

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

---

Library Philosophy and Practice (e-journal)

Libraries at University of Nebraska-Lincoln

---

12-27-2021

## Literacy in Indonesian: A Bibliometric Analysis

Pandri Ferdias

*Department of Mathematics, Universitas Lampung, Lampung, Indonesia, pandri.ferdias@fmipa.unila.ac.id*

Dede Sutisna

*UIN Sunan Gunung Djati Bandung, Indonesia, dedesutisna@uinsgd.ac.id*

R. Rusli

*Department of Mathematics, Universitas Negeri Makassar, Indonesia, rusli.siman@unm.ac.id*

Achmad Daeng GS

*Universitas 45 Surabaya, Surabaya, Indonesia, bumigora80@gmail.com*

Abdul Rahman

*Department of Mathematics, Universitas Negeri Makassar, Makassar, Indonesia, abdul.rahman@unm.ac.id*

Follow this and additional works at: <https://digitalcommons.unl.edu/libphilprac>



Part of the [Library and Information Science Commons](#), and the [Social Statistics Commons](#)

---

Ferdias, Pandri; Sutisna, Dede; Rusli, R.; Daeng GS, Achmad; and Rahman, Abdul, "Literacy in Indonesian: A Bibliometric Analysis" (2021). *Library Philosophy and Practice (e-journal)*. 6800.

<https://digitalcommons.unl.edu/libphilprac/6800>

## **Literacy in Indonesian: A Bibliometric Analysis**

**Pandri Ferdias<sup>1</sup>, Dede Sutisna<sup>2</sup>, R. Rusli<sup>3,\*</sup>, Achmad Daengs GS<sup>4</sup>, & Abdul Rahman<sup>3</sup>**

<sup>1</sup>Department of Mathematics, Universitas Lampung, Lampung, Indonesia

<sup>2</sup>UIN Sunan Gunung Djati Bandung, Indonesia

<sup>3</sup>Department of Mathematics, Universitas Negeri Makassar, Makassar, Indonesia

<sup>4</sup>Universitas 45 Surabaya, Surabaya, Indonesia

### **Abstract**

This study is a quantitative research using bibliometric analysis. The purpose of this study was to identify and describe the profile of publications in the field of literacy in Indonesia. The data in this study were obtained from the Scopus database. The results obtained from the Scopus database are 1080 documents, the highest number of documents issued related to literacy by authors in Indonesia in 2020 is 305 documents and the lowest in 2016 is 27 documents. Most of the papers are dominated by Conference Papers (649 documents) and the top 5 affiliates in Indonesia that have the highest publications are Universitas Pendidikan Indonesia, Universitas Negeri Malang, Universitas Negeri Semarang, Universitas Negeri Yogyakarta, dan Universitas Negeri Jakarta with research topics dominated by topics: scientific literacy (101 articles); mathematical literacy (44 articles); dan digital literacy (10 articles).

Keywords: literacy; scientific literacy; mathematical literacy; digital literacy; bibliometric.

### **1. Introduction**

Indonesia and the world have entered the era of the Industrial Revolution 4.0 leading to the era of Society 5.0. This era provides developments and changes for the world towards digital transformation. In order to keep up with the developments of this era, human resources must have skills, one of which is literacy skills.

Based on the results from Central Connecticut State University regarding the World's Most Literate Nations, Indonesia is in position 60 out of 61 countries (CCSU, 2020). This ranking is based on categories: Computers, Education System – Inputs, Libraries, Newspapers, and Education - Test Scores. Based on the results of this CCSU, Indonesia is lacking in the categories: Computers (Rank 60), Education System – Inputs (Rank 54), and Newspapers (Rank 55).

In addition to CCSU, the Organization for Economic Cooperation and Development (OECD) conducts a program to measure the ability of students aged 15 years, namely the Program for International Student Assessment (PISA). PISA was held for the first time since 2000 and is held every 3 years. This PISA will assess: mathematical literacy, scientific literacy, and reading literacy of students.

---

\* Corresponden Author: rusli.siman@unm.ac.id

**Table 1.** PISA Rank of Indonesia

| Year | Rank               |
|------|--------------------|
| 2000 | 38 of 41 countries |
| 2003 | 38 of 40 countries |
| 2006 | 50 of 57 countries |
| 2009 | 60 of 65 countries |
| 2012 | 64 of 65 countries |
| 2015 | 62 of 70 countries |
| 2018 | 69 of 77 countries |

The results of this PISA, Indonesia has not shown progress (Table 1). By looking at this position, Indonesia can be said that Indonesia is in a "literacy emergency".

