Is Universitas Pendidikan Indonesia Ready for Internationalization? A Bibliometric Analysis in The Science and Technology-Related Publications

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ARTICLE INFO	ABSTRACT
	This study aims to analyze the publication data of Universitas Pendidikan Indonesia (UPI) and find out whether UPI is ready for internationalization. UPI is the best university in education in Indonesia, managed at a rank of 1200-1400 in the 2024 QS World University Ranking, ranked 17th in Indonesia, and ranked 16th in Scopus. Using the bibliometric analysis method from the Scopus database, a total of 6114 publications from 2002 to 2023 were found fluctuatively, but the average increased every year. UPI research experienced a significantly increasing number of publications from 2014 to 2019. Most research occurred in 2019 with 1103 articles. Conference proceedings and journals are the most widely published types of publications by UPI. Physics and Astronomy is the highest number for the subject area of UPI publication, reaching 22.70% of the total publication, followed by social science and Engineering. UPI has collaborated with more than 22 countries in the world in publication, informing its internationalization. The societal impact of UPI from the publication can be confirmed by its excellent number of citations, in which the best paper has been cited more than 700 times, and more than 10 papers are cited more than 100 times. This study demonstrates how far UPI can prepare itself for internationalization, in particular becoming a reference for other researchers in the world in discussing advanced research, especially in education.

1. Introduction

Competition in the world of education is inevitable. This requires education managers to roll up their sleeves and be more intense in promoting their educational institutions. In promoting educational institutions, education managers are required to be active. Therefore, it is necessary to maintain communication between education managers, and in this case, they are a rector, vice rectors, deans, heads of departments, as well as their heads of supporting departments. This competition is not only competition for graduates, accreditations, or quality of education but also how the growth of research in the university. The growth of research can be simplified by the number

of publications and citations, informing how the quality of educational institutions can be established at the university level [1].

In the common meaning, publication is information that has value to increase attention to a place, or person, and it is usually contained in printed or publishing media. It always concerns the interests in the form of news, scientific publications, and opinions. However, in education terms, publication relates only to scientific publication, acting as the main performance indicator for academics. In short, scientific publication is the publication of research papers in national and international journals online. Scientific publication is one of the outputs of research. Indeed, a good publication starts with selecting quality journals, quality journals, and the number of citations. Many media for characterizing good publications, including Google Scholar, DOAJ, Scopus, Thomspon Reuters, and in Indonesia, we know as GARUDA and SINTA.

The term publication must be closely related to the publisher. A publisher is a person or company that publishes or distributes work [2, 3]. In the world of education, journal publishers are no strangers. In general, journal publishers come from universities. However, there are not a few publishers who are not from universities.

Here, the purpose of this study was to analyze the publication of Universitas Pendidikan Indonesia (UPI). UPI is the best university in education in Indonesia, managed at a rank of 1200-1400 in the 2024 QS World University Ranking, ranked 17th in Indonesia, and ranked 16th in Scopus. To support the research and development of UPI to the world, UPI has 3 excellent international journals that are famous in Indonesia, including the Indonesian Journal of Applied Linguistics (IJAL), the Indonesian Journal of Science and Technology (IJoST), and the ASEAN Journal of Science and Engineering (AJSE). Although UPI works on mainly education, these journals have participated in the increasing publications in Indonesia, introducing to the world how research in Indonesia. This is confirmed, for example, by IJoST which is well-known as the best journal in Indonesia, taking the top rank in Indonesia with Q1 rank in Scopus and scimagojr.

To determine UPI's superiority in publication and internationalization, a bibliometric analysis was carried out. Bibliometrics is an effective method for understanding current research trends and has been used in various fields [4-12]. For more details, it is well written in Table 1, containing some references [13-29]. Based on our previous research on bibliometrics (see Table 2), containing some references [30-49], this research thoroughly discusses publications on UPI using bibliometric analysis.

In general, bibliometric analysis is a quantitative method for analyzing bibliographic data in articles/journals. This analysis is usually used to investigate references to scientific articles cited in a journal, to map the scientific fields of a journal, and to classify scientific articles according to a research field. This method can be used in the fields of sociology, humanities, communications, marketing, and other social groups. The approach used in bibliometric analysis is a citation analysis approach to see 1 article cited by 1 other article, and a co-citation analysis approach to find 2 or more articles cited by 1 article.

Although many studies using bibliometric analysis have been carried out, no one has conducted research related to publications at UPI. This research is expected to be used as a reference for researchers who will conduct research and publish as well as collaborate with UPI. In addition, this research is also expected to be an impetus so that publications at UPI are increasing and ready for internationalization.

