

# Improving Research Quality for Indonesia's Higher Education Students

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**Abstract**

This research is a descriptive study that reveals an idea on how to improve the quality of research in Indonesia. The idea emerged based on several research phenomena that occurred in Indonesia, including the problem of Indonesia's ranking in the international world in terms of the number of studies, and the low number of citations carried out by international researchers on research produced by Indonesian researchers.

## Introduction

The Minister of Education and Culture (Cahyono, Handoko, & Budiharti, 2020) revealed that one of his visions in managing the education department is to improve the quality of research and innovation. (Dimiyati, Fauzy, & Putra), General Director of Research and Development of the Ministry of Research and Higher Education of Indonesia) revealed that although research in Indonesia has been increasing quantitatively, the quality is still low, this is indicated by the low citations produced by researchers in Indonesia. A high citation index represented the quality level of research.

The second point that can be expressed in this paper is related to the condition of research in Indonesia, including the ranking of research put forward by one of the world's research index bodies, namely (Devi, Abraham, Adiga, Ramnarayan, & Kamath, 2010) (<https://www.scimagojr.com/countryrank.php>). The website shows that in 2021 the number of scientific publications in 240 countries (accessed July 29, 2021), Indonesia is in 45th place with 212,806 publications, while other closest ASEAN countries, such as Thailand, Singapore, and Malaysia are in the order of 44th, 32nd., and 34th. Thailand with 223,696 publications, Malaysia with 368,061 scientific publications, and Singapore with 352,240 publications. This shows that of the five founding countries of ASEAN, Indonesia is in fourth place in terms of scientific publications.

Third, the SCImago website also shows that the most productive country in publishing scientific works, is the United States as the 1st place with the number of publications of 13,817,725 scientific papers, the 2nd place is China (China) with the number of publications 7,454,602, and ranked 3rd, namely the UK with the number of publications 4,039,729. The data shows that the number of studies is directly proportional to the progress of a country. The United States, China, and Britain are currently developed countries that socially influence the world's economic or political conditions, while developing countries, such as Indonesia, have far less research than this country. This shows that the more research in a country, the more developed the country will be, there is a positive correlation between the amount of research and the progress of a country. Fourth, (Herrera-Alsina et al., 2021) said that Indonesia's research productivity is still low. Until 2015, research productivity in Indonesia did not change much from the previous year, which was 0.02% even though the ideal condition for research in Indonesia was 15%.

Fifth, (Herrera-Alsina et al., 2021; Huddleston, Bond, Chenoweth, & Hull, 2020) said that assessed that currently the number of researchers in Indonesia is not inferior to other Southeast Asian countries such as Thailand, Indonesia's position is still more. "Our total number is not too small because according to data from the 2017-2045 National Research Master Plan (RIRN), our number of researchers is 1,071 people/million population. It's still better than Thailand, although it's still below Malaysia." However, what Indonesian researchers need to improve is in terms of quality.

Sixth, (Laksana, Handoko, & Uno, 2019; Nwangwa, Yonlonfoun, & Omotere, 2014), Dean of the Faculty of Mathematics and Natural Sciences (FMIPA) IPB University, revealed that one of the problems related to research faced by Indonesia is that the number of students and lecturers is not proportional to the number of publications produced. Until 2019, from 4,607 universities and 177,000 lecturers and researchers registered in the Science and Technology Index (Sinta), Indonesia only produced 34,007 journals indexed by Scopus.

"Currently, the number of researchers in Indonesia is increasing every year. However, more researchers are still needed. In addition, the Ministry of (Feldon et al., 2011) states that the allocation of research funds is still below one percent of Indonesia's Gross Domestic Product (GDP)," he explained. In IPB University website. Based on the six phenomenon above, it can be seen that improving the quality of research in Indonesia is very important, especially for academics, because generally researchers in Indonesia are academics (Dimiyati et al.). and this can be started from students, when students are able to produce good research, it will automatically trigger an increase in research in Indonesia both in quantity and quality.

