# Bibliometric Analysis of Trends in Educational Planning for Higher Education: 2013-2023

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**Abstract**: Education always strives to improve its quality to produce prepared graduates capable of facing the challenges and developments of the times. To achieve quality outcomes, educational planning is a crucial step. The purpose of this research is to identify and analyze trends in educational planning from 2013 to 2023, to benefit higher education. The research method employed in this study is bibliometric analysis, which involves statistical analysis and is supported by Vosviewer software to visualize data obtained from the Scopus database. The results of the study indicate that there were 476 publications during the past 10 years, and it is observed that educational planning trends have experienced fluctuations during this period, with the year 2020 having the highest number of publications. Furthermore, the study also provides insights into publication trends, the most common affiliations for publication, the countries with the most publications, the subject areas with the most publications, the most frequently cited sources and source titles, as well as keyword co-occurrence analysis using Vosviewer. This research contributes to higher education institutions seeking to engage in educational planning and to researchers interested in conducting research based on density visualization.

Keywords: bibliometric, educational planning, education plan, higher education, trend.

# 1. Introduction

Education is expected to adapt quickly to ever-changing circumstances and developments (Nuryasin & Mitrohardjono, 2019; Syafaruddin et al., 2022). As predicted, Indonesia will experience a demographic bonus in 2045, in which approximately 70% of the population falls within the productive age group (15-64 years), while the remaining portion consists of non-productive age groups, namely those under 14 years and over 65 years. This explains that Indonesia has the opportunity and time to play a role in harnessing the demographic bonus to prepare its productive-age population for the year 2045. However, this demographic bonus will only be beneficial if specific preparations are made, including improving the quality of human resources and increasing the number of job opportunities that match the existing human resource quality (Mariyani & Alfasnyur, 2021). One of the efforts to address

this situation is to enhance the quality of education to produce high-quality, productive human resources. In this regard, educational planning is needed as the foundation for the implementation and direction of educational activities, especially in the effort to improve and enhance the quality of education (Idris, 2020; Mustangin et al., 2021; Olesen, 2018). Educational planning is the activity that allows the public authorities to orient educational development and identify priority interventions. After going through a major crisis of confidence in the 1980s, educational planning has undergone a major transformation: it has become more participatory, more flexible, less technocratic, and more diverse. It has gone beyond what its main focus was for a long time – planning infrastructures, increasing access, and increasing efficiency – to become more strategic and address a variety of key issues of the educational system, such as quality, inequality, and factors influencing demand for schooling (Denoon-Stevens et al., 2022).

The success of education depends on effective planning (Jacob et al., 2021), as planning is the most crucial process among all management functions. With planning, other management functions such as organizing, directing, and evaluating will be practical (Yuliza, 2022). With proper and accurate planning, it becomes possible to achieve desired goals efficiently and effectively. Conversely, goals will only be optimally achieved when planning and designing are done well. Therefore, educational planning must reflect the state of a nation's development, including the needs and readiness to achieve planned goals. It also contributes to improving the quality of education (Beatty et al., 2018; Fortune Josiah & Niyi Jacob, 2021; Hadijaya et al., 2022; Ningsih et al., 2018). Educational planning is the process that helps prioritize goals within the education system and then assists in achieving those goals through available resources (Gao et al., 2022). Educational planning also involves identifying issues, conducting evaluations of existing policies, and formulating policies to address issues within the framework of improvement goals (Karalis, 2020; Lemoine & Richardson, 2020). In Indonesia, educational planning must be based on national development, considering the existing reality. Educational planning itself can be seen as the process of mapping the desired future of education, and it will continue endlessly, evolving, updating, and adapting to change (Denoon-Stevens et al., 2022; Ismail et al., 2021; Mohammad & Alazzam, 2023; Syifa & Nusantari, 2021; Matin, 2013). Therefore, planning is essential in managing an institution or organization, especially educational institutions, as they produce future generations of excellence (Sahnan, 2017). Planning carried out by educational institutions should reflect their vision, mission, goals, and work plans, formulated comprehensively, systematically, and transparently, involving all components of education (Kaufman, 2020). Moreover, sound planning is the most realistic to implement and prioritizes capacity (Felicia, 2018) and educational planning documents (IIEP-UNESCO, 2022). Through planning, the goals to be achieved, the scope of work to be carried out, the individuals involved, various required resources, as well as the steps and working methods chosen based on urgency and priority can be explained (Nir, 2016; Pawero, 2021; Suhada, 2020b). As a guide for the implementation of educational development activities (Suhada, 2020a), the planning of education can generally be carried out through the Planning, Programming, Budgeting, and Evaluation System (PPBES) approach (Johnson & Chan, 2022; Kusnandi, 2019).

