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Marketing innovation for higher education a bibliometric analysis using the VOS viewer application

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ABSTRACT

The purpose of this research is to carry out a bibliometric analysis of marketing innovation in higher education using VOSviewer. This study uses a quantitative description method. The data used in this study are search results based on the keyword "Marketing Innovation" sourced from Google Scholar using publish or perish software. The search results found 981 articles published between 2018-2022. The results of the research show that research on marketing innovation has decreased in 2018-2022. In conclusion, this research needs to be carried out to show the importance of conducting bibliometric analysis, especially in the field of marketing innovation. It is hoped that this research can become a reference for further research in conducting and determining research themes, especially on the theme of marketing innovation. This research is expected to contribute theoretically to the literature in the context of marketing management.

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1. INTRODUCTION

The role of marketing in innovation has recently begun to be redefined (Joueid & Coenders, 2018). The concept of innovation presented by researchers from various business and management domains is different. Among the many definitions from time to time, innovation is defined as a process of creating new products and services, new technologies, new organizations, or improving existing products or services using processes and technology (Ramadani et al., 2019; Vargo et al., 2015). In the third edition of the Oslo Manual, innovation is the implementation of new or significantly updated/improved products (goods or services), or new processes, marketing methods, or new organizational methods in business practices, workplace organizations, or external relations (OECD(OECD, 2005)which classifies innovation into four different types namely product innovation, process innovation, marketing innovation, and organizational innovation. The classification of innovation into four types is still maintained in the

fourth edition of the Oslo Manual (2018) with several definition developments. Economists consider marketing innovation from a process and product perspective whereas marketing researchers conceptualize innovation from a commercialization perspective (S. Gupta et al., 2016). Marketing innovation today refers to implementing marketing tactics that significantly change product positioning, pricing, promotion, and design/packaging.

Innovation is a theory about how a new idea and technology spread in a culture. Rogers (2003) suggests five characteristics of innovation that can influence the decision to adopt an innovation including relative advantage, compatibility, complexity, trialability, and observability Research on marketing innovation (Tungbunyasiri & Ussahawanitchakit, 2015) (Chuwiruch et al., 2015). Several studies have been conducted (Quaye & Mensah, 2019)related to the design, modified new products, (Olazo, 2022) cost systems, and positioning of different brands are drivers of achieving competitive advantage. Innovation in tertiary institutions is all the efforts made by tertiary institutions to seek and develop existing conditions to achieve progress. (Aksoy, 2017) argues that marketing innovation is a prerequisite when trying to improve marketing performance conditions. Marketing innovation in higher education can improve reputation or company image, increase profits through increased customer satisfaction, identify processes, and develop new ideas to gain a competitive advantage (Khairusy et al., 2022; Scott, 2020). There has been a lot of research related to marketing innovations that influence purchasing decisions in various industrial sectors, both goods and services (Dawood et al., 2022) However, research in the education sector, especially regarding marketing innovation on college selection decisions, is rarely carried out (Sun & Lim, 2023).

2. BACKGROUND OF THE STUDY

Bibliometrics includes managing document properties or processes related to documents (Jumansyah et al., 2023). Bibliometric capabilities in conducting analysis include word frequency analysis (Agbo et al., 2021), citation analysis (Pesta et al., 2018), joint word analysis (Zamroni et al., 2022), and simple document countings, such as the number of publications by authors, research groups, or countries (Guler et al., 2016). However, in practice, bibliometrics is generally applied to science-related documents and thus has a lot of overlap with scientometrics, the field of measurement of science (Chellappandi & Vijayakumar, 2018). Although recognizable bibliometric techniques have been in use for at least a century, the emergence of bibliometrics as a scientific field was sparked (in the 1960s) by the development of the Institute for Scientific Information (ISI) Science Citation Index (SCI) by Eugene Garfield (Garfield, 2015), as a logical continuation of his drive to support the search for scientific literature. SCI was created as a reference database created by authors, for previous articles, in their articles published in top scientific journals, initially focused on general science and genetics. Underlying the idea, which is still very relevant today, is that if a scientist reads an article, then he or she will benefit from knowing which article cited it because they may be discussing similar topics and may be updating or correcting the original article. The importance of SCI is also consistent with Bradford's law of scattering (Sudhier, 2020): although a scientist can stay up-to-date with a research specialty by reading all that is relevant. Journal when it appears, a small number of relevant articles will be scattered throughout other journals. Therefore citation search protects researchers from losing relevant articles in non-core journals.

