Bibliometric Computational Mapping Analysis of Learning Video in Beauty Field Using VosViewer

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Article Information	Abstract
	This study aims to analyze the use of learning videos in beauty vocational high schools and beauty study programs in Indonesia between 2013 and 2023 using bibliometric computational mapping analysis methods. Publish or Perish (PoP) software was used to collect publication data from the Google Scholar database using the keywords "Video Tutorial" AND "SMK" AND "Beauty". The search through Publish or Perish resulted in 285 articles. After elimination and rechecking, 78 articles were analyzed using VosViewer. The analysis results show that the number of publications related to this topic between 2013-2023 is still small, the highest number of publications occurred in the year "2022" with a total of "28" articles, while the lowest was in the year "2013-2015", where each year only "1" article was published. Keyword co-occurrence analysis using VOSViewer resulted in 12 terms grouped into 5 clusters. Network and density visualization showed several keywords that frequently appeared, namely video tutorials, video tutorial media and learning media. In addition, the overlay visualization illustrates keywords that have been trending in recent years namely video, video tutorial, learning video and learning media. Based on data analysis, it can be concluded that research related to the creation and utilization of video tutorials in learning in the field of beauty is still very little and not varied. There are still many subjects in Beauty Vocational Schools or courses in Beauty study programs that do not have video tutorials. This is an opportunity for academics and researchers in the field of Beauty.

A. Introduction

Information and communication technology has developed very rapidly in the last 20 years. This development has an impact on various sectors of life, one of which is the realm of education that organizes the transfer of knowledge. The occurrence of the COVID-19 Pandemic has also had many impacts on the realm of education in Indonesia. Technological developments make the world of education in Indonesia must be able to adapt to the application of technology in learning, especially with the COVID 19 pandemic, the world of education is ready or not ready to be forced to be able to apply technology in learning. The development of technology affects the development of learning media used. Learning media is a tool used to help achieve learning objectives. According to [1] the use of media in learning will increase the effectiveness of learning. Along with the development of technology today there are many types of learning media developed, one of which is learning videos. Video learning media is an audio-visual media that displays images and sound. Compared to image media, the use of learning video media is more likely to improve student learning outcomes [2]. Video learning is an effective medium for learning because it can streamline the presence of teachers who cannot explain and show the practical things directly during online learning. Learning videos are one of the effective solutions for practical learning demonstrations, especially for learning carried out in Vocational High Schools especially in the field of Beauty school and beauty department. Learning videos that contain tutorials of practical steps will be very helpful for students and college students in understanding a topic in learning. For example, the steps to make a beautiful bun makeup. One of the advantages of video learning is that the video can be watched again by students anytime and anywhere so that it is more effective for students to repeat lessons at home. With learning videos, demonstrations that students need to listen to before practical learning can be done more easily, without the limitations of space and time for learning.

Research on learning videos has been conducted in various sectors of education. This can be seen from the many research articles published in various journals and research conducted by students from certain universities for the development of learning videos, including in the field of beauty such as beauty vocational schools and beauty study programs. Some of the previous researchers who have conducted research related to the utilization of learning videos in Beauty Vocational Schools are [3], [4] conducted research on the effect of using video tutorial media on the results of the practice of hair trimming uniform layer technique in class XI students of state vocational high school number 6 of Padang. Furthermore, there is also research conducted by [5] about the application of video tutorial learning media to improve the results of the practice of trimming the increase layer technique for class XI vocational students at state vocational high school number 10 Medan. Then the research conducted by [6] about making make-up video tutorials on faces that have scars. Although there have been many studies conducted related to the utilization or development of learning videos for the field of beauty by students, lecturers or beauty practitioners in Indonesia, until now no one researchers have conducted mapping using bibliometric analysis of related publications indexed by google

scholar using the VosViewer application on the development or the use of learning videos in the field of beauty. Research using bibliometric analysis methods can help academics and certain members of the general public to transform publication meta data into visualization maps, which are more manageable to process for useful insights [7]. The bibliometric method is a method of measuring literature using a statistical approach so it includes the application of quantitative analysis. According to [8] Bibliometric analysis is a form of meta-analysis of data in research, where through this method researchers can easily study the bibliographic content and citation analysis of articles published in journals and other scientific works. Bibliometric research analysis can help researchers visualize metadata related to certain topics. In this study, meta-analysis was conducted to answer questions related to several things (1) What is the bibliographic data of researchers who conduct research related to learning videos for the beauty field; (2) Which universities have conducted the most research on the use of video tutorials in the beauty field; (3) What is the number of publications and citations made related to the use of video tutorials each year; (4) Which sectors in the beauty field have no development or application of learning media based on learning videos. In addition, through bibliometric analysis, researchers can also find out the extent of citations and which articles have been published for a long time but did not get any citations. By using bibliometric analysis techniques all these questions can be answered easily, by following the steps of bibliometric analysis research by utilizing bibliometric analysis applications. To be able to build and visualize a bibliometric network indexed by google scholar, a bibliographic field visualization application called Vosviewer is needed. Through the VosViewer application, researchers can see some network visualizations. The networks in question are terms in journals, researchers, or individual publications. The network can be built based on citations, bibliographic couplings, co-citations, or co-authorship relationships [9].

