

# Bibliometric Analysis of Research Trends on Student Character Amid Technological Development in the Era of Society 5.0

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## Abstract

This research aims to analyze how research relates to student character amidst technological developments in the Era of Society 5.0. This research method is a literature study or literature review using bibliometric analysis. The data analysis technique carried out starts from defining the keyword "Era Society 5.0" in the Publish or Perish 8 application based on data from Google Scholar. After narrowing the data by specifying the special topics "student character" and "technology", 39 out of 150 scientific articles were obtained that were relevant for review. Then meta data was compiled using the Mendeley application, the VOSviewer application was used to create research trend visualizations. The research results show that the research classification regarding the character of students in the society 5.0 era is divided into 3 clusters which are centered on the use of technology in education. This research is limited by the number and lack of variety in the research topics of the articles reviewed.

## A. Introduction

Japan launched the concept of "Era Society 5.0" on January 21, 2019. As per the philosophy of Era Society 5.0, people can enable contemporary technologies to fulfill needs in every field, allowing them to live happily and easily (Bahtiyar et al., 2022). In Society 5.0, technology serves as a catalyst for positive development, resulting in a smarter and more connected society. Although originating in Japan, this idea has impacted the debate on how technology is transforming societies around the world. Keep in mind that the evolution of this concept may vary in the future, and many interpretations may emerge globally. In the context of education in the Era of Society 5.0, learners can come into close contact with robots that are meant to take the position of teachers or operate under remote control. Whether or not the teacher is there, it is not impossible that the teaching and learning process can take place anytime and (F. Nastiti & Abdu, 2020).

With its emphasis on sustainability, human empowerment and high-tech integration, the Society 5.0 era has the potential to significantly affect student character. Students who use technology in the classroom can become more independent and take responsibility for their education. The development of today is influenced by technology that makes everything easier. For example, gadgets and phones that make it easy for us to connect with anyone and anywhere. The way of life of Indonesian society has changed due to technology, but these changes are believed to have an overall positive impact, especially on the country's education system (Handayani et al., 2022).

However, it is important to focus on online accountability, digital ethics and how to behave morally in a digital environment. Therefore, it is important to ensure that the use of technology in educational settings is sufficiently integrated and based on sound pedagogical ideas. Developing students' character is essential to equip them to face the challenges of the present and the future. One of the responsibilities of educational

institutions is to foster the next generation of citizens who are virtuous and well behaved in accordance with social norms. This is known as character education. The importance of character education for children and the next generation is very important as a foundation for self-formation in order to build a young generation with the character we aspire to (Adawiyah, 2018).

In a 5.0 society, the use of technology and education are closely linked; in fact, they are always intertwined. Therefore, facilities that allow access to online learning resources are indispensable to help the implementation of education and learning. When devices become children's best friends, they often change students' personalities. Uncontrolled use of technology in the classroom can cause distractions and disrupt student focus. Spending too much time in front of a screen can lead to social isolation and reduce direct contact with loved ones. The use of technology in school activities is an issue for educators, parents and society at large. Finding a healthy balance between students' use of technology and their character development is crucial. To provide direction, set boundaries and teach students how to use technology properly, parents and educators must collaborate.

Based on the description above, the author is interested in researching "Bibliometric Analysis of Research Trends on Student Character in the Middle of Technological Development in the Era of Society 5.0". The problems in this study can be formulated as follows: (1) How is the condition of student character in the era of society 5.0 classified?, (2) What is the trend of research on the relationship between technological development and student character?, (3) Can topics on the relationship between technology and student character be carried out for further research?

## B. Research Methods

Bibliometric techniques are included in the literature review methodology of this study. The quantity distribution of publications and citations of various literary works is viewed through bibliometric analysis. Qualitative and quantitative explanations can be used to explain some topics of bibliometric analysis (Pisuko Herawati et al., 2022). The bibliometric analysis method in this study was used with five steps introduced by (Fahimnia et al., 2015). The five steps include defining the words "era society 5.0" as the initial search key (Defining Search Keywords), initial search results (Initial Search Results), refinement of the search results (Refinement of the Search Results), compilation of statistics on the initial data (Compiling Statistics on the Initial Data), and data analysis (Data Analysis).

