Southern and Northern researchers, with the former primarily involved in data collection, and the latter taking a lead in analysis and academic publications (Carbonnier and Kontinen 2014). While this pattern of differentiated labour may have its roots in colonialism (Hountondji 1997), it is likely to be exacerbated by recent trends in global knowledge production, such as the increased pressure on academics to secure

external funding and publish quickly in high impact international journals (Leathwood and Read 2013; Carbonnier and Kontinen 2014) – all of which poses a challenge to equitable collaboration.

Study Design

In the light of recent shifts in funding priorities that explicitly promote equitable South-North research partnerships, this study draws on bibliometric analysis of publications that include at least one African-based researcher together with interviews with African researchers, to explore the nature of participation and equity in South-North partnerships in education research. With respect to our focus on equity in these partnerships, we relate the analysis to issues that those funding South-North partnerships commonly claim to address (see above). Our framing relates to relevant aspects of the framework developed by the Global Development Network for ‘Doing Research Assessment Framework’ (Gévaudan, 2017), particularly with respect to the indicator on academic outputs that is concerned with publications in ‘international journals’ identified with reference to Scopus and SciMago data. The framework also considers the ‘level of diversity of research actors’; ‘volume of cross-sectoral collaboration’; and ‘% of female researchers’ (ibid.). Drawing on this, our analysis below includes geographical coverage of partnerships (to identify the extent of coverage of sub-Saharan African countries in research and publications); participation of Southern partners in all stages of the research process, including in leading publications (as identified by first authorship); and tackling gender imbalances in research processes and outputs.

Specifically, it includes analysis of 1057 publications published between 2010 and 2018, together with semi-structured interviews with 31 education researchers based in the region.

With respect to the bibliometric analysis, we draw on publications included in the African Education Research Database. The database is an online catalogue of peer-reviewed publications with implications for education policy and practice in sub-Saharan Africa conducted by researchers based in the region. The database is systematically populated through structured searches of Scopus and Web of Science based on a protocol designed to capture publications authored or co-authored by researchers based in 48 countries in the region.¹ Searches are conducted using the high-level terms ‘education’ and ‘school’ together

¹ In specifying the geographical remit, the database follows the World Bank classification of sub-Saharan African countries (n.d.) with the addition of Djibouti and exception of South Africa. South Africa has a different publication profile to other countries in the region, with 3.5 times more outputs than Nigeria, the second most

with country names, and abstracts are searched by hand to check eligibility (see Mitchell & Rose 2018 for further details about the search criteria). This process leads to the broad identification of publications in the field of education, including articles in journals specialising in fields such as African studies, childhood studies, development studies, economics, geography etc.² The search is conducted in English, French, Portuguese and Spanish – the former colonial languages which still dominate academic publishing in the region (Sintayehu 2019). Nevertheless, although the databases consulted include studies in languages other than English, both have a systematic bias towards English-language publications (Mongeon & Paul-Hus 2015). This is likely to result in research on education published in other languages to be under-represented in the database (Mitchell & Rose 2018).

Attempts have been made to increase the representation of other languages in the database, including through structured searches in specialist Portuguese³ and French language databases.⁴ However, this did not redress the imbalance. While others have identified further literature in French, for example (Diallo, 2011), an inventory of education research in Francophone Africa which included publications by researchers based outside the region (and thus beyond the scope of our analysis), identified only 279 articles over the period 2000-2013 (Pilon et al. 2015). Given the potential bias that exists in the dataset, we chose to limit our analysis to articles in English, as we were aware that including articles in other languages would not be comparing like with like.

In this article, we explore the database through bibliometric analysis, or the statistical analysis of research publications (Rehn et al. 2014). At the time of analysis, the database contained 3067 publications in total. For the purposes of this article, we focus on a sub-set of the database, namely those studies published in English in journals with an impact factor of

prolific country (Authors 2017). As the motivation for the database was to raise the visibility of research in sub-Saharan Africa, the decision was taken to exclude publications by South African researchers from it.

² In addition to publication in international education journals, such as *Comparative Education*, *Comparative Education Review*, *Compare* and the *International Journal of International Development*, articles included in the analysis are also published in a wide range of other journals notably related to development studies, such as *Development Policy Review*, the *Journal of Development Studies*, *Journal of International Development*, and *Journal of African Economies*, amongst others.

³ Searches of *Repositórios Científicos de Acesso Aberto de Portugal* (<https://www.rcaap.pt/>) and *Biblioteca Digital Brasileira de Teses e Dissertações* (<http://bdtd.ibict.br/vufind/>) were conducted by Rui da Silva (Centre of African Studies, University of Porto).

