



Bibliometric Analysis: Self-Efficacy Research In High School In One Decades Final

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Article Info	Abstract
Article History Received: 2023-06-12 Revised: 2023-07-23 Published: 2023-08-01 Keywords: <i>Self-Efficacy; Bibliometrics; Senior High School.</i>	Self-Efficacy is the belief to do the task and become a determinant in individual development. This study aims to capture the relevant previous research landscape related to Self-Efficacy in senior high schools in the last decade using bibliometric analysis Data taken from the database scopus refined to 90 publications. 2020 has published the most articles compared to other years, namely 17 publications. The trend of citations related to Self-Efficacy in high schools occurred in 2013 with 148 citations. Indonesia, Taiwan and China are the most influential countries in this field. The focus of research related to Self-Efficacy in high schools is, 1) Gender; 2) study achievement; 3) social support. The three parts of the research focus can be used as guidelines for further research that wants to take the theme of Self-Efficacy, especially at the high school level to determine the research focus to be studied.
Artikel Info	Abstrak
Sejarah Artikel Diterima: 2023-06-12 Direvisi: 2023-07-23 Dipublikasi: 2023-08-01 Kata kunci: <i>Efikasi Diri; Bibliometrik; SMA.</i>	Efikasi Diri adalah keyakinan untuk melakukan tugas dan menjadi penentu dalam perkembangan individu. Penelitian ini bertujuan untuk menangkap lanskap penelitian sebelumnya yang relevan terkait Efikasi Diri di SMA dalam satu dekade terakhir dengan menggunakan analisis bibliometrik. Data diambil dari database scopus yang disempurnakan menjadi 90 publikasi. Tahun 2020 menerbitkan artikel terbanyak dibandingkan tahun lainnya, yaitu 17 publikasi. Tren sitasi terkait Efikasi Diri di SMA terjadi pada tahun 2013 sebanyak 148 sitasi. Indonesia, Taiwan dan Cina adalah negara yang paling berpengaruh di bidang ini. Fokus penelitian terkait Efikasi Diri di SMA adalah, 1) Jenis Kelamin; 2) prestasi belajar; 3) dukungan sosial. Ketiga bagian fokus penelitian tersebut dapat dijadikan pedoman bagi penelitian selanjutnya yang ingin mengambil tema Efikasi Diri khususnya di tingkat SMA untuk menentukan fokus penelitian yang akan diteliti.

I. INTRODUCTION

Self-Efficacy is a major determinant of choice for individual development, persistence in using various difficulties, and patterns of thought and emotional reactions experienced (Bandura, 1978). Self- efficacy refers to beliefs in one's capacity to exercise control over challenging situations low self- efficacy is associated with helplessness and high self-efficacy (Chen, 2020; Halili et al., 2019; Kosimov, 2021; Ugarte-Gil et al., 2022). Self-Efficacy is understood as a person's perception of the ability to plan and perform certain tasks (Patricio-Gamboa et al., 2021). So, self-efficacy is the belief to do the task and become a determinant in individual development (Himmi & Azni, 2017). Self-Efficacy is an important mediator between knowledge and self-management (Chuang et al., 2021; Yadav et al., 2021). According to (Aoki et al., 2022) Self-Efficacy is very important in improving students' communication skills. Low (Liu et al., 2021). Meanwhile, according to (Gold, 2022) Low self-efficacy ultimately hinders or undermines

student academic achievement. Low efficacy is caused by students feeling inadequate and doubting their competence (Manoharan et al., 2022). The teacher's lack of ability to select and evaluate technology to support teaching and learning can also result in a low level of Self-Efficacy.

Currently, various reports have been published on Self-Efficacy in Senior High Schools. But systematic a review to identify research trends related to Self-Efficacy in secondary schools has not provided sufficient information. So the researchers conducted a bibliometric analysis in this field to analyze the literature on Self-Efficacy in secondary schools. Bibliometric analysis is a systematic method reviews that identify research trends and current issues from previous publications in describing a particular area of research (Bayu et al., 2023). Recently, many reports on bibliometric analysis have been published to understand research trends on certain topics (Muhammad, Himmawan, et al.,

2023; Muhammad, Marchy, et al., 2022, 2023; Muhammad, Mukhibin, et al., 2022).

