

Skupien, Stefan

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Searching for Macro-Meso-Micro-Level Links in Studies of North-South Research Collaborations

Stefan Skupien¹

Abstract Scientific collaboration between Northern and Southern researchers and development programs for research capacity-building have received new attention of practitioners and scholars during the last decades. This essay review takes four recent publications on North-South research cooperation and development politics as a starting point to ask for possible links between macro-, meso-, and micro-levels of social analysis that has found renewed interest in the sociology of science literature. The approach has the advantage to heuristically systematize the anthropological, sociological and policy-driven approaches chosen by the editors and authors of the books under review. Moreover, the focus on links between the three levels adds to the conceptual interaction of sociology of science and the science policy fields to estimate the effects of science governance in international and especially in asymmetrical relations with different access to resources.

Keywords Scientific collaboration · North-South relations · Research agenda · Research funding · Governance of science · Knowledge autonomy

Adriansen, Hanne Kirstine, Lene Møller Madsen, and Stig Jensen, (eds.). 2016. *Higher Education and Capacity Building in Africa: The Geography and Power of Knowledge Under Changing Conditions*. London: Routledge.

Cherry, Andrew, James Arthur Haselip, Gerard Ralphs, and Isabella Wagner, (eds.). 2018. *Africa-Europe Research and Innovation Cooperation: Global Challenges, Bi-Regional Responses*. Palgrave Pivot. Palgrave Macmillan. Cham: Springer International. (Open Access)

✉ Stefan Skupien
stefan.skupien@gmx.net

¹ WZB Berlin Social Science Center, Reichpietschufer 50, 10785 Berlin, Germany

Halvorsen, Tor, and Jorun Nossun, (eds.). 2016. *North-South Knowledge Networks: Towards Equitable Collaboration between Academics, Donors and Universities*. Cape Town: African Minds. (Open Access)

Koch, Susanne, and Peter Weingart. 2016. *The Delusion of Knowledge Transfer: The Impact of Foreign Aid Experts on Policy-making in South Africa and Tanzania*. Cape Town: African Minds. (Open Access)

The New Visibility of African Colleagues

According to bibliometric indicators, Africa has experienced a remarkable growth in its scientific publications from 1.5% in 2005 to 2.8% in 2015, in fact the fastest growth compared to other regions (Beaudry et al. 2018). This growth can partly be explained by an increase in participation of African scholars in growing international networks (Adams et al. 2014; Confraria and Godinho 2015). In absolute terms, cooperation within Africa doubled between 2002 and 2012 (Adams et al. 2014: 550). Such an increase in internationally co-authored papers reflects the further integration of African universities, research centers and scholars into global networks, especially in the fields of tropical medicine, parasitology, infectious diseases, public, environmental and occupational health, water resources, ecology, immunology, zoology and plant sciences (Beaudry et al. 2018). As critically as these numbers need to be regarded, the increase in absolute scientific output also reflects the increased efforts to improve the scientific capacities and the effects of collaborations between high-, middle-, and low-income-countries. At the same time, the increase of research collaboration has led to more critical assessments of the histories, causes and effects of North-South relationships in science and higher education.

The books under review in this essay align with different theoretical and organizational approaches and reflect the diversity of the discussions of the last 20 years. These debates centered around the explanations of how scientific cooperations (between Europe and Africa) come about, what factors are conducive for collaborations and what challenges remain to have truly equitable partnerships. The discussions relate to different disciplinary debates such as philosophy and anthropology as well as science policy and development studies. Given the former colonial ties between European and African countries, two things can be noted: First, scientific collaborations until the 1990s were convincingly described in the language of dependency theory, as done by the Beninese philosopher Paulin Hountondji. He drew a parallel between economic and scientific infrastructures and processes that were established during colonialism and oriented toward the global market. Such an extroverted orientation offered few incentives and opportunities to create home-grown expertise that could serve local development and the formulation of genuine endogenous research questions (Hountondji 1990). In the early 1990s, it was therefore less surprising that questions of whether research partnerships would be possible between unequal partners were high on the agenda (Gaillard 1994) and that still half a decade later health scientists noted a “semi-colonial model” (Costello and Zumla 2000) of conducting research in developing countries. These raised issues were underlined by critiques of neo-liberally guided

development policies of privatization and commodification that led to the further deterioration of universities in African countries in the 1990s and hence decreased their endogenous research capacities further (e.g., Mamdani 2007).

Secondly, the 2000s saw an increase in reviews and evaluations that targeted especially the observed inequalities. Donors and development organizations from Canada, Denmark, Sweden and other countries commissioned reports of how to change the inequalities through targeted research capacity-building (one rarely speaks of research capacity-building for European countries). In addition to the renewed interest in Africa as expressed in the Blair Commission in 2005 (Commission for Africa 2005), the international development discourses shifted toward knowledge-based and -focused research systems with the publication of new World Bank reports (World Bank 1998, 2009). In conjunction with the focus on knowledge economies, the focus on global development goals led to the assumption that endogenous research capacities can help to eradicate poverty and to encourage socio-economic development. A primarily institutional-functionalist perspective was applied to identify the different levels and elements of national knowledge systems and their interactions. Interest in what factors affect the improvement of scientific collaborations for research and innovation, for teaching and organization of science in universities, government institutions and private enterprises became the object of numerous evaluations. With the evaluations came assumptions of change and interventions that today inform the governance of science in international relations.