Table 1
Previous studies of bibliometric analysis

No	Title	Topic Discussion	Ref
1	Dental suction aerosol: Bibliometric analysis.	Through the use of bibliometrics maps, this study examined the evolution of dental aerosol suction.	[13]
2	A bibliometric analysis of covid-19 research using VOSviewer.	Using bibliometric data, this study provided an explanation for the evolution of research throughout the Covid-19 era.	[14]
3	The clatest report on the advantages and disadvantages of pure biodiesel (B100) on engine performance: Literature review and bibliometric analysis	This study clarified the literature assessment of pure biodiesel's benefits and drawbacks for engine performance.	[15]
4	A bibliometric analysis of management bioenergy research using vosviewer application	This study provided an explanation of the trends and advancements in the management of bioenergy research.	[16]
5	Oil palm empty fruit bunch waste pretreatment with benzotriazolium-based ionic liquids for cellulose conversion to glucose: Experiments with computational bibliometric analysis	This study used bibliometric analysis and VOSviewer to examine how benzotriazole ionic salt liquid was used to dissolve empty palm oil fruit bunches.	[17]
6	Biomass-based supercapacitors electrodes for electrical energy storage systems activated using chemical activation method: A literature review and bibliometric analysis.	This study outlined the potential of biomass-based carbon as an electrode for a supercapacitor that can transfer current with extreme efficiency in energy storage devices.	[18]
8	Bibliometric analysis of nano metal-organic frameworks synthesis research in medical science using VOSviewer	This study combined mapping analysis with VOSviewer software to explain the bibliometric analysis of nFs for medical science.	[19]
9	Past, current, and future trends of salicylic acid and its derivatives: A bibliometric review of papers from the Scopus database published from 2000 to 2021.	This study clarified scientometric investigations into the development and future possibilities of SA and its derivatives.	[20]
10	Correlation between process engineering and special needs from bibliometric analysis perspectives.	This study clarified how to use the VOSviewer tool to integrate mapping analysis.	[21]
11	Bibliometric analysis for understanding the correlation between chemistry and special needs education using VOSviewer indexed by Google.	In this work, the usage of VOSviewer in conjunction with mapping analysis was described.	[22]
12	Computing bibliometric analysis with mapping visualization using VOSviewer on "pharmacy" and "special needs" research data in 2017-2021.	In five years (2017–2021), this research discussed mapping visualization in research with pharmaceutical topics and unique demands.	[23]
13	Nutritional research mapping for endurance sports: A bibliometric analysis.	The research mapping in the area of nutrition for endurance sports was detailed in this paper.	[24]
14	Bibliometric and visualized analysis of scientific publications on geotechnics fields.	This study used bibliometric distribution maps to examine the growth of geotechnical engineering-related research.	[25]
15	A bibliometric analysis of computational mapping on publishing teaching science engineering using VOSviewer application and correlation.	This study described the evolution of research in the disciplines of engineering and science education.	[26]
16	What is the correlation between chemical engineering and special needs education from the perspective of bibliometric analysis using VOSviewer indexed by google scholar?	By integrating mapping analysis and the VOSviewer program, this study examined "Special Needs of Chemical Engineering".	[27]
17	Counseling guidance in science education: Definition, literature review, and bibliometric analysis.	A literature review and bibliometric analysis were used to clarify the topic of guidance and counseling in science education in this study.	[28]
18	Phytochemical profile and biological activities of ethylacetate extract of peanut (Arachis hypogaea L.) stems: In-vitro and in-silico studies with bibliometric analysis.	In-vitro and in-silico chemical composition and pharmacological activity of A.hypogaea stems were examined in this work.	[29]