Bibliometrics has evolved and undergone revolutionary changes in response to the web and web-related developments. The core citation-based impact measures still exist, but are now complemented by a variety of complementary techniques. In addition, there is now a collection of theory and case studies to work with so that experienced bibliometricians can be confident enough to find a good way to generate indicators from

citations for each common assignment and also on how to interpret the results. In particular, there has been an ongoing debate about the validity of using citations to measure impact, in line with the development of citation motivation theory, which has recently been extensively reviewed (Ruiter et al., 2014). Apart from core citation analysis methods, the biggest change in bibliometrics comes from the availability of significant new sources of information about scientific communication, such as patents, web pages, and digital library usage statistics (Martín et al., 2016 Field(Martín et al., 2016). Of course, the wider field of scientometrics has never been exclusively interested in academic papers and has also used other data such as funding as well as qualitative indicators, such as peer-reviewed assessments (Gunashekar et al., 2017). There are perhaps three main trends in recent bibliometric history, and citation analysis in particular. This is to improve the quality of results through careful improvement of metrics and data, to develop metrics for new tasks, and to apply bibliometrics to an increasing variety of problems, particularly in descriptive relational contexts ((Sivarajah et al., 2017).

Several studies conducted by (Medrano et al., 2020) used indicators of product design, product promotion, and image. This research has several limitations, such as the use of a secondary database. One possible limitation is the measurement variables "marketing innovation" and "environmental orientation", to the extent that they would have to be adapted to how the database measures them. (Hussain et al., 2020) using indicators of communication channels, and services. A limitation in the results of this study is that it is focused on a specific geographic area, therefore considering that the analysis can be extended to a larger sample and other geographic areas, we consider it necessary to expand the proposed model to include other variables that can act as antecedents or as a consequence of satisfaction in retail trade, thereby increasing the explanatory capacity of the model. (A. K. Gupta, 2021) conducting research using indicators of pricing innovation, distribution innovation, price innovation, and CRM innovation. This study is limited to the demographics of India, which is a developing economy; this research may find application for similar developing countries. This study can be extended to a cross-economic, cross-country study of its global acceptability.

3. RESEARCH METHOD

This study uses international publication data obtained from the publish or perish application sourced from the Google Scholar database. Data collection through publications was carried out with the keywords marketing innovation for higher education in the category of article titles and abstracts. The period used was 2018 - 2022. From the search results, there were 981 published articles. The data entered is in the form of publication, year of publication, number of citations, number of article authors, research topics, citations, and the name of the author of each article. The data obtained were analyzed using Microsoft Excel. Meanwhile, the development trend of marketing innovation in higher education publications was analyzed using VOSviewer software. To create a map, VOSviewer uses the VOS mapping technique, where VOS stands for visualization of similarity. VOSviewer can display network maps built using appropriate and detailed mapping techniques. The goal of VOS is to group items in a low dimension in such a way that the distance between two items accurately reflects uniformity or relatedness

4. RESULTS AND DISCUSSIONS

4.1 Research developments in the field of Marketing Innovation for Higher Education Research

The development of research on marketing innovation over the last 5 years, namely from 2018-2022 has been published in Google Scholar indexed publications

totaling 981 articles. The number of each publication in the sequence from 2018 to 2022 is 420, 269, 181, 83, and 28 articles. Table 1 also shows that the most researched and published articles on marketing innovation were in 2018 with a total of 420 articles and the least research occurred in 2022, namely 28 articles. The average publication for the last 5 years is 196. The development of research on marketing innovation is shown more clearly in Table 1.