Against the backdrop of these two observations it is worthwhile to look at recently published studies that focus on European-African cooperation in science and higher education and on the influence of knowledge in policy in general.¹ Reviewing the four books is relevant for at least two reasons. First, it is relevant conceptually and theoretically to understand how science is actually being done under asymmetrical conditions. A review allows searching for how local, national and international collaborations in light of power differentials add to the understanding of locally driven research agendas, to the choice of adequate methods, translation, social, technical and economic innovation, and their relationships with global developments. Such a focus is thus of immanent interest for the fields of science policy and the sociology of sciences that have yet to systematically integrate North-South research collaborations as objects of their research programs (e.g., Zingerli 2010). Second, the publications are relevant for the discussions among science funders, policymakers and international organizations that shape and use scientific knowledge at the same time. Hence the texts in this field serve diverse audiences and commute between the scientific and the practitioner's debates. The different approaches and audiences bring with them the necessity for the author's positionality, some of them being employed by funders and ministries themselves, some being beneficiaries of long-term funding involvement, that is subject of reflections in different degrees.

¹ The books solely focus on relationships with Africa. This focus leaves out other areas of North-South research cooperation and hence does not provide material for comparison across regions. Nevertheless, the diverse studies cover many aspects of African countries, which are numerous and complex in themselves.

The Books Under Review

The most policy-oriented approach is expressed in the contributions in Andrew Cherry et al.'s *Africa-Europe Research and Innovation Cooperation: Global Challenges, Bi-Regional Responses* (2018), which resulted from a 10-year collaborative project to support the bi-regional cooperation between the European Union and the African Union. The authors, themselves often practitioners from donor and science-policy organizations, take a reflexive stance in their assessment of the results of the project CAAST-Net/CAAST-NET+ (2008–2017) and outline the conditions for future cooperation on the policy level. They start from an angle of applied science to discuss how cooperation between both continents can become more meaningful for outcomes and impacts of research capacity support for societal change (Cherry et al. 2018: xxv). While the contributors to this edition do not shy away from critical observations of unequal footing, they remain committed to searching for improvement of the regional relationships and its policy framework that the editors see currently threatened by “levels of disengagement, [] mediocracy, [] lack of identity and [] lack of inspiration” (ibid.: 143). In six chapters, the authors touch on the policy framework of African-European bi-regional cooperation in science and technology, on experiences with climate-change, food security and health research as well as on the necessary safeguards for more equity in health research cooperation in particular and in all scientific collaborations in general. The book thus provides researchers, administrators and policymakers alike with valuable assessments and with the necessary insights into bilateral policymaking.

In their monograph *The Delusion of Knowledge Transfer: The Impact of Foreign Aid Experts on Policy-making in South Africa and Tanzania*, Susanne Koch and Peter Weingart (2016) critically analyze precisely this policy-related approach, which targets the capacities of S&T policies of developing countries. The authors examine the scope, process, and influence of the knowledge transfer of foreign aid experts, which is often tied to development aid, and how this transfer of knowledge affects the autonomy of recipient countries to set their own policy agendas. Their thoughtful study assesses the rationales, conditions and effects of such knowledge transfer at the policy level in the areas of education, environment, and health in South Africa and Tanzania. The approach has two key lessons for development aid and the transfer of knowledge: First, and less surprisingly, the transfer of knowledge often fails and this failure is attributed to three factors: i) expert advice remains tied to political preferences and subsequent control-mechanisms of donor countries, ii) donors do not seem to have a clear model of how to transfer knowledge and how to adapt it to local circumstances, and iii) experts employed by donors tend to re-enforce knowledge-hierarchies during the consultation process and are likely to devalue local knowledges (Chapter 5). Second, it is not only financial means that determine the strength of recipient countries to negotiate policy advice and development aid but also administrative capacities and local knowledge expertise. While arguing that the intervention into the policymaking process of both analyzed countries has disturbing effects for their democratic self-concept and autonomy, the authors refrain from offering detailed advice on how to design adequate knowledge transfer. These two books deal with the larger STI policy-field and its current structures on the level of science systems, albeit from different angles.

