

## **How open science can advance African psychology: Lessons from the inside**

Psychological science should be a truly global discipline and psychologists should be poised to understand human behavior in any kind of context, whether it is urban or rural, developed or underdeveloped, WEIRD (Western, Educated, Industrialized, Rich, and Democratic) or nonWEIRD. To arrive there, we need to ensure that 1) researchers from those different contexts are included, but we also need to ensure that 2) researchers from those contexts adhere to the highest-standards in scientific research. Do we, as African researchers, do enough for the credibility and acceptability of African psychology?

To answer this question, we will first analyze an article by the late [Ochinya Ojiji](#) - a well-known Nigerian scholar. We then argue how the adoption of open science initiatives can start to answer Ojiji's call for greater rigor amongst Nigerian and, more broadly, African researchers. Such greater rigor, in the end, can help ensure we will have an equal and quite relevant voice in psychological science. This voice by Nigerian and other African researchers is essential for the development of more mature psychological theories that are more generalizable across various contexts.

### **The state of Nigerian psychology according to Ochinya Ojiji**

In 2015, Ochinya Ojiji, a Nigerian social psychologist who worked for 28 years in Nigeria at the Universities of Jos and Uyo and at the Institute of Peace and Conflict Resolution in Abuja, reflected [on how psychology as a science had fared in Nigeria in the past five decades](#). In the very beginning, Nigerian researchers were taught by Western psychologists. Though only very few psychology departments had been established during this era, Nigerian psychology was taught as a proper scientific field (and recognised as such) with the necessary facilities to conduct rigorous scientific research (like labs to conduct experimental research). The considerable Western influence meant that early Nigerian psychologists maintained relatively high standards in conducting their research. In the two decades that followed, Western influence decreased. Ojiji remarked that the decline of Western influence meant a rise in various unwholesome practices and activities led by homegrown psychologists. These practices include the proliferation of substandard and profit-oriented local journals, little quality control of curricula at universities, and the under par teaching of senior academics via "shuttling" between neighboring universities, which ultimately affects the quality of training of these students.

Ojiji mostly presents these as observations and no data is reported on the frequency of the various occurrences. It is thus unknown to what extent these practices influenced Nigerian psychology. Despite these shortcomings, we feel comfortable in relying on Ojiji's

experience as a one time Editor-in-Chief for one of the most important journals in Nigeria, as an external examiner to a number of universities, and as someone who has taught in most parts of Nigeria to observe and characterize Nigerian psychology as a “folktale psychology”. To counter the issues he observed, Ojiji called for the NPA, the Nigerian regulating body for psychology (that is, unfortunately, not backed by formal legislation) to improve quality-control standards. Yet at present, from Ojiji’s writings it is unclear how we can implement his suggestions to improve the quality of Nigerian (and perhaps African) psychology.

It should be clear that the unguided practice of psychology as a science in Nigeria has put us off track and is thus hurting the quality of our science. To ensure we again improve the quality of our science and to develop a higher standard indigenous psychology, we can again look to our colleagues from North America and Europe and the recently emerging “open science” movement to help inspire some much needed reform in African psychological science.

### **Open science: an opportunity for African psychological science**

Although African countries and African research are quite heterogeneous in respect to their educational structure and local realities, institutions in individual African countries share some common challenges in African psychology such as lack of international recognition, lack of funding, limited resources and facilities, limited legislative backing and so forth. However, it is important to know that some of the problems Ojiji pointed to have one thing in common: there seems to be a lack of verifiability and responsibility within Nigerian psychological science. This was a problem in North American and European psychology as well and they are starting to fix that problem.

One of the central tenets in the open-science movement is to increase verifiability and responsibility. The UK Royal Society’s motto illustrates this well: nullius in verba (take no one’s word for it). The open-science movement is quickly growing in Europe and North America and this movement presents unprecedented opportunities for Nigerian and African researchers.

Specifically, researchers in the open-science movement make available research articles for free on preprint servers, they share their data and research scripts, while they also create helpful resources to learn how to improve one’s research. What is also interesting to help improve the quality of science is the emergence of Registered Reports, where researchers can submit the method of an article before data collection (and where the report is published without paying attention to significance levels).

We believe that adopting open-science practices can answer some of Ojiji's concerns and can vastly improve Nigerian, as well as African, psychological science. Participating in the open-science movement arguably presents the biggest potential to level the playing field between North American/European and African psychology. It also offers African researchers a global platform to practice credible science and to help shift the perception in at least some African countries that psychology is not a science. But what are some ways to start practicing open science?

### **How can African researchers engage in open science**

There are various initiatives that African researchers can turn to [that we have outlined before](#) and we will provide a (non-exhaustive) list here:

#### **Open access**

- **Preprint servers.** There are now various preprint servers available (like [AfricArXiv](#), [PsyArXiv](#)), which allow researchers across the world to freely access scientific research. In our lab, [the CORE Lab](#), we submit a preprint to such a server upon article submission (see our lab philosophy [here](#)). Preprint servers allow researchers to share their newest work, without a long turnaround from a journal.
- **Sci-Hub.** This website collects the login information from various universities to allow access to many articles that would otherwise be behind a paywall. Sci-Hub is not legal in most countries, so we would never dare to recommend its use, especially in African institutions that cannot always muster the high fees to pay for journal subscriptions.