⁴ A search of the specialist French academic database <https://www.cairn.info/> using the same search criteria identified yielded only 17 studies, which was in fact lower than the number identified in Scopus and Web of Science.

0.5 or more based on SciMago data (<http://scimagojr.com>). We used impact factor as a proxy for quality of the journals, erring on the side of inclusion. Journals identified as predatory⁵ were categorised as not reputable. As such, these figures do not reflect our judgements of the quality of individual articles, but of their host publications.

On this basis, we identified 1057 peer-reviewed publications published between 2010-2018. For each study, information was recorded on authors' institutional affiliations and gender, based on internet searches. We also recorded whether or not the publication involved collaboration by authors in different institutions, and if so, whether this took place within country, within sub-Saharan Africa, or with authors based outside the region.

To further explore the nature of sub-Saharan African-based researchers' participation in collaborative outputs, for multi-authored publications we collected details on the ordering of authorship. Significance can sometimes be attached to the first author of a publication. First authorship can be regarded as an indication of greatest contribution (University of Cambridge 2014), and may be used to inform hiring, promotion and funding decisions (Aakhus et al. 2018). Nevertheless, practices vary, and authors' names may be listed alphabetically recognising equal or different forms of contribution, or by other criteria – there is no universally agreed standard (Macfarlane, 2017a, 2017b). Thus, although we, like others (such as Brinker et al. 2018) have used first authorship as a means of exploring equity in publishing, we cannot make strong claims about what being listed as the first author of a publication signifies.

Alongside the bibliometric analysis, semi-structured interviews were undertaken with 31 researchers based in sub-Saharan Africa between 2017-2018. These interviews were part of a wider study of the priorities and work contexts of researchers in the region which, in addition to this study of international collaborations, explored their experiences of funding (Mitchell et al. 2020) and impact (Rose & Mitchell forthcoming). Participants were identified through the inclusion of their work in the database, and snowball sampling to cover a range of perspectives in terms of countries, institutional setting, experience and gender. Researchers from Botswana, Burkina Faso, Cameroon, Ethiopia, Ghana, Kenya, Liberia, Malawi, Niger, Nigeria, Senegal, Tanzania and Uganda were interviewed in English by one member of the research team. Ethical approval for the study was granted by the Faculty of Education,

⁵ For example, using Beall's List of Predatory Journals and Publishers (<https://beallslist.weebly.com/>).

University of Cambridge, subject to steps to protect the identity of participants. For this reason, researchers' names are not included, as well as their institutional affiliations and, in some cases, their countries of residence where this would potentially enable identification of the individuals.

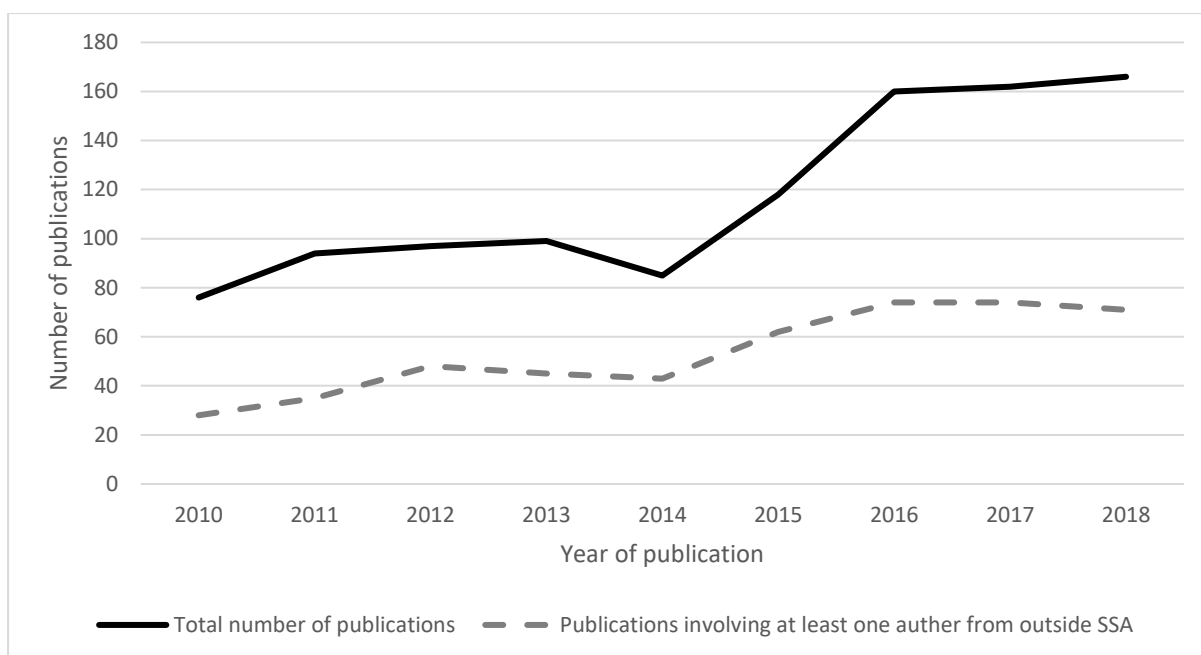
Interview transcripts were reviewed for references to collaborations between interviewees and researchers based outside the region. Of the 31 interviews, five included limited information on South-North partnerships. For the remaining 26, the transcripts were reviewed to identify who initiated the projects, and the role of different actors within these partnerships. The decision to focus on the initiation of projects was informed by Gaventa's (2006) approach to exploring participation and influence within a social space, such as a research collaboration. Gaventa highlights the importance of recognising who creates a particular space, decides who is invited, and on what terms. Maselli et al. (2004, p.35) also stress the ways in which the initiation of a project affects the balance of powers between research collaborators – in terms of who has the original idea, who designs the project, who sets the agenda, who selects a partner and who is selected.