Research related to this research is like research conducted by (Karaman et al., 2020) about the extent to which the Self-Efficacy and Perfectionism scores of Turkish high school students explain their academic motivation. The results of the study indicate that self-efficacy continues to be an important factor in outcomes among high school students and extends previous findings that self-efficacy has been associated with student resilience, achievement, and persistence of effort. The research also implies that one way to increase students' self-efficacy is to foster hope for the future. Therefore the researchers conducted a bibliometric study related to Self-Efficacy in high schools.

II. METHOD

In looking for data sources related to " Self-Efficacy in high school students", researchers used databases scopus due to its wide interdisciplinary scope. There are several steps in perfecting the data that has been collected as shown in Figure 1. The first is identification, then followed by screening, eligibility and finally the inclusion step (Moher et al., 2009).

The first step is the identification process, the researcher enters keywords in the database search scopus . The keywords entered are (" Self-Efficacy " OR " Self-Efficacy ") AND ("senior high school "). From the results of this identification obtained publication data of 161 articles. The next step is the screening process, namely the researcher screens according to the criteria, namely, publications must be in English, must be in the form of articles published in journals. From the results of this screening, 132 publications were obtained that met the above criteria . This means that there are 29 publications that have been discarded and not continued in the next process.

Publication of screening results, then carried out the feasibility process. In this process the researcher did it manually regarding publications that were eligible to be included in the inclusion stage. Researchers looked at the abstracts and titles of 132 publications and assessed publications that had included or included the variable Self-Efficacy in high school students. At the end of the third phase, 90 publications were obtained that were eligible for inclusion in the next stage. This data is taken at 13 April 2023 during the inclusion stage. The trend of publications related to Self-Efficacy in high school students is carried

out by descriptive analysis taken from the database scopus by bibliometric analysis . The number of publications and a linear line of publication trends for each year in the last decade will be displayed in a graph using the software Microsoft excel.

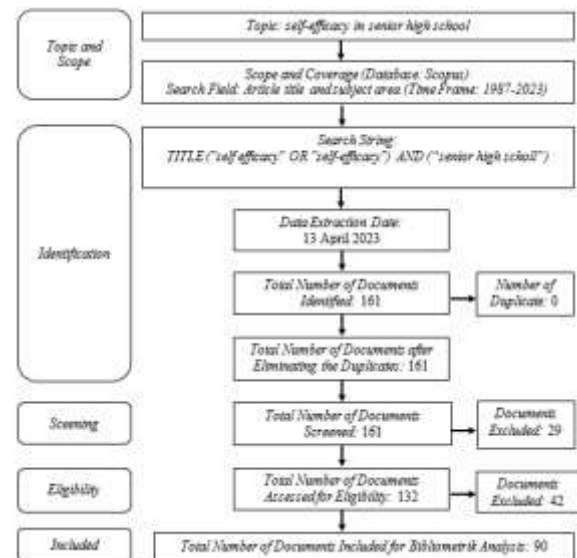


Figure 1. Publication trends and citation trends related to Self-Efficacy in high school

Publication trends and citation trends related to Self-Efficacy in high school students are separated by year in the last decade. The number of publications each year is displayed in a diagram with the help of Microsoft excel software. Then the average publication citations are also calculated using the software Microsoft excel. Software PoP is used to make it easier to calculate the h- index and g- index of publications. The geographic distribution of countries is displayed with the help of Microsoft Excel software, but to see cooperation between countries researchers use the VOSviewer application. The focus of research related to Self-Efficacy in high school students is carried out with the help of the vosviewer application by analyzing events with keywords. The researcher sets a threshold for displaying the research focus, namely the researcher sets a minimum of 2 publications that use the keywords together.

