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Mapping the state of the field of social psychology in Africa and patterns of collaboration
between African and international social psychologists

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Abstract

Patterns of collaboration in social psychology from 2000 to 2010 were mapped to analyze the position of African authors in the international co-authorship network using bibliographic records from the Thomson Reuters Web of Knowledge. There are very few social psychologists working in Africa, with the majority of these located in South Africa. Indeed, some small European countries boast more social psychologists than the entire continent of Africa. African authors published less than their non-African collaborators, but had comparable status on joint publications. Co-authorship relationships between African researchers from different African countries were generally mediated by partners from other continents, and direct collaboration between non-compatriot African authors was very rare. The small size, and extremely sparse connection of the African co-authorship network, is likely to be an obstacle both in the development of social psychology as a universally relevant discipline and in the penetration of social psychological knowledge in Africa.

Keywords: bibliometric analysis, social psychology, African collaboration, African scholarship, indigenous knowledge production

Mapping the state of the field of social psychology in Africa and patterns of collaboration between African and international social psychologists

This paper identifies authors publishing in the field of social psychology from Africa and their position in the international social psychology collaboration network, particularly exploring patterns of collaboration (1) between African and non-African researchers; and (2) between African researchers across national borders (non-compatriot African collaboration). Social network analysis can map patterns of connections between individuals and thereby reveal flows of information, resources and power within social systems (Wetherell, Plakans & Wellman, 1994). In academic disciplines, co-authorship networks are the visible tip of the iceberg of collaborations between researchers and peers, students and supervisors, mentors and mentees. People who collaborate on publications must have been able to agree on paradigms, research questions, method, analysis and conclusions, at least temporarily.

Analyzing co-authorship networks extracted from bibliographic databases is a practical way to document research collaborations (Glänzel & Schubert, 2005; Lundberg, Tomson, Lundkvist, Skår & Brommels, 2006) and, therefore, to reveal patterns of agreement and flows of knowledge, skills and resources (Katz & Martin, 1997). These collaborative ties facilitate exchange and connection to resources (Scott, 2000), and mapping them reveals structures of knowledge and power that enable or constrain research (Newman, 2000). Those at the core of co-authorship networks have profound advantages, both in producing knowledge and having that knowledge recognized in the field (Newman, 2000; Schubert & Sooryamoorthy, 2010).

Why study African scholarship networks?

The position of Africa in global scholarship networks is important because, first, most research in the behavioral sciences—and psychology more specifically—has been undertaken in Western, Educated, Industrialized, Rich, and Democratic (WEIRD) societies (Henrich, Heine & Norenzayan, 2010; Arnett, 2008). However, Africa has a population similar to Europe and North America combined, with remarkable cultural and linguistic diversity. Africa is therefore an important context for research if we want to understand psychological phenomena in global terms. Second, Africa has many social challenges that may be amenable to the application of existing social psychological theory and practice. Social psychological research in Africa therefore has value for Africans in exploring the applicability of foreign theories to local conditions, and for non-Africans by extending the range of cultural ontologies informing psychological theory and producing some of the non-WEIRD research required to ultimately develop theories with universal relevance.

However, the patterns of collaboration are as important as the collaboration itself: if collaboration between African academics is exclusively mediated by non-African partners there is a risk that local knowledge production will be constrained by imported frameworks. To develop locally relevant theory it is important that there are cross-border links between African scholars in different African countries (Sall, 2010).

Aims

This study aims to identify authors publishing in social psychology from African institutions and to explore networks of co-authorship in the field of social psychology between 1) African and non-African authors and 2) non-compatriot African authors. It was expected that the politics of connection: a) would often result in exploitative relationships with ‘developing’ world

authors whereby authors from well-resourced countries either have higher author status on joint author publications (Leydesdorff & Wagner, 2008) or would be more likely to be listed as authors to whom correspondence should be addressed; and b) that connectivity between authors across Africa would be mediated by “hub” authors in developed countries (Boshoff, 2009).