Tor Halvorsen and Jorun Nossun (2016) and Hanne Kirstine Adriansen, Lene Møller Madsen, and Stig Jensen (2016) offer new insights from the perspective on higher education and academic collaboration and shift the focus from the level of policy debates to the meso- and micro-levels of organizations and individual researchers. For the edited book *North-South Knowledge Networks: Towards Equitable Collaboration between Academics, Donors and Universities*, Halvorsen and Nossun invited scholars who received funding from the Norwegian Programme for Capacity Development in Higher Education and Research for Development (NORHED) to a workshop in 2015 to contribute to the debate on how development aid can be employed to use and improve knowledge societies while avoiding the negative effects of increasing economic competition (2016: x). Both editors are critical of all structural effects that intervene in the exchange of knowledge between academics, an exchange that they compare with a “‘gift-oriented’ understanding of how academics work together” (ibid). Positioning academic knowledge exchange as an intrinsic and almost selfless activity, the editors argue for a supportive environment within North-South collaboration that focuses on reflective knowledge rather than on other functions of higher education institutions, for instance, producing adequately skilled labor for local employers or shaping future leaders. This emphasis makes NORHED a model for alternative higher education that is to be compared and tested. The book comprises 12 chapters that cover, among other topics, overviews of recent funding models and their impact on universities (Hyden 2016), discussions of press freedom as necessary preconditions for academic freedoms (Mlenga 2016) as well as reflections on how universities were affected by neo-liberal reforms and what practices could lead to a re-centering of knowledge production at the level of research and education (Mamdani 2016). The chapters share the focus on North-South research cooperation but remain diverse in their conceptual outlooks and methodological approaches. While the editors suggested reading academic societies and knowledge exchange as a gift-society during the workshop, the author’s contributions unfortunately remain silent on this approach. The lack of a more explicit theoretical or conceptual discussion gives the edition a somewhat testimonial character, supplying, however, many insightful details and experiences from the perspectives of universities, funders, and individual researchers.

In *Higher Education and Capacity Building in Africa: The Geography and Power of Knowledge Under Changing Conditions*, Adriansen et al. also concentrate on universities and ask for the motivation of recent capacity-building initiatives in Africa in donor policies and specifically how such initiatives affect the knowledge production at African institutions of higher education. In their view, knowledge-creation becomes a contested site that can be best analyzed through the lenses of geographies of knowledge, connecting the existing debates in sociology of knowledge with the spatial turn in social sciences and humanities. By adopting that approach, the editors in an innovative way combine anthropological debates with both David Livingstone’s studies on the locality of knowledge and with the discussions about “extroverted” and “endogenous knowledge” as conceptualized by Paulin Hountondji. The book’s focus is on the meso- and, even more interestingly, on the micro-level because its authors ask from a self-reflexive anthropological perspective what is constituted as legitimate scientific knowledge and how this knowledge is contested within the framework of capacity-building (ibid.: 1). The book is the result of the reflections of

researchers who themselves were involved in the Danish *Building Stronger Universities* program and either come from Denmark or countries of the Global South (ibid.: 5–6). The 12 original and empirically rich chapters bring together a range of observations when asking about the effects of capacity-building measures at the level of universities as organizations, at the level of researchers interacting with knowledge within projects and research sites at the village level. The authors not only focus on the shaping of research but also on educational content as contested sites and frameworks. This duality allows the editors to integrate insights of the higher education and the sociology of sciences research fields that often seem to be separated due to the high level of specialization within science studies themselves.

Three Levels of Analysis

The books in this review mirror the current breadth and complexity of research on science in general and on scientific North-South cooperation in particular. To capture the heterogeneity of these approaches, it is useful to differentiate the texts according to the macro-meso-micro model of analysis that is frequently applied in social theory and more recently also informed science studies (Baur et al. 2016; Gläser and Laudel 2016). Generally speaking, the macro-level encompasses wider social phenomena, while the micro-level of analysis is used to capture the dynamics of interactions between individuals. To establish the relationship between the two levels, the meso-level serves to comprise social phenomena that link the daily interactions of individuals at the micro-level with the larger social events at the macro-level. The *units* of analysis can vary. In the case of scientific systems, units can include individual researchers, grant proposals, and administrators, universities, informal and formal scientific networks, ministries of higher education, and eventually knowledge- and excellence paradigms, and global scientific collaborations.

Two reasons speak for applying this model: First, the different texts can be systematically summarized and located. This pragmatic approach allows for the identification of differences and commonalities in anthropological and institutionalist theories and methods used and possibly to account for proposals for policymaking for North-South research collaborations. The approach allows me to selectively read the edited volumes that contain chapters with explicit references to one of the three levels while the authors themselves do not necessarily apply this analytical framework themselves. Second, sociologists of science have noted the absence of cooperation between researchers that focus on macro- or micro-level phenomena (Gläser and Laudel 2016). Focusing on the “web of causal links” (ibid.: 119) between the governance of science and the research content, researchers from the field of science policy studies are invited to work together with sociologists of science, who are equipped to describe how research is actually developed and carried out at the micro-level.

The expectation of linking the two fields is to transcend the opposition between constructivist and institutionalist theories that currently structure the fields of science studies. Moreover, an analytical alliance is expected to help in creating more links between the meso-level observation that includes organizations, structures and mechanisms and the micro-level observations, such as the practice of science

in laboratories or the construction of scientific objects. With the focus on universities and international funders, for instance, many chapters of the books discuss the organizational meso-level. The authors study the drivers and changes at universities as sites of higher learning and research for the benefit of their local environments (e.g., Halvorsen and Nossun 2016). Others describe the development of policy-frameworks on bi-regional levels to support research organizations and to structure the opportunities of North-South collaboration (e.g., Cherry et al. 2018). Conversely, some authors apply theories used in laboratory studies to describe how doctoral students achieve more agency (Zink 2016) or how researchers in climate change studies face the locality of knowledge in villages and thus enter sites of negotiation of knowledge (Nielsen et al. 2016).