Over the past 11 (eleven) years, research on the development and utilization of learning videos in the field of Beauty both at the vocational high school level and at the University has grown quite significantly. To be able to map the development of research on the utilization and development of learning videos in the field of beauty, it is necessary to conduct a bibliometric analysis. Bibliometric analysis is intended to determine the development of research publications in the period 2013-2023, determine the development of the number of publications related to the topic each year, and find out what sub-fields in the field of beauty have not developed learning videos. It is hoped that this research can help other researchers determine themes that have never been made learning videos in the field of beauty.

B. Research Method

This research is a bibliometric analysis that follows the research conducted by [9]–[13]. According to [14] bibliometric analysis is a research method with statistical methods to identify qualitative and quantitative changes in a particular scientific research topic, create a general profile of publications on

the subject, and determine trends in a discipline. This bibliometric analysis aims to help researchers summarize bibliographic data and analyze citations from certain articles related to the research topic. To facilitate the article search process, the author uses the Publish or Perish application. There are five stages in bibliometric analysis research [citation], namely: first determining the keywords, second searching for article data, third filtering articles, fourth collecting and compiling data, fifth analyzing data. The keywords used in the search for article data are "Video Tutorial" AND "SMK" AND "Beauty" with consideration of the year of publication from 2010-2023. Furthermore, searching for articles related to the topic that has been determined, the article search is carried out in the Google Scholar database. The results of the article search obtained as many as 285 articles that are considered to have a relationship with the search topic. Articles obtained at Publish or Perish are collected and stored in the form of ris files and csv files. Then next the author performs manual elimination related to the netted articles that have no connection with the topic, so that afterwards there are only 78 articles related to the utilization of learning videos in beauty sector. Furthermore, in the fourth step, the researcher tidied up the data to be analyzed in VosViewer using the Mendeley Reference Manager application. This is important to do with the aim of ensuring that the metadata of the article or thesis to be analyzed in Vosviewer is valid and Occurrence analysis can be carried out through bibliographic metadata and keywords used by researchers in published articles.

After that, the last step is the data analyzed using microsoft excel and the VosViewer application. Microsoft excel is used to see the number of article publications each year, and see where are the University of the authors who write articles in the field of tutorial utilization in beauty is come from. After that, researcher will do the analysis with carried out using the VosViewer application to visualize the relationship patterns between bibliometrics into three categories, including network visualization, overlay visualization, and density visualization. Network visualization aims to visualize the strength or weakness of the network or relationship between terms, overlay visualization aims to visualize historical traces based on the year of publication, while density visualization aims to display the density or emphasis on research groups. Some of the applications that the author uses to achieve the research objectives are (1) Publish or Perish, (2) VosViewer, (3) Microsoft Excel, (4) Mendeley Reference Manager).

C. Result and Discussion

1. Data Search Result

Article searches and data processing were carried out by the author from the first February to the of March at 2023 using the Publish or Perish application. Based on the articles obtained from the application, it was found that there were 285 articles generated from the search results by Publish or Perish. But after the manual elimination process there were only 78 articles related to the use of video tutorials in Beauty Vocational High Scholl or Beauty Major in University. A total of 206 articles had to be eliminated because these did not

