**Open Science Policy Brief for *Penilaian Angka Kredit*: Transparency and Credibility for World-Class Academics**

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**Background**

On the 24th of November, 2020, the Indonesian Open Science Team met the DIKTI Director-General, Prof. Nizam, to discuss policy recommendations to help realize world-class Indonesian higher education institutions and academics. Afterwards, he requested a policy brief, as inputs for the upcoming amendments to the *‘Penilaian Angka Kredit*’, a career evaluation and advancement system for Indonesian academics. If metrics and evaluation determines the type of academics, it begs the question, what type of academics do we want? Currently, the P.A.K focuses heavily on publications; however, to boost publication count academics use various methods, including but not limited to: being first author on research produced and written by students, selling out Indonesian natural resources to international researchers to be included in publications, self-plagiarism[[1]](#footnote-1) and self-citation, and neglecting national interests for their own. However, publications are not to be neglected, as they help us communicate our findings to the global audience. Therefore, we would like to make recommendations to a) produce academics that have impact to society and serve national interests, b) increase transparency to address poor practices in research and still gauge quality in a meaningful way. In other words, we would like to recommend changes so that we produce academics that have benefit to society, produce credible and useful research, rather than focusing solely on publications[[2]](#footnote-2).

**Recommendations**

1. **Transparency Practices**
   1. Background: Recent investigations have revealed questionable and unethical research and publication practices across Indonesian academia such as manipulating statistics or data to have an outcome or reusing the same data set against ethical standards. These practices can be used to accelerate career progression, but severely undermine the credibility and usefulness of one’s own work. In sum, it cannot help anyone. This means billions and billions of rupiah may go to waste funding untrustworthy research or to purchase non substantial services, where it could fund the tuition for thousands of students. One way to combat this is to have transparency practices, in which researchers engage in certain practices which make their work transparent e.g. showing the raw data, time-stamped decisions made along the way, and whether they make their code publicly available. Transparency allows others to gauge the credibility and trustworthiness of their work and combat against any factors which may undermine the conclusion of their data - it is the consensus of the international scientific community that quality cannot be ensured without transparency. Furthermore, as shown below, these practices can accelerate Indonesian science, and thus researchers who engage in these behaviours are contributing in a currently non documented way.

The recommendations below are adapted from the Transparency and Openness Promotion Guidelines by the Center of Open Science[[3]](#endnote-1), a metric formerly designed for journals, which we adapt for individual researchers. These recommendations include practices such as: preregistration (the act of registering methodological decisions as to not bias them for significance at a later time), open data (uploading raw data into a public repository where possible, so that reviewers and other scientists are able to check and reuse the data, thus also doubling as a valuable contribution to science), open materials (uploading the materials used in a study for checking), open code (uploading the analytical code used for the study) and open contributorship (making explicit what each person contributed to the project). By showing the work, we are able to check the credibility of the work produced as well as provide resources for future scientists to use - thus making a contribution to science that they should be acknowledged and rewarded for.

* 1. Recommendations: We recommend that academics (especially researchers) be evaluated on their transparency practices. Applicants will have to a) submit a brief on their transparency practices, and b) have data on each publication on which practices were engaged and what each author contributed. In the brief, academics will need to make a case for themselves, on what open practices they have engaged in, or why they have not. For example, a researcher may consistently show that throughout their publications, they have made all their raw data open or available. In another example, researchers may argue that due to the sensitive nature of the data (e.g. suicide related CCTV footage, identitity of respondents/patients, or the location of valuable earth resources in geoscience field), that it cannot be made open but is stored on a secure server or due to data release agreement, thus embargoed data and data anonymity is important for sensitive data. For the list of publications, each publication will have to be noted on whether each practice is done, was not done, or is not applicable e.g. reviews and meta analyses may not have materials like experimental sciences.

These practices will encourage researchers to engage in these practices, and therefore questionable and unethical practices will be more easily detected, while promoting and accelerating knowledge accumulation from Indonesia’s science.

1. **Article level assessment** 
   1. Background: Indonesian academics are rated depending on which journals they are able to publish in, with more prestigious journals carrying more weight. They have been long made to believe that more prestigious journals produce ‘better’ or more ‘useful’ science. However, recent work has shown that these journals may actually publish less credible work, and thus journals cannot be used as a substitute for evaluating the articles themselves. Therefore, metrics associated with journals is no guarantee for the quality of the work published.
   2. Recommendations: In the promotion process, we recommend that the individual suggests three works that they have published to be assessed to demonstrate their best work, rather than just the number of papers published and in which journals. Along these submissions is a short paragraph explaining the impact/contribution of the publication to science and society. The only way to assess the quality of one’s work is to assess the papers themselves, especially since it is very easy to game the system. Thus assessors need to read the actual papers, assess whether it is transparent (refer to point above), and draw conclusions on its relevance, methodological rigour, and contribution to the literature or societal good. Furthermore, where possible, these publications should be accompanied by a paragraph noting the contribution of each author (as noted in the recommendation above) so that the reviewer can gauge the individuals’ contribution to the project.[[4]](#footnote-3)