Method

Data was extracted from the Thomson Reuters (formerly ISI) Web of Knowledge database (WoK) because of its broad scope and because it records multiple authors' affiliation addresses in most full bibliographic records. To extract a co-authorship network within computational limits the timeframe of 2000 to 2010 was arbitrarily selected. The scope of “social psychology” was defined in two stages. First, to identify the “core” of social psychology, all articles from all journals in the Journal Citation Reports (JCR) category PSYCHOLOGY–SOCIAL were retrieved (search 1). Second, since African authors may not be routinely publishing in these core journals, the search was extended as follows: the keywords were extracted from every paper retrieved in search 1 and ranked by popularity. The top 100 ranked keywords were assessed for relevance and those not directly and unambiguously relevant to social psychology were excluded (eg. “neuroscience”), resulting in a list of 66 core keywords unambiguously relevant to the discipline of social psychology. The entire ISI database was then searched for any articles including any of these 66 keywords (search 2). The final sample included any records appearing in either search 1 or search 2. This strategy attempted to balance the goals of identifying papers firmly within the core discipline of social psychology but also including authors from the fringes, but will have inevitably resulted in some false positives (inclusion of authors who would not consider themselves to be in the field of social psychology)

and false negatives (failure to identify authors who do consider themselves to be social psychologists).

Data processing

Data were extracted from the WoK on 21 June 2012, converted with the Sci² bibliometric analysis tool (Sci² Team, 2009), and processed with a custom VBA script to extract affiliation information for each author. This script identified each author's country and continent and tallied information such as mean authorship position and total number of publications. Data were then imported into Visone (Brandes & Wagner, 2004) for social network visualization and processing. Processed data were exported to SPSS for further analysis.

Caveats

First, the WoK database codes authors inconsistently with surname/firstname or surname/initials format, which results in authors with records in both formats being treated algorithmically as two separate author entities. To avoid this, all author names were converted to surname/initial format. Although this resulted in a small but unknown number of authors with the same surname/initial combinations being treated as single entities, it eliminated the very common problem of accidentally splitting individual authors into multiple entities. Second, authors' affiliation addresses were used to extract location. For authors with multiple affiliation addresses in the time-period selected, only the most recent affiliation address was retained.

Analysis and results

The sample ultimately included 52,441 authors connected by 176,270 co-authorship ties. Of these, 5,866 authors' affiliations could not be resolved from the available information. Of the remaining 45,575 authors, 40,055 were from either North America or Europe. There were only 466 African authors (.9%), from 29 different African countries. The highest proportion of these

were from South Africa ($N = 244$; 52.4%) followed by Nigeria ($N=47$; 10.1%), Kenya ($N = 37$; 7.9%), Uganda ($N = 16$; 3.4%) and Egypt ($N = 14$; 3%). There were more authors from small European countries like Norway ($N = 485$; population approximately 5 million) than the entire continent of Africa ($N = 466$; population approximately 1 billion).

Of these 466 African authors, 357 (76.6%) were not connected to authors from other African countries by any path (including extended paths via international collaborators). Of the 51,975 non-African authors represented in the search, 28,219 (54.3%) did not have connections to authors from African countries by any path. Hence, a greater proportion of non-African authors had extended network ties to African authors than African authors had to non-compatriot Africans. This trend is partially related to the lower mean number of papers published (and hence smaller social networks) for African authors ($M = 1.29$, $SD = .967$) compared to non-African authors ($M = 2.24$, $SD = 3.328$) during the timeframe. A Mann-Whitney comparison of total papers by origin was significant ($z = -9.063$, $p < .001$), with non-African authors writing significantly more papers during the period (mean rank = 20871.04) than African authors (mean rank = 26268.46).

Distance

After 5,717 authors with unresolvable country information were filtered out, the tie distance between each author and their nearest African neighbor was calculated. This distance represented the smallest number of ties that would need to be traversed through the network to reach the nearest African author (for non-Africans) or nearest non-compatriot African author (for Africans). The distance score for African authors therefore indicates connectivity between rather than within African countries.

The average mean distance from African authors differed significantly by region ($F(6, 20371) = 17.777, p < .001$), with Tukey’s post-hoc tests revealing significant differences between Africa and all regions except Asia and South America.