meet the inclusion criteria of not being implemented in Beauty Vocation high school or Beauty Major not in the form of video learning media but modules or other learning media. The articles analyzed in the end were only 78 articles published between 2013-2023.
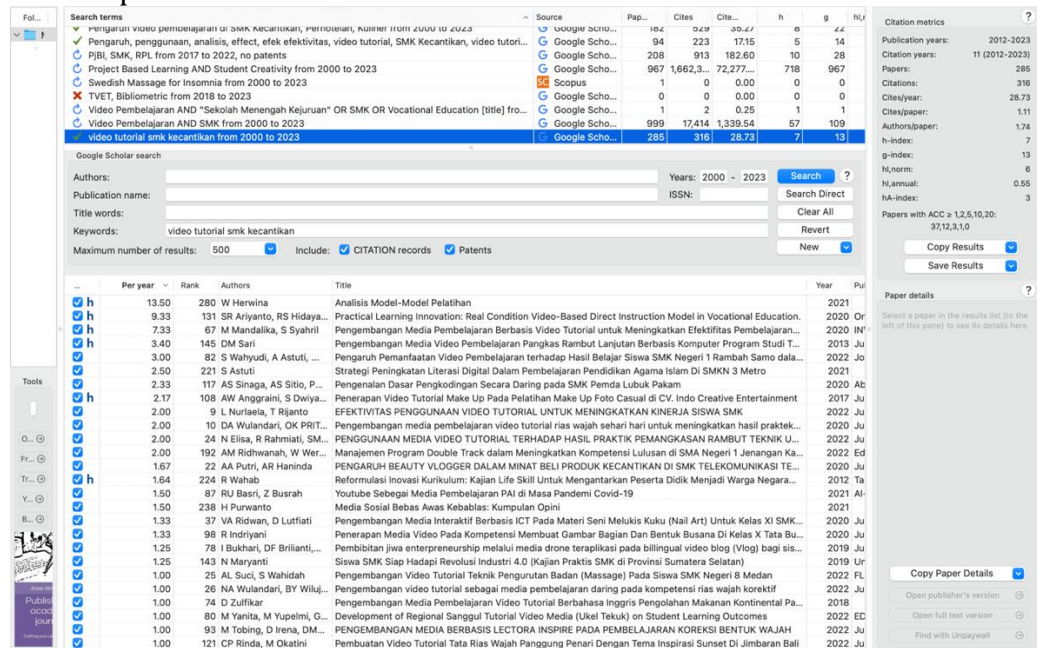

Figure 1. Data search results using Publish or Perish

Based on the results of data processing shown in Figure 1 using Microsoft Excel, of the 78 articles analyzed, there are 5 articles with the most citations. The number of citations of all articles used in this study is 316, with the number of citations per year as much as 28.73, the average number of citations per article is 1.11. When compared, this is very different from the results of bibliometric analysis research conducted by [15] on the utilization of video tutorial learning at the elementary school level where the number of citations per article is 7.30. The average author in the article is 1.74, the h-index of all articles is 7 and the g-index is 13.

Table 1. Most cited articles from 2013-2023

Author	No Doc	Year	Cita-tion	Cites/ Year	Journal
Sari, Siagian [16]	4	2013	34	3.4	Jurnal Teknologi Pendidikan
Mandalika, Syahril [17]	3	2020	22	7.33	INVOTEK
Anggraini, Dwiyanti [18]	8	2017	13	2.17	Jurnal Tata Rias (Unesa)
Munawaroh, *et all* [19]	46	2015	4	0.5	Jurnal Tata Rias (Unesa)
Rangkuti, et all [20]	59	2018	2	0.4	Jurnal Teknologi Informasi dan Komunikasi dalam Pendidikan

Based on Table 1, the results of the analysis show that the most cited research on the use of learning videos for the field of beauty is research conducted by [16] on "Development of Computer-Based Advanced Learning Video Media in the Hairdressing Study Program in Vocation High School", which was cited 34 times in the last 10 years.

2. **Processing of Data Search Results of Video Tutorials for Learning in the Beauty Field**

After the data is analyzed using the microsoft excel application, it is known that there are quite a number of articles on the use or creation of video tutorials in the field of beauty that have been published from 2013 to May 2023. Based on the results of research analysis related to video tutorials in the field of beauty published in 2013-2015, each year there was only 1 document, 2016 there were 3 documents, 2017 there were 5 documents 2018 there were 4 documents, 2019 there were 6 documents, 2020 there were 3 documents. Then in 2021 there was a significant increase in publications, namely there were 19 documents, and publications increased even more in 2022, namely there were 28 documents, and until May 2023 there were 7 documents published. The average number of publications from 2013 to 2022 is 7.09. Graphical data presentation of research publications related to the topic under study can be seen in Figure 2.
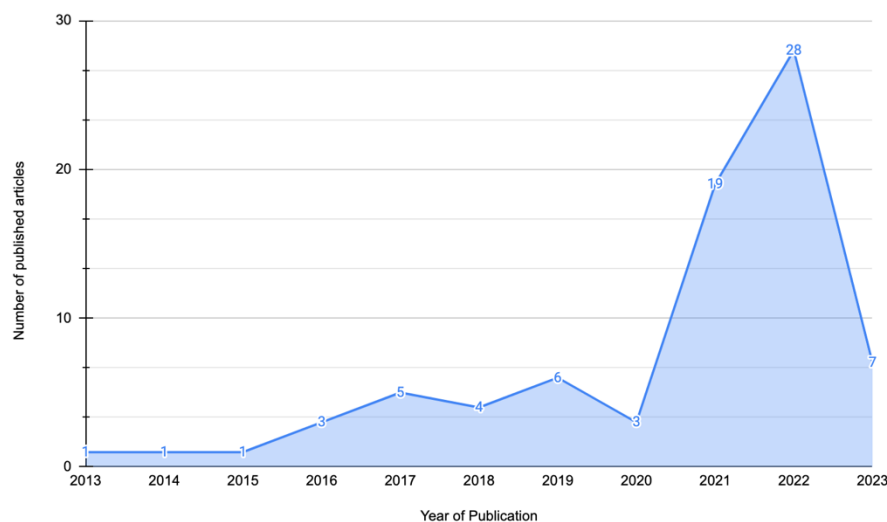

