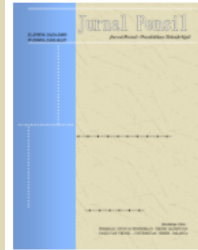


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## PLANNING FOR INCREASING LECTURER RESEARCH PRODUCTIVITY (CASE STUDY: BUILDING ENGINEERING EDUCATION STUDY PROGRAM, UNIVERSITAS NEGERI JAKARTA)

*Yusrina Luthfiana<sup>1\*</sup>, Qomariyatus Sholihah<sup>2</sup>, Moh. Said<sup>3</sup>*

<sup>1</sup> Program Studi Manajemen Pendidikan Tinggi, Fakultas Ilmu Administrasi, Universitas Brawijaya

Jalan Veteran, Lowokwaru, Kota Malang, Jawa Timur, 65145, Indonesia

<sup>2</sup> Program Studi Teknik Industri, Fakultas Teknik, Universitas Brawijaya

Jalan Veteran, Lowokwaru, Kota Malang, Jawa Timur, 65145, Indonesia

<sup>3</sup> Program Studi Administrasi Publik, Fakultas Ilmu Administrasi, Universitas Brawijaya

Jalan Veteran, Lowokwaru, Kota Malang, Jawa Timur, 65145, Indonesia

\*<sup>1</sup>[yusrina@student.ub.ac.id](mailto:yusrina@student.ub.ac.id), <sup>2</sup>[qomariyatus@ub.ac.id](mailto:qomariyatus@ub.ac.id), <sup>3</sup>[mohsaid\\_fia@ub.ac.id](mailto:mohsaid_fia@ub.ac.id)

### Abstract

The World Class University trend in higher education has an impact on the need for planning in the research aspect because the quantity and quality of research are very influential in global university rankings. This research explores planning strategies as well as challenges and obstacles in efforts to increase the research productivity of lecturers in the Building Engineering Education Study Program, Universitas Negeri Jakarta based on the perspective of the study program coordinator. This research uses a qualitative descriptive approach using data collection techniques in the form of documentation complete with interviews with the study program coordinator. The research productivity increases in some years, such 2021 and 2023, but there are inconsistent research trends from 2017 to 2024. Some of the plans carried out by the study program to increase lecturer research productivity include the 1 lecturer 1 publication per year program, expanding cooperation and collaboration with national and international universities in research and scientific publications, holding international scientific article publication workshops, initiating collaboration with industry in the field of research and forming a research team of lecturers. The obstacles and challenges faced by the study program include lecturer workload, resources, funding, and research administration burden

**Keywords:** Planning, Research Productivity, Scientific Publication, WCU

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## **Introduction**

In recent years, the development of world-class universities has become prominent in strategic planning in various countries (Tayeb, 2016), including Indonesia. World Class University (WCU) is a Higher Education Institution (HEI) that has superior quality in terms of management, academic freedom, complete facilities, publications, and internationalization (Yeravdekar & Tiwari, 2014). These aspects are the development of four important components in WCU, namely research, teaching, employability, and internationalization. The plan to make HEIs in Indonesia one of the WCUs is contained in the Strategic Plan of the Directorate of Higher Education for 2020 – 2024, namely in Program Performance Indicators (IKP) 5.1.2 regarding the number of HEIs included in the Top 500 WCUs and IKP 5.1.3 regarding the number of HEIs included in the Top 500 WCU by subject (Direktorat Jenderal Pendidikan Tinggi, 2020). This plan is one of the Directorate of Higher Education's efforts to demonstrate the quality and existence of Indonesian higher education globally. Therefore, HEI strategies must be designed, formulated, compiled, and managed following the HEI's vision, mission, goals and objectives, internal and external environmental analysis, needs assessment, and priority scale (Rochmawati, 2023).

Research productivity has become a major focus of countries around the world due to several factors, such as international benchmarking systems, rankings, performance-based budgeting schemes, and pressures of academic capitalism (Karadag & Ciftci, 2023). The quantity and quality of research are very influential in global university rankings such as the QS World University Ranking (QS WUR), with one of the assessment components being citations per faculty. Therefore, one of the efforts made by HEIs in Indonesia is to increase research productivity through the publication of scientific articles in Scopus-indexed journals. This effort was made to increase the citation value per faculty at QS WUR because HEIs in Indonesia still get very low scores.