Understanding the relationship between diverse governance and research modes is hence equally important for the interactions in North-South research collaboration. These governance modes include funding mechanisms, bi-regional scientific cooperation agreements, the negotiation of policy preferences according to development goals and local research interests, organizational and individual research capacity-building and eventually agency and safeguards for equity and fairness in collaborations. Macro-level questions concern issues of which norms drive science generally and how science interacts with its environment or in the language of systems theory with other social sub-systems. The authors of the books under review address this level of description, for instance, when discussing scientific research as means for socio-economic development or the individually perceived tension between international scientific norms and the necessity to adapt to local needs (e.g., Adriansen et al. 2016).

The Macro-Level: A Focus on Knowledge Societies

Two macro phenomena described in some of the volumes are decisive for North-South research collaboration beside the larger developments I described in the introduction: competition and collaboration. All four books under review touch on these two international phenomena and give ample evidence that the tension between economic competition and scientific collaboration is influential for scientific research institutions and the way generated knowledge is distributed and acknowledged within the broader social context of science. Consequently, policy and funding organizations, universities and researchers have developed different strategies to cope with this tension and to mitigate its contradictory effects.

Overall, the four books share the observation that the shift towards the knowledge economy-discourse has led to intensified efforts in North-South collaborations because knowledge has become recognized as key to social and economic development in the new millenium. Global organizations such as the World Bank and UNESCO have helped to frame this discourse and subsequently to direct funding and expertise. This shift has affected regional and national funders as the introduction of STI-policies to the EU bi-regional policy dialogue with the African Union (AU) shows (Cherry and du Toit 2018; Barugahara and Torstensen 2018). The bi-regional policy-framework that exists between the EU and AU since 2007 frames the integration as a mutual benefit because of common interests in solving global challenges

and to solving them through shared resources. The global consensus that knowledge is key to solving these problems has been analyzed as a further driver for bi-regional cooperation. However, the authors also admit that the European Union at the time of the Lisbon Treaty (2007) strategically focused on competition and readiness for competition as a necessary characteristic of research and development systems (Barugahara and Torstensen 2018: 26). This concept has influenced the strategies the EU applies for its international cooperation. While the rhetoric of the bi-regional initiatives in 2007 are critically described as somewhat lofty and the improvements of bi-regional STI-policies of 10 years as mixed, the authors do not systematically analyze the connection between a more cooperation-driven sector such as STI and more economic competition-oriented drivers for African-European relationships. However, they point out the instrumentality of STI for responding to global development challenges, especially the reduction of poverty and food insecurity (ibid.: 31).

Strengthening research capacities on the organizational and policy-level through dedicated support has become one way to increase the opportunities of knowledge-based societies. Adriansen et al. and Halvorsen and Nossun start from programs that have focused on North-South exchange and transfer of capacities and use these as departure points for their critical assessments. The Norwegian, the Danish and partly also the Swedish examples are helpful for several reasons: Just as the EU's initiative to foster research collaboration, the national programs reflect these efforts on a smaller scale but justify their existence under the same premise of the knowledge economy (e.g., Nossun 2016).

Targeting Organizations and Processes at the Meso-Level

Universities and research institutions are often regarded as major meso-level actors. Conventionally, institutions of higher learning and research are supposed to fulfil different functions: teaching of future labor force and educating elites, pursuing research and applying their knowledge to the benefit of their societies (service) (Cloete and Maassen 2015: 2). However, Nico Cloete and Peter Maassen (2015) have extended and reformulated these tasks to point to contradictory functions of universities, a concept coined by Manuel Castells. According to the authors, universities have four equal functions: First, they have ideological functions that produce values and social legitimations in societies. Second, historically, universities were places of elite selection but have opened up in the last century to mass education with effects for the notion of elites. Thirdly, universities serve as places of labor force training in different degrees. Fourthly, universities have become sites of research as a productive activity that is oriented toward application for social use (ibid.: 2–4).

Currently, universities are confronted with different expectations, which they, however, cannot all fulfil to the same extent and which consequently lead to tensions in their management and governance. These tensions include the ideological expressions at campuses, when parts of the students radicalize and challenge the policies of governments. The chapter by Joe Mlenga (2016) on universities in Malawi is a case

in point: Academic freedom for him is the necessary condition to enable an environment that can focus on research and contribute to the solution of societal problems. Among other factors stifling a conducive atmosphere at campus for learning and researching are the government's interventions into the university's daily work through restrictive governance mechanisms that have led to violent protests and even deaths in the past. The same ideological conflict is underlined by the description of how Islamization and Arabization has influenced the working of Sudan's universities since the 1980s. These processes have led to the imprisonment or emigration of university staff, to less contact with non-Sudanese researchers especially from English-speaking countries and to the exclusion of non-Arabic speaking and non-Muslim Sudanese citizens (Taha and Bjorkelo 2016). Conceptually, most authors critically observe the continuous dependencies of universities on national political and international development structures and processes.