### 1. Defining Search Keywords

The term "era society 5.0" was used to conduct a literature search in December 2023. Data was collected using Publish or Perish 8 software and Google Scholar database. We started by using the terms "era society 5.0" and "journal", along with specific parameters, to create a query in the Publish or Perish 8 software. Next, we created search parameters that excluded anything that was not a published scientific publication, including books, magazines, newspapers, book reviews, and book chapters. In the first search, we were able to find 150 publications from the Google Scholar database published between 2018 and 2022.

### 2. Initial Search Results

**Table 1.** Top 10 Articles Identified by PoP (Unrefined Search)

Author	Title	Cited by
(F. E. Nastiti & 'Abdu, 2020)	Kesiapan pendidikan Indonesia menghadapi era society 5.0	412
(Angga et al., 2022)	Komparasi Implementasi Kurikulum 2013 dan Kurikulum Merdeka di Sekolah Dasar Kabupaten Garut	223
(Ramdani et al., 2021)	Analysis of Students' Critical Thinking Skills in terms of Gender Using Science Teaching Materials Based on The 5E Learning Cycle Integrated with Local Wisdom	162
(Engkizar et al., 2017)	Behavior and Factors Causing Plagiarism Among Undergraduate Students in Accomplishing The Coursework on Religion Education Subject	79
(Kahar et al., 2021)	Pendidikan Era Revolusi Industri 4.0 Menuju Era Society 5.0 Di Masa Pandemi Covid 19	64
(Ariani & Syahrani, 2022)	Manajemen pesantren dalam persiapan pembelajaran 5.0	45

(Parwati & Pramatha, 2021)	Strategi Guru Sejarah Dalam Menghadapi Tantangan Pendidikan Indonesia Di Era Society 5.0	40
(Muhammad et al., 2022)	Pengembangan media interaktif menggunakan adobe flash CS6 profesional pada materi relasi dan fungsi	32
(Nawawi, 2020)	Pengaruh media pembelajaran terhadap motivasi belajar: tinjauan berdasarkan karakter generasi z	29
(Sururuddin et al., 2021)	Strategi Pendidik Dengan Media Pembelajaran Berbasis Multimedia Untuk Menghadapi Era Society 5.0	22

Table 1 shows a list of the top ten articles identified by Publish or Perish 8 (Unrefined Search).

### 3. Refinement Of The Search Results

The researcher then filtered out items that did not fit the selection criteria or were not relevant to the researcher. Table 2 shows the filtering results. We removed 39 articles from the original 150. 111 articles were removed for various reasons after the titles and abstracts were checked. The metric data from the refined search and the initial search are compared in Table 3.

**Table 2.** Article Screening Results

Screening Results	Article Count
Not Relevant (Not an Education Topic in the Era of Society 5.0)	69
Not a Student Character Topic	37
Undefined/citation link only	2
Not a Journal	3
Student Character Topic in the Era of Society 5.0	39
Totally	150

**Table 3.** Comparison Matrix

Initial Search	Refinement Search
<p><b>Citation metrics</b> <a href="#">Help</a></p> <p>Publication years: 2018-2022</p> <p>Citation years: 5 (2018-2023)</p> <p>Papers: 150</p> <p>Citations: 1438</p> <p>Cites/year: 287.60</p> <p>Cites/paper: 9.59</p> <p>Authors/paper: 2.40</p> <p>h-index: 16</p> <p>g-index: 37</p> <p>hI,norm: 9</p> <p>hI,annual: 1.80</p> <p>hA-index: 11</p> <p>Papers with ACC &gt;= 1,2,5,10,20: 54,43,24,14,7</p>	<p><b>Citation metrics</b> <a href="#">Help</a></p> <p>Publication years: 2019-2022</p> <p>Citation years: 4 (2019-2023)</p> <p>Papers: 39</p> <p>Citations: 923</p> <p>Cites/year: 230.75</p> <p>Cites/paper: 23.67</p> <p>Authors/paper: 2.72</p> <p>h-index: 10</p> <p>g-index: 30</p> <p>hI,norm: 6</p> <p>hI,annual: 1.50</p> <p>hA-index: 9</p> <p>Papers with ACC &gt;= 1,2,5,10,20: 20,18,10,7,5</p>

