

How is the Development of Gender Study in The 21st-Century?: A Bibliometric Analysis

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ABSTRACT

The issue of gender was growing along with the number of information media that makes gender a significant problem in the 21st-century era. The 21st-century has consequences on collaboration between men and women in terms of improving performance in every sector of work. However, the issue of gender is currently not equipped with development studies in gender studies, and gender issues are fascinating to discuss with a bibliometric analysis approach. This study aims to analyze the development of gender issues in the 21st-century with a literature review approach. The method used in this study is a bibliometric analysis. The literature analyzed was 2293 documents consisting of 1000 Crossref documents (43.61%), 994 Google Scholar documents (43.35%), 99 Pubmed documents (4.32%), and 200 Scopus documents (8.72%). This study found that seven nodes describe the relationship between gender issues and other topics. The seven nodes found in this study are (1) the relationship between gender and family relationships; (2) The relationship between gender and transformation; (3) The relation of gender to feminism; (4) The relationship of gender to the future; (5) Gender linkage with experiences; (6) The relationship between gender and students; and (7) Gender linkage with equity. Visualization of nodes in bibliometric analysis to represent the proximity of gender as a topic under study with other issues. The findings of this study are expected to be a reference for studies on gender regarding the development of relevant issues in the 21st-century. In addition, these findings also illustrate how diverse and rich discussions about gender are because gender studies cover many aspects in the 21st-century.

Keywords: gender, 21st-century, bibliometric analysis, literature review

1. INTRODUCTION

The development of the study of gender was proliferating along with the advancement of the media. The issue of gender is a significant concern in the 21st-century. However, the development of the study of gender cannot be measured so that a method is needed to describe gender studies in the 21st century. This is important because gender differences are believed to affect various fields. There are gender differences in economic preferences in terms of determining the type of work, type of investment, and educational needs [1]. However, the social weakening of gender in developed countries is believed to result in a negative relationship with economic development and gender equality. The relationship between gender differences and the level of welfare is inconsistent, whereas well-being indicators are very subjective [2]. A study is needed that not only discusses gender differences in one field but also requires an effort to expand the field of gender studies.

Gender is one part of demographic data that influences several scientific studies and fields. Gender variations affect preferences for technology selection decisions, especially electric cars [3]. In addition, experience and education play an active role in shaping choices. Previous research has found that a series of experiments have been carried out stating that gender differences do not affect communication networks [4]. In other studies, the study of gender differences has also become an exciting topic in education where there are possible gender gaps and inequalities in specific domains of education. [5]. The education level of females has increased significantly compared to the movement of the education level of males [6]. However, women's representation is still lacking in universities that concentrate on STEM (Science, Technology, Engineering, and Mathematics).

Gender patterns in math and science interests influence an early age and develop over time. Gender patterns provide a systematic review of academic

success, do gender patterns contribute to gender equality in academic success?. The development of gender studies has not found the right design to describe how this study develops. Therefore, this study adopts various approaches to summarize the information and results of the investigation. In its development, gender studies have become a fascinating topic because gender studies still need to be developed and visualized. Research related to the development of gender studies has research questions as follows: (1) How is the development of gender studies in the period 2011–2021?. This study aims to analyze the effect of gender studies using the literature review method in the period 2011–2021.

The development of gender studies is currently an exciting topic in various fields. The findings of previous studies indicate that gender differences influence social media interactions and well-being in adolescents [7]. These findings resulted from technological advances that affect sedentary and aloof behavior. Teenagers' interaction with social media continues to increase, but it is necessary to educate boys and girls about the risks and benefits of social media. Discussions on exchange with the media provide an opportunity to examine gender studies more broadly.

In a previous study, the gender gap in academia is narrowing. However, women are underrepresented in several fields due to a lack of interest, especially in science [8]. This result is an exception in specific areas where women have interests in other fields. In the same study, research findings indicate that women tend to use qualitative and exploratory methods compared to men who use quantitative methods. Gender should not be interpreted as a difference, but gender can be considered a division of various fields' roles and functions. Gender studies are often

associated with different responsibilities between men and women.