Findings

Equity in partnerships across countries

In this section, we begin by assessing the extent to which participation in South-North research collaboration is equitable across countries within sub-Saharan Africa. Based on the 1057 publications published in English between 2010 and 2018 included in the analysis that include at least one African-based researcher, we find that 480 include international collaboration. The proportion of publications involving collaboration increased significantly over the period 2010 to 2015, from 37 per cent to 53 per cent (Figure 1). However, while the total number of publications by African-based researchers increased between 2016 and 2018, the number involving international collaboration dips slightly. As a result, the proportion fell back to 43 per cent by 2018. This is perhaps surprising given the increasing explicit focus given by funders to South-North partnerships, as indicated above.

Figure 1: Total number of publications, and number involving international research collaboration by year, 2010 to 2018



Source: Publications included in the African Education Research Database with an Impact Factor of at least 0.5.

Further analysis was conducted to understand which countries in the region are more likely to be involved in South-North collaboration, and also to identify the extent of collaboration within the region (Table 1). Overall, while 480 of the 1,057 studies included in the analysis involved international collaboration with countries outside the region, only 48 involved collaboration within sub-Saharan Africa – indicating that, where partnerships do occur, they are more often South-North rather than South-South relationships.

Table 1: Number of collaborative outputs, and as proportion of total research outputs, by country

Collaborations with researchers based:	High (>25)	Medium (>10 and ≤25)	Low (≤10)
outside sub-Saharan Africa (total = 480)	Kenya 84 (53%) Tanzania 68 (63%) Ghana 67 (46%) Uganda 56 (60%) Ethiopia 33 (43%)	Nigeria 23 (22%) Malawi 22 (59%) Zimbabwe 19 (41%) Rwanda 15 (68%) Zambia 14 (70%) Botswana 12 (20%) Mozambique 12 (59%)	Cameroon 10 (56%) Mauritius 8 (31%) Burkina Faso 6 (60%) Mali 6 (75%) Senegal 5 (50%) Angola 4 (100%) Madagascar 4 (67%) Namibia 4 (22%) eSwatini 3 (33%)

			<p>Sudan 3 (60%) Benin 2 (50%) Burundi 2 (50%) Eritrea 2 (67%) Gambia 2 (50%) Lesotho 2 (18%) Liberia 2 (67%)</p> <p>Cape Verde, Chad, Côte D'Ivoire, Democratic Republic of the Congo, Gabon, Guinea, Niger, Republic of Congo, Seychelles, Sierra Leone, Somalia, South Sudan, Togo 1 (100%)</p>
within sub-Saharan Africa (total = 48)	N/A	Zimbabwe 13 (28%)	<p>Botswana 7 (11%) Nigeria 6 (6%) Kenya 5 (3%) Tanzania 4 (4%) eSwatini 3 (33%), Namibia 3 (17%) Uganda 3 (3%) Ghana 2 (1%) Lesotho 1 (9%) Mauritius 1 (4%) Rwanda 1 (5%) Zambia 1 (5%)</p>

Source: Publications included in the African Education Research Database with an Impact Factor of at least 0.5.