Figure 2. Graph of number of publications by year

If we look at the institutions or universities that have the most research related to the utilization or creation of video tutorials for learning in the field of beauty is Medan State University where the number of publications is 24 documents. While the second most researching university is Surabaya State University with 21 documents, and followed by Padang State University with 19 documents, Jakarta State University with 12 documents, Semarang State University with 2 documents, and Ganesha University of Education with 1 document.

Table 2. Research publications by university

Institution	Total Number of Document	Study Program
Universitas Negeri Medan	24	Cosmetology Education
Universitas Negeri Surabaya	21	Cosmetology Education
Universitas Negeri Padang	19	Cosmetology and Beauty Education
Universitas Negeri Jakarta	12	Cosmetology Education
Universitas Negeri Semarang	2	Cosmetology Education
Universitas Pendidikan Ganesha	1	Family Welfare Education (Cosmetology)

In Indonesia until May 2023, there were 19 public and private universities that held study programs related to the field of beauty, ranging from diploma III, applied undergraduate (diploma IV), to bachelor of education to be able to become a teacher teaching in Beauty Vocational Schools. However, based on data obtained by researchers, only 6 universities out of 19 universities in the field of beauty are actively conducting research related to the development or utilization of video tutorials in learning in the field of beauty.

3. Visualization of Learning Video Topics in Beauty using VosViewer

After rechecking the dataset to be analyzed using the Mendeley application by completing the author keywords and existing metadata, then the dataset is exported in RIS (Research Information Systems) format and analyzed using the VosViewer application by selecting the data option "create a map based on text data", with the aim of seeing relationships based on text.

After the dataset is saved in RIS type using Publish or Perish metadata, then the dataset is analyzed using the Vosviewer application by selecting the data option 'create a map based on text data', with the aim of creating a network or term relationship based on text data. The type of analysis used is title and abstract with counting method is full counting. The minimum number of occurrences of a keyword used is 2, out of 103 keywords, 15 of them have a co-accurance relationship.

Bibliometric analysis is carried out by making visualizations in the form of networks, overlays, and density which aims to determine the bibliometric network between articles or online publications from downloaded metadata. Bibliometric networks consist of nodes in the form of spheres or circles that represent keywords, while edges or network conclusions represent the relationship between pairs of nodes.
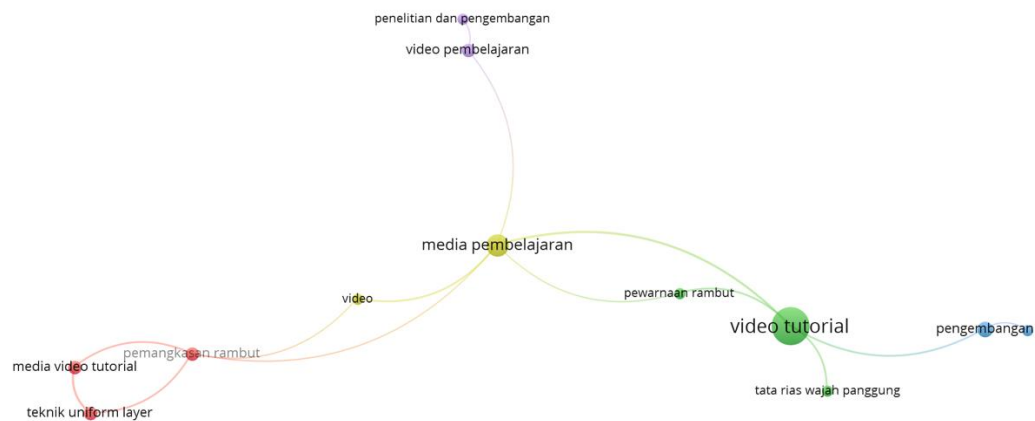
Figure 3. Network visualization on co-occurrence