### 4. Compiling Statistics On The Initial Data

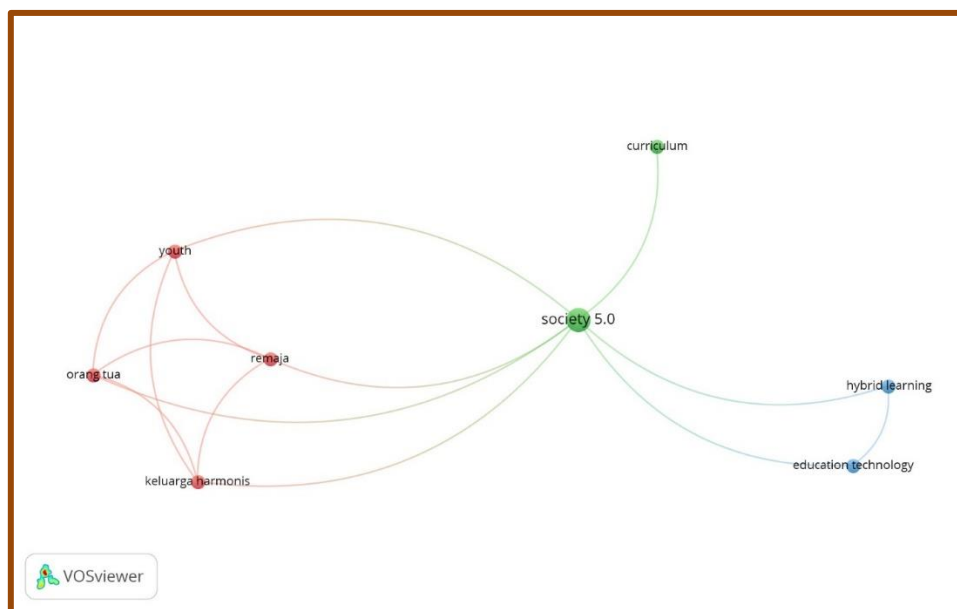
After refinement, the search results are downloaded, saved in the Mendeley program, and exported to RIS format. This file contains all information related to the paper, such as title, author names, abstract, keywords, and journal specifications (journal, year, volume, issue, and pages).

### 5. Data Analysis

This study used the Google Scholar database to filter searches on "student character" after presenting a bibliometric analysis for the term "society era 5.0." Using the PoP application, the bibliometric analysis of this work found 150 publications with 1438 citations (287 citations/year) from the first search. 39 articles (a 74% decrease) remained when the search results were filtered based on predefined categories; the citation data also changed to 923 citations and 230 citations/year. Table 3 provides a summary of all findings from the comparison of metrics before and after search enhancements.