Universities and Interventions

The focus on universities has the advantage of observing the interaction between researchers with different national and cultural backgrounds and between organizations and different sectors in their respective societies. Against this background, universities become the mirror of social and economic developments and of societal expectations towards higher education, research and innovation. Moreover, universities have become targets of diverse institution-building initiatives as outlined by two of the books under review (Adriansen et al. 2016; Halvorsen and Nossun 2016). Insightful in this regard is the first part of Adriansen et al. in which the authors discuss how university research and teaching in African states has been affected by international collaboration and capacity-building and how knowledge production is being localized. According to the authors, the focus of analysis should be on dilemmas or tensions in the sense of how to promote "excellent research and teaching" under the impact of scarce resources. Additionally, the question is how to reconcile international standards of doing science with local needs for research as done in the chapter by Michael Whyte and Susan Reynolds Whyte (2016). Starting from pragmatic philosophy and ethnographic methods, the authors concentrate on situated actions with an understanding of "knowledge as emergent from practice, and as tentative, revisable and multiple" (ibid.: 41). Drawing from 25 years of involvement in capacity-building for African universities, the authors remain critical of the Danish capacity-building program funded by the Danish International Development Agency. The critique is particularly directed at the trend to measure the success of its intervention according to the standards of Western universities without taking into account local specificities. Such local particularities include questions such as what kind of research should be conducted (ranging from basic to strategic research) or what should count as an output of projects if publications are only one among other choices. The chapter thus gives another helpful and thick description of how international donors' collaborations are sites of contestation that enable African universities and their scientists to participate in international research. Moreover, both

authors describe that the exact content of what research should be done is subject to debate between scientists, civil society, aid donors, and politicians (ibid.: 54).

Development Aid and Democratic Autonomy

Another angle on science policies is taken in Koch and Weingart's study of the influence of *expertise* that is tied to foreign development assistance as it has become the "chief currency of aid" (2016: 25). With their focus on development politics the authors broaden the empirical base of how foreign actors influence local knowledge systems through negotiations with ministries and their experts. They provide a strong argument to strengthen local and national science systems that can contribute to the negotiation of foreign aid and its more appropriate use. The long-term involvement of development aid-agencies in scientific capacity-building in African countries and the scientific expertise of recipient countries in the negotiations with aid-agencies justifies the book's integration into this review. The approach is even more relevant where it integrates theory of democracy to outline at what point foreign expertise is detrimental to the democratic expectations of self-rule. For their comparative study, based on document analysis and 73 interviews, the authors focus on South Africa and Tanzania and target three policy sectors that depend on many sources of expertise: environment, health including HIV/AIDS, and education. This case selection allows them to compare not only nationally but also the intra-national sectoral variance in dependence on foreign aid. For instance, South Africa has strong environmental policies and expertise but depends on external aid to finance its sectoral developments. South Africa's environment community, however, can counter external proposals with their own knowledge when negotiating the extent and focus of aid from outside the country. Conversely, Tanzania's health policymaking, including its HIV/AIDS-program, largely depends on external funding. But national policymakers have apparently given in to the attached expertise by not negotiating based on domestic research results.

The study offers an important critique of the aid industry and the knowledge that is attached to it. First, the authors outline the conflicting organizational strategic interests in the development sector, the relationships between donor and recipient states and the influence of the epistemic communities of development experts (Chapter 4). They then provide three factors that enforce the inadequacy of knowledge transfers: When aid/advice remains tied to strategic policies of donors, advice becomes "volatile, conditional and supply-oriented" (80). Moreover, conceptual weaknesses and frequent turnovers of staff at donor organizations impede the process of delivering advice (113–121). This kind of aid affects local knowledge structures, which remain less influential because the provided knowledge enforces current international hierarchies between donor and recipient countries. The study implies that local knowledge bases (experts and activists) are pushed further to the periphery within their own national knowledge system (121–136). Structural conditions on the side of the recipient countries further influence the transfer of knowledge. These conditions include financial strength of sector organizations and administrative capacities to absorb and assess the given expertise within ministries and other

policymaking organizations. Moreover, the knowledge base to produce expertise about one's own local circumstances in environmental protection or health is another condition vital to counsel the national administrators in South Africa and Tanzania and to offer critical capacities to produce counter-evidence to foreign expertise (Chapter 6).

This multi-dimensional research model with its variations on the donor and the recipient side explores the knowledge transfer that is taking place within development aid and offers insight into the variance across sectors. The comparison along the detailed six case-studies (Chapter 7) allows the reader to recognize conditions of agency to resist and influence foreign expertise even when financial means are lacking and when administrative capacities are minimal to check the proposals of aid donors. Consequently, the authors refrain from giving recommendations of how to improve the situation but instead argue for the investment in a stronger local knowledge base to establish the expertise that can eventually inform and steer national policy-agendas (344–346). While the authors note that the lack of financial resources does not always determine the possibilities of producing alternative demand-driven counter-proposals by local expertise, they emphasize the intersection at which all three conditions shape the capacity to retain national policy-agendas and thus help to sustain a degree of democratic autonomy. Substantial investment in the research capacities of countries are the most obvious recommendation the authors draw to strengthen the autonomy of local knowledge bases to participate strongly at setting national policy-agendas (344). Recent calls of the African scientific community on their political leadership in Abidjan in November 2017 and surveys among African scientists (African Academy of Sciences 2018) are the latest examples of demands for stronger local science policies.