The frequency of collaborative outputs in Table 1 is divided into three groups to indicate whether the number per country is ‘high’ (more than 25 publications), ‘medium’ (more than 10 and below 25 publications) or ‘low’ (10 or less publications). To some degree, this reflects the number of publications by each country overall, as many of those in the ‘high’ category are also ones with the greatest volume of outputs (Rose et al. 2019). To take this into account, the figures in parenthesis indicate the number of publications involving collaboration as a proportion of publications in the database for each country.

Table 1 reveals inequalities in the participation of different countries in international research collaborations. Overall, the countries in the region with the highest volume of peer-reviewed

research outputs in English included in the analysis are Nigeria, Ghana, Kenya, Tanzania, Uganda and Ethiopia (Rose et al. 2019). It is, in general, these same countries with the greatest volume of research output overall which are the biggest collaborators in internationally co-authored publications. Kenya, Ghana, Tanzania and Uganda collectively account for around half of the collaborative outputs. Adding Ethiopia, these countries are responsible for almost two-thirds of internationally-collaborative outputs. There are exceptions to this pattern. Notably Nigeria which, despite having the largest number of publications in the database, is only sixth in terms of international collaboration. While around one half or more of outputs in Ethiopia, Ghana, Kenya, Tanzania and Uganda involve collaboration, only around one in five publications in Nigeria do so. One possible explanation is that career progression in Nigeria is often based on the quantity rather than the quality of outputs, resulting in publications in lower impact (and sometimes predatory) journals which are less likely to include Northern researchers (Omobowale et al. 2014; Mitchell et al. 2020).

Overall, international partnerships are largely concentrated amongst a few countries, with half the countries in the region having two or less collaborations outside the region. These are the countries with the lowest volume of research outputs overall (Rose et al. 2019).

Collaboration among countries from the South, and especially within sub-Saharan Africa, may be seen as an important strategy to harness expertise and resources within the region to drive research for development. Such South-South partnerships may also be considered as beneficial in promoting learning across countries with some similarities in their contexts. There is some evidence of countries with limited international partnerships outside the region having greater collaboration within the region. For example, Zimbabwe unusually has almost as many publications involving collaboration within the region as outside. Botswana is in a similar position. It may be that countries with greater research expertise and resources could take the lead to form closer collaborations to strengthen research capacity across the region. In this regard, there is some evidence that South Africa, which publishes three and a half times more than Nigeria (the country with the highest number of publications in the database), can promote closer collaboration in the region. For example, Rose et al. (2019) found that out of 75 publications involving institutions in different sub-Saharan Africa countries, over two thirds are co-authored by researchers with an affiliation to South African institutions.

It is possible that international collaboration with countries outside of sub-Saharan Africa is promoted through the availability of external funding. Further analysis of how funding relates to different partnerships confirms this expectation. Overall, only around 15% of publications included in the database report receiving external funding (Rose et al. 2019). Publications involving collaboration between African-based researchers and those based outside the region are far more likely to attract funding (31%) compared with publications involving collaboration among researchers across African countries (3%).

In order to further understand the nature of South-North partnerships, we identify the key countries outside sub-Saharan Africa that are involved in these partnerships (Table 2). We find that institutions in the USA, UK, Netherlands, Canada and Australia are most likely to be involved in collaborative publications overall. USA and the UK together account for over half of studies involving collaboration outside the region. Over half of publications from Kenya are written in collaboration with researchers in the USA, and one-third with researchers in the UK.

In general, researchers from the Northern countries identified above tend to partner with researchers from sub-Saharan African countries which have the greatest volume of research outputs, namely Ghana, Kenya, Tanzania and Uganda (Mitchell et al. 2020). While the legacy of colonial ties may be part of the reason for this, particularly notable here with respect to the UK’s engagement (given the focus of the analysis in this article on publications in English, this does not seem to be the only reason, as the same countries are also generally more likely to be involved in collaborative relationships with the USA, Netherlands, Canada and Australia. Other factors might include availability of external funding from these countries, as well as co-publishing in English. In some cases there may be more specific factors at play. For example, we note that Burkina Faso, which has few publications overall included in the analysis, is a leading collaborator with Canada – and most of these publications are co-authored by a Burkinabe academic who undertook postdoctoral research in Canada. As noted above, it is likely that other outputs from Burkina Faso are published in French, and so beyond this analysis.