III. RESULTS AND DISCUSSION

Publications related to Self-Efficacy for high school students who have gone through a data collection process to obtain 90 publications in the last decade that meet the criteria are then subjected to a descriptive bibliometric analysis. Publication trends, citation trends, country and journal distribution and research focus will be discussed further.

A. Publication Trends

The trend of publications related to Self-Efficacy in high school students from 2013 to 2023 is shown in Figure 2. A total of 90 publications are grouped by year of publication which can be seen in Figure 2 below.



Figure 2. Number of Publications from 2013 to 2023

From Figure 2 it can be seen that in 2020 there were 17 articles published, this is the highest number of publications compared to other years. Judging from the trend line, it can be seen that publications have increased every year from 2016 to 2020, although the number of publications from 2013 to 2023 has not changed much. The rapid increase in the number of publications occurred in 2018 to 2019 which has increased from 8 in 2018 to 16 in 2019, meaning that the increase has doubled from 2018 to 2019.

B. Trending Quotes

The trend of citations related to Self-Efficacy in high school students from 2013 to 2023 is shown in table 1. As with publication trends, as many as 90 publications are grouped by year of publication which will then be seen based on total publications per year, NCP, TC, C/P and others which can be seen in table 1 below.

Table 1. Citation Analysis of Publications

Year	TP	NCP	tc	C/P	C/CP	h	g
2023	3	1	1	0.3	1	1	1
2022	14	9	30	2,1	3,3	3	5
2021	16	13	72	4,5	5,5	6	8
2020	17	15	138	8,1	9,2	6	11
2019	16	14	112	7	8	6	10
2018	8	6	113	14	19	5	8
2017	5	5	36	7,2	7,2	4	5
2016	2	2	8	4	4	2	2
2015	2	2	7	3,5	3,5	2	2
2014	4	4	93	23	23	3	4
2013	3	3	146	49	49	3	3

Notes. TP=total of publication, NCP= number of cited publication, TC=total citations, C/P= average citations per publication, C/CP= average citations per cited publication, h=h-index, g=g-index

From table 1 above it can be seen that the value (NCP) in 2020, which is 15, is the year with the highest NCP compared to other years.

then when viewed from the number of citations, publications in 2013 have been cited more than any other year, with 146 citations . Even though the number of publications in 2020 was more than the previous year, the previous year, especially 2013, provided a large number of citations. There are publications in years that only have a small number of citations as happened in 2023 which were only cited once, this is because the year is still running so that publications in 2023 have not been widely cited.

H-index and g-index values were published in 2020 with h-index = 6 and g-index 11. So it can be said that 2020 will also have a big impact on this research. A total of 3 publications that have been cited in 2013 have a total of 146 citations , meaning that at least 3 of these publications have been cited 50 times each.

C. Geographic Distribution and Relations Between Countries

1. Geographic distribution

The country shown in Figure 3 below is the country of origin of the publication author with a threshold or minimum number of 2 documents. Geographically, the distribution from the author's country of origin can be seen in the image below.

Selected	Country	Documents	Citations	Total link strength
<input checked="" type="checkbox"/>	Indonesia	26	78	307
<input checked="" type="checkbox"/>	Taiwan	22	318	303
<input checked="" type="checkbox"/>	China	18	131	212
<input checked="" type="checkbox"/>	Philippines	4	68	188
<input checked="" type="checkbox"/>	Australia	7	88	701
<input checked="" type="checkbox"/>	Ghana	3	43	343
<input checked="" type="checkbox"/>	Hong Kong	3	23	254
<input checked="" type="checkbox"/>	United States	3	5	173
<input checked="" type="checkbox"/>	Thailand	3	7	168
<input checked="" type="checkbox"/>	Netherlands	2	8	88
<input checked="" type="checkbox"/>	Iran	2	16	55