Virtuous Institutions: Safeguards of Equity in Collaborations

Another aspect of science policy and scientific cooperation between Northern and Southern researchers concerns questions of research ethics and research integrity. While research *ethics* are at the core of scientific norms with regard to the subjects of research, such as patients and interlocutors, research integrity pre-dominantly focuses on the ethical relationship between the scientists themselves. Parallel to global research ethics and research integrity-debates, aid donors, research councils, and scientists themselves have reacted to the challenges of asymmetrical relationships. The Swiss Guideline of the *Commission for Research Partnerships with Developing Countries* (KFPE 2014), the OECD-Principles for Partnerships (2011), the *Montreal Statement on Research Integrity in Cross-Boundary Research Collaborations* (2013), and the recently started *Research Fairness Initiative* (Botti et al. 2018) are results of demands for more equity in research collaborations. The collaborations between Northern and Southern scientists are often criticized as one-sided divisions of labor, degrading African researchers to mere data-collectors without full participation in formulating the research agenda or being adequately considered as co-authors in publications. A court ruling in Kenya against the discrimination of African researchers in promotion processes

at the Western-managed Kenya Medical Research Institute (KEMRI) is only one manifestation of these asymmetries (Nordling 2015). While the epistemic and ethical injustices occurring in North-South collaborations are subject of many of the publications, two chapters in *Africa-Europe Research and Innovation Cooperation* focus on this dimension of relationships explicitly (Ralphs and Wagner 2018; Botti et al. 2018). They argue that project members including funders need to pay much more focus on “partnering processes” (Ralphs and Wagner 2018: 124) across all disciplines to ensure more effective research collaborations. The authors start from the observation that the existing relationships are “constitutive and generative of the cooperation” (ibid) to identify the potential of common futures. How cooperation in research and innovation can work and work well in the future has thereby become a new area of research. The increasing international collaborations included in the framework of the European Union’s funding explains the rise of these topics. Generic principles for ethical cooperation have lately also been institutionalized as organizational competencies, for instance, through the establishment of international offices at research institutions that take these norms into consideration in their management practices (ibid.: 128).

Gerard Ralphs and Isabella E. Wagner thus extract four main principles from a comparison of existing guidelines that should be considered when drafting collaborative projects: First, due to different motivations for participating in research collaboration, all partners should uncover hidden interests at the individual but also at the organizational level. Especially the integration of private sector actors into the scientific research process will need attention to balance economic interests. Second, since personal identities matter and inform partnerships, potential differences should equally be expressed in preparation of collaborative research. Third, acknowledging other than financial resources such as support through in-kind resources means to broaden the view on what can be contributed by diverse parties. Moreover, attributing different resources to specific work-tasks helps to visualize potential inequalities and imbalances at the beginning of a project. Finally, “Partnership learning” is recommended as a reflexive practice to learn from failures and successes of partnerships. A learning approach should therefore be part of the project management structure to facilitate future learning effects and cooperation (ibid.: 135–136). The underlying premise of these guidelines is that equity and fairness will lead to more sustainable cooperation that is necessary to solve global challenges. However, it remains to be studied what effects such guidelines have when they are applied in specific programs and whether calls for competitiveness of science shape the practice of partnerships more intensively. The authors rightly remain skeptical of the partnership-rhetoric that is present in development cooperation discourses since the 1990s.

Micro-Levels: Doing Science and Negotiating Knowledge in Daily Interactions

Mahmood Mamdani in a chapter on the impact of neo-liberal education policies on Ugandan Makerere University offers a compelling analysis of how the doing of social sciences at the micro-level is affected by neo-liberal reforms of the university at the macro- and meso-level (Mamdani 2016). The author summarizes the factors that led to the impoverishment of university education after the 1980s and hence reconnects the analysis to the privatization and commodification of higher education that were pointed to already at the macro-level. He identifies two fallacies with the then dominant World Bank's approach to cut down on public university spending: a) primary and secondary schools depend on the work of universities (teacher and administrator training, curricula development) and b) higher education including teaching and research is not to be reduced to its immediate stakeholders alone but profits the wider social environment. The market approach hence led to privatization and commercialization and created three problems for the university: the state's withdrawal from financing Africa's public universities, fragmentation between faculties, and the integration of more students that led to higher teaching load with fewer resources for research. This has resulted not only in more dependency on foreign funding for research but also in more extra-work for academic staff to improve their income.

While these organizational changes of universities connect to the meso-level discussion above, the accumulated effects of the university reforms according to Mamdani also had significant consequences on how research was done. In a telling way, the author analyzes how the preoccupation with consultancies among the social scientists has led to an impoverished understanding of research on two levels: "For consultants, research is all about finding answers to problems defined by a client - consultants tend to think of research as finding answers, not formulating questions" (ibid.: 117). To Mamdani the choice of methods and the narrow focus on quantitative approaches to answer the questions of commissioned consultancies has also become a theoretical restriction and an impoverishment of the universities' intellectual life. Comparing the evaluations of international donors for research and especially the recommendations they give to funders, the author finds again only limited opportunities for developing endogenous research questions and methods at the post-graduate and staff-level.