The concept of research productivity is a measure of the efficiency of research which is defined as the number of publications per researcher (Abramo & D'Angelo, 2014). Research productivity can also be defined as the number of articles, citations, and h-index collected in databases such as Web of Science (WoS) and Scopus (Salager-Meyer, 2014; Zheng & Guo, 2019). According to the Minister of Education, Culture, Research and Technology Regulation Number 53 of 2023 Concerning Quality Assurance in Higher Education (2023), HEI carries out research carried out by lecturers, students, and researchers to educate students to become intellectuals, build a research culture, and develop science and technology. Therefore, it is important for a lecturer to conduct research according to their field of study, so that they can increase research productivity which will help in global university rankings.

Research productivity for lecturers is an indicator of lecturer success which will influence promotion, rank, honorarium, and lecturer allowances (Mantikayan & Abdulgani, 2018). Research productivity also contributes significantly to improving the quality of teaching, status, and image of higher education globally (Tuan et al., 2022). However, increasing research productivity is more directed at the research profile and professional identity of lecturers than at teaching, so it can have a less significant impact on the quality of teaching itself (Ramirez-Montoya et al., 2023). Therefore, lecturer research must be in line with the field of study and also the subjects taught so that it is more relevant and can improve the quality of teaching in the classroom.

Research productivity also has a significant impact on HEI in various ways, namely improving the ranking and image of the institution, attracting funding from stakeholders, and acting as a major contributor to producing knowledge globally (Jalal, 2020). Research productivity will determine the allocation of higher education funding because it is directly related to research performance indicators (Civera et al., 2020; Ryazanova & Jaskiene, 2022). This is in line with the Key Performance Indicators (IKU) Higher Education regarding the number of lecturer outputs that have successfully received international recognition or been implemented by society/industry/government per number of lecturers (Decree of the Minister of Education, Culture, Research and Technology of the Republic of Indonesia Number 210/M/2023

Concerning Key Performance Indicators of Higher Education and Higher Education Service Institutions in the Ministry of Education, Culture, 2023). So, lecturers and HEI must work together to increase research productivity because it has a direct impact on the image and achievements of HEIs.

Universitas Negeri Jakarta (UNJ) is one of the Educational Personnel Education Institutions (LPTK) in Indonesia. UNJ has a vision of "Becoming a reputable university in the Asian region" and a mission of "Organizing the Tri Dharma of higher education which is superior and useful for human benefit". UNJ's ranking position in QS WRU does not yet exist, but UNJ has made efforts to be included in the ranking in QS WRU. In the Long-Term Development Plan (or RPJP) for 2020 – 2024, there is a policy direction and development focus towards internationalization, with five research development focuses, namely (1) excellence in research direction and output; (2) quantity and quality of research collaboration; (3) national and international recognition; (4) the relevance and impact of research and community service; and (5) innovation capacity (Universitas Negeri Jakarta, 2020a). Apart from that, the number of Scopus-indexed articles at UNJ is still quite low compared to other LPTKs, so there is a need to increase research productivity by lecturers who are supported by the study program.

The Building Engineering Education (BEE) Study Program is one of the study programs at UNJ that combines educational science and civil engineering. The BEE Study Program has a vision of becoming an institution that produces BEE graduates who are reputable, professional, superior, devout, nationalistic, have a global outlook, and have an entrepreneurial spirit who are in synergy with non-BEE fields. Based on this vision, the BEE study program has 4 missions, namely (1) Organizing BEE to produce graduates who are professional, superior, devout, have a national spirit, have a global perspective and have an entrepreneurial spirit; (2) Carrying out basic and applied research in the field of BEE to develop science and technology; (3) Organizing community service activities in the field of educational technology to empower and increase the active role of the community; and (4) Fostering and developing mutually beneficial cooperation and collaboration between educational institutions and industry at the national level.