Table 1. Development of Marketing Innovation Higher Education

Year	Number of Publications Per Year
2018	420
2019	269
2020	181
2021	83
2022	28
Total	981
Average	196

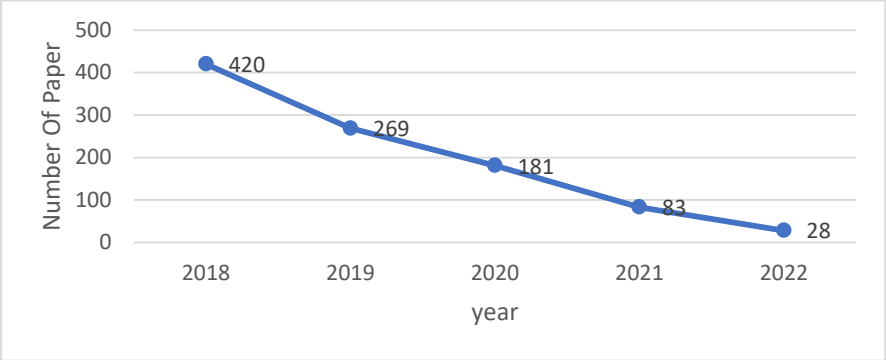

Figure 1. Levels of development of research on Marketing Innovation

In 2018 research related to marketing innovation numbered 420, then decreased in 2019 to 269 and in 2020 namely 181. Research related to marketing innovation decreased in 2021 to 83 and continued to decrease until 2022, namely to only 28. Overall, it can be seen that since 2018 research has continued to decline. Based on this data, we have filtered the 15 articles that have the most citations (See Table 2).

Table 2. Article Data in the Field of Marketing Innovation

No	Cites	Authors	title	year	refs
1.	2539	H Bowen	Investment in learning: The individual and social value of American higher education (Chickering, 1979)	2018	The Journal of Higher Education
2.	1390	F Ahmed, A Hassan, MU Ayub.	High commitment work system and innovative work behavior: The mediating role of knowledge sharing. (Ahmed et al., 2018)	2018	Pakistan Journal of Commerce and Social Science
3.	1011	J Schot, WE Steinmueller.	Three frames for innovation policy: R&D, systems of innovation,, and transformative change (Schot & Steinmueller, 2018)	2018	Research Policy
4.	945	RM Ingersol, E Merrill, D Stuckey, G Collins	Seven Trends: The Transformation of the Teaching Force. (Ingersoll et al., 2018)	2018	Consortium for Policy Research in Education (CPRE)
5.	906	J Wirtz, PG Patterson, WH Kunz, T Gruber	Brave new world: service robots in the frontline. (Wirtz et al., 2018)	2018	Journal of Service Management

No	Cites	Authors	title	year	refs
6.	906	H Beare, BJ Caldwell, RH Millikan	Creating an Excellent School: Some New Management Techniques (H Beare, BJ Caldwell, n.d.)	2018	Routledge Library Edition: Education Management
7.	889	S Srinivasan, DM Hanssens	Marketing and firm values: Metrics, methods, findings, and future directions. (Srinivasan & Hanssens, 2011)	2018	Boston University School of Management
8.	821	D Acemoglu, U Akcigit, H Alp, N Bloom	Innovation, reallocation, and growth (Acemoglu et al., 2018)	2018	American Economic Review, forthcoming
9.	810	E Macaro, S Curle, J Pun, J An, J Dearden	A systematic review of English medium instruction in higher education (Macaro et al., 2018)	2018	Lang. Tech.Cambridge University Press
10.	777	M Xu, JM David, SH Kim	The fourth industrial revolution: Opportunities and challenges (Xu et al., 2018)	2018	International Journal of Financial Research
11.	760	D Card, AR Cardoso, J Heining	Firms and labor market inequality: Evidence and some theory. (Card et al., 2018)	2018	National Bureau of Economic Research
12.	591	P Zheng, Z Sang, RY Zhong, Y Liu, C Liu	Smart manufacturing systems for Industry 4.0: Conceptual framework, scenarios, and future perspective. (Zheng et al., 2018)	2018	Frontiers of Mechanical Engineering
13.	558	M Mazzucato	Mission-oriented innovation policies: challenges and opportunities. (Mazzucato, 2018)	2018	Industrial and Corporate Change
14.	535	PJH Schoemaker, S Heaton	Innovation, dynamic capabilities, and leadership. (Schoemaker et al., 2018)	2018	California Management Reviews
15.	517	M Mazzucato	Mission-oriented research & innovation in the European Union. (European Commission, 2018)	2018	European Commission