Table 2 Top 5 countries outside sub-Saharan Africa involved in collaborative publications with researchers in the region

	Total number of	Top 3 SSA collaborators by number of publications, and proportion of the SSA country’s total collaborative outputs
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	publications with SSA researchers			
USA	146	Kenya 45 (54%)	Tanzania 19 (28%)	Ghana 14 (21%)
UK	142	Kenya 28 (33%)	Ghana 26 (39%)	Tanzania 19 (28%)
Netherlands	56	Ghana 14 (21%)	Uganda 13 (23%)	Tanzania 10 (15%)
Canada	39	Kenya 8 (10%)	Uganda 5 (9%)	Burkina Faso 4 (67%)
Australia	31	Ghana 5 (7%)	Tanzania 5 (7%)	Nigeria 3 (13%)
Other countries	115	Tanzania 22 (32%)	Kenya 12 (14%)	Uganda 11 (20%)

Source: Publications included in the African Education Research Database with an Impact Factor of at least 0.5.

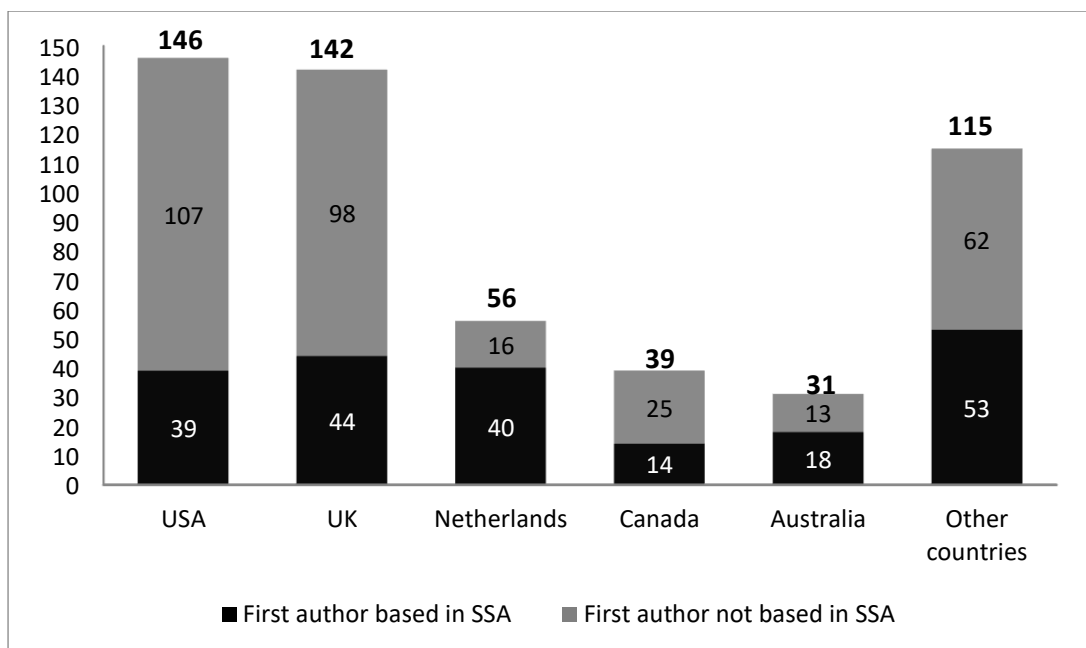
Note: Percentages exceed 100 where publications result from collaboration with researchers from more than one country.

Equity within international research partnerships

Having identified that a sizeable proportion of publications by scholars based in sub-Saharan Africa involve co-publication with institutions outside the region, and that there is an imbalance in which countries are involved in such collaborations, we now turn to identifying how equitable participation is within these international research partnerships.

We begin this by exploring patterns of collaboration with respect to first authorship which, as noted above, can have implications for researchers' visibility and career progression. Overall, of the 480 studies involving collaborations with researchers based outside the region, one-third included an African-based researcher as first author. However, as Figure 1 indicates, patterns of first-authorship vary significantly by country of collaboration. While almost three-quarters of studies co-authored with Dutch researchers have an African first author, for the US and the UK this figure is only around one quarter. This may suggest that publications involving collaboration with researchers in the US and UK are less likely to involve sub-Saharan African-based researchers on an equal basis.

Figure 2 Top 5 countries collaborating with SSA-based researchers by first authorship



Source: Publications included in the African Education Research Database with an Impact Factor of at least 0.5.