Based on data in the Ministry of Education and Culture's SINTA database, the productivity of the UNJ's BEE Study Program can be compared with the BEE Study program of other LPTKs. When compared with other LPTKs, UNJ is ranked 6th out of 16 LPTKs, with an overall SINTA score of 3.554, while Universitas Negeri Malang (UM), is ranked first, with a score of 7.297 (Kementerian Pendidikan dan Kebudayaan, 2024). By comparing publication data, especially on Scopus, UM from 2017-2023 has published at least 9 articles on Scopus and a maximum of 21 articles. Meanwhile, UNJ publishes at least 1 article and a maximum of 7 articles on Scopus. The research productivity of UNJ lecturers in Scopus is still very low compared to UM lecturers. So there needs to be action taken to support and increase the research productivity of BEE lecturers.

This research aims to explore planning strategies to increase the research productivity of lecturers in the Building Engineering Education Study Program, Universitas Negeri Jakarta. This research will also identify challenges and obstacles related to lecturer research productivity based on the perspective of the study program coordinator. It is hoped that this research can help study programs in planning programs or activities related to lecturer research so that they can increase research productivity which will also have an impact on the image of higher education on a global scale.

## **Research Methodology**

This research will use a quantitative descriptive (Aziza, 2023) approach by conducting a survey. Research with survey method (Wardhana, 2022) This study was conducted to investigate what factors cause change orders (CCO) and how these factors affect project performance in terms of construction cost and time on pavement projects. At the research stage of the field study, data collection is carried out directly to the object of research (Ahmad & Laha, 2020). The survey

results will be disseminated by distributing questionnaires to relevant parties through the questions in the questionnaire, namely service providers (contractors), service users/owners, planning consultants and supervision consultants for sidewalk project work in the Jakarta area. The questions have been verified by experts (Puspitasari & Febrinita, 2021) who understand the essence of CCO (Contract Change Order) for sidewalk works in DKI Jakarta Province.

The research place is the Sidewalk Development Activity in DKI Jakarta Province in the 2023 Budget year organized by the DKI Jakarta Provincial Government. The following Figure 1 is the research stages.

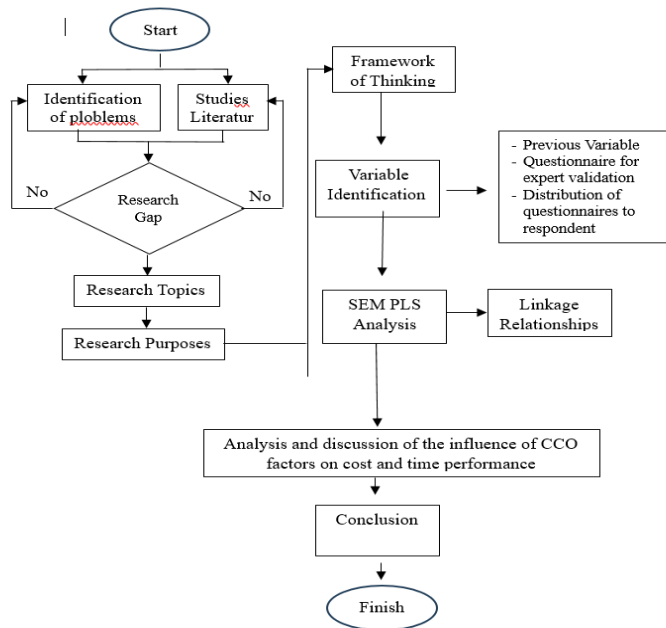


Figure 1. Research flow chart

There are three variables resulting in Contract Change Order (CCO) that affect the performance of pavement construction projects (Rahadi & Farid, 2021) namely : a) The dependent variable is cost and time performance, b) Independent variables include ; Scope of Work, Planning, Changes in specifications, Policy changes, and Coordination with related parties, and c) The Intervention variable in this study is cost performance (Hamid & Anwar, 2019). The research model can be seen in Figure 2.