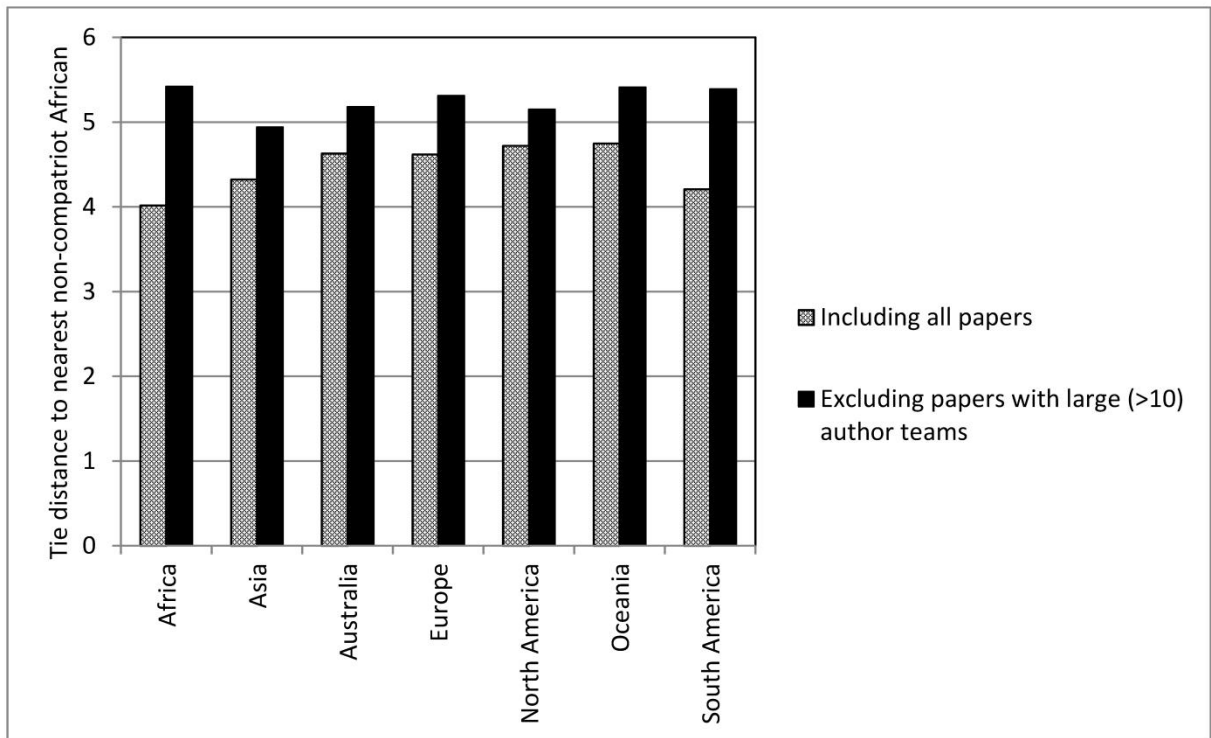


Figure 1: Tie-distances to nearest African neighbour by continent

The influence of large multi-author publications

The full sample included 96 publications that each had eleven authors or more. Three of the four papers with the highest author counts (131, 128 and 127 authors respectively) had the same first author (Schmitt, D of Bradley University, USA). Individual authors in such large

collaborative groups are unlikely to have much academic independence, but these papers contribute disproportionately to the density of network connections (since every author on a single paper is connected, regardless of contribution). Therefore the analysis was repeated excluding papers with more than 10 authors.

The modified sample of articles with ten authors or less included 51,643 authors with 132,191 co-publication ties between them (compared to 52,441 authors and 176,270 ties for the full sample). Note that the inclusion of multi-author papers increases the number of authors in the sample by only 798 authors (1.5%), but the number of ties by 44079 (33%), indicating the impact that large multi-author papers have on the connectivity of the co-authorship network.