From this, it is necessary to look further at the publications of Indonesian writers on literacy. To see this, it is necessary to conduct a study. This study of publications usually uses literature analysis or known as bibliometric analysis (Garrigos-Simon et al., 2018; Liu et al., 2018).

Bibliometric studies are studies that apply the fields of statistics and mathematics to library science (Royani & Idhani (2018). Bibliometric studies are used to see trends in a field of study, the productivity of journals/writers (Djadir et al., 2020; Ferdias & Ahmar, 2021; Haryani et al., 2020).

## 2. Methods

This research is a quantitative research that aims to see the trend of research developments in the field of literacy in Indonesia. This study analyzed the productivity of publications in the field of literacy from writers in Indonesia in 2016-2021.

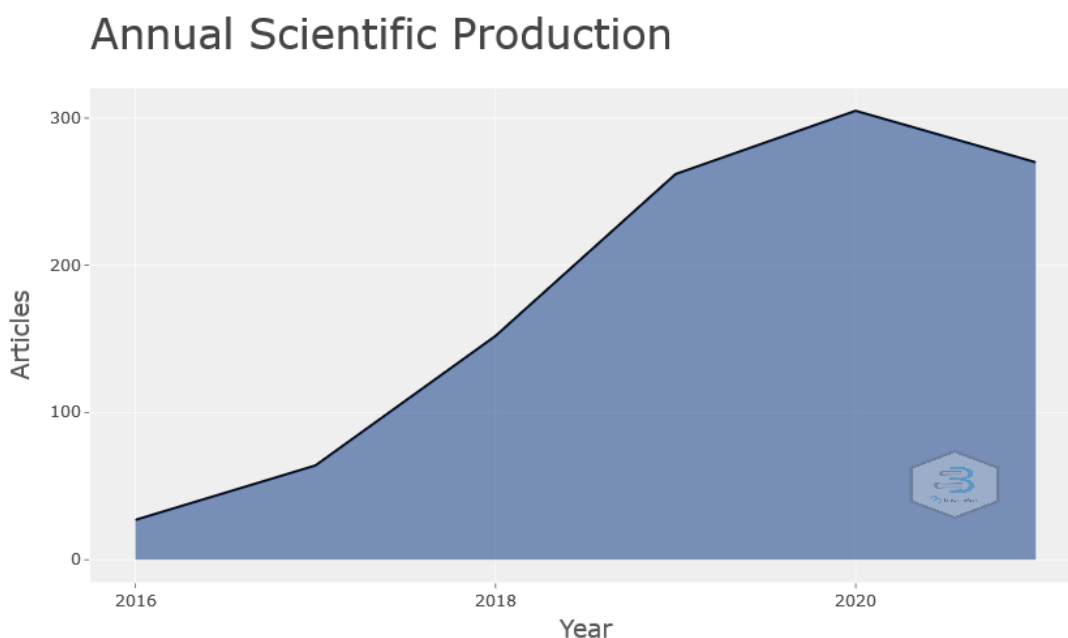
To see the trend of publication development in the literacy topic in Indonesia, bibliometric analysis method is used by using metadata that has been obtained from the Scopus database using keywords: ***(TITLE(literacy) AND AFFILCOUNTRY(indonesia)) AND (LIMIT-TO(AFFILCOUNTRY, "Indonesia")) AND (LIMIT-TO (PUBYEAR, 2021) OR LIMIT-TO(PUBYEAR, 2020) OR LIMIT-TO (PUBYEAR, 2019) OR LIMIT-TO (PUBYEAR, 2018) OR LIMIT-TO (PUBYEAR, 2017) OR LIMIT-TO (PUBYEAR, 2016))***.

### 3. Results and Discussion

The results obtained from the Scopus database there are 1080 documents. The publication of documents every year can be seen in table 2 and figure 1.