Negotiating Knowledge Content and Research

The second part of Adriansen et al. complements this micro-level perspective from Makerere University by analyzing the locality of knowledge and the encounters with Western institutions and researchers outside of academia. Coming from the field of environmental studies and climate change research, the authors of two chapters give thick descriptions of how knowledge is negotiated in village settings in Burkina Faso (Nielsen et al. 2016) and at the level of individual researcher careers (Adriansen et al. 2016). Jona Nielsen et al. add to the debate of a 'crisis of knowledge'

that occurs when experienced-based knowledge cannot account for changes in environments and can no longer provide solutions to the new challenges. Globalization and commodification are seen as causes for such crises, while the authors add climate change and internationalization through development aid projects to the list of factors. The case study of a village in Burkina Faso helps to find new descriptions of 'localized experience-based knowledge' as a process of constant appropriation and non-static adaptation to its environment and to new exogenous sources of knowledge. Western education, as personified by one inhabitant of the village, is described as a contribution to the local knowledge reservoir, in which it is embedded and utilized, to act on the changing environment and livelihoods (ibid.: 120).

Adriansen and her colleagues come to similar insights applying the method of an auto-biographic life-history approach. Following the career development of Cheikh Mbow the chapter describes the entanglement of Western-based training curricula with adapting knowledge from the Global South and with the cultural production of climate change researchers in Africa. The chapter is particularly interesting because of its reflexive and self-observing method in which the observed and interviewed researcher is himself involved. The authors focus on Mbow's career development to portray how higher education in African countries has changed over the last 25 years. Nevertheless, teaching content, applied concepts and inadequate research practices with local knowledge sources are still impeding the localization of climate-related science. Methodologically, it remains to account for these diverse local knowledges of climate and environment and to integrate them into a framework of scientific understanding in order to adapt scientific research and teaching at African universities to their environment. The tension between shared norms in a global academia and the need to adapt the process of science to local needs and conditions becomes clearly visible. While Mbow himself would not want to give up the scientific norms of achieving results and of validating them, he proposes changes through curricula reforms at primary and secondary school levels and through better tools for communicating between the different forms of knowledge (ibid.: 141).

Agency and Local Research Agendas

The capacity to determine one's own research agenda and choosing with whom to cooperate is a central topic in the debate of international research collaborations (Jentsch 2004; Bradley 2008). The aforementioned Whyte and Reynolds Whyte (2016) and Mamdani (2016) point to the centrality of postgraduate education for the research of one's knowledge systems. Both chapters are interested in how research questions become localized. Whyte and Reynolds Whyte describe the effect of the Danish funder changing its requirements to all Ugandan PhD-students to be registered and doing research in Uganda. The authors suggest that this shift in 2007 has led to more engagement with local communities and local challenges in the doctoral research projects (Whyte and Reynolds Whyte 2016: 52). Mamdani and his colleagues created a PhD-program in the social sciences that focuses on topics arising in Ugandan contexts and increases the capacities of students to apply rigorous methods to own research questions of local relevance. This kind of agenda setting in

doctoral studies indeed promises to lead to more agency for students and their social environments.

A study by Eren Zink (2016) suggests a similar effect when comparing three models of PhD training that are currently used by Ugandans to further academic careers. The models comprise full-time PhD programs either at home or abroad and a sandwich-model that has students study in Uganda and abroad. Zink's study adds to the continuous debate about the effects and policies of scientists' mobility between South and North (e.g., Gaillard et al. 2015). The author aims at identifying the models which "strengthen or curtail the agency of Ugandans who subsequently pursue scientific careers in Uganda" (Zink 2016: 57). Applying the actor-network theory and insights of STS-studies, the author observes the actants and the relationship between them. Such actants include scientific infrastructure, empirical material, supervisors and cultural engagements with the social environment of PhD-students. Zink compared three different PhD-models that are supported amongst others by the Swedish International Science Programme. He uses the models to discuss the "degrees to which each model facilitates Ugandan scientists' efforts to assemble and maintain actor-networks that align with their own goals, and with the continued decolonization of knowledge production in Uganda" (ibid.: 58–59). As a conclusion, the author estimates the degree of agency PhD-holders receive from the sandwich-model in comparison to the other two options. Sandwich-models allow the candidate to stay at home to build social capital among local collaborators in academia and communities and to maintain social bonds with families and friends that tend to become estranged in full-time programs abroad. At the same time, the model seems to be preferred because of the high quality of training and the international contacts that could not be provided during local full-time programs.

Estimating a "Web of Causal Links": Conclusions for Further Studies

I suggested the macro-, meso-, and micro-levels of analysis to capture the diverse topical and conceptual angles of the four books. The books under review also highlight a diversity of aspects concerning research, teaching, and policymaking in African states that are until today still under the influence of external actors who provide resources for research capacities. However, the applied model has its limits. Only few contributions of these books can help to operationalize and trace the link between macro-level phenomena such as discourses about competitive knowledge societies and neo-liberal ideologies, and of Western scientific norms and the micro-level research activities. Admittedly, the causal links between the macro- and meso-levels was not their focus in the first place. Some even stop short and don't ask for the effects and explanations for disengaged science policies within the EU-AU dialogue (Cherry et al.). This might be explained by the diverse communities these books are addressing, ranging from reform-oriented to radically analytical approaches. To some extent, the diverse methodological and theoretical choices can be read as complementary approaches which are necessary to capture the dynamics of science and its maintenance.