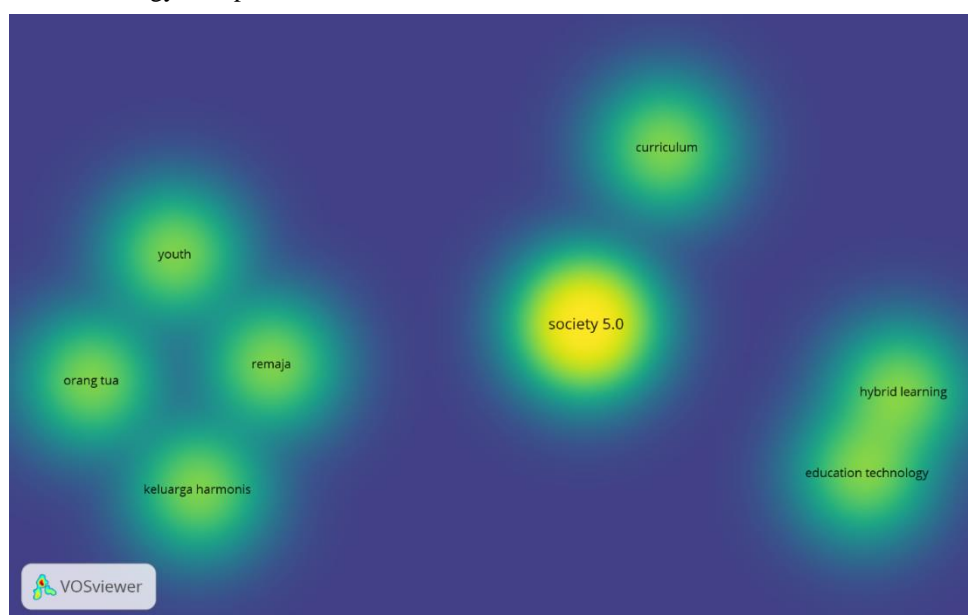
### C. Result and Discussion

The most cited article in the research trend related to "Era Society 5.0 in the focus of character education in Indonesia" is the article titled "Readiness of Indonesian education to face Era Society 5.0" published in 2020 and written by F. E. Nastiti & 'Abdu (2020). The article has received a total of 412 citations. The researcher checked the output from the PoP application into the VOSviewer application, taking into account citation frequency and other parameters, to ascertain which terms were repeated. Bibliometric maps can be viewed using the VOSviewer application in three different ways: network visualization, overlay visualization, and density visualization.



**Figure 1.** Visualization of the Research Trend Map

The PoP app performed a comprehensive calculation that resulted in 55 keywords and a threshold, with the number of occurrences that appeared set to 1. To arrive at the three clusters, the researchers also removed redundant common words. With an occurrence value of 1 each, the first cluster consists of happy families, parents, teenagers, and the younger generation. Curriculum and Society 5.0 constituted the second cluster, with occurrence values of 1 and 3 respectively. With an occurrence value of one each, hybrid learning and educational technology occupied the third cluster.



**Figure 2.** Visualization Density of the Research Trend

Given the rapid development of technology, it has become easier for everyone to use it, so elementary school students who are already proficient in using the telephone may still be able to use it. Although the estimated benefits of technological advancement are overestimated, elementary school students who use computers without supervision suffer more from this development. To realize a generation that upholds relevant values, morals and conventions and is a reflection of Indonesian society, character building must be instilled in the next generation as early as possible. This can be achieved by starting from simple activities and introducing them from elementary school age. In addition, providing an introduction to technology that is appropriate to the age and level of need in the era of society 5.0 (Putri Lestari & Habibah, 2023).

The term "Society 5.0 Era" is a Japanese invention that describes a period of social evolution when technology plays an important role in everyday life. In this case, the character of students in the Society 5.0 era is greatly influenced by technology. Students are brought up in an environment where the use of technology is ingrained in daily life. However, it is important to remember that technology does not always have a good impact on students' morale. Inappropriate content or spending too much time in front of the screen may have adverse effects. Therefore, it is crucial for parents and teachers to help students use technology responsibly. Students are at risk of becoming overly dependent on technology, making it difficult for them to complete schoolwork without the use of gadgets.

#### D. Conclusion

A total of 39 papers on the subject of student character which are related to "Era Society 5.0" were reviewed for this research. Using PoP software, articles were collected from the Google Scholar database. Of the 150 articles at the start of the search, 39 items were filtered out (74% reduction). This lack of research suggests potential areas for further investigation regarding the "Era of Society 5.0" and how it influences students' moral development. In general, there are growing trends in this area of research, but greater collaboration among researchers studying related subtopics including parenting, curriculum, and educational technology is needed.

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