4.2 Visualization Marketing Innovation topic area using VOSviewer

Based on the results of the analysis using VOSviewer, a total of 74 items related to marketing innovation were obtained. These items are divided into 5 clusters: Cluster 1 has 22 items, the 22 items are drivers, effect, entrepreneurial orientation, environmental regulation, evidence, firm performance, green innovation, implementation, influence, innovation capability, investment, market orientation, marketing innovation, mediating role, open innovation, organizational innovation, performance, process innovation, product innovation, relationship, SMEs, technological innovation, (See Figure 2). Cluster 2 has 18 items, The 18 items are assessment, challenge, covid, difference, education, entrepreneurship education, higher education level, higher education sector, higher education student, higher education system, institution, learning, opportunity, pandemic, quality, student, sustainable development, teaching. (See Figure 3). Cluster 3 has 17 items, article, consumer, digital transformation, entrepreneur, firm, literature, market opportunity, market share, new product, order, organization, product, service, service innovation, social medium, systematic literature review, and systematic review (See Figure 4). Cluster 4 has 14 items, concept, demand, economic growth, emergence, experience, field, graduate, hand, human capital, innovation policy, labor market, policy, region, and society. (See Figure 5). Cluster 5 has 3 items, future, labor market, and person. (See Figure 6). Cluster 1 is displayed in red, Cluster 2 is displayed in green, Cluster 3 is displayed in dark blue, Cluster 4 is displayed in yellow, and Cluster 5 is displayed in purple.

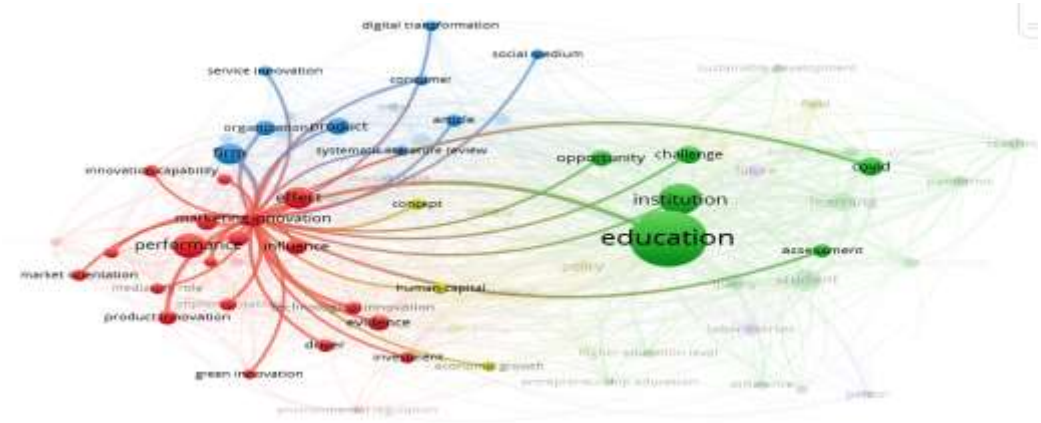

Figure 2. Cluster 1 Network Visualization of Marketing Innovation Higher Education

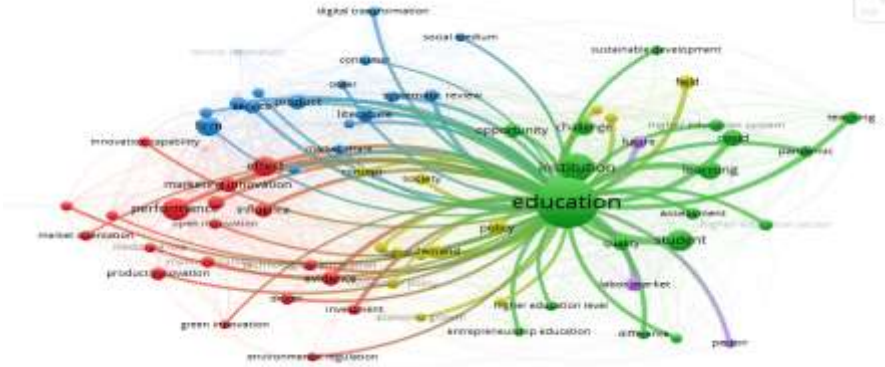

Figure 3. Cluster 2 Network Visualization of Marketing Innovation Higher Education