Educational planning currently relies on technology (Sadik, 2018). The digital era has brought significant changes in all aspects of human life, including education. Information and communication technology have opened access to unlimited educational resources, creating a more inclusive and interactive learning environment. Therefore, it raises fundamental questions in this study, namely: how educational planning in the digital era faces unique challenges and opportunities (Allen & Seaman, 2017). In addition to opportunities, there are also challenges to be faced in educational planning in the digital age (Chigona & Chigona, 2020); increasing accessibility, personalization of learning, and developing digital skills are positive aspects that need to be emphasized, while access inequality and privacy issues need special attention. With excellent and sustainable planning, education in the digital era can be a motor of transformation for the younger generation's future (Winata et al., 2022).

In their research, Diaz, Reyes, and Bustamante revealed that educational planning plays a fundamental role in building quality education (Diaz et al., 2020). Additionally, research conducted by Ndhlovu and Sawe stated that educational planning can help overcome various challenges in education (Ndhlovu & Sawe, 2022). Educational planning is an encouragement to meet future educational needs, especially for students in higher education (M. Bsiso & Ghasemy, 2024). Challenges in the world of

education can occur in various ways, one of which is during COVID-19 (Nurhattati et al., 2023; Othman et al., 2022). Since the COVID-19 pandemic, education has changed planning because, since the COVID-19 pandemic, the education system has been carried out synchronously and asynchronously (Neuwirth et al., 2021; Winandi, 2020; Mohd Radzi et al., 2024). Other studies also emphasize that planning must consider various components of education (Razali et al., 2022), including leadership, educators, support staff, students, learning processes, adequate facilities, finance, and administration (Ogunode, 2021; Abdul Aziz et al., 2024). The various challenges and possibilities that will occur in the post-covid-19 Education sector, include: a) Resilience and Change Management, b) Digital Transformation and Online Learning, c) Curriculum Change, and d) Sustainability (Rasli et al., 2022). Based on these considerations, this study aims to explore and analyze what educational planning trends have existed and have not been widely implemented. Therefore, after obtaining the results, educational institutions are assisted by the results of bibliometric analysis and can make educational plans according to their needs. The knowledge that bibliometric analysis has been used to provide quantitative analysis related to existing written publications, can also be referred to as "infometrics" (Ellegaard & Wallin, 2015).

# 2. Method

This research employs bibliometric analysis to quantitatively measure existing research results based on geometric and statistical evaluations (M. Bsiso & Ghasemy, 2024; Dulla et al., 2021). The objective of this research is to determine the trend of educational planning research starting from 2013 to 2023 so that these trends and impacts on educational planning can be identified. The VOS Viewer application is used to create bibliometric maps on a computer program. Its purpose is to analyze and visualize citation relationships in articles. VOS Viewer can search databases such as Google Scholar, Scopus, Crossref, Semantic Scholar, and PubMed. Bibliometric research has also been conducted educational planning for higher education (Wang et al., 2024). However, it is important to maintain objectivity and avoid subjective evaluations. It has been claimed that the variable has been widely studied, but it has not been linked to problem-solving. This bibliometric research aims to analyze research trends on problem-solving related to management Education using VOS Viewer and identifying themes that have been little researched in the past The research collected documents database using a particular keyword, namely "educational planning," and document limits only specifically for 2013 to 2023, and obtained 476 publications related to educational planning. Subsequently, these publication documents were analyzed for publication trends, the most common affiliations for publication, the countries with the most publications, the subject areas with the most publications, the most frequently cited sources and source titles, and keyword co-occurrence analysis using Vosviewer. Thus, trends in educational planning research from 2013 to 2023 can be identified.

# 3. Results and Discussion

Bibliometric analysis based on the Scopus database, retrieved in August 2023 using a particular keyword, "educational planning," has obtained a total of 1,163 publications, which also found that research on educational planning has been conducted from 1942 to 2023. We then sorted these publications based on the years from 2013 to 2023 and obtained 476 publications related to educational planning. From the obtained database, we analyzed based on publication trends, the most affiliations for publication, the most country for publication, the most subject for publications, the most source titles and cited sources, and keywords co-occurrence analysis using Vosviewer.