Data analysis in this study used Partial Least Square (PLS) where this type of analysis is an alternative method based on the Structural Equation Modeling (SEM PLS) method type (Rahadi, 2023). Primary data processing is measured using Smart PLS software. In the data analysis process, this stage has several stages of data analysis (Rahadi, 2023) The following are the stages in the Data Instrument Test process : 1) Outer Model Analysis (Measurement Model) ; Outer model analysis can be seen from several types of indicators as follows : a) Convergent validity, the value in this measurement is more than 0.70, b) Discriminant validity, done by comparing the value of the intended construction must be greater than the value of other constructions, c) Composite reliability, has a composite reliability value of more than 0.70, d) Average Variance Extracted (AVE) The resulting AVE is at least 0.50, e) Cronbach's Alfa, the resulting value for all constructs must be greater than 0.60. 2) Inner Model Analysis (Structural Model) Inner Model (Structural Model) which describes the link between latent variabels and is based on substantive theory , this analysis involves multiple computations ; a) Coefficient of determination (R<sup>2</sup>), the value of R square is 0.67, it is declared strong, the value of 0.33 is declared moderate and the value of 0.19 is declared weak, b) Effect size (F<sup>2</sup>) obtained a value of 0.02, the effect of exogenous latent variables is said to be weak, with a value of 0.15, the effect of exogenous latent variables is declared

moderate, and the effect of exogenous latent variables is declared strong, with a value of 0.35, c) Goodness of Fit Index (GoF), to get a suitable model, the indicator must meet a value, namely SRMS < 0.08; NFI > 0.90 ; RMS\_theta is close to zero, 3) Hypothesis testing , The relationship between variables is significant if the T\_Statistic p\_value is less than the 5% significance level (Rahmad Salling Hamid, S.E, 2019).

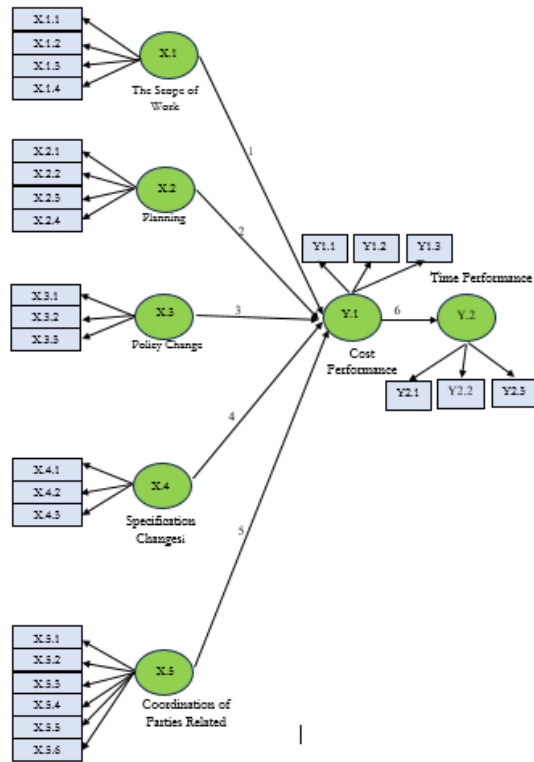


Figure 2. Research model

## Research Results and Discussion

### Research Productivity Planning

Through documentation analysis and interviews, this research identifies the main problems and strategies implemented to increase research productivity. Based on the Long-Term Development Plan 2020 – 2045, it can be identified that international scientific publications are one of the weaknesses, and lecturer productivity is a threat to higher education (Universitas Negeri Jakarta, 2020a). One of the efforts made to overcome this deficiency, UNJ initiated collaborative scientific publications in international journals indexed by Scopus with master's and doctoral students. This is also done because indexed scientific publications carried out by lecturers are still limited to international proceedings.