Nevertheless, the variety of contributions helps to discuss *plausible* links between the macro- and meso-level and to seize the necessary methods to adequately describe and explain the relations between African and European scientists and university administrations, and policymakers. What has become clear throughout the review is that the levels of analysis help to draw a more holistic picture of the scientific governance and research challenges in the described African and European countries and in their relations. This encompassing picture allows embedding a number of links that, although not deterministic, help to describe the effect of science governance on the content of research to a certain extent. Two observations can serve as examples of ‘web of links’: Funding and the negotiation of knowledge. Both deserve more attention in future research; both provide insights for policymakers as well.

Funding is perceived as a major challenge across many fields and is assumed to be the driving force of capacity and agenda-setting in North-South scientific relations (e.g., Gläser and Serrano Velarde 2018). This is neither a surprising nor a particularly African observation as public and private funding is considered the major vehicle of governing in all science systems. Nevertheless, the analyses presented in the books under review point to the asymmetries between European and African science systems as particular challenges: The policy-oriented texts of Cherry et al. clearly seek to improve the policy framework of bi-regional cooperation in the STI sector and propose, among other activities, better coordination, institutionalized learning effects, and realistic assessments of what can be achieved. However, the authors also call for more resource mobilization from all sides as a prerequisite for lasting collaborations. Meanwhile, Koch and Weingart remain highly skeptical of donor-driven interventions that entail expertise unfit for local circumstances and address administrations which don’t have enough capacities to assess and critically negotiate the aid-attached expertise. Consequently, Koch and Weingart propose to invest massively into local knowledge bases to eventually provide the needed expertise that integrates the diverse local knowledge sources. Both perspectives on funding conditions and effects are helpful to concentrate on how funding organizations through the development of their programs affect the environment of research in North-South research collaborations. However, the macro-perspective of seemingly contrary effects of competition and collaboration as motivation for supporting science needs greater attention. Current changes in funding modalities, shifts of agenda-setting capacities, and expanded management roles to Southern universities in some funding programs are opportunities for longitudinal and comparative studies across funding sources. Funding sources in this regard also include science granting councils in African countries whose resources are slowly increasing and who add to the complex network of organizations that influence scientific North-South relations (e.g., Mouton et al. 2014; Chataway et al. 2017).

Given the centrality of setting the research agenda right, as emphasized in many chapters of the books, a link between organizational contexts at the meso-level and research content on the micro-level can be established through the analysis of funding programs (e.g., Marjanovic et al. 2017; Harsh et al. 2018). Moreover, analyzing international funding programs in detail with help of discourse theory approaches would allow aggregating the organizational programmatic directions and choices of topics in health, agriculture and other subjects at the

meso-level as macro-level phenomena. Such analysis would include the interaction of scientific systems with their societal environments in Northern and Southern countries. The Sustainable Development Goals, Global Health, and “Global Challenges”-discourses already function as ambivalent frameworks that affect the internationalization and localization of research agendas. Once public or private funding organizations refer to these frameworks and translate them into scientific demands in their funding programs, a plausible link is established between the meso- and macro-level.

Negotiating research questions and methods is a second opportunity of exploring links between macro and micro levels of science governance and practice as social interaction. This path of exploration starts from anthropological studies as presented in this review by Adriansen et al. in their focus on the locality of knowledge. Many of their book’s chapters emphasize the tension between the recognition of scientific norms and the need to adapt them to local needs, for instance, when adapting to climate change in remote rural villages in Burkina Faso. However, while many agree that knowledge needs to be adapted to fit local circumstances and research interest, the repercussions for European participants in such research collaborations remains under-researched. The export of science from Europe to Africa seems to be taken as a default direction when aligning research in developing countries to a global discourse. The other direction is yet to be followed. Studies would have to trace the contestation of scientific knowledge, norms and practices in daily interaction with non-professionals and activists to the meso-level of organizations, networks and governance mechanisms. How are universities changing across the globe when research is radically localized or subjected to claims for decolonization as recently in South Africa? Are new modes of science governance following the call for more localized research content or are African institutions following science funding bodies’ blue-prints from elsewhere? More generally: How will North-South research cooperation be practiced and institutionalized at the meso- and micro-level given the parallel and partially conflicting trends of internationalization and localization of scientific knowledge? The book’s chapters of this review offer valuable starting points to further estimate a “web of causal links” and to draw from the expertise of the sociology of science, policy-studies, anthropology and neighboring fields.

Some science funding organizations and aid-donors have taken steps to account for the asymmetry under which European-African research cooperation takes place. Three short points can be summarized from the review in this regard: i) Foster adequate operationalization, implementation, and harmonization of existent standards such as the Research Fairness Initiative and similar guidelines. These frameworks promise to assure more procedural fairness and offer more opportunities to African and other researchers to participate in the agenda-setting. ii) Take a holistic approach towards science environments and strengthen overall research capacities in targeted countries, and at the same time harmonize policies with aid donors and research funding-organizations in multilateral activities. iii) Harmonize donor-policies with regard to the use of expertise, giving preference to local knowledge bases and experts from local universities through open agenda-setting processes and the formulation of research questions.

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Conflict of interest The author declares that he has no conflict of interest.

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