Addresses for 5,299 authors could not be resolved. Of the remaining 47,112 authors, 452 were from African countries. Again, the highest representation was from South Africa (N= 244; 54%) followed by Nigeria (N= 46; 10.2%), Kenya (N = 36; 8%), Uganda (N = 16; 3.4%) and Egypt (N = 14; 3%). Of the 452 African authors, 358 (79.2%) were not connected to non-compatriot African authors by any path while 26,165 (50.7%) of the 51,643 non-African authors did not have connections to African authors by any path. This difference is larger than in the sample including multi-author papers, indicating that the multi-author publications exaggerate the inter-African connectivity in the network, given the low probability that these publications reflect ongoing mutual collaborations of equals. The balance of this analysis therefore focuses on the network excluding these large collaborations.

Distance excluding large multi-author papers

Distance was calculated as described above. Once again, an ANOVA revealed significant differences in distances to the nearest African neighbor by region ($F(6,19785) = 11.278$, $p < .001$). However, once large author groups are excluded, it is Africans who are most distant

from non-compatriot Africans (see figure 1). Tukey's *post-hoc* tests indicated that Asia has significantly closer tie-distance to African authors than any other region (including Africa); and Africans have similar distance to non-compatriot Africans as Australians, Europeans, North Americans and authors from Oceania.

Position of African authors in the central network

The social network that emerged was characterized by one giant component including 37,313 authors (in which 175 of the 452 African authors were located) and a large number of disconnected dyads and groups of ten authors or less (including 14,321 authors of whom 277 were African). In other words, 72.3% of the international authors were part of the core network compared to just 38.7% of the African authors.

Direct non-compatriot connectivity of African authors and relative status of African authors in co-authorship collaborations

When non-African authors were removed from the network (leaving only African authors), the unmediated connectivity of African authors across African countries was very low. Only six of the 119 co-authorship groups had non-compatriot African collaboration. There were 105 African authors who collaborated only with non-African authors who were therefore not directly tied into the African scholarship network at all.

In the network of direct collaborators non-Africans had substantially higher mean publication output ($M_{AFRICAN} = 1.279$, $SD = .973$; $M_{NON-AFRICAN} = 5.543$, $SD = 9.969$; $t = 9.036$, $df = 761$, $p < .001$), but there were no significant differences in the order of authorship or the likelihood of African or non-African authors being listed as the author for correspondence.

Limitations

The most serious limitation of this study is the sampling frame: the scope of publications in this analysis was limited to those indexed in the ISI database which has uneven coverage of African journals; for example the Journal of Psychology in Africa is included, but the Nigerian Journal of Clinical and Counselling Psychology is not. The scope of “social psychology” was also defined in a way prioritizing the perspectives of the “core” journals in the field, which inevitably will exclude African authors working in areas that do not fit neatly into this frame. Additionally, in the developing world context research is often funded by international organizations that are most often directed at applied problems (cf. Mouton, Boshoff, de Waal, Esau, Imbayarwo, Ritter, & van Niekerk, 2008). It is therefore likely that, in Africa compared to WEIRD nations, a greater proportion of collaboration and research output occurs outside the academic context represented by the peer-reviewed academic publications indexed by the ISI. This research activity is invisible to the present analysis due to the choice of the ISI index as the sole data source. Nevertheless, the present analysis demonstrates the rarity of African social psychologists publishing research in channels accessible to, and respected by, the international academic discipline of social psychology.

Discussion and conclusions

This analysis demonstrates, firstly, that the number of scholars working in the field of social psychology in Africa is very low – there are more publishing social psychologists in

Norway alone than in the entire continent of Africa. Of the small number of social psychologists publishing from Africa, more than half are in South Africa and half of the remainder in just four other countries. In the remaining approximately 50 African countries academic social psychologists are very sparsely scattered indeed.

Secondly, the connectivity between African social psychologists is poor. Three-quarters of African social psychologists are not connected to scholars in other African countries by co-authorship ties at all. If large multi-author papers are included then the remaining African scholars are an average of four ties away from their nearest neighbor from another African country. If the large multi-author papers are excluded then, on average, African scholars are more than 5 ties away from their nearest neighbors in other African countries. In other words, African scholars are as distant from Africans in other countries as Europeans and North Americans are distant to African scholars in general. Indeed, Asians are closer to African authors than African authors are. When non-Africans are removed from the network it becomes evident that the vast majority of cross-national African ties are indirect and mediated by non-African partners. There are exceptionally few cross-national African authorship networks that survive when international collaborators are removed.