In the Faculty of Engineering's Strategic Plan for 2020 – 2024, the faculty assesses that the research productivity of lecturers in the Faculty of Engineering is still low (Universitas Negeri Jakarta, 2020b). This is caused by limited faculty budget resources, the number of faculty research proposals funded by DIPA UNJ is still small, and lecturer competence in writing scientific publication articles is still low. Apart from that, English or other foreign language skills are still low so the number of international publications is still low. To overcome this problem, the faculty created eight policies for research programs at Faculty of Engineering , namely (1) faculty research funding policy to provide research funds for all lecturers through the Faculty's UNJ DIPA funds; (2) determining the superior research of the engineering faculty based on the research roadmap

which is analyzed based on the mapping of lecturers' research themes over the last three years; (3) research management by the Faculty of Engineering Quality Assurance Group (GPJM) for proposal selection, monitoring and evaluation, research reporting and research output; (4) research quality assurance based on performance indicators of success; (5) strengthening research and scientific publications by building a research culture within the faculty; (6) coaching student research based on the faculty research roadmap; (7) implementation of research outputs through community service activities; and (8) research collaboration with industry, government and other educational institutions.

In the Final Report of the 2019 – 2023 Building Engineering Education Study Program, the study program's planning strategy is carried out based on studies carried out every year and refers to the UNJ Long-Term Development Plan and Faculty of Engineering Strategic Plan (Universitas Negeri Jakarta, 2023). There are three main strategies carried out by the study program to increase lecturer research productivity, namely creating a research culture, holding scientific article writing workshops, and holding research collaborations and publications with other HEIs. In creating a research culture, the study program makes efforts to motivate lecturers to conduct research at university, national, and international levels by the research roadmap. To encourage international publications as a research output, the study program creates article-writing workshops in collaboration with the faculty. To expand the research network, the study program collaborates with several universities in research and article publication.

Based on the results of interviews, there are five main strategies implemented by the study program to increase research productivity in 2024, namely (1) 1 lecturer 1 publication program per year; (2) expanding cooperation and collaboration with national and international HEIs in research and scientific publications; (3) holding a workshop on the publication of international scientific articles; (4) initiating collaboration with industry in the field of research; and (5) forming a lecturer research team. It is hoped that this strategy will not only increase the research productivity of lecturers but also achieve the Key Performance Indicators (IKU) target and fulfill the Lecturer Workload (BKD) requirements for lecturers in the study program. To ensure this strategy is running, the study program carries out monthly monitoring and evaluation at the end of the year, to ensure an increase in lecturers' research productivity, especially in international publications.

### Trends in Lecturer Research Productivity

To support the achievement of universities becoming WCU and also achieving IKU, it is necessary to increase research productivity in study programs by lecturers. Research by Heaton-Shrestha et al. (2023) collected various objective indicators to assess research productivity, namely funding, scientific publications, scientific presentations, and research recognition. This criterion is in line with IKU 5 which is calculated based on the number of lecturer outputs, such as scientific papers, applied works, and works of art, which receive international recognition or are applied by society, industry, or government. In this research, data on lecturers' research productivity in the form of scientific work publications was taken through Google Scholar. Table 1 is research productivity data for lecturers in the Building Engineering Education Study Program for 2017 – 2024.

Table 1. Lecturer research publication data 2017 – 2024 (as of March 2024)

Year	Type of Publication						Total
	National Journal	SINTA Accredited Journal	Scopus/WoS Indexed Journal	National Proceeding	International Proceeding	Scopus/WoS Indexed Proceeding	
2024	9	2	1	0	4	0	16
2023	20	14	4	33	3	4	78

Year	Type of Publication						Total
	National Journal	SINTA Accredited Journal	Scopus/WoS Indexed Journal	National Proceeding	International Proceeding	Scopus/WoS Indexed Proceeding	
2022	7	22	1	1	1	3	35
2021	23	6	0	0	2	16	47
2020	18	9	0	2	4	2	35
2019	17	8	0	2	8	5	40
2018	21	5	0	1	0	3	30
2017	12	3	0	0	2	1	18

Analysis of lecturer research productivity data in 2017 – 2024 shows fluctuating research trends even though there is an increase in productivity in certain years, such as 2021 and 2023. With a significant increase in the number of articles published by lecturers, overall lecturer research productivity does not show a trend of consistent improvement. This shows that although there are strategies in planning to increase research productivity, challenges, and obstacles may have an impact on research outcomes in subsequent years.