**Table 2.** Number of Documents (Articles) in Year

| Year | Articles |
|------|----------|
| 2016 | 27       |
| 2017 | 64       |
| 2018 | 152      |
| 2019 | 262      |
| 2020 | 305      |
| 2021 | 270      |



**Figure 1.** Number of Documents (Articles) in Year

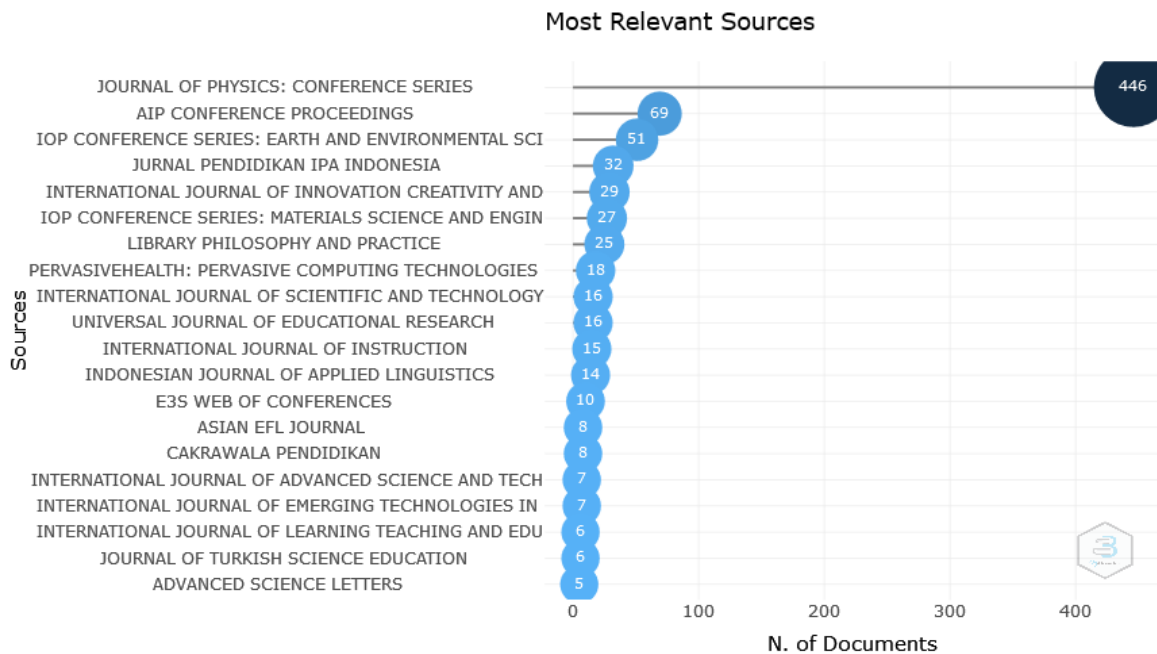
Based on figure 2 and table 2, it can be seen that the highest number of documents issued in 2020 was 305 documents and the lowest in 2016 was 27 documents.

From the number of documents produced every year. We can be seen in table 3 that the dominant documents were produced from Conference Papers (649 documents) and Articles (411 documents).

**Table 3.** Document Types

| Document Types   | Number of Documents |
|------------------|---------------------|
| Article          | 411                 |
| Book             | 1                   |
| Book chapter     | 7                   |
| Conference paper | 649                 |
| Data paper       | 1                   |
| Note             | 1                   |
| Review           | 10                  |

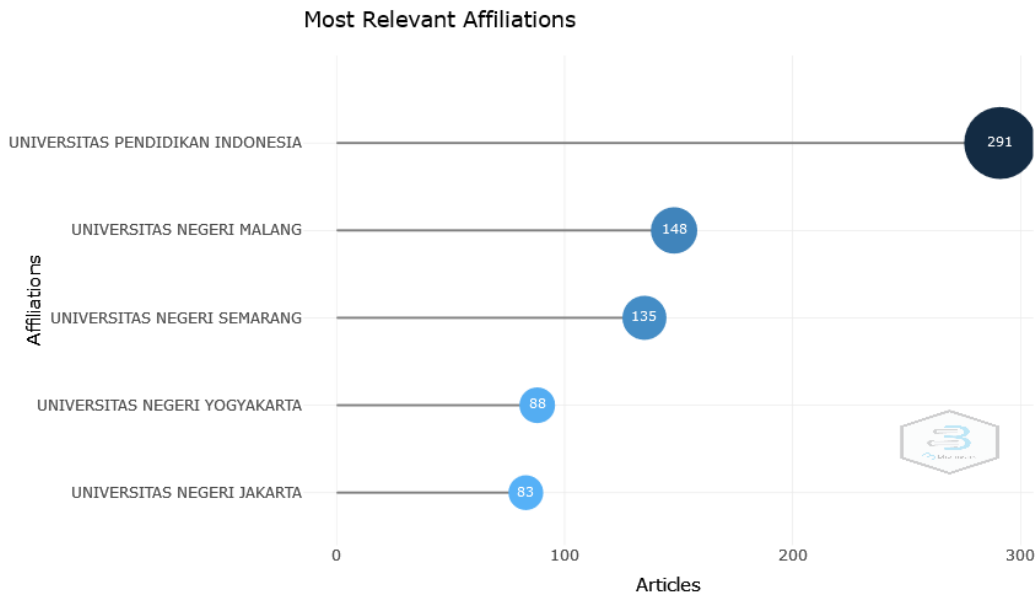
This is in line with the opinion of Iskandar et al. (2021) which states that the majority of publications in Indonesia are from Conference papers.