Figure 3. Geographic Distribution of Publications

From figure 3 above it can be seen that Indonesia and Taiwan are the most influential countries regarding Self-Efficacy research in high schools, this can be seen by the many publications from Indonesia and Taiwan which have published 26 and 22 documents respectively related to this field, in third place is China which is the country that has the third influence on Self-Efficacy research on high school students, namely with 18 documents that have been published. The distribution of data shows that only the South American continent has not published documents related to this field. This means that other continents such as North America, Asia, Africa and Europe

have published documents related to Self-Efficacy in high school students. The Asian continent is the most influential in this field because it has published more than 80 documents, this number is very far when compared to publications from other continents. The pattern of collaboration between countries can be seen in Figure 4 below. Researchers do not set a threshold in this stage. This means that countries that only have 1 document related to this field will be displayed even if the country does not have a cooperative relationship with other countries. The number of countries displayed is 26 countries can be seen in Figure 4 below as follows.



Figure 4. Patterns of State Collaboration

From Figure 4 above it can be seen that the circles of the countries of Indonesia, Taiwan, Australia and China have a very large circle diameter when compared to other countries, this shows that these countries have a high level of cooperative relations with other countries. There are 23 countries in Figure 4 above. From the VOSviewer display, it can be seen that Indonesia, Taiwan, Australia and China each have collaborated with more than 15 other countries, meaning that each of these four countries has collaborated with almost all the countries shown.

2. Research focus

The researcher sets the threshold at this stage, namely shared keywords that are displayed with a minimum of 2 publications, meaning that keywords that have been used together in 2 or more publications will be displayed on the shared keyword appearance with the help of VOSviewer. From 876 keywords after the threshold was set, there were only 23 keywords as shown in figure 6.

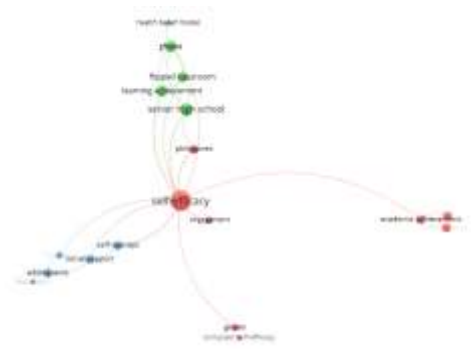


Figure 5. Keyword Co-occurrence
(Occurrence Threshold ≥ 2)

The research focus can be seen from the cluster shown, in Figure 5 above it can be seen that there are several different colors. This color indicates a research cluster related to Self-Efficacy in senior high schools. There are three clusters, namely red is the largest cluster followed by green and blue. This means that the research focus is divided into 3 parts, namely: 1) The first cluster (in red) consists of 8 items, when viewed from the size of the circle in this first cluster, the keywords that have the largest diameter are the keywords Self-Efficacy and Gender, meaning these keywords are the focus of the first research; 2) The second cluster (in green) consists of 5 items, the senior high keyword school and learning achievement becomes the largest circle in the cluster, meaning that the keyword is the focus of the second research; 3) The third cluster (in blue) consists of 5 items, the keyword that is the focus of the last research is social support.

D. Discussion

1. What are the publication trends related to Self-Efficacy in senior high schools?

Publication trends related to self-efficacy in high schools from 2013 to 2023 have increased, especially from 2016 to 2020. This is in accordance with what was stated by (Ramdani et al., 2022) that during the last decade research related Self-Efficacy has increased. Where the most publications related to Self-Efficacy in high school students occurred in 2020, namely 17 publications. The publication in 2020, which is the year with the most publications, has been cited 138 times. The article in 2020 that has the highest number of citations is research conducted by (Huang et al., 2020) with the title " Learning

to be a writer: A spherical video- based virtual reality approach to supports descriptive article writing in high school chinese courses ” the research results show that the proposed SVVR writing approach can improve students' writing performance in terms of content and performance as well as students' creative and self -efficacy tendencies in writing, while also reducing students' cognitive load. The article has been cited 42 times.