### Challenges and Obstacles Faced by Study Program

Based on the interviews, the problems that cause low research productivity of lecturers in the study program are related to lecturer workload, resources, funding, and research administration burden. One of the reasons for the low research productivity of lecturers in the study program is that the number of lecturers who are productive for research is only 2 out of 11 people because the other lecturers are about to retire, are currently studying further, or have positions at faculty or university level. This has an impact on lecturers' workload which is quite high and uneven for each lecturer, so lecturers do not have enough time to conduct research. To overcome this problem, the study program seeks to increase the number of lecturers by 2 to 3 people per year. The hope is that with the addition of these lecturers, more lecturers will be productive and can collaborate with other lecturers in research so that research productivity can be increased. Apart from that, the study program forms a research team so that productive lecturers can help less productive lecturers so that research productivity in the study program continues.

Another obstacle faced is the limited resources and funding of the study program. Laboratory conditions in the study program are currently still minimal and the costs of independent laboratories tend to be expensive, while the research funds provided are limited. Apart from research funds from faculties or universities, lecturers can get research funds through research grants organized by the government through the ministry. However, the complexity of the administration and reporting process in research grants often means that lecturers are not interested in participating even though the funds offered are more than faculty or university research funds. In addition, the research period provided in the grant is limited, while the output obligations and reporting burden that must be carried out are quite time-consuming. For this reason, the study program seeks collaboration with industry and other universities in the field of research. This research collaboration tends to be easier for lecturers because the administrative demands are placed more on the study program than on the lecturer. Apart from that, the study program is always consistent in proposing laboratory updates to support research by lecturers and students in the study program.

The increasing level of fraud, publication costs, and the length of time for articles to be published in international journals indexed by Scopus, are also some of the causes of low lecturer research productivity. Articles published in international journals indexed by Scopus will help HEIs to become WCUs. This has an impact on the preferences of lecturers who prefer to publish journals on a national scale that are SINTA accredited rather than on an international scale. To get

around this, the study program advises lecturers to publish through international proceedings because it is cheaper and saves research time.

## **Discussion**

Research is one of the priorities for HEIs where research will have an impact and contribute to improving the overall quality of learning (Artés et al., 2017). Research is also an ongoing process in higher education that involves new knowledge, connecting various disciplines, and developing new technology (Aithal & Kumar, 2017). In carrying out this sustainability, lecturers and students need to be actively involved in research which also aims to increase the output of the research itself.

Scientific publications are a measure of the productivity of lecturers and HEIs. Lecturer research productivity has an important role in accreditation, ranking, and efforts by HEIs to become WCU. Many factors influence lecturers' research productivity, such as workload, availability of research funds, HEI support, research development programs, job promotion criteria, and institution policies regarding research incentives (Quimbo & Sulabo, 2014). These factors are in line with Henry et al. (2020) which describe the various obstacles that arise in implementing a research culture faced by lecturers to increase research productivity, such as high workloads, differences in lecturers' perceptions of research, and lack of management. Other factors such as self-efficacy, motivation, research skills, resources, rewards, culture, and leadership can also influence lecturers' research productivity (Mantikayan & Abdulgani, 2018). These factors also appear in the obstacles and challenges faced by the Building Engineering Education Study Program in that lecturers' research productivity is not yet optimal, namely lecturers' workload, resources, funding, and research administration burdens.

Lecturers are currently not only burdened by Tri Dharma but also administrative burdens which are not their job due to the lack of administrative staff in HEIs. The additional administrative workload can cause excessive workload on lecturers. Too much workload can cause several problems such as stress, fatigue, and decreased job satisfaction which will affect research productivity (Janib et al., 2021; Nugraha et al., 2018; Taggart, 2021). Too much workload causes lecturers to have less time to carry out research activities while carrying out research sometimes takes a long time. Apart from that, demands for reports and research outputs that must be completed in a short time make lecturers view research as a burden. The high teaching load is one of the obstacles to lecturers' research productivity in supporting their professionalism as lecturers (Alwiyah et al., 2016). This is in line with research from Dekawati et al. (2022), namely that teaching load has a direct and significant effect on research productivity even though it is in the weak category. Therefore, faculties or HEIs need to add administrative staff if the administrative burden that the institution has to carry out is greater. So that the institutional administrative burden does not have to be borne by lecturers who also have their administrative burdens.