**Figure 2.** Top 20 most relevant sources

In line with table 3, figure 2 shows that publication sources in the literacy field are dominated by publications in Conference papers including: Journal of Physics: Conference Series (446 documents); AIP Conference proceedings (69 documents); IOP Conerence series: earth and environmental sciences (51 documents).

From figure 3, it can be seen that the top 5 affiliates in Indonesia that have the highest publications are Universitas Pendidikan Indonesia, Universitas Negeri Malang, Universitas Negeri Semarang, Universitas Negeri Yogyakarta, and Universitas Negeri Jakarta.



**Figure 3.** The top 5 affiliates in Indonesia

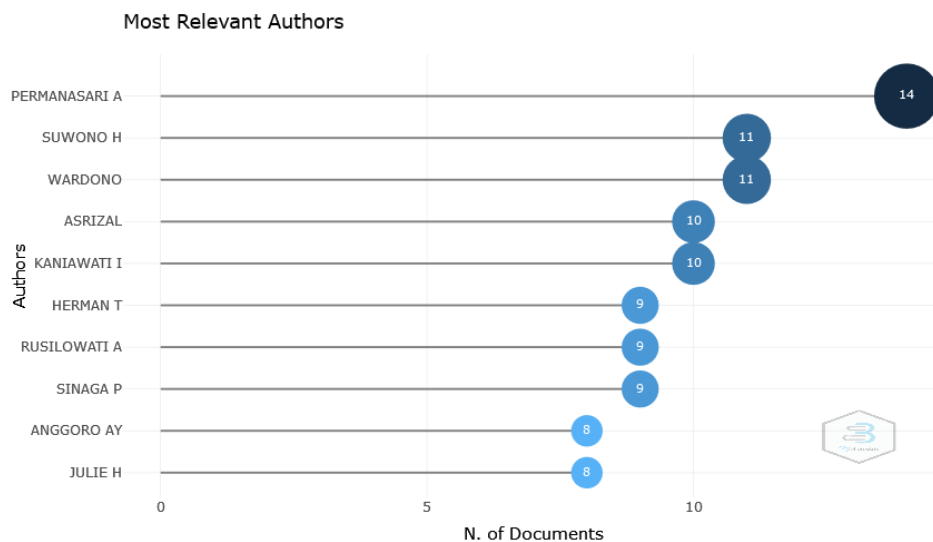
**Table 4.** Most Local Citation Documents

| Paper                                      | Total Citations | TC per Year |
|--|-----------------|-------------|
| AFRIANA J, 2016, J PENDIDIKAN IPA INDONES  | 48              | 8           |
| KHAN ML, 2019, BEHAV INF TECHNOL           | 42              | 14          |
| AISYAH R, 2017, J PHYS CONF SER            | 41              | 8,2         |
| RUSILOWATI A, 2016, INT J ENVIRON SCI EDUC | 33              | 5,5         |
| PUTRA MIS, 2016, J PENDIDIKAN IPA INDONES  | 33              | 5,5         |
| ARDIANTO D, 2016, J PENDIDIKAN IPA INDONES | 32              | 5,333       |
| WANDASARI Y, 2019, INT J SCI TECHNOL RES   | 31              | 10,333      |
| OKTININGRUM W, 2016, J MATH EDUC           | 29              | 4,833       |