The word gender is often assumed to be a gender variable consisting of male and female. Gender can be considered roles and behaviors embedded in social life [9]. Culture interprets gender as a set of rights, resources, and roles in society. There is a guarantee of full and effective gender participation in equal opportunities to lead at every decision-making level. Differences in gender roles are not a problem as long as no one is harmed by each other, where a gender gap will occur if someone does not have the same opportunities and opportunities caused by gender differences. The same options in technology are needed in gender studies. A person's involvement based on gender needs to be discussed further because this has become the focus of one's success in recent years. Levels of engagement based on gendered approaches can influence learning in certain areas [10]. This can be an exciting topic to discuss in the development of gender studies.

2. METHODS

The study of gender is the main focus of this research, where the study of the development of the study is fascinating to discuss. This study uses bibliometric analysis to present the story of studies on gender for 10 years, starting in 2011 – 2021. The number of documents used in this study is 2293 from several indexers such as crossref, google scholar (GS), PubMed, and Scopus. The use of multiple indexers is because of differences in indexing databases both in article coverage and the number of citations in the entire database [11]. The number of articles processed in this study is as shown in Table 1.

Table 1. Number of articles

Sources	Total Document
Crossref	1000
Google Scholar	994
Pubmed	99
Scopus	200

Table 1 shows that the overall number of articles is dominated by articles from crossrefs (1000; 43.6%), followed by GS (994; 43.35%). Furthermore, PubMed articles as many as 99 documents (4.32%) and Scopus articles as 200 documents (8.72%). The reason for using the four indexers is that the number of pieces included in the indexer is vast and there is an assumption in the quantity that the articles collected have met the research needs according to the keyword "gender" that has been selected. This study uses RIS data to source article data obtained from the Mendeley

library and software and Publish or Perish software Version: 7.33. In the analysis phase, 2293 articles were analyzed based on the number of articles in each indexer, year of publication, and cites per year. This study uses VOSviewer version 1.6.17 to observe research trends on gender by using clustering techniques. VOSviewer visualizes in the form of color differences [12], [13], where each color represents a cluster. Meanwhile, trend data in gender research is visualized using data-wrapper.

3. RESULT AND DISCUSSION

Trends in gender research in the period 2011-2021 are proliferating in line with the relevance of gender

issues to the 21st century, however, in fact, the trends in gender studies have developed before 2011. The developments in studies on gender can be seen in Table 2.

Table 2. Gender studies during 2011 – 2021

Years	Sources				Total
	Crossref	Google Scholar	Pubmed	Scopus	
2011	52	62	16	21	151
2012	44	56	6	15	121
2013	60	104	6	15	185
2014	81	82	4	11	178
2015	100	55	13	15	183
2016	55	81	8	24	168
2017	126	100	6	19	251
2018	80	108	9	18	215
2019	168	92	13	22	295
2020	185	199	13	27	424
2021	49	55	5	13	122

Table 2 shows the distribution of article data in the 2011-2021 period, with a slow increase in the 2011-2016 period. The increasing trend occurred in the 2017-2021 period, with as many as 1307 articles. Article search is done with the help of the keyword “gender” in article search tools (Mendeley library and Publish or Perish software). The more bibliographic databases, the more valuable the provision of information, and the various functionalities offered [14]. However, in another study, some researchers

combined several indexing databases to perform a single analysis [15]. Incorporating a single comment on several indexers is believed to produce a more reliable bibliometric analysis. The stages of the process for inclusion criteria for keyword searches are as shown in Table 3.

The development of gender studies can also be seen from the development of cites per year as shown in Table 4.