## 3.1 Results

## **3.1.1** Publication Trend

The publication trend related to educational planning research from 2013 to 2023 is shown below:

# Figure 1

Publication Trend in Educational Planning Over the Last 10 Years (2013-2023) (Scopus Database, 2023)

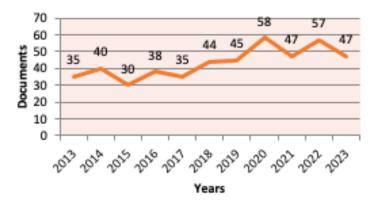


Figure 1 above shows 476 publications in the last ten years, with fluctuations in each year. In 2015, it had the lowest number of publications related to educational planning, with only 30 publications. On the other hand, in 2020, it had the highest number of publications in the last ten years, totaling 57. Is because 2020 was a year marked by the global COVID-19 pandemic, which likely influenced shifts in educational planning.

# **3.1.2** The Most Affiliations for Publication

The analysis results to determine the most affiliations for publication can be seen in Figure 2 below:

#### Figure 2

*Top 15 Affiliations for Publication of Educational Planning Over the Last 10 Years (2013-2023) (Scopus Database, 2023)* 

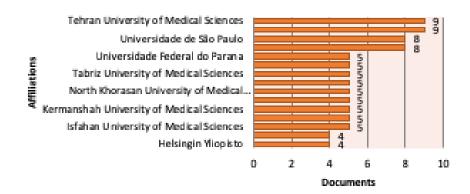


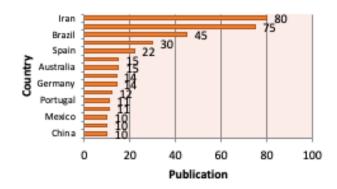
Figure 2 shows information that the top 15 affiliations in publications on educational planning, namely Tehran University of Medical Sciences and Shahid Beheshti University of Medical Sciences, are affiliated with the most nine publications documents for the last ten years, then in the following order, namely Universidade de São Paulo and Iran University of Medical Sciences which both have a total of 8 published documents. The most affiliated for publication are Universidade Federal do Parana, Universidade Federal de Pernambuco, Tabriz University of Medical Sciences, Stockholms University, North Khorasan University of Medical Sciences, Mashhad University of Medical Sciences, Kermanshah University of Medical Sciences, Kerman University of Medical Sciences, and Isfahan University of Medical Sciences, each with a total of 5 published documents. In the results of these findings, it was found that medical institutions are very prominent in fields that have traditionally been dominated by the faculty of education or social sciences. This reflects the developing interdisciplinary trend in educational planning, so in educational planning, it is necessary to use interdisciplinary, transdisciplinary, and multidisciplinary approaches.

#### **3.1.3** The Most Country For Publication

The results of the bibliometric analysis also reveal "The Most Country for Publication," as shown in Figure 3 below:

#### Figure 3

*Top 15 of The Most Country for Publication in Educational Planning Over the Last 10 Years (2013-2023) (Scopus Database, 2023)* 



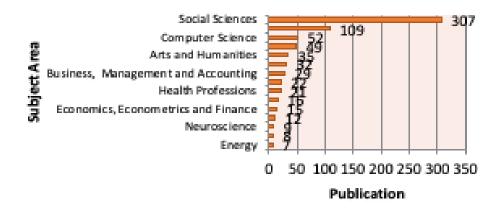
Based on Figure 3, the top 15 countries with the highest number of publications in the 2013-2023 period are as follows: 1) Iran with a total of 80 published documents, contributing 16.80%, 2) United States with 75 documents, contributing 15.75%, 3) Brazil with 45 documents, contributing 9.45%, 4) United Kingdom with 30 documents, contributing 6.30%, 5) Spain with 22 published documents, contributing 3.15%, 6) India with 15 documents, contributing 3.15%, 7) Australia with 15 documents, contributing 3.15%, 8) Italy with 14 published documents, contributing 2.94%, 9) Germany with 14 documents, contributed 2.94%, 10) Indonesia with a total of 12 documents, contributing 2.52%. 11) Portugal with 11 documents, contributing 2.31%; 12) Canada with 11 documents, contributing 2.31%; 13) Mexico with ten published documents, contributing 2.10%; 14) Denmark with ten documents, contributing 2.10%; 15) China with a total of 10 documents, contributing 2.10%.