We next gather information on the gender of researchers to see whether there was a balance in male and female involvement in publications resulting from international collaboration. As Table 3 shows, overall just under one third of publications included in the analysis are authored or co-authored by females based in the region. This proportion is similar, whether or not publications result from international collaboration. More generally, the pattern of authorship (with or without South-North partnerships) reflects gender imbalances in academic staff in tertiary education across sub-Saharan Africa, with approximately one-quarter of academic staff who are female. There are variations among countries: according to the latest data available, the percentage of academics who are female is 33% in Kenya, 30% in Tanzania, 28% in Uganda, 23% in Ghana 23%, and just 12% in Ethiopia (UNESCO Institute for Statistics online database, n.d.). Despite the commitment of international partnerships to promoting equity, it appears that they are replicating and reinforcing, rather than tackling gender disparities in publishing and academia more widely.

Further exploration reveals variation by country in female-researchers' engagement in international collaborations. Those countries with the largest engagement in partnerships overall are also more likely to involve females in the collaboration. For example, publications resulting from collaboration with USA-based researchers have the highest proportion of female researchers based in sub-Saharan Africa (37%), followed by the UK (35%). The

Netherlands, Australia and Canada all include less than one-third (28%, 26% and 24% respectively).

The gender imbalance is further revealed when we explored the proportion of collaborative publications which are first-authored by female researchers. Females from the region are first author of 35% of their publications which are co-authored with researchers from Australia and the UK, followed by Canada (31%). Even though the Netherlands appears relatively more equitable in terms of first authorship for sub-Saharan African researchers more generally, only 29% of females from the region are first author of their collaborative publications. The USA fares badly both in terms of first authorship for researchers from sub-Saharan Africa overall, as well as for females specifically, who are first author only 27% of the publications in which they are involved.

Table 3 Authors of publications by gender

	Female	Male	Total
Overall	30%	70%	1712
Authors of publications with collaborators based outside SSA	31%	69%	709
Authors of publications WITHOUT collaborators based outside SSA	29%	71%	1003

Source: Publications included in the African Education Research Database with an Impact Factor of at least 0.5.

Note: Excluded from this analysis are 650 researchers whose gender could not be identified. Given that there are multiple authors for some publications, the total number of authors is greater than the number of publications included in the analysis.

To further explore equity within South-North research collaborations, we considered African-based researchers accounts of these international partnerships. As a Nigerian researcher explained:

“In today’s world it’s very difficult for anyone in any endeavour really to thrive without some sort of partnership with another entity or... person... However, when we begin to delve deeper we need to ask questions around: is this a *fair* partnership? Is this partnership drawing equally [and] giving equally to the partners? In terms of academia, is it giving adequate credence to the work of the local scholars? Or are the research outputs generally conceptualised and delivered as a foreign construct?”
(*Female researcher, Nigeria*).

Recognising that who initiates the partnership can influence how balanced it is (as discussed above), we began by classifying research in terms of who initiated the project, according to the interviewees. Of 26 research partnerships identified from the interviews, 16 were viewed as being initiated by Northern-based researchers; four initiated jointly; and six initiated by researchers based in sub-Saharan Africa.

African-initiated projects

With respect to the six that were seen as being initiated by African-based researchers, these tended to be led by senior academics. Two held leadership positions at top research institutions in sub-Saharan Africa; one had previously occupied a professorial role at a UK university; and another, though earlier in his career, was affiliated to a leading French research institution while based at a university in his home country. In initiating projects, African-based researchers took the principal role in defining the research and specifying the contributions of others.

Two reasons provided by African-based scholars for inviting the collaboration of Northern researchers were to improve the quality of research, and to secure funding. For example, a senior Kenyan researcher explained that he had engaged a Northern-based researcher on one project:

“as an advisor...to be reviewing the work, to be critiquing it in the background, to be saying: ‘*This is not good, start again.*’ So that way you get quality.” (*Male researcher, Kenya*).

In terms of funding, international collaboration was identified as a means of achieving donor backing. A Senegalese researcher explained:

“[The project] was my idea first, I wrote the proposal...I brought in [named Northern researcher] to get funding.” (*Male researcher, Senegal*)

Another interviewee recounted that, following an unsuccessful bid for funding, he was informally advised to enter into a partnership with researchers in the donor country and try again. This subsequent bid was successful. From these experiences, it appears that collaboration with Northern researchers was seen as increasing the expertise available and potentially improve the quality and scope of a study, as well as its chances of winning support from funders.

Joint-initiated projects

In jointly-initiated projects African-based researchers reported that they collectively established and developed research agendas, designs and proposals. In each case, the partnerships resulted from arrangements between research institutions rather than ad hoc individual connections, and were long-term in nature, spanning multiple years and projects. They were described positively in terms of the equity of relations and the scope they gave African researchers to pursue issues of local concern.