2. What are the citation trends related to Self-Efficacy in high school students?

The trend of citations related to Self-Efficacy research in high schools from 2013 to 2023 can be seen from the h- index and g- index values in table 1. The highest h-index and g- index values are in 2020 with h values - index = 6 and g- index = 11. The publication in 2013 has been cited 148 times. This means that 2013 had a major influence on research related to Self-Efficacy in high school students. The 3 articles with the highest number of citations published in 2013 can be seen in table 2 below.

Table 2. The 3 articles with The Highest Number Of Citations Published In 2013

No	Author (year)	Citation
1	(Di Giunta et al., 2013)	90
2	(Pan, 2014)	44
3	(Hong & Lin, 2013)	12

In table 2 above, research conducted by (Di Giunta et al., 2013) has been cited 90 times, meaning that this research is the most cited publication in 2013. Articles written by (Di Giunta et al., 2013) with the title “The determinants of scholastic achievement: The contribution of personality traits, self-esteem, and academic self-efficacy” which suggests that Educators must realize predecessor personality student For increase belief student they about ability they For control various field course and for arrange motivation and activity Study them.

3. What is the geographical distribution of publications and patterns of cooperation between countries in research related to Self-Efficacy involving high school students?

The two countries with the highest number of publications related to Self-Efficacy in high schools are Indonesia and Taiwan. This is in accordance with the results of research conducted by (Valencia-Vallejo et al., 2016) that Taiwan is still the country that publishes the most articles related to Self-Efficacy. The difference is that if Self-Efficacy is seen from just one level of education, namely at the high school level, Indonesia is also the country with the most publications. These results are different from research conducted by (Wang et al., 2022) which says that the United States is the most influential country that has published the most articles related to Self-Efficacy, this is because the study retrieved data from different databases, namely by using Web databases of Science (WOS). The pattern of cooperation between countries is also dominated by 3 countries, namely Indonesia, Taiwan and China. That is, with each having more than 15 links, it means that each of these countries has collaborated with more than 15 other countries and it can be concluded that Indonesia, Taiwan and China have a great influence regarding Self-Efficacy research in high schools.

4. What is the focus of research related to Self-Efficacy, especially in high school students?

The focus of research related to Self-Efficacy in high schools is divided into three parts, namely, 1) Gender ; 2) study achievement; 3) social support. The first research focus is gender. Research conducted by (Polo-Peña et al., 2020) on the moderating effects of gender and age on the relationship between their experiences of participating in gamification programs and perceived self-efficacy. The results of this study indicate that individual experiences in participating in gamification programs have a positive influence on the self- efficacy they feel in sports or exercise practice. The findings of this study provide a better understanding of whether gamification is an appropriate strategy to help participants perceive themselves as having greater self- efficacy in their chosen sport or exercise, taking into account the moderating effects of participant gender and age.

The second research focus is motivation. Research related to Self-Efficacy is often associated with learning achievement (Chang et al., 2022; Peechapol, 2021; Zhao et al., 2021; Zheng et al., 2020). Research on Self-Efficacy and learning achievement in high school as carried out by (Peechapol, 2021) regarding Investigation of the Effects of Virtual Chemical Laboratory Simulation on Learning Achievement, Self-efficacy, and Learning Experience. The third research focus is social support. It means third focus study on can made reference For study furthermore in set theme or focus study related field this.

IV. CONCLUSION AND SUGGESTION

A. Conclusion

Based on the results and discussion, it can be concluded that 2020 has published the most articles compared to other years, namely 17 publications. The trend of citations related to Self-Efficacy in high schools occurred in 2013 with 148 citations. Indonesia, Taiwan and China are the most influential countries in this field. The focus of research related to Self-Efficacy in high schools is, 1) Gender; 2) study achievement; 3) social support. The three parts of the research focus can be used as guidelines for further research that wants to take the theme of Self-Efficacy, especially at the high school level to determine the research focus to be studied.

B. Suggestion

Discussion regarding this research is still very limited and requires a lot of input. Suggestions for future authors are to examine more deeply and comprehensively about Bibliometric Analysis: Self-Efficacy Research in High School in One Decades Final.

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