#### **3.1.4** The Most Subject Area for Publication

In this section, the analysis results related to "The Most Subject Area for Publication" can be seen in Figure 4 below:

#### Figure 4

*Top 15 of The Most Subject Areas for Publication in Educational Planning Over the Last 10 Years (2013-2023) (Scopus Database, 2023)* 



The analysis from Figure 4 reveals that "Social Sciences" has been the most prominent subject area in educational planning for the last ten years, contributing 307 publications, or 64.49% of the total publications. On the other hand, "Energy" is the subject area at the bottom of the top 15, with a total of 7 publications, contributing 1.47%.

# 3.1.5 The Most Sourced Title and Cited Source

Based on the subsequent bibliometric analysis, Figure 5 below represents the top 15 of "The Most Sourced Title" obtained from the Scopus database:

#### Figure 5

*Top 15 of The Most Sourced Title in Educational Planning Over the Last 10 Years* (2013-2023) (Scopus Database, 2023)

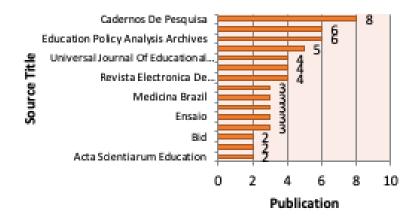


Figure 5 shows that "Cadernos De Pesquisa" is the first place in the most sourced title with a publication document contribution of 1.68%. However, as shown in Figure 6 below, it is known that

the most cited source is the International Journal of Environmental Research and Public Health, with citations as much as 72 or 15.12%.

# Table 1

The Most Cited Source

No.	Source	Document Publication	Citations
1	International Journal of Environmental Research and Public Health	2	72
2	Career development for exceptional individuals	2	47
3	Journal of continuing education in the health professions	2	46
4	Teachers college record	2	46
5	Sustainability (Switzerland)	6	40
6	International journal of pediatrics	2	27
7	Journal of education and health promotion	5	26
8	Computers and education	2	25
9	International journal of educational development	2	25
10	Paedagogica Historica	2	19
11	Cadernos de pesquirsa	8	16
12	Prospects	2	16
13	Curriculum studies worldwide	2	15
14	Journal of Educational Administration	2	15
15	Journal of philosophy of education	2	15

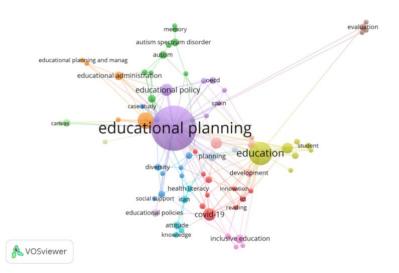
# 3.1.6 Keywords Co-Occurrences Analysis Using Vosviewer

# 3.1.6.1 Network Visualization, Density Visualization, and Overlay Visualization

The analysis in this section utilizes Vosviewer with a minimum number of occurrences of author keywords set at 3, resulting in a total of 71 keywords and 14 clusters, as shown in the following figure:

#### Figure 6

Network Visualization (Scopus Database, 2023)

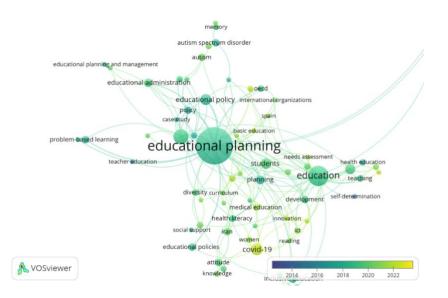


Based on the image, it can be seen that among the 14 clusters, there are several keywords, including: 1) Cluster 1, which consists of keywords such as COVID-19, ICT, reading, women, health belief models, educational needs assessment, medical education, innovation, and health. In cluster 1, two or more keywords can be combined in educational planning to provide more research innovation 2) Cluster 2, which consists of assessment keywords such as faculty, autism, collaboration, machine learning, memory, Italy, autism spectrum disorder, policy, and family. Evaluation of educational assessment, especially in inclusive education planning, has not been widely studied 3) Cluster 3 contains keywords such as physical education, curriculum, gender, leadership, diversity, Iran, reflecting systematic, inclusion, social support, and case studies. 4) Cluster 4, which displays keywords such as education, self-determination, teaching, learning, students, murder, and health education. 5) Cluster 5, which includes keywords such as educational planning, educational policy, OECD, UNESCO, international organizations, Spain, and primary education. 6) Cluster 6, which includes keywords such as health literacy, Iran, attitude, nurses, and knowledge. 7) Cluster 7, with keywords such as higher education, educational administration, university education, e-learning, educational planning and management. 8) Cluster 8 contains keywords such as evaluation, planning strategy, professionalism, and educational planning. 9) Cluster 9, which involves keywords such as inclusive education, language policy, bilingualism, and special education. 10) Cluster 10 contains keywords such as students, needs assessment, qualitative research, and development. 11) Cluster 11, which features keywords such as problem-based learning and canvas. 12) Cluster 12, which consists of keywords such as educational planning and quality. 13) Cluster 13, which involves keywords such as educational teachers. 140 Cluster 14, which includes keywords such as education policy.