Table 2
Our works in bibliometric analysis

No	Title	Topic Discussion	Ref
1.	A bibliometric analysis of materials research in Indonesian journal using VOSviewer	In this study, the research developments in the field of materials are discussed.	[30]
2.	Research trend on the use of mercury in gold mining: Literature review and bibliometric analysis	The use of mercury in gold mining was covered in this study.	[31]
3.	Bibliometric analysis of educational research in 2017 to 2021 using VOSviewer: Google scholar indexed research.	In this research, articles about education were analyzed using bibliometric analysis methods.	[32]
4.	Bibliometric analysis of special needs education keyword using VOSviewer indexed by google scholar	A special education-related bibliometric study of publications that were indexed by Google Scholar was included in this work.	[33]
5.	Sustainable development goals (SDGs) in science education: Definition, literature review, and bibliometric analysis.	The origins and trends in the growth of research on sustainable development goals were investigated in this study.	[34]
6.	A bibliometric analysis of chemical engineering research using VOSviewer and its correlation with covid-19 pandemic condition.	This study looked at the factors that led to the creation of research on sustainable development goals as well as its trends.	[35]
7.	Computational bibliometric analysis of research on science and Islam with VOSviewer: Scopus database in 2012 to 2022.	In this study, bibliometric analysis was utilized to analyze the development of research in the fields of science and Islam using information from Scopus-indexed article data.	[36]
8.	Resin matrix composition on the performance of brake pads made from durian seeds: From computational bibliometric literature analysis to experiment.	The effectiveness of brake pads was discussed in this study using bibliometric analysis to examine the effect of resin matrix composition.	[37]
9.	Bibliometric Analysis of Briquette Research Trends During the Covid-19 Pandemic.	This study looked at the Covid-19 epidemic's effects on briquette research trends.	[38]
10	Computational Bibliometric Analysis on Publication of Techno-Economic Education.	This study employed bibliometric analysis to examine how publications in techno-economic education have changed over time.	[39]
11	How bibliographic dataset portrays decreasing number of scientific publications from Indonesia	This study looked into using bibliographic datasets to describe the drop in scientific publications in Indonesia.	[40]
12	Research trends from the Scopus database using keyword water hyacinth and ecosystem: A bibliometric literature review	This study looked at water hyacinth and ecological research trends in the Scopus database.	[41]
13	Bibliometric analysis of high school keyword using VOSviewer indexed by google scholar	In this study, bibliometric analysis was used to examine studies on senior high school.	[42]
14	How to calculate bibliometric using VOSviewer with Publish or Perish (using Scopus data): Science education keywords	This study looked at how to use VOSviewer and the Publish or Perish application to assess bibliometrics.	[43]
15	Bibliometric analysis for understanding "science education" for "student with special needs" using VOSviewer	This study looked at bibliometric analysis in relation to kids with special needs and science education.	[44]
16	Bibliometric analysis of research development in sports science with vosviewer.	This study looked at the growth of sports science research.	[45]
17	Bibliometric analysis of engineering research using Vosviewer indexed by google scholar	This study used VOSviewer to assess the evolution of research on technical subjects.	[46]
18	Bibliometric computational mapping analysis of publications on mechanical engineering education using VOSviewer	The growth of research in the area of engineering education was investigated in this study.	[47]
19	Introducing ASEAN Journal of Science and Engineering: A Bibliometric Analysis Study	This study clarified the effect and established the internationalization success of the AJSEE	[48]
20	Introducing ASEAN Journal of Science and Engineering Education: A Bibliometric Analysis Study for Understanding Internationalization	This research discusses the internationalization and development of publications in the ASEAN Journal of Science and Engineering Education	[49]

2. Methodology

This research used the bibliometric analysis method based on our previous studies [50-51]. The keyword "Indonesian Education University" was used to collect article data. The article data that has been collected is then processed and analyzed quantitatively based on the principles of bibliometric analysis. The research data source was taken from the Scopus database (https://www.scopus.com) as of the date this research was conducted, namely 15 August 2023. The total number of articles obtained was 6114 articles which were published in 2002 - 2023. Data processing such as tables, images graphs, charts, or diagrams created using the Microsoft Excel application.

3. Results
3.1. UPI Ranking Position in the World

UPI is one of the Public Universities in Indonesia which was founded in 1954 [52]. UPI has received several awards and is one of the top universities in Indonesia. UPI made world-class achievements because it was included in the ranking issued by Quacquarelli Symonds (QS) on June 28, 2023, namely the QS World University Rankings (QS-WUR) (see https://berita.upi.edu/upi- Masuk-qs- world-university-ranking-wur-2024/).

As stated on topniversities.com in 2023, UPI is ranked 1200-1400 in the 2024 QS World University Rankings and is ranked 17th in Indonesia. Previously, in the 2023 QS WUR by Subject in Education and Training ranking, UPI was ranked 201-250, and QS AUR 2023 was ranked 501-550 and ranked 78th in the QS South Eastern Asia Ranking (see https://www.topuniversities.com/universities /universitas-dik-indonesia#p2-ranking).

QS is a ranking system that emphasizes the performance and sustainability capabilities of every university in the world. This year, QS has implemented its biggest methodological improvement in ranking and introduced three new indicators, namely: Sustainability, Employability, and International Research Network. Based on these results, it shows that UPI already has university rankings, recognition, and assessments on a world scale. In other words, UPI is ranked by an institution with an international reputation.

Apart from being based on the QS World University Rankings, UPI made achievements in contributing to research publications around the world. UPI occupies the 16th position in Scopus with the number of research documents published by Scopus as many as 6114 documents as shown in more detail in Table 3.

Table 3
Top 20 University in Indonesia in Scopus on 15 August 2023

No	Affiliation Name	Documents			Country
		Affiliation	Institution	City	
1	Universitas Indonesia	31334	32381	Depok	Indonesia
2	Institut Teknologi Bandung	22135	22136	Bandung	Indonesia
3	Universitas Gadjah Mada	21833	21833	Yogyakarta	Indonesia
4	Universitas Airlangga	15134	15134	Surabaya	Indonesia
5	IPB University	13377	13377	Bogor	Indonesia
6	Universitas Diponegoro	12331	12331	Semarang	Indonesia
7	Institut Teknologi Sepuluh Nopember	12041	12041	Surabaya	Indonesia
8	Brawijaya University	11058	11058	Malang	Indonesia
9	Hasanuddin University	10517	10517	Makassar	Indonesia
10	Universitas Padjadjaran	10455	10455	Bandung	Indonesia
11	Universitas Sebelas Maret	10040	10040	Surakarta	Indonesia