Therefore, revealing how to improve the research process is very important, especially for the academic community in Indonesia, which generally has not produced quality research, although most are undergraduates and masters (Feldon et al., 2011). The number of opportunities for researchers in Indonesia needs to be a good understanding for prospective researchers, especially students. Higher education is one of the centers of intellectual development. This is supported by the Tridharma of Higher Education, namely education, research, and community service. For students, research is part of the course, which is their task to make a Final Project in the form of a thesis, thesis, or dissertation. As for Lecturers, research is part of the task which in

Indonesia is known as the Tri Dharma of Higher Education. (Huddleston et al., 2020; Laksana et al., 2019)

## The Importance of Research

A country is in dire need of research, some developed countries show more research than underdeveloped countries or developing countries. In addition, the quality of research in developed countries is already very good compared to the quality of research in developing countries or underdeveloped countries. The invention of the light bulb by Thomas Alpha Edison, the invention of the lightning rod by Benjamin Franklin, the invention and development of radio or television communication devices, and the discovery and development of atomic power or nuclear power by Albert Einstein in the United States provide evidence that the development of science will affect the development of civilized society. concerned. When the Chinese first invented gunpowder and paper, this country became the most advanced civilized country in the world. In the present century, the United States and other developed countries, such as Japan and Britain provide clear evidence that the civilizations of these countries are developing and progressing because of the research carried out by many of their citizens. These discoveries, of course, did not happen by chance, but through a process known as research activity.

### How to improve research quality

(Feldon et al., 2011) revealed that students who take research methods subject and conduct research selfly have a greater increase in their ability to generate hypotheses and made a good experimental design. The results of this study indicate that focused learning and hands-on experience make a major contribution to improving research skills.

(Nwangwa et al., 2014) recommended four points to improve students research skills, these are:

- (1) A quantitative study is needed, especially to explore newer ways of using social media, especially related to student skills in finding sources of research data.
- (2) A more in-depth study of social media is needed as a tool in research, especially in exploring new ideas
- (3) Research that emphasizes a deeper understanding of Social Networking Sites, Blogging and Microblogging Tools, to help students improve their creative writing skills.
- (4) Universities must be able to develop themselves to improve interactive learning tools and links to research databases, both nationally and internationally.

The study of (Devi et al., 2010) shows that students' research skills will improve if they participate in a mentored project program. This shows that the absorption of skill by a student will occur when they are directly involved in a real job, or it can also be said that the student's research skill will increase when they participate in or conduct research.

(Stokking, Schaaf, Jaspers, & Erkens, 2004) examines the teacher's assessment of students' research skills and the quality of student research in high schools in the social and natural sciences. Their research results show that Teachers feel it is very important to give systematic attention to research skills in each field of knowledge. These educators see that teaching should focus on several goals, including developing knowledge about the subject matter, stimulating independent learning, and providing research experiences. Educators understand that what is important in research skills, are sequential steps, especially the formulation of research questions and drawing conclusions.

(Cahyono et al., 2020; Herrera-Alsina et al., 2021; Huddleston et al., 2020; Laksana et al., 2019) when examining 9 core skills for good research, found that lecturers often use different research terms, even though the concepts and abilities taught to students are the same. This makes it difficult for students to understand a research process. In providing services to faculty, teachers should understand the different terms that are often used to explain the same concept.

Another finding of this study is the need for motivation to improve students' skills in research, especially the motivation to improve the function of the librarian. teachers and students should have direct contact channels with librarians. this makes it easier for students to improve their skills in terms of searching and finding data.

## Conclusions

Based on some of the articles above, it can be concluded several things related to improving the quality of research in Indonesia, such as:

1. One of the visions of the current minister of education is to improve the quality of research and innovation
2. Research in Indonesia in terms of quantity has been able to compete or at least match researchers in ASEAN countries, although in terms of quality (citations) they are still inferior.
3. There is a close relationship between the amount of research and the progress of a country.
4. Several authors describe the results of their research regarding the need for improvement and ways to improve the quality of research in a country
5. Students as prospective researchers can be used as a starting point to improve the quality of education in Indonesia

## Recommendation

Based on the writings above, several ways can be done to improve the quality of research in Indonesia, namely as follows:

1. Increasing the research experience for students, the more often they do research, the more proficient they will be in making hypotheses and designing research (A'zam, Dila, Arifi, & Husna, 2021; Feldon et al., 2011) so that courses or research practices in each course are indispensable.
2. (Nwangwa et al., 2014) suggest several things to improve the quality of student research, including: more comprehensive quantitative studies, meaning that they provide more quantitative tasks, especially in terms of finding data sources (research materials sourcing)
3. universities must be able to develop interactive and integrated learning tools, especially a link to a database that can be used by students to search for relevant data and information on social media.
4. Facilitate students to increase their motivation to work with librarians.
5. Terms are the same for faculty members, because often one lecturer with another lecturer has a different term for the same subject or thing.
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