Additionally, in the overlay visualization results, the research trends in educational planning over the last ten years (2013-2023) show that 2020 is the year with the most dominant color, as shown in Figure 7 below:

# Figure 7

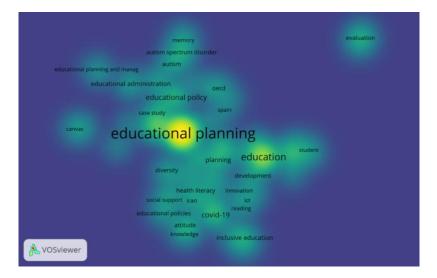
Overlay Visualization (Scopus Database, 2023)



The analysis using Vosviewer also provides density visualization, which helps understand the depth of research based on colors, as depicted in Figure 8 below:

# Figure 8

Density Visualization (Scopus Database, 2023)



The figure shows that the brightest keywords indicate a higher number of searches for that keyword, while darker-colored keywords signify that there is still very little research on those keywords (Ariyani et al., 2022).

## 3.2 Discussion

The results of bibliometric analysis using the Scopus database and Vosviewer software related to educational planning research trends obtained 1163 research publications. Over the past ten years, namely 2013 to 2023, there were 476 publications, with 2020, based on overlay visualization, being the year with the most publications, namely 57 publications. In 2020, there was an increase in publications because it was by the topic of this study, namely the analysis of educational planning trends in 2013-2023, where in 2020, there was the peak of the Covid-19 pandemic which at that time changed the educational planning system to be digital-based so that in that year many researchers began to write articles related to educational planning, especially during the Covid-19 pandemic. The affiliates with the most contributions from 2013 to 2023 are Tehran University of Medical Sciences and Shahid Beheshti University of Medical Sciences, each with nine publications. Iran is the country that contributes the most to research publications, with 80 publications or 16.80% of the total among 67 countries. This is because Iran has a priority that must be placed on ensuring efforts to educate children and the younger generation so that they become consistent Muslims and have a high commitment to Islam. Educational efforts are based on the Our'an, Islamic traditions and the constitution of the Islamic Republic of Iran as the basis for determining educational goals and objectives. Education in Iran is funded by the government. Although there are private schools, the government still provides subsidies or subsidies for teachers and staff, although donations from parents of students are also there for school maintenance purposes. The cost of tuition fees in private schools is not too high. The Constitution of the Islamic Republic of Iran outlines the basic framework for educational development. Social science emerged as the most prominent subject area, contributing 64.49% with 307 publications such as educational planning in diversity, social support, etc. The most contributing titles and cited sources are Cadernos De Pesquisa, with eight publications, and the International Journal of Environmental Research and Public Health, with 72 citations. In the network visualization results, it is known that there are 71 keywords divided into 14 clusters related to educational planning. Furthermore, in density visualization, it is known that there are still keywords that need to be extensively researched, as indicated by the contrast between the darkest and brightest parts in density visualization. Based on these keywords, in this case, higher education can use them in the educational planning efforts that will be carried out. Keywords with the darkest colors have been rarely researched, while those with brighter colors have been studied more extensively. Higher education institutions can utilize these keywords in their educational planning, such as educational planning and management, development, innovation, educational assessment, curriculum, leadership, teacher (referring to university faculty), student (referring to university students), teaching, learning, educational administration, e-learning, evaluation, strategic planning, problem-based learning, and educational quality. These keywords can help educational institutions consider essential aspects when creating educational plans and also can be an opportunity for researchers to discuss those keywords.