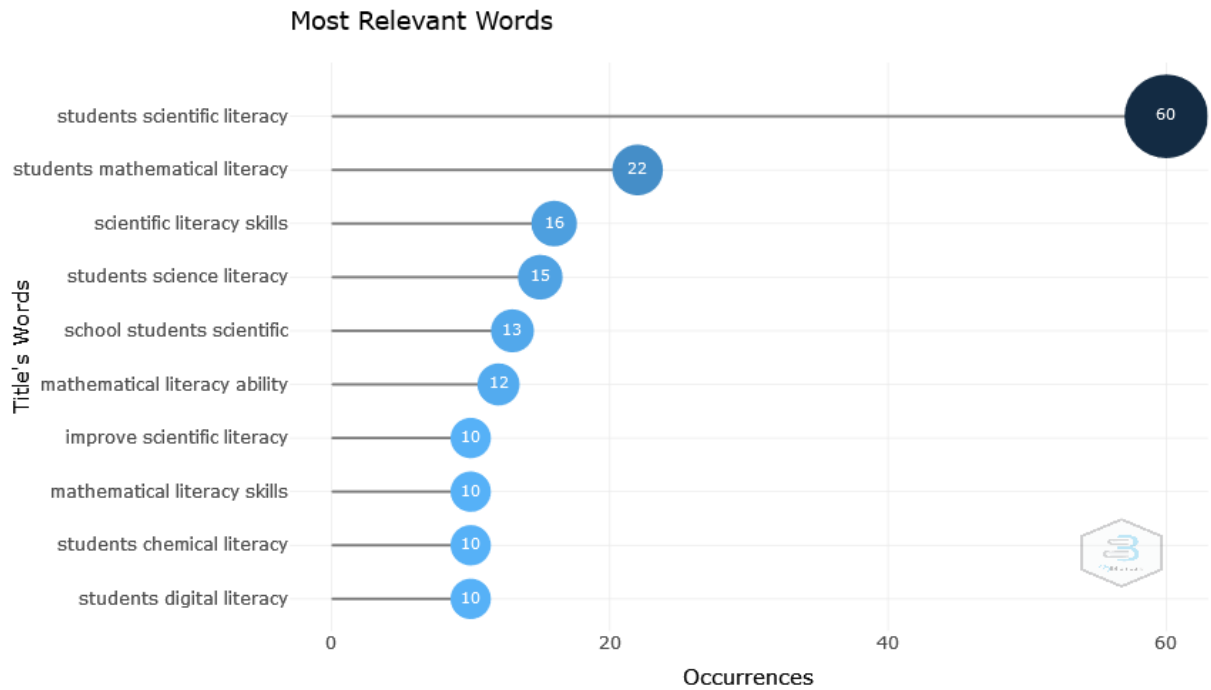
| Paper  | Total Citations | TC per Year |
|--|-----------------|-------------|
| KHAERONINGTYAS N, 2016, J PENDIDIKAN IPA INDONES | 25              | 4,167       |
| WARDONO, 2016, J PHYS CONF SER                   | 25              | 4,167       |
| SUWANA F, 2017, KASETSART J SOC SCI              | 24              | 4,8         |
| FAKHRIYAH F, 2017, J PENDIDIKAN IPA INDONES      | 24              | 4,8         |
| ASRIZAL, 2018, J PENDIDIKAN IPA INDONES          | 23              | 5,75        |
| SUWONO H, 2017, J PENDIDIKAN IPA INDONES         | 23              | 4,6         |
| TATI T, 2017, J PHYS CONF SER                    | 22              | 4,4         |
| MARHAYANIE, 2017, INT J ECON RES                 | 22              | 4,4         |
| WIJAYA A, 2016, J MATH EDUC                      | 22              | 3,667       |
| ASRIZAL A, 2018, IOP CONF SER MATER SCI ENG      | 17              | 4,25        |
| SUPARNO, 2018, J ENTERP EDUC                     | 17              | 4,25        |
| RUSDI, 2020, J PHYS CONF SER                     | 16              | 8           |

Productive authors related to the literacy topic can be seen in figure 4. The top-10 productive authors are Permanasari A, Suwono H, Wardono, Asrizal, Kaniawati I, Herman T, Rusilowati A, Sinaga P, Anggoro AY, and Julie H. in a row.

In figure 5, it can be seen that keywords of the papers published are dominated by topics: scientific literacy (60 articles; 16 articles; 15 articles; 10 articles); mathematical literacy (22 articles; 12 articles; 10 articles); and digital literacy (10 articles).



**Figure 4.** Most relevant authors



**Figure 5.** Most revelant words about literacy topic

Based on table 4, it can be seen that the paper that has the highest citation rate for local citations is A with 48 citations and the paper that has the highest total citations per year is paper B with 10.33 citations per year.