Forming research teams in higher education can influence lecturers' motivation, involvement, and research collaboration which will influence the research productivity of each lecturer (Brew et al., 2016; Jameel & Ahmad, 2020). Lecturers involved in the research team will view research as a collaborative project which affects their integrity as lecturers, so lecturers who are active in research will motivate other team members to be directly involved in research. Apart from that, collaboration with fellow researchers, especially from abroad, is also important to form a research culture that will later have an impact on research productivity (Fransman et al., 2021; Ju, 2010). By forming an active research team, a good research culture can be formed in higher education (Edgar & Geare, 2013). Therefore, the efforts made by the study program by adding lecturers and forming research teams are expected to be able to distribute the workload equally between one lecturer and another and form a collaborative research culture in the study program.

Ryazanova & Jaskiene (2022) explain that allocating resources to organize lecturer research includes managerial actions that regulate financial resources, human resources, time for research, and infrastructure. Research budget allocation is also an issue that affects productivity, in line with



research conducted by Arnas et al. (2024). Apart from that, giving awards to lecturers' research productivity is also important, because giving these awards tends to encourage and strengthen lecturers' productivity, especially if the awards given are in the form of research incentives (Schroen et al., 2012). Research by Arsyad et al. (2019) found that the factors that hinder lecturers in Indonesia from international publications are the lack of research incentives and lack of financial support from HEIs, which is also in line with research Sahputri et al. (2021). A similar thing was also found in research by Jameel & Ahmad (2020) where financial support was the main factor in the research productivity of lecturers in Iraq. Therefore, this is in line with research conducted by Gunarto & Haddy (2023) which identified that incentives have a positive and significant effect on the publication of lecturers' scientific work. The obstacles experienced by the study program indicate that there is a need for changes in the policy of allocating research funds and providing incentives by HEIs so that they can support and motivate lecturers to increase research productivity.

The results of this research illustrate the various plans carried out by UNJ, Faculty of Engineering and Building Engineering Education Study Program to increase lecturer research productivity which will have an impact on higher education. The strategy carried out gave positive results in certain years, but repeating the same strategy every year turned out to be less effective. Therefore, it is necessary to monitor and evaluate the implementation of the planning carried out to become a reference in planning in the following years. The results of this research also underscore the need to align higher education policies and resources with the needs and priorities of lecturers. Apart from that, the need for a leadership role in the study program is also needed to organize strategies and form a collaborative research culture to increase lecturers' research productivity. Overall, the results of this research have implications for providing information on how to plan study programs to increase research productivity as well as the obstacles and challenges faced so that they can help in deciding planning strategies that should be carried out in the following years.

## **Conclusion**

Based on the research results and discussions, it can be concluded that various plans have been carried out by UNJ, faculty, and study program to increase lecturers' research productivity. Efforts made to increase research productivity include research collaboration, research funding policies, superior research based on research roadmaps, research management, research quality assurance, strengthening research and research publications through workshops, coaching student research, research collaboration, and forming lecturer research teams. These various efforts have provided positive results, but only in certain years, so the planning carried out is still less effective. Various challenges and obstacles, such as lecturer workload, resources, funding, and research administration burden, are factors that cause inconsistent lecturer productivity. There needs to be monitoring and evaluation of lecturers' research productivity so that lecturers' research productivity can be consistent or increase every year. In this way, it makes it easier for HEIs to achieve World Class University (WCU).

The recommendation for further research is to add lecturers' perspectives in evaluating lecturers' research productivity, so that a more comprehensive picture is obtained, especially of the challenges and obstacles experienced by lecturers in carrying out research, so that additional factors can be identified that influence lecturers' productivity. Apart from that, further research can also be carried out on the effectiveness of research productivity planning strategies carried out by study programs, faculties, and HEIs and assessing the long-term impact of these planning strategies.

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