Based on the latest findings, here are detailed explanations of the concepts related to educational planning and management, as well as their associated elements: Educational Planning and Management: Effective educational planning involves setting strategic goals to enhance the educational system, requiring collaboration among stakeholders, and aligning resources to meet those goals. Management focuses on implementing these plans efficiently to improve educational outcomes. Development and Innovation: Educational development is the process of improving educational structures, curricula, and policies to meet contemporary needs. Innovation in education often involves the integration of new technologies and pedagogies, such as e-learning platforms and problem-based learning approaches, to enhance student engagement and learning outcomes. Educational Assessment: This encompasses various methods of evaluating student learning, teacher performance, and curriculum effectiveness. Innovations in assessment aim to provide a more comprehensive picture of educational outcomes beyond traditional testing, incorporating tools like formative assessments and performance-based evaluations. Curriculum: Curriculum development is a critical aspect of educational planning, focusing on creating coherent and relevant learning experiences that meet educational standards and cater to diverse student needs. It involves continuous revision and alignment with current educational goals and societal needs. Leadership in Education: Effective educational leadership is crucial for fostering an

environment conducive to learning and innovation. It includes strategic leadership, which involves setting a vision, managing change, and ensuring that all members of the educational community work towards common goals. University Faculty (Teachers): University faculty play a pivotal role in curriculum leadership, research, and the adoption of innovative teaching methods. Their professional development and leadership skills are essential for driving educational improvements and student success. University Students: The focus on university students includes not only their academic achievements but also their overall development, including critical thinking, problem-solving skills, and adaptability to changing environments. Educational strategies that involve active learning and student engagement are emphasized to enhance these skills. Teaching and Learning: Contemporary teaching methods are shifting towards more student-centered approaches, such as active learning and problem-based learning. These methods encourage deeper understanding and retention of knowledge by involving students actively in the learning process. Educational Administration: This involves managing educational institutions and ensuring that administrative processes support educational goals. Effective administration is characterized by clear policies, efficient resource management, and supportive environments for both teachers and students.

E-learning: The integration of digital technologies in education, e-learning provides flexible and accessible learning opportunities (Mohamad et al., 2024). It has become increasingly important, especially in higher education, where online courses and digital resources enhance traditional learning experiences. Evaluation: Evaluation in education is not limited to student assessments but includes the systematic review of educational programs, teaching methods, and institutional performance. It aims to provide feedback for continuous improvement and accountability. Strategic Planning: Strategic planning in education involves setting long-term goals and determining the best strategies to achieve them. It requires a thorough analysis of current trends, resources, and potential challenges to create actionable plans that drive educational success. Problem-Based Learning (PBL): PBL is an instructional method where students learn through solving complex, real-world problems. This approach develops critical thinking, collaboration, and practical application of knowledge, making it highly effective in higher education settings. Educational Quality: Ensuring high educational quality involves maintaining standards in teaching, curriculum, and administration. It requires regular assessment and continuous improvement processes to meet the evolving needs of students and society.

These concepts collectively contribute to a comprehensive understanding of how educational systems can be effectively planned, managed, and improved to meet the demands of modern society and enhance overall educational outcomes.

## 4. Conclusion

During the period 2013 to 2023, there were a total of 476 publications related to educational planning. Among these, 2020 was the year with the largest number of publications. This educational planning research trend occurred in 67 countries, with the largest number of publications being in Iran because the Iranian government pays great attention to education for its citizens. Tehran University of Medical Sciences and Shahid Beheshti University of Medical Sciences contributed the most to writing articles related to educational planning. In addition, it is also known that of the 476 existing publications, there are 71 keywords discussed according to this article which are divided into 14 clusters. Although several keywords are most discussed and those that are still rarely discussed, as seen in the density visualization, including: Basic Education Planning, Education Planning in the scope of health and others, both have the opportunity for keywords that have been widely researched and also those that have not been widely researched. The visualization is intended to help find research trends, communication, and research impact analysis that can make it easier for researchers to find research topics. Both can be used as references in educational planning efforts for universities by paying attention to the right keywords. Second, keywords that are rarely researched can be an opportunity for other researchers to use them in current research. In general, this study provides usefulness related to the importance of conducting research on educational planning in school institutions and universities which still have a great opportunity to be researched, the results of the educational planning model can be a concept and based practice on how to do good educational planning.

This study still has research limitations, namely relying only on Scopus data can ignore significant contributions from other sources. In fact, in using VOS Viewer media other than Scopus, you can use Google Scholar, Crossref, Semantic Scholar, and PubMed. With the limitations of this study, it is hoped that there will be further discussion from other researchers related to post-covid-19 education planning trends related to post-covid learning evaluations, post-covid-19 education innovations and other things that allow the sustainability of this research which has not been widely studied.

# 5. Co-author contribution

The authors affirmed that there is no conflict of interest in this article. Autor 1 carried out the field work, prepared the literature review and data, and overlooked the writeup of the whole article. Author 2 and 3 wrote the research methodology and did the data entry. Author 4 and 5 conducted the Vos Viewer analysis and interpretation of the results. All authors have sufficiently contributed to study and agreed with the results and conclusion.

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