The four projects in this category varied substantially in other respects. One had involved previous capacity development activities between universities in the UK and Ethiopia, including PhD study, which culminated in collaborative research between former supervisor and supervisees. Another involved collaboration between researchers in Ghana and Japan. Little funding was involved (enough for limited travel expenses), but this was sufficient to support collaborative research on areas of mutual concern. A participant explained that her colleagues engaged in this work because:

“the papers, if published, will contribute to their promotion. Basically that is what I think motivated them to be part. Because not everybody gets the chance to travel to Japan!” (*Ghana, Female researcher*)

She stressed the ownership which she and her colleagues felt over this work:

“because we come up with what we want to research and we design everything – we conceptualise, we design the instruments...right from the conceptualisation to the finish, it’s all by us. It’s not controlled by anybody.”

The other two projects had involved collaboration between academics in Malawi and the UK. The interviewee explained that partnering with a Northern university had given her institution ‘leverage’ to access donor funding to address issues of local concern.

Northern-initiated projects

As mentioned, the majority of the projects (16 of the 26) were initiated by researchers in Northern institutions. These projects varied markedly with respect to the agency offered African researchers, with a clear division between those which incorporated participative design and those that did not. From the interviews, half of the Northern-initiated projects positioned African researchers as implementers of studies designed in the North, with the other half being more collaborative.

Where African-based researchers identified themselves as being implementers, Northern researchers generally designed and secured funding for these studies prior to their involvement. In these projects, African researchers were hired to collect data in their countries of residence. Some supervised other local data collectors, and in some cases, undertook analysis and reporting according to protocols, templates and instructions from abroad. Some were designated ‘country leaders’, which reflected delegated responsibility for handling logistics and ensuring that things went according to the plans and schedules developed in the North.

“What we were really involved in was the data collection [and] training the local enumerators on the questions...But [the Northern researcher] asked all of the questions. He had the methodology. He had everything that made the project what it is, because he wrote his concept paper...so he knows what questions he wants to ask, and he knows how he’s going to do his analysis, and he knows how it’s going to come out.” (*Male researcher, Liberia*)

This category included early-career researchers, some of whom had not participated in education research before, but also mid-career and some senior academics. For example, a senior academic from Botswana expressed frustration at being ‘reduced’ to the status of ‘data collectors’:

“Next time I’m asked to be involved in this kind of research I will demand that I be involved in its conception...Because it came, like I said, *ready-made* and we were there just to ‘fit’ it...Personally I’m not happy with that...I would prefer a situation

where...you are involved in the conception of the study...Because you also want to make sure that the issues being addressed are also relevant to your own context...And these are issues that can only be addressed more effectively at the level of conception...I think next time I'm going to probably say '*No, I can't be involved in this study [unless I am] involved in its conception.*' To me I think it makes more sense that way, because you don't want to see yourself reduced to the role of a data collector. No. [laughs]" (Male researcher, Botswana)

"The whole idea had been conceptualised, the proposal had been written, the grant had been won, before these things got to us...You know, somebody comes with this idea: "*This is something we are writing on, are you interested to join?*" So the topic or the research area doesn't come from you, as a [researcher in a] developing country context – it comes from PIs [principal investigators], whose research interest it is...and they are bidding for a grant to do it, so we get drawn into somebody's interest...I was supposed to be the 'Country Leader'...[but] I'm really involved in the data collection, and involved in writing the report..." (Female researcher, Ghana)

The more senior researchers expressed frustration with the lack of consultation, and some complained that specific requests or suggestions had not received a proper hearing. Given these negative feelings, why did they continue to engage with the projects? Despite their reservations, senior researchers mentioned a number of benefits which resulted from their participation in these inequitable partnerships, such as learning about new areas of research and practice, and the opportunity to mentor the next generation of young researchers. The price for this was taking directions from Northern researchers, and engaging in work which they felt was not well-suited to local needs or their own priorities.

The experiences of researchers in this category were not universally negative, especially for those with limited previous experience of education research. For example, one interviewee expressed satisfaction at designing and implementing a data quality assurance system which resulted in the detection of falsified surveys.

It is also important to note that half of the Northern-initiated projects involved greater collaboration with African academics. One example of how this occurred was where consultation and flexibility were built into initial proposals and research designs. For example, one proposal based on international collaboration with a researcher from Malawi was worded as follows: "The research questions and mixed method study design were

developed in consultation with the partners, and will be further refined at the study outset during an inception workshop.”