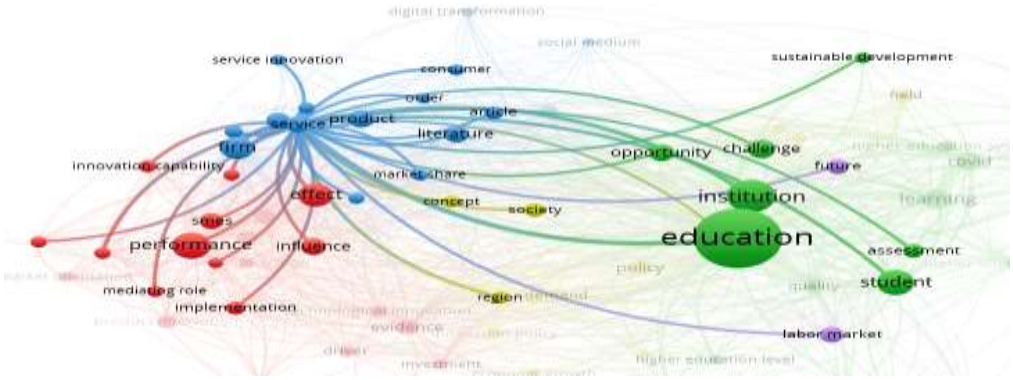

Figure 4. Cluster 3 Network Visualization of Marketing Innovation Higher Education

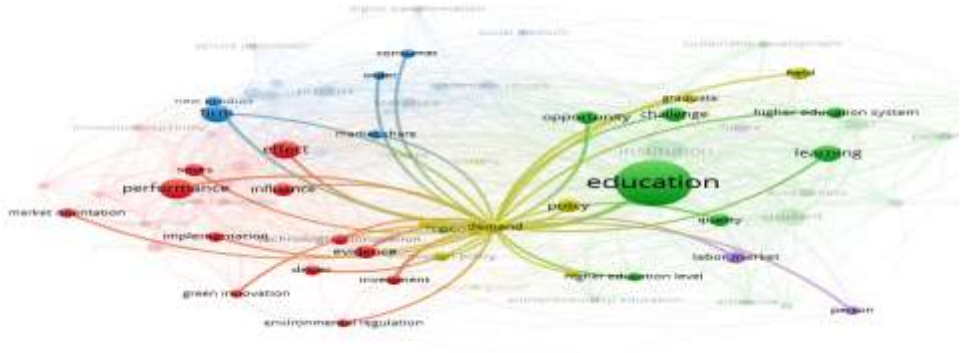

Figure 5. Cluster 4 Network Visualization of Marketing Innovation Higher Education

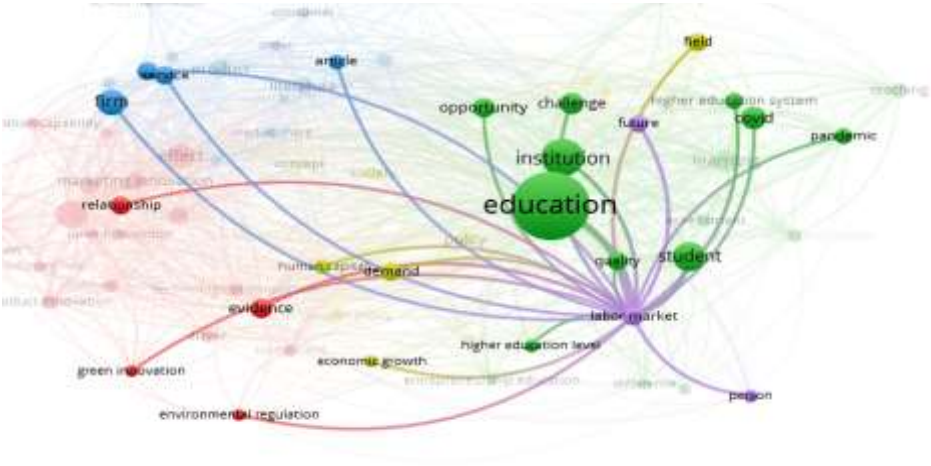

Figure 6. Cluster 5 Network Visualization of Marketing Innovation Higher Education