Table 3 (continue)
Top 20 University in Indonesia in Scopus on 15 August 2023

No	Affiliation Name	Documents			Country
		Affiliation	Institution	City	
12	Lembaga Ilmu Pengetahuan Indonesia	9874	9874	Central Jakarta	Indonesia
13	Bina Nusantara University	9366	9366	Jakarta	Indonesia
14	Universitas Sumatera Utara	9268	9279	Medan	Indonesia
15	Universitas Syiah Kuala	6401	6648	Banda Aceh	Indonesia
16	**Universitas Pendidikan Indonesia**	**6114**	**6144**	**Bandung**	**Indonesia**
17	Universitas Negeri Malang	5668	5668	Malang	Indonesia
18	UNICEF	5160	5194	New York	United States
19	Telkom University	5155	5364	Bandung	Indonesia
20	Badan Riset dan Inovasi Nasional	5124	19770	Central Jakarta	Indonesia

3.2. Trends in Scopus Indexed Research Publications at UPI

This study analyzed the trends and developments of research at the Scopus-indexed UPI. Figure 1 shows the annual report on the development of UPI publications on Scopus. Based on Figure 1, UPI began to contribute to making Scopus-indexed publications, namely in 2002 with 1 article. The development of publications at UPI from 2002 to 2023 has fluctuated. The most significant increase in the number of publications can be seen from 2010 to 2019. UPI started to boost its publication in 2015, improving its publication number to 5 times in 2016 compared to the previous year. The increases in the publication number are due to the introduction of proceedings. From 2020 to 2023 the number of Scopus-indexed UPI publications has decreased. This is because there is a transformation from the use of proceedings to the journal publication. Most scientists and students at UPI have moved their publications from proceedings to journals. Indeed, publications in journals need more sophisticated data compared to proceedings.

UPI publications are scattered in several types of sources. Table 4 shows the distribution of UPI publication types on Scopus. Based on the results in Table 4, there are 5 types of publication sources indexed by Scopus in UPI publications, namely Conference Proceedings with the highest number of documents, namely 3313 documents. After that, publications with the type of journal were 2697 documents, books 55 documents, book series 48 documents, and trade journal 1 document. These results indicate that publications at UPI are not only focused on Scopus-indexed journals but more broadly on various types of publication sources.
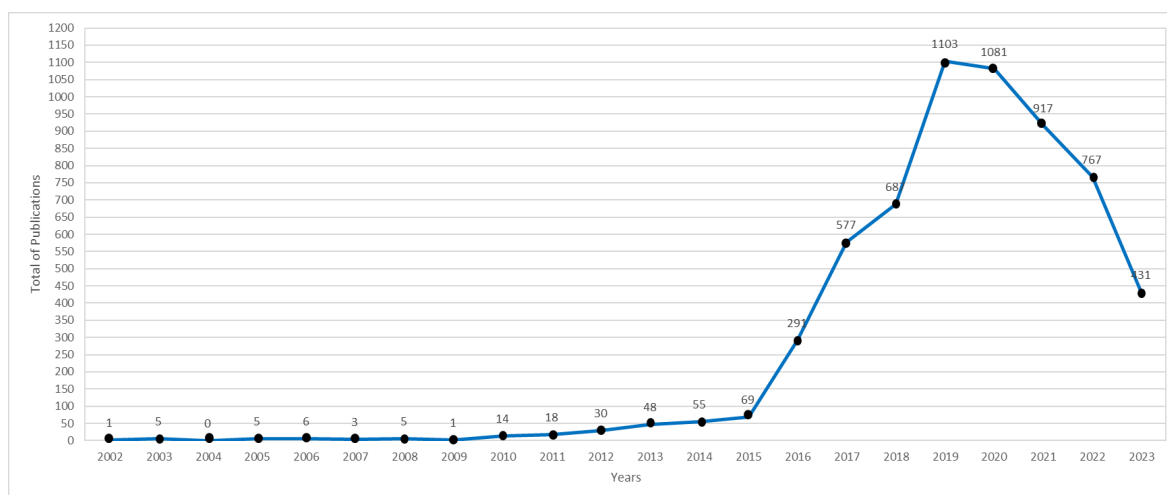

Fig. 1. Annually Publications Report in UPI in Scopus, retrieved on 15 August 2023

Table 4
UPI Publication source types distribution in Scopus on 15 August 2023

Source Type	Number of Document
Conference Proceeding	3313
Journal	2697
Book	55
Book Series	48
Trade Journal	1
Total	6114

In carrying out publications, UPI researchers have different research subject areas (Figure 2). Therefore, the scope of scientific contributions from UPI is fairly broad. Currently, UPI has contributed to publishing on Scopus in 27 subject areas including Physics and Astronomy, Social Sciences, Engineering, Computer Science, Materials Science, Arts and Humanities, Business, Management, and Accounting, Earth and Planetary Science, Mathematics, Chemical Engineering, Medicine, Chemistry, Biochemistry, Genetics, and Molecular, Economics, Econometrics, and Finance, Agricultural and Biological Science, Energy, Decision Sciences, Health Professions, Psychology, Multidisciplinary, Pharmacology, Toxicology, and Pharmaceutics, Nursing, Immunology and Microbiology, Veterinary, Dentistry, and Neuroscience.