The question then emerges on how we can assess OA journal quality. In assessing the quality of open access (OA) journals, there is often the misconception that OA journals are easier to publish in, and thus less rigorous. However, as noted above, non-OA journals cannot sufficiently control for quality, and OA journals that practice Open Reviews (that is, an invitation for the community at large to review the document while the editor has last say) and publish the reviews are able to produce a higher quality manuscript than other systems. Therefore, to gauge the quality of an OA journal, several factors must be considered including the rigour of its review process, whether it contains respectable editors who are familiar with the field, as well as whether it has open reviews. Furthermore, in assessing transparency (a precursor to quality), the TOP factor that was previously mentioned which is a score calculated on the basis of various transparency practices can be used. An example of this is given below and information can be found at ‘https://www.cos.io/initiatives/top-guidelines’. This provides a score that can help evaluators assess data for all types of journals. We can use this platform and/or adapt it.



However, there is absolutely no substitute for reading and gauging the articles themselves. Furthermore, we urge Kemdikbud to work with Kemristek/BRIN to incorporate Open Peer Review into the National Journal Accreditation[[5]](#endnote-2).

To achieve this recommendation (and the first recommendation on transparency practices), we recommend Curate Science[[6]](#endnote-3), as an example of a suitable researcher assessment platform, or to adapt it into our system. On Curate Science, the assessment was done to an article based on its transparency and credibility, then aggregated to form a researcher profile dashboard, to display what open science practices have been engaged with, and other related information.

1. **Impact Statement**

As noted in the introduction, by weighing publications above all else, we encourage academics to pursue publications at the expense of benefit to society. There are numerous cases where publications cannot fully capture the impact of one’s work - acknowledged also by the tri Dharma - for example, projects of a national scale that may take an extensive period of time. Therefore, we encourage the inclusion of a single page ‘impact statement’, noting the impact of the academic’s work. This page includes documented projects, work, teaching, which benefits society, which may or may not stem from their research work.

1. **Additional Information**

In addition to the recommendations above, we would also like to strongly advocate for transparency and open scholarship training in higher education training. Not only does this serve to prepare our academics to engage in these practices for promotion and the world stage, but it equips academics to produce and teach better science overall. Currently there are resources available such as ‘idmenulis.ristekbrin.go.id’ but these resources focus on how to be published - we urge for more official resources to also focus on how to produce credible and transparent research.

**Conclusions**

Ultimately, these metrics are designed to shape the type of academics we desire in our country. The guidelines we have proposed hope to produce academics that in turn will produce credible and useful research that can be used to build the country, and the world through science. This philosophy is being adopted globally, as the lack of transparency increases an individual's ability to game the system, and thus produces research output that may seem good, but have absolutely no applicable value whatsoever. Thus, in order to properly gauge an academic, we must be transparent in their practices, conduct article-level assessment while considering OA journals, and last but not least, consider their impact beyond publications. We hope that the policy brief is able to encourage this.

For further reading on academic evaluation for impact rather than publication, we recommend reading the San Francisco Declaration of Research Assessment[[7]](#endnote-4) as well as the Leiden Manifesto for research metrics[[8]](#endnote-5).

References

1. Note that among discussed practices are self-plagiarism and whether preprints fall under this umbrella. We would like to strongly emphasise that publishing preprints do not fall under self-plagiarism as preprints have, do and will not ever be identified as a published journal publication. Therefore, any automated system should not identify preprints as journal publications. [↑](#footnote-ref-1)
2. We acknowledge that evaluating work is an evolving and difficult subject; however, much attention and progress has been made recently to properly evaluating the work produced by academics, such DORA and Leiden Manifesto. [↑](#footnote-ref-2)
3. https://www.cos.io/initiatives/top-guidelines [↑](#endnote-ref-1)
4. One issue often encountered is language, which often affects journal choice and publishing practices. To help foster scientific development, we would like to encourage the provision of language editing services for national academics as well as national journals to publish in both English and Bahasa Indonesia. [↑](#footnote-ref-3)
5. http://arjuna.ristekdikti.go.id/ [↑](#endnote-ref-2)
6. https://curatescience.org/app/home [↑](#endnote-ref-3)
7. https://sfdora.org/read/read-the-declaration-bahasa-indonesia/ [↑](#endnote-ref-4)
8. http://www.leidenmanifesto.org/ [↑](#endnote-ref-5)