Figure 3 shows the network visualization on co-occurrence that explains the relationship of one term with another term in research in the field of video tutorials in the field of Beauty in the period 2013-2023. The 78 articles indexed by google scholar can be grouped into three clusters that can be identified through the color of each keyword node. In the analysis of learning videos at the beauty field in vocational high school and university level with the binary method, the minimum number of occurrences of each word is set to 2 times out of 103 words. So that 12 terms are obtained that meet the threshold and then selected relevant words so as to produce 12 terms that are grouped into 5 clusters, namely as follows:

a. Cluster 1, marked in red, has 3 terms, namely video tutorial media, hair trimming, and uniform layer technique.
b. Cluster 2 marked in green has 3 terms, namely hair coloring, stage makeup, and video tutorials.
c. Cluster 3 marked in blue has 2 terms, namely learning video media, and development.
d. In cluster 4, which is marked in yellow, there are 2 terms, namely learning media and video.
e. In cluster 5 which is marked in purple has 2 terms namely research and development, learning video.

After analyzing the mapping and clustering of video tutorials in the field of Beauty using network visualization, the next step is to map the clustering of learning video research trends in the field of beauty based on historical traces or years of research publication. The information obtained from the overlay visualization results in Figure 4 can be used as a reference to identify and detect the state of the art of research in the field of video tutorials in the field of beauty conducted in the period 2021 to 2022.

Figure 4. Visualization of overlay on co-occurance

The different colors of each year indicate the range of publication years. The purple network indicates the oldest publication year, while the yellow network indicates the most recent publication year. The latest terms that appear are video tutorial media, uniform layer technique, hair coloring and stage makeup.

Figure 5. Visualization of density on co-occurrence

Next is the bibliometric analysis using density visualization. The visualization results shown in Figure 5 can be seen that there are dense areas or those that have high density in one node with other nodes. The level of saturation identified in the number of keywords is marked in yellow, which means that the region is a topic that has been saturated and widely researched and indexed by Google Scholar, where in the figure the yellow color is only video tutorials. While nodes marked with dark colors indicate that these topics are still not widely researched. This can foster opportunities to conduct research on these topics. For example, the keywords are hair coloring, uniform layer

technique or stage makeup. However, the figure shows that there does not seem to be much research related to learning videos for the Beauty field.

There are many subjects in vocational schools or college courses in the field of beauty that have not been researched for the utilization or development of video tutorials for learning. Some examples of courses or subjects that have not been much are SPA, facial skin care, massage, traditional body care, technological body care with hot stone, technological body care with steamer, G5, heating blanket, hair care, or color mixing techniques to determine suitable makeup colors, digital beauty design, etc. The lack of variety also shows that there is still very little research related to video learning in the beauty field compared to other fields.

D. Conclusion

This research was made with the aim of conducting bibliometric analysis related to publications indexed by google scholar with the help of the Publish or Perish application to find data and then processed using Microsoft Excel and VosViewer applications. Based on the results of data processing, the researcher draws the conclusion that the number of studies on video tutorials in the beauty field has fluctuated during the pandemic. The most publications occurred in 2022 as many as 28 articles. The researchers who received the most citations in their research were Dian Maya Sari and Sahat Siagian from the Department of Family Welfare Education and Educational Technology, Medan State University, namely 34 citations. The research that is still very little is the uniform layer technique, stage makeup, video. In addition, according to the author, there are many subjects in Beauty Vocational Schools and courses in Beauty study programs that have not developed learning videos to help improve the quality of skills and learning outcomes. Therefore, the researcher recommends more research or development of video tutorials such as in the fields of SPA, facial skin care, massage, traditional massage, body care technology with hot stone, body care technology with steamer, G5, heating blanket, hair care, or color mixing techniques to determine the appropriate makeup color, digital beauty design, etc. This means that there are still ample opportunities for academics in the field of beauty to be able to develop video tutorials related to this field.

In addition, the limitations and shortcomings of researchers in conducting this research are the absolute shortcomings and mistakes of researchers. Researchers apologize if there are mistakes or there is research related to the development or utilization of learning videos in the field of beauty that are not captured by researchers. Further bibliometric research that may be conducted is expected to further refine the data analyzed.

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