Figure 2 shows the distribution of the number of publications in each subject area. The results of the subject area analysis show that Physics and Astronomy is the UPI publication subject area with the highest number of documents, namely 22.70% or 2241 documents. The boost number of physics and astronomy is due to the existence of science proceedings in the early year of the publication trend in 2015. After that, Social Science ranks second with 1518 documents and Engineering ranks third with 1484 documents. The fourth place is the subject of Computer Science with 6.70% or 661 documents. Meanwhile, in the fifth place, there are 648 documents in the Materials Science subject area. Based on the five subject areas with the highest number of documents, many researchers at UPI have a research focus on the subject area of Science and Technology.
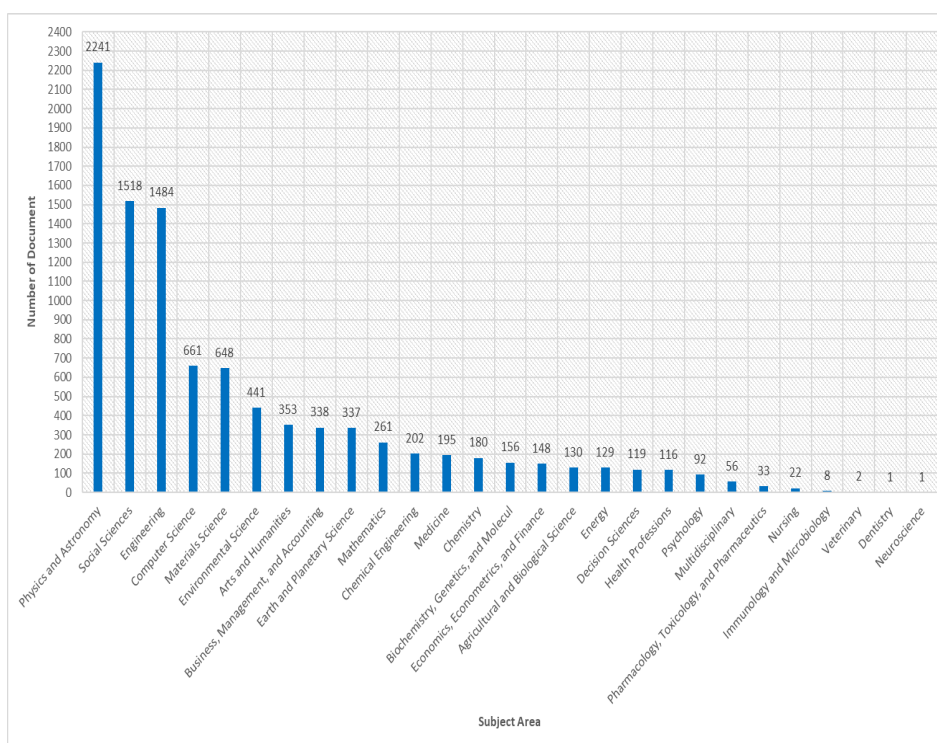

Fig. 2. Scopus research subject area at UPI in Scopus on 15 August 2023

3.3. Most Cited Article and Contribution Author in UPI

Table 5 shows the articles with the highest number of citations accessed on 15 August 2023. Based on the results, the article entitled "How to read and interpret the spectroscope of organic material" published in the Indonesian Journal of Science and Technology by Nandiyanto *et al*. [53] is a research article from UPI that has the most citations on Scopus, namely 772 citations. In the second place, it is an article by Rasmitadila *et al*. [54], entitled "The perceptions of primary school teachers of online learning during the covid-19 pandemic period: A case study in Indonesia" published in the Journal of Ethnic and Cultural Studies with 300 citations.

Table 5
Most Cited Article Scopus in UPI (accessed on 15 July 2023)

No	Document Title	Authors	Year	Source	Cited By	Ref
1	How to read and interpret FTIR spectroscope of organic material	Nandiyanto *et al*.	2019	Indonesian Journal of Science and Technology	772	[53]
2	The perceptions of primary school teachers of online learning during the COVID-19 pandemic period	Rasmitadila *et al*.	2020	Journal of Ethnic and Cultural Studies	300	[54]
3	Preferred Interpersonal Distances: A Global Comparison	Sorokowska *et al*.	2017	Journal of Cross-Cultural Psychology	211	[55]
4	Multifaceted roles of microalgae in the application of wastewater biotreatment: A review	Chai *et al*.	2021	Environmental Pollution	204	[56]
5	A critical review on various remediation approaches for heavy metal contaminants removal from contaminated soils	Rajendran *et al.*	2022	Chemosphere	174	[57]
6	Ammonia as effective hydrogen storage: A review on production, storage and utilization	Aziz *et al*.	2020	Energies	174	[58]
7	An overview of Higher alcohol and biodiesel as alternative fuels in engines	Erdiwansyah *et al*.	2019	Energy Reports	150	[59]
8	Structural variation of cubic and hexagonal MgxZn1– xO layers grown on MgO (111)∕ c-sapphire	Vashaei *et al*.	2005	Journal of Applied Physics	120	[60]
9	Effect of high-temperature thermal treatment on the structure and adsorption properties of reduced graphene oxide	Song *et al*.	2013	Carbon	104	[61]
10	Curcumin treatment enhances the effect of exercise on mitochondrial biogenesis in skeletal muscle by increasing cAMP levels	Ray Hamidie *et al*.	2015	Metabolism: Clinical and Experimental	100	[62]