Table 3. Search term of document

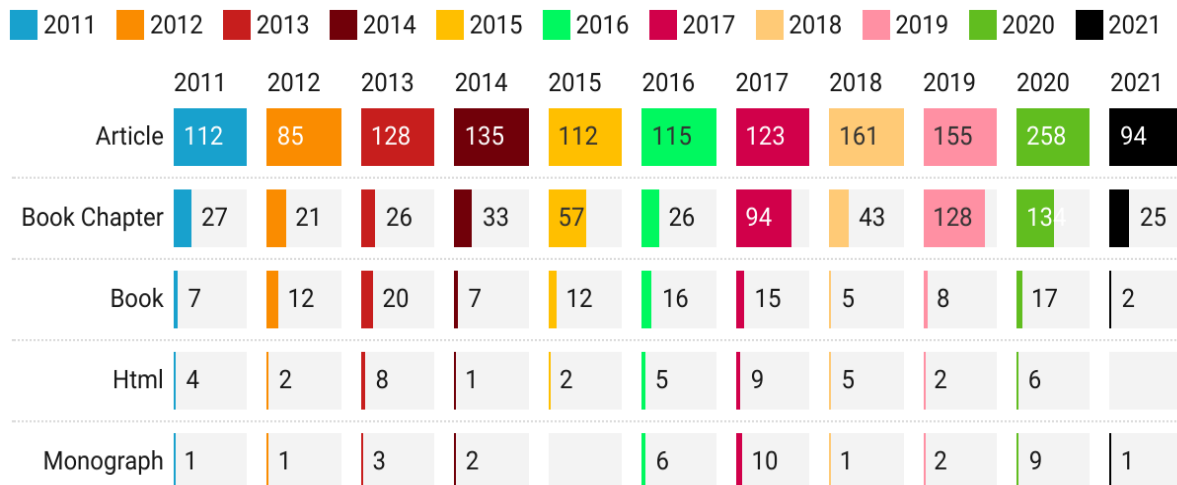
Description	Detail Task	Search Term	Result
Document-based on the search term	Searching by keywords	TITLE-ABS-KEY (“gender”)	2293 articles

Table 4. Cite per years of study gender

Sources	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total
Article	112	85	128	135	112	115	123	161	155	258	94	1478
Book	7	12	20	7	12	16	15	5	8	17	2	121
Book Chapter	27	21	26	33	57	26	94	43	128	134	25	614
Html	4	2	8	1	2	5	9	5	2	6		44
Monograph	1	1	3	2		6	10	1	2	9	1	36

Table 4 shows that cites per year are mostly presented from articles (1478, 64.46%), followed by book chapters with 614 cites (26.78%). The development of research is very rapid in all types of

research[16]. Interest in gender studies can be seen in how often gender studies are cited by other studies, as shown in Figure 1.

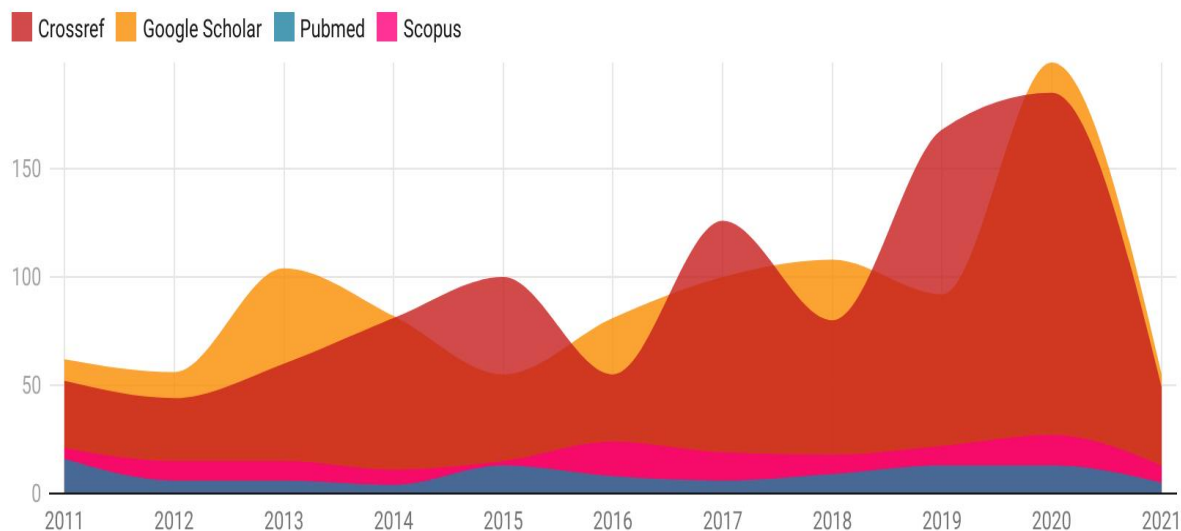


Created with Datawrapper

Figure 1 Visualization of Cite per years

Figure 1 shows the development of cites per year in the discussion of gender. The increase in cites per year is indicated by citations from article documents, followed by book chapter documents. The

development of gender studies in the period 2011-2021 is divided into four indexers (Crossref, Google Scholar, Pubmed, Scopus), where the articles for each indexer have increased as shown in Figure 2.