Some projects in this category involved minimal inputs from Northern researchers, who took a more advisory (or supervisory) role, reviewing and approving studies largely developed by African-based researchers. Two such studies resulted from a partnership between USAID and the Government of Ethiopia which established the research agenda. After this, a USA-based consultancy hired Ethiopian researchers to develop studies to address these topics.

“[We] developed...not only the tools, even the research proposal, with all its methodologies...and we got approval from [consultancy head office in the USA]...We trained the data collectors; we deployed data collectors to collect data for us. And all the analysis and the report [was] prepared by us. Maybe 15 per cent [of this project was] the contribution of others.” (*Male researcher, Ethiopia*)

In other projects, Northern researchers produced a draft research design and invited colleagues with expertise and interest in the particular thematic area to develop the idea further. A precondition for this form of collaboration was the ability of the Northern principal investigators to identify African researchers with experience in, and commitment to, a particular field of research and practice. In some cases, The principal investigators often sought the collaboration of individuals with whom they had worked previously; in others, they found new collaborators by conducting interviews and consulting others, including non-academic stakeholder groups. As one researcher from Uganda noted:

“The [Northern principal investigator] sent out an advert to our school, and said he wanted people who do research in disability...So I applied and I had an online interview...and I was selected because I had publications in disability studies, and I was also known by many of the referees who are big people in the disability movement. They know about my research and advocacy work, because I was combining the two.” (*Male researcher, Uganda*)

Unlike the African-initiated and joint-initiated projects, one concern raised by some researchers participating in Northern-initiated projects – including the more fully collaborative ones – related to the dissemination of findings. Some interviewees expressed frustration at their inability to disseminate findings without authorisation from Northern

researchers. For example, two Ethiopian researchers working on a Northern-funded project shared their uncertainty about their rights regarding publication.

Researcher 1: There is a policy which restricts [publication of] anything before the end of the project. Because any data, any report, belongs to the project...In consultation, if you get permission – you can. [But] because of this there are so many articles, so many data left unpublished.

Researcher 2: Unpublished, I tell you.

Researcher 1: So many important [findings] which *deserve* publication are left behind...I don't have a clear answer but I feel [that] if the project is over, I have the right to use the data because...[then it] belongs to the public domain. That is my thinking, but I'm not exactly sure.

Researcher 2: I'm not clear with that. I don't have *any* information whether I can publish it or not.

Clearly, these researchers are disadvantaged by their lack of knowledge of, and influence over, the rules governing the collaborative projects in which they are involved.

Conclusion

Based on the analysis in the paper, we draw implications for researchers, funders and others involved in international research partnerships. As our bibliometric analysis reveals, participation in international research partnerships favours certain countries. With few exceptions, the countries engaging in the most research partnerships are those with the highest volume of research outputs. If research capacity development is an aim of international partnerships, then this suggests that steps should be taken to ensure that countries with less developed research capacity benefit from opportunities involving collaboration. We are mindful that the analysis presented here is limited to publications in English. It is therefore possible that the pattern might vary in countries where research is predominantly published in other languages. This would be an important area for further research.

Secondly, the evidence considered in this study indicates that international research partnerships involving researchers in sub-Saharan Africa do not appear to be redressing but *reproducing* gender imbalances in authorship. We were not able to delve deeper into this issue in interviews to understand the reasons for such imbalances. Further research focusing on identifying the barriers and enablers for female researchers' participation would be extremely valuable.

In several ways, our findings challenge common narratives about South-North research partnerships. Despite receiving scant attention in the literature, interviews revealed multiple instances of research partnerships being initiated by Southern academics who established the foci of research and the contributions of others. In relation to this, the locus of control in initiating a project had a key bearing on the equity of relations. Where partnerships were initiated by Northern actors, in half the cases, African researchers' concerns echoed those in other recent studies (e.g. RRC 2018; Dodson 2017) – namely, being treated as data collectors for studies designed elsewhere, sometimes with limited connections to their own research interests or priorities. This links to wider debates about power asymmetries in the area of international development (Sriprakash et al. 2019), and should give grounds for researchers and funders to reflect deeply on the type of relations engendered by Northern-initiated projects. Significantly, half of the Northern-initiated projects were described in equitable terms, and evidence from this study indicates that this was not accidental but the result of intentional strategies for participative research design. These examples provide important lessons for ensuring fair and equitable partnerships that are driven by the priorities of researchers based in the South.

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