Figure 3 shows the top 15 UPI researchers with the highest publication number in Scopus. Nandiyanto is one of the best researchers in Indonesia and has the largest number of publications, namely 303 documents. Nandiyanto is the 2% most influential scientist in the world as of October 20, 2021. Other authors are Abdullah with 183 documents, Samsudin with 180 documents, Suhandi with 140 documents, Suryadi with 124 documents, Herman with 111 documents, Kaniawati with 108 documents, Setiawan with 105 documents, Prabawanto with 105 documents, Rusdiana with 96 documents, Juandi with 96 documents, Hasanah with 88 documents, Mulyanti with 87 documents, Khoerunnisa with 85 documents, and Permanasari with 84 documents. These 15 researchers are

lecturers from various departments in UPI, indicating that the teaching resources at UPI are sufficient to be judged competent when viewed from the number of scientific publications.
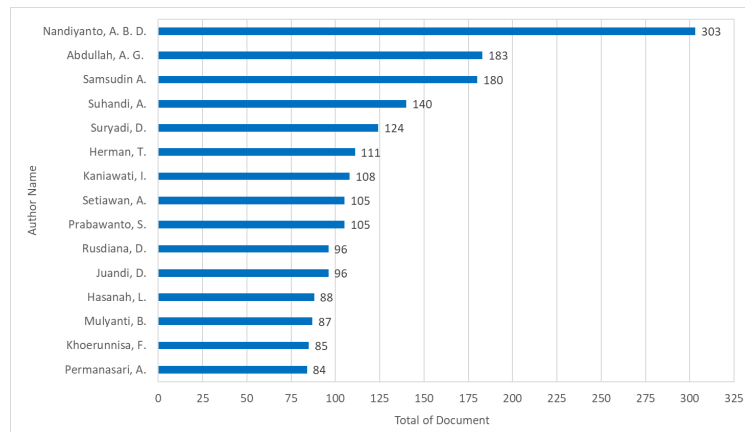

Fig. 3. The top 15 researchers for the most publications in UPI

3.4. UPI's International Collaboration

As a form of UPI's efforts to become a go international university. UPI has made several collaborations in making contributions with several countries around the world. Figure 4 shows the research collaboration of UPI to international, involving 99 countries. The process of cooperation between countries carried out by UPI is not limited to one affiliate, but there are several affiliates from various countries. The top authorship collaboration in UPI publications is presented in Figure 5.

The number of affiliates for each country that has collaborated with UPI in publishing on Scopus is Indonesia (89 affiliates), Malaysia (17 affiliates), Japan (8 affiliates), South Korea (3 affiliates), Australia (3 affiliates), China (3 affiliates), Nigeria (2 affiliates), Iraq (2 affiliates), United Arab Emirates (2 affiliates(, Singapore (2 affiliates), India (2 affiliates), and Turkey (2 affiliates). Then, UPI has just partnered with 1 affiliate in several countries, namely Slovakia, Hungary, Switzerland, France, Estonia, Brunei Darussalam, United Kingdom, Hong Kong, Croatia, and the Netherlands. More detailed information is presented in Table 6.

We believe that this study will bring and add information regarding the use of bibliometric for analyzing current research trend, as published in literature [13-49, 63].

Fig. 4. List of collaborated countries with UPI from Scopus taken on 27 August 2023
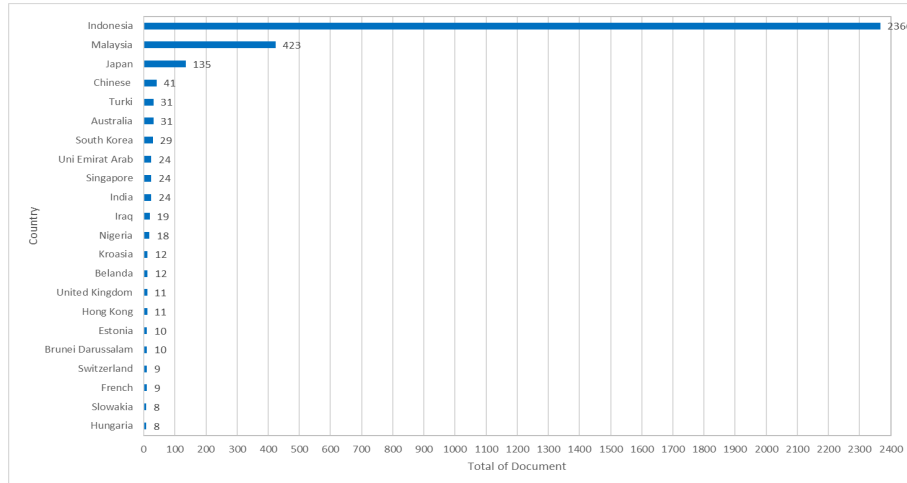
Fig. 5. The top 22 countries contributed to the UPI's research collaboration