Created with Datawrapper

Figure 2 Visualization trend of gender study interest

Figure 2 shows the development of studies on gender in the period 2011 – 2021. The research questions were answered using the VOSviewer software version 1.6.17 [17], [18]. How do gender studies relate to other topics?; The results of the bibliographic analysis produce several nodes that represent the cluster. Trends in specific issues can be revealed using bibliographic analysis [19]. The results of the research show the relationship between the topic

being searched for and other relevant matters. There are seven clusters in the bibliographic analysis, which are represented by nodes, namely (1) gender relationship with family relationship; (2) gender relations with transformation; (3) gender relations with feminism; (4) gender relations with the future; (5) gender relations with experience; (6) gender relations with students; and (7) the relation of gender to equality, as shown in Figure 3.

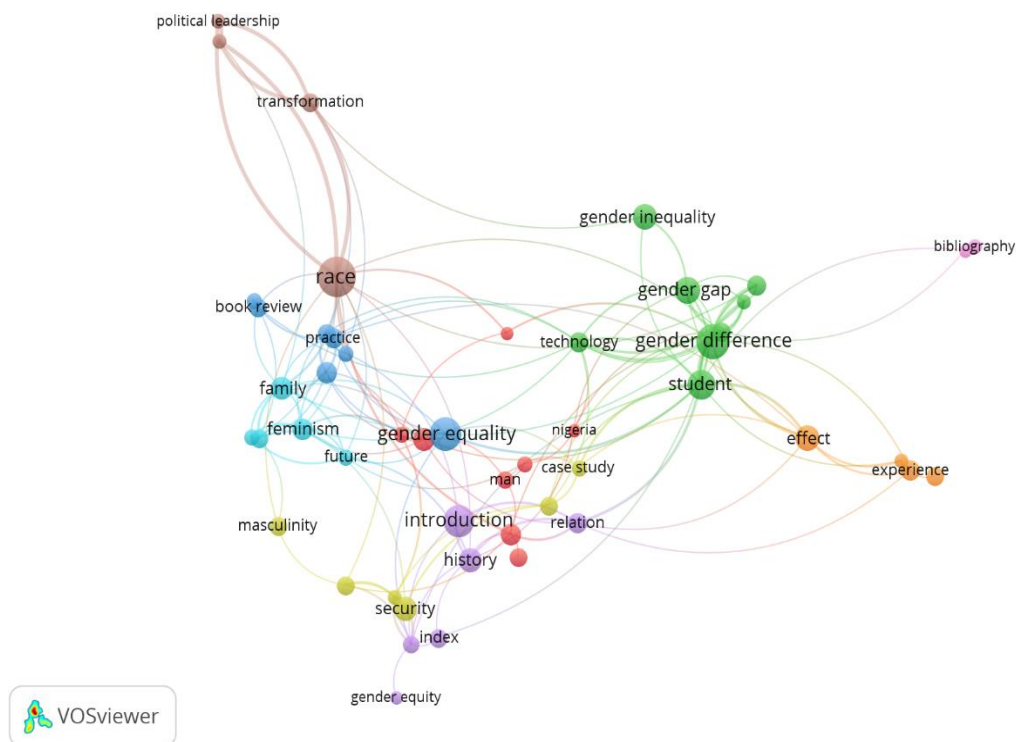


Figure 3 Keyword network about gender

Figure 3 shows the related keywords shown in the color difference. In this section, co-occurrence analysis is used to detect the distribution of gender topics to other topics [18]. Mapping a topic using a co-

occurrence approach shows a gradual increase in research [20]. The strength of the relationship between gender topics and other topics can be seen in Figure 4.