#### **(Free) tools**

- **[The Open Science Framework \(OSF\)](#).** The OSF is free and allows researchers to share their data, materials, and analysis scripts. It also allows researchers to “pre-register” their hypotheses. It further allows for easy collaboration between collaborators across the world (researchers also make available templates for others to build on, like our lab does [here](#)).
- **[R](#) and [RStudio](#)** R is a programming language package used for statistical computation and analysis. It is useful for writing your analysis scripts. It has many advantages over a software like SPSS, as it is free and the way it works allows for much better verification. R studio is a supporting package that greatly facilitates the usage of R. Note that R is not easy, but there are some excellent resources now

online to learn it (like [this course](#) by Lisa DeBruine, which was translated in French and available [here](#)).

- [GitHub](#) is a free service that supports transparent and verifiable research practices. It allows you to publicly archive research materials, allows for much easier collaboration between researchers, and, importantly, permits good version control.
- [Code Ocean](#) is a research collaboration platform that supports research from the beginning to when these studies are published. Code Ocean provides you with the necessary technology and tools for cloud computing and built-in best practices for reproducible studies. For example, if you run analyses on a different platform or with a newer R package it is not impossible results vary. Codeocean allows you to directly reproduce the results as planned.

### **Global networks**

- [The Collaborative Replication and Education Project \(CREP\)](#) is a crowdsourced initiative that is focused on conducting replications by students. The CREP is a pretty unique learning opportunity for people interested in open science, as it has established templates and extensive quality control from researchers around the world. They would be very happy to support African researchers.
- [Psychological Science Accelerator \(PSA\)](#) is a network of over 500 labs from over 70 countries across 6 continents conducting research studies across the globe. With an emphasis on open science practices and different research roles such as test instruments translation, data collection et cetera, the PSA currently presents arguably the most accessible opportunity for African researchers to participate in international studies such as the ongoing COVID-19 rapid studies with some African collaborators ([we wrote about the PSA before](#)). Note that current participation from Africa is modest, so this is where there is a real opportunity for African researchers.
- [ReproducibiliTea](#). With over 90 institutions spread across 25 countries, this grassroots journal club initiative provides a unique and supportive community of members to help young researchers improve their skills and knowledge in reproducibility, open science, and research quality and practices. You can organise [your own version of it](#).

There are also tons of other initiatives that we have not mentioned yet, like the [Two Psychologists](#), [Four Beers podcasts](#), or the [Everything Hertz](#) podcast. There are thus tons of free opportunities to learn.

## How North American and European researchers can support African scientists

But without structural changes to the way science works, open science will not yet level the playing field as access for African scholars is still difficult. Some structural changes in the way that psychological science currently operates will also be necessary to support African researchers to become part of the process. We again provide a (non-exhaustive) list here:

- **Representation in formulating and implementing science policy.** At present, there is only one person in an initiative like the PSA on the African continent. For global network initiatives such as the PSA, the representation of African researchers must be engraved in their policies. African researchers should also become intimately involved in implementing these policies (and thus not only be involved in data collection for the PSA). This can start with African representation in the board and in various committees.
- **Waiving fees and making science policy.** Some organizations, such as the Psychological Science Accelerator, allow reduction or complete waivers of obligatory fees. Other organizations (like SIPS, SPSP, APS) should strongly consider offering free memberships to African researchers and make this explicit, as these fees may discourage African researchers that cannot afford these fees.
- **Recognizing the realities of third-world countries.** When doing crowdsourced research or writing research collaboration documents, one must also factor in the realities of third world countries. African researchers are systematically disadvantaged in these endeavors due to their lack of access to the same level of infrastructure. For example, many African researchers do not have sufficient internet to co-write a manuscript on a fast schedule. Collaborating on constructing materials can also be a challenge. Providing African researchers with a few hundred Euros per year to pay for things like reliable internet can considerably reduce this systematic disadvantage.
- **Training research collaborators.** Due to lower levels of science infrastructure, African researchers do not have the same training opportunities as researchers in other regions. This manifests itself in their lower levels of experience with initiatives such as open science. Providing access to training materials, preferably in indigenous African languages, can go a long way toward reducing or eliminating this training gap.

- **Dissemination of research.** AfricArxiv already exists. This is an excellent initiative and continued support for this preprint server would mean a lot for African scientists. In the same vein, paid journals in psychology should allocate a number of free open access articles for African researchers per year. .
- **Funding.** IRBs in Africa are often not cheap: they require a fee to go through, which is often prohibitive for conducting research. Providing research grants for Institutional review boards (IRB) fee, for data collection expenses, et cetera will go a long way in facilitating the research process and overall success.
- **Facilitate research visits to universities.** By inviting African researchers to your institute, they can benefit from the facilities at your university and they can become an equal partner in your research process.
- **Journal audits.** Journals should examine how many submissions they receive from Africa and how many articles are accepted, and, if the numbers are low, implement policy to counter that.

## Conclusion

African and Nigerian psychology should become a normal part of the research process, if we are to understand humans the world over. Researchers in psychological science have pointed to the need for generalizability and for that to happen, we need to be there. However, in order to get there, Nigerian and African psychologists need to raise their standards and North American and European researchers can support us in achieving our goals. Now is the time to become a vital part of psychological science, as open science presents us with unprecedented opportunities.

There are additional open science resources available that we have missed. Please add them in the comments or shoot me, Ade, an email ([adeyemiadetula1@gmail.com](mailto:adeyemiadetula1@gmail.com)). We will update this blog and credit you for your contributions. Additions will be especially helpful as we will translate this blog to various languages.

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