Table 6
The top 145 affiliations collaborated with UPI's publication

No	Affiliation name	Negara	Documents
1	Institut Teknologi Bandung	Indonesia	364
2	Universitas Padjadjaran	Indonesia	125
3	Universitas Negeri Jakarta	Indonesia	74
4	UIN Sunan Gunung Djati	Indonesia	73
5	Universitas Sultan Ageng Tirtayasa	Indonesia	72
6	Universiti Kebangsaan Malaysia	Malaysia	56
7	Universitas Negeri Yogyakarta	Indonesia	55
8	Universitas Negeri Malang	Indonesia	51
9	Universitas Riau	Indonesia	50
10	Hiroshima University	Japan	47
11	Universitas Gadjah Mada	Indonesia	46
12	Universitas Sebelas Maret	Indonesia	45
13	Lembaga Ilmu Pengetahuan Indonesia	Indonesia	43
14	Universitas Komputer Indonesia	Indonesia	43
15	Badan Riset dan Inovasi Nasional	Indonesia	43
16	Universiti Teknologi MARA	Malaysia	42
17	Universitas Negeri Padang	Indonesia	42
18	The University of Nottingham Malaysia Campus	Malaysia	41
19	Universiti Sains Malaysia	Malaysia	40
20	Universitas Syiah Kuala	Indonesia	39
21	Universitas Indonesia	Indonesia	38
22	Universitas Diponegoro	Indonesia	35
23	Universiti Teknologi Malaysia	Malaysia	34
24	IPB University	Indonesia	34
25	Universiti Malaysia Pahang Al-Sultan Abdullah	Malaysia	32
26	Universitas Islam Bandung	Indonesia	31
27	Universitas Lambung Mangkurat	Indonesia	30
28	Universitas Negeri Medan	Indonesia	29
29	Institute of Microengineering and Nanoelectronics IMEN	Malaysia	28
30	Telkom University	Indonesia	28
31	Universiti Malaya	Malaysia	27
32	Universitas Tadulako	Indonesia	27
33	Universitas Ahmad Dahlan	Indonesia	27
34	Universitas Negeri Surabaya	Indonesia	27
35	Universitas Negeri Semarang	Indonesia	26

Table 6 (continue)

The top 145 affiliations collaborated with UPI's publication

No	Affiliation name	Negara	Documents
36	Universitas Pasundan	Indonesia	25
37	Universiti Pendidikan Sultan Idris	Malaysia	25
38	Universitas Lampung	Indonesia	24
39	Pakuan University	Indonesia	24
40	Universitas Sriwijaya	Indonesia	23
41	Universitas Widyatama	Indonesia	23
42	Yıldız Teknik Üniversitesi	Turki	22
43	Universitas Khairun	Indonesia	22
44	Badan Tenaga Nuklir Nasional Indonesia	Indonesia	21
45	Universitas Terbuka	Indonesia	21
46	Institut Pendidikan Indonesia	Indonesia	20
47	Xiamen University	Chinese	19
48	Universiti Teknologi PETRONAS	Malaysia	18
49	Universiti Tun Hussein Onn Malaysia	Malaysia	18
50	Universitas Djuanda	Indonesia	18
51	Sampoerna University	Indonesia	18
52	Universitas Siliwangi	Indonesia	17
53	The University of Tokyo	Japan	17
54	Universitas Islam Negeri Syarif Hidayatullah Jakarta	Indonesia	17
55	Universitas Kanjuruhan Malang	Indonesia	17
56	Universitas Muhammadiyah Prof. Dr. HAMKA	Indonesia	17
57	Universitas Swadaya Gunung Djati	Indonesia	16
58	The University of Kitakyushu	Japan	16
59	Brawijaya University	Indonesia	16
60	Bengkulu University	Indonesia	16
61	Institut Teknologi Sepuluh Nopember	Indonesia	16
62	Universitas Langlangbuana	Indonesia	16
63	Nanyang Technological University	Singapore	15
64	King Saud University	Uni Emirate Arab	15
65	Universitas Kristen Maranatha	Indonesia	15
66	Institut Keguruan dan Ilmu Pendidikan Siliwangi	Indonesia	15
67	Universitas Singaperbangsa Karawang	Indonesia	15
68	Kanazawa University	Japan	14
69	Hasanuddin University	Indonesia	14
70	Sam Ratulangi University	Indonesia	14
71	Institute of Biological Sciences	Malaysia	14
72	Universitas Pendidikan Ganesha	Indonesia	14
73	Universitas Muhammadiyah Tasikmalaya	Indonesia	14
74	Institut Agama Islam Negeri Syekh Nurjati Cirebon	Indonesia	14
75	Universitas Islam Negeri Ar-Raniry	Indonesia	14
76	Universitas PGRI Semarang	Indonesia	14
77	Saveetha Institute of Medical and Technical Sciences	India	14
78	Universitas Garut	Indonesia	14
79	STKIP Muhammadiyah Kuningan	Indonesia	14
80	Universiti Utara Malaysia	Malaysia	13
81	Wenzhou University	Chinese	13
82	Universitas Negeri Makassar	Indonesia	13
83	Universitas Islam Riau	Indonesia	13
84	Universitas Sarjanawiyata Tamansiswa	Indonesia	13
85	STKIP Bima	Indonesia	13
86	Universiteit Utrecht	Netherland	12
87	University of Zagreb	Kroasia	12
88	Monash University	Australia	12