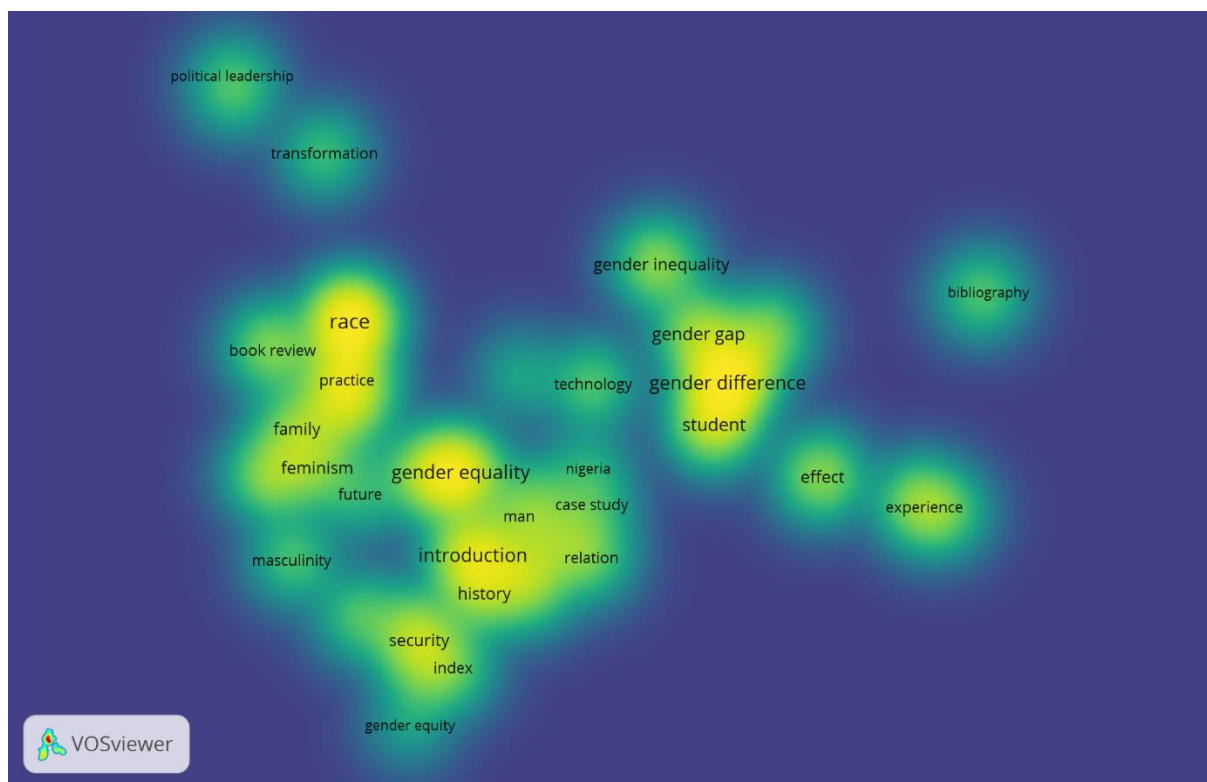


Figure 4 Density visualization of gender study

Figure 4 shows that the topic of gender has a density level of discussion which is represented by different colors. The yellow color indicates a high density in the discussion of the gender keywords. Meanwhile, the blue color represents a low density of discussions related to gender. Density visualization aims to describe the focal point of gender studies in some relation to other topics. Bibliometric analysis is currently used to evaluate scientific output, research potential in specific fields, and selecting scientific issues [20], [21]. This finding is certainly an exciting result because it can provide confidence in the effectiveness of bibliometric analysis based on needs.

4. CONCLUSION

The development of gender studies is proliferating, marked by findings that show the relevance of gender studies to other topics. The results of this study indicate that gender studies are related to different issues that are delivered from the seven nodes, namely the relationship of gender studies to family relationships, transformation, feminism, future, experience, students, and equality. The research findings were generated through a bibliometric analysis of gender studies collected from documents originating from indexer databases, crossref, google scholar (GS), PubMed, and Scopus. The limitation of this research is that RIS document data is only obtained from documents collected from library data from reference manager tools and Publish or Perish (PoP) applications. It takes databases from several large indexers such as Scopus and Web of Science (WoS) where accessing article data requires authentication or username. Gender studies with a bibliometric analysis approach can be implemented to measure the potential for a topic to be developed and re-examined.

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