Lotka's Law is used to see the number of authors in each article (Nelisa, 2012). With Lotka's Law, we can find out how many documents an author has written. The results of Lotka's Law for research discussing literacy by Indonesian writers are presented in table 5.

Based on table 5, it can be seen that in the paper on literacy, there is 1 author who wrote 40 articles; 2 authors with 10 articles, 3 authors who wrote 9 articles; and many authors who published only 1 article as many as 2141 authors. The authors who are dominant in writing articles in this journal are presented in table 5.

**Table 5.** Lotka's Law

| Number of Documents | Number of Authors |
|---------------------|-------------------|
| 1                   | 2141              |
| 2                   | 349               |
| 3                   | 101               |
| 4                   | 46                |
| 5                   | 19                |



| Number of Documents | Number of Authors |
|---------------------|-------------------|
| 6                   | 12                |
| 7                   | 6                 |
| 8                   | 7                 |
| 9                   | 3                 |
| 10                  | 2                 |
| 11                  | 2                 |
| 14                  | 1                 |

#### 4. Conclusion

Based on the results and discussions that have been carried out, it can be concluded that the highest number of documents issued related to literacy by authors in Indonesia was in 2020, namely 305 documents and the lowest in 2016 was 27 documents. From these documents, the dominant documents produced are Conference Papers (649 documents) and top source documents, namely Journal of Physics: Conference Series (446 documents); AIP Conference proceedings (69 documents); IOP Conference series: earth and environmental sciences (51 documents).

In addition, the top 5 affiliates in Indonesia that have the highest publications are Universitas Pendidikan Indonesia, Universitas Negeri Malang, Universitas Negeri Semarang, Universitas Negeri Yogyakarta, dan Universitas Negeri Jakarta with research topics dominated by topics: with research topics dominated by topics: scientific literacy (101 articles); mathematical literacy (44 articles); dan digital literacy (10 articles).

#### References

- CCSU. (2020). *World's Most Literate Nations*. <https://www.ccsu.edu/wmln/rank.html>
- Djadir, D., Rusli, R., Rahman, A., Ahmar, A. S., & Abdullah, H. (2020). "OnLaing" a distance learning management information system platform with heutagogy approach in Industrial Revolution 4.0: A Design. *Library Philosophy and Practice*, 2020(1), 1–8. <https://digitalcommons.unl.edu/libphilprac/4750/>
- Ferdias, P., & Ahmar, A. S. (2021). Forecasting of the COVID-19 Epidemic: A Scientometric Analysis. *Library Philosophy and Practice*, 2021(1), 1–11. <https://digitalcommons.unl.edu/libphilprac/5415/>
- Garrigos-Simon, F., Botella-Carrubi, M., & Gonzalez-Cruz, T. (2018). Social Capital, Human Capital, and Sustainability: A Bibliometric and Visualization Analysis. *Sustainability*,

- 10(12), 4751. <https://doi.org/10.3390/su10124751>
- Haryani, C. S., Sudin, A., & Isrokatun, I. (2020). Analisis Bibliometrik Tren Publikasi dan Tingkat Kolaborasi pada Model Situation-Based Learning (2010-2019). *Jurnal Pena Ilmiah*, 3(2), 131–140.
- Iskandar, A., Djajasinga, N. D., Noegraha, A. D., Gatot, E., & Ahmar, A. S. (2021). Analysis and Publication Profile of Indonesian Scientific Work in 2020 Based on the Scopus Database. *Library Philosophy and Practice*, 2021(1), 1–10.
- Liu, H., Yu, Z., Chen, C., Hong, R., Jin, K., & Yang, C. (2018). Visualization and Bibliometric Analysis of Research Trends on Human Fatigue Assessment. *Journal of Medical Systems*, 42(10), 179. <https://doi.org/10.1007/s10916-018-1033-3>
- Nelisa, M. (2012). Produktivitas pengarang artikel bidang ilmu perpustakaan dan informasi di Indonesia tahun 1978-2007: Analisis bibliometrika menggunakan hukum Lotka. *Jurnal Dokumentasi Dan Informasi*, 30(2), 73–95.
- Royani, Y., & Idhani, D. (2018). Analisis Bibliometrik Jurnal Marine Research in Indonesia. *Media Pustakawan*, 25(4), 60–65.