These results demonstrate that Africans—and therefore African perspectives—are very poorly represented in the academic discipline of Social Psychology. The community of social psychologists in Africa is very small and very sparsely connected. This has implications for social psychology in Africa since there are less than 500 researchers responsible for representing the views of a billion people in the discipline of social psychology, ensuring that Africa will continue to be reliant on models developed elsewhere that may poorly reflect local culture and conditions. It also has theoretical implications for social psychology as a science, in that local

perspectives from WEIRD countries will continue to be considered universal despite the very limited extent to which they can be validated or applied in the African settings relevant to approximately one in 7 people in the world. Similarly small and sparsely connected networks are evident in other disciplines in Africa (Adams, King, & Hook, 2010), and it is likely that social psychology is similarly under-represented in other regions of the world as well. The low representation of Africans (and researchers from other non-WEIRD contexts) in the global social psychology research community is a serious impediment to the development of a universally representative social psychology (cf. Henrich, Heine & Norenzayan, 2010).

References

- Adams, J., King, C. & Hook, D. (2010). *Global Research Report: Africa*. Thompson Reuters.
- Arnett, J. J. (2008). The neglected 95%: Why American psychology needs to become less American. *American Psychologist*, 67(7), 602-614. doi: 10.1037/0003-066X.63.7.602
- Boshoff, N. (2009). South-South research collaboration of countries in the Southern African Development Community (SADC). *Scientometrics*, 84, 481-503. doi: 10.1007/s11192-009-0120-0
- Brandes, Ulrik. & Wagner, Dorothea. (2004). Visone - Analysis and visualization of social networks. In M. Jünger & P. Mutzel (Eds.). *Graph drawing software*, pp. 321-340. Springer: Verlag.
- Glänzel, W., & Schubert, A. (2005). Analysing scientific collaboration through coauthorship. In H. F. Moed., W. Glänzel., & U. Schmoch (Eds.), *Handbook of quantitative science and technology research* (pp. 257-276). Dordrecht: Kluwer Academic Publishers.
- Henrich, J., Heine, S. J. & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, 33(2-3), 61-83. doi: 10.1017/S0140525X0999152X.
- Katz, J. S., & Martin, B. R. (1997). What is research collaboration? *Research Policy*, 26, 1-18.
- Leydesdorff, L., & Wagner, C. S. (2008). International collaboration in science and the formation of a core group. *Journal of Informetrics*, 2(4), 317-325.
- Lundberg, J., Tomson, G., Lundkvist, I., Skår., & Brommels, M. (2006). Collaboration uncovered: Exploring the adequacy of measuring university-industry collaboration through co-authorship and funding. *Scientometrics*, 69(3), 575-589.
- Mouton, J., Boshoff, N., de Waal, L., Esau, S., Imbayarwo, B., Ritter, M., & van Niekerk, D. (2008). The state of public science in the SADC region. In P. Kotecha (Series Ed.),

SARUA Study Series 2008: Towards a common future: Higher education in the SADC region (pp.197-302).

Newman, M. E. J. (2000). *The structure of scientific collaboration networks*. Retrieved January 24, 2012, from <http://www.pnas.org/content/101/suppl.1/5200.full>

Sall, E. (2010). 1.2 The view from the regions: Council for the Development of Social Science Research in Africa (CODESRIA) *World Social Science Report: Knowledge Divides* (pp. 44-47): Paris: UNESCO.

Schubert, T., & Sooryamoorthy, R. (2010). Can the centre-periphery model explain patterns of international scientific collaboration among threshold and industrialised countries? The case of South Africa and Germany. *Scientometrics*, 83, 181-203. doi: 10.1007/s11192-009-0074-2

Science of Science (Sci2) Tool [Computer software]. Indiana: Indiana University and SciTech Strategies.

Scott, J. (2000). *Social network analysis: A handbook* (2nded.). London: Sage Publications.

Visone (Version 2.7) [Computer software]. Konstanz, Germany: Visone Team.

Wetherell, C., Plakans, A., & Wellman, B. (1994). Social networks, kinship, and community in Eastern Europe. *The Journal of Interdisciplinary History*, 24(4), 639-663.