Table 6 (continue)

The top 145 affiliations collaborated with UPI's publication

No	Affiliation name	Negara	Documents
89	Shinshu University	Japan	12
90	Universitas Mulawarman	Indonesia	12
91	Bina Nusantara University	Indonesia	12
92	STKIP PGRI Sumbar	Indonesia	12
93	Universitas Muhammadiyah Purwokerto	Indonesia	12
94	Institute of Industrial Science	Japan	12
95	Kangwon National University	South Korea	11
96	Chinese University of Hong Kong	Hong Kong	11
97	University of Warwick	United Kingdom	11
98	University of Nigeria	Nigeria	11
99	Universitas Muhammadiyah Makassar	Indonesia	11
100	Universitas Muhammadiyah Sidoarjo	Indonesia	11
101	Al-Ayen University	Iraq	11
102	Universitas PGRI Adi Buana Surabaya	Indonesia	11
103	Kyung Hee University	South Korea	10
104	Curtin University	Australia	10
105	Tartu Ülikool	Estonia	10
106	Universitas Airlangga	Indonesia	10
107	Universiti Brunei Darussalam	Brunei Darussalam	10
108	Universiti Sultan Zainal Abidin	Malaysia	10
109	State University of Gorontalo	Indonesia	10
110	Universitas Halu Oleo	Indonesia	10
111	Politeknik Negeri Bandung	Indonesia	10
112	Universitas Indraprasta PGRI	Indonesia	10
113	Saveetha School of Engineering	India	10
114	Universitas PGRI Madiun	Indonesia	10
115	Universitas Wiralodra	Indonesia	10
116	Universitas Subang	Indonesia	9
117	Akdeniz Üniversitesi	Turkey	9
118	Japan Advanced Institute of Science and Technology	Japan	9
119	University of Wollongong	Australia	9
120	Universität Zürich	Switzerland	9
121	National University of Singapore	Singapore	9
122	Universitas Andalas	Indonesia	9
123	Jiujiang University	Chinese	9
124	Université de Strasbourg	French	9
125	Khalifa University of Science and Technology	Uni Emirate Arab	9
126	Taylor's University Malaysia	Malaysia	9
127	Universitas Islam Negeri Raden Fatah Palembang	Indonesia	9
128	Universitas Suryakancana	Indonesia	9
129	Politeknik TEDC Bandung	Indonesia	9
130	Universitas Majalengka	Indonesia	8
131	Universitas Muhammadiyah Tangerang	Indonesia	8
132	Universitas Katolik Indonesia Santu Paulus Ruteng	Indonesia	8
133	Yeungnam University	South Korea	8
134	Pécsi Tudományegyetem	Hungary	8
135	Slovak Academy of Sciences	Slovakia	8
136	Universiti Malaysia Sarawak	Malaysia	8
137	Tokyo Institute of Technology	Japan	8
138	Universitas Tanjungpura	Indonesia	8
139	Universiti Malaysia Terengganu	Malaysia	8
140	Al-Nisour University College	Iraq	8
141	Institut Teknologi Sumatera ITERA	Indonesia	8

Table 6 (continue)
The top 145 affiliations collaborated with UPI's publication

No	Affiliation name	Negara	Documents
142	Universitas Kuningan	Indonesia	8
143	Universitas Cenderawasih	Indonesia	8
144	Federal Neuropsychiatric Hospital	Nigeria	7
145	Universitas Galuh	Indonesia	7

4. Conclusions

This study aims to analyze publication data at UPI and demonstrate the UPI in internationalization. UPI is one of the public universities in Indonesia, received several awards, and is one of the Top Universities. Researchers at UPI have published 6114 Scopus-indexed articles from 2002-2023. UPI is a university that has managed to rank 1200-1400 in the 2024 QS World University Rankings and ranked 16th in Scopus. Conference proceedings and journals are the most widely published types of publications by UPI, namely 3313 (conference proceedings) and 2697 (journal). Physics and Astronomy is the subject area of UPI publication with the highest number of documents, namely 22.70%. Other subject areas are social sciences, engineering, computer science, etc. The results of the research show that many UPI researchers have research focused on the subject area of Science and Technology. UPI has excellent research output, shown by excellent citations, passing more than 10 papers to be cited more than 100 times. UPI has collaborated with several countries in the world in publishing on Scopus, passing more than 99 countries and informing UPI as one of the leading universities for international collaboration.

Acknowledgments

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