4.3 Network visualization Marketing Innovation topic area using VOSviewer

The network visualization mapping shows the term Marketing Innovation network visualization taken from the VOSviewer application. In Figure 7 there is a visualization of each cluster in each topic area studied. As seen in Figure 7, Marketing Innovation itself is included in cluster 1 with a total power of 22 occurrences.

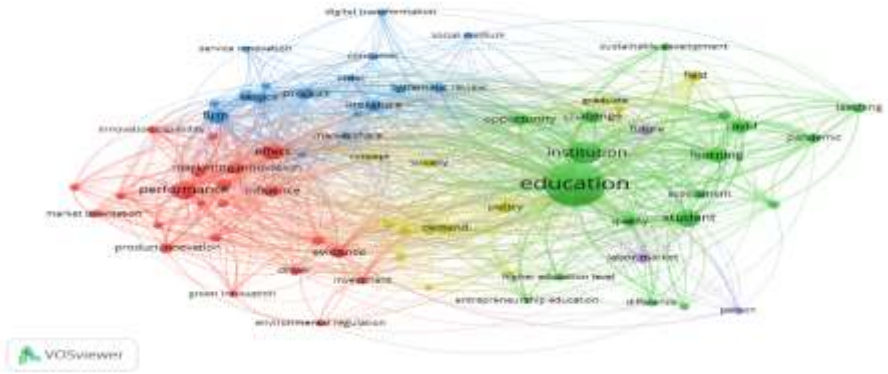

Figure 7. Network Visualization of Islamic Marketing Innovation Higher Education

4.4 Overlay visualization Marketing Innovation topic area using VOSviewer

On the overlay mapping, you can see how popular a term is from year to year. In the Overlay Visualization, the color differences that exist indicate the renewal of a term within a certain time. In this study, we use the period from 2018 to 2022 (last 5 years). A darker color closer to purple means that the research has been carried out for a long time or is approaching 2018. Meanwhile, a lighter color closer to yellow is a term that appears in the latest research or is approaching 2022 (figure 8).

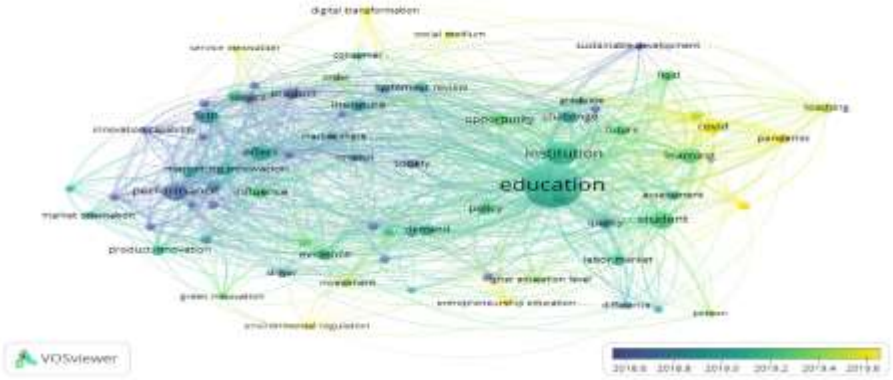

Figure 8. Overlay Visualization of Marketing Innovation Higher Education

4.5 Density Visualization of Marketing Innovation

Visualization of Density in Marketing Innovation is shown in Figure 9. This type of mapping can be seen from the colors that appear in a term. If the color that appears is getting lighter, it means that the research on that term is getting more popular or there are more of them. Conversely, if the color is getting darker or faded, this means that research on that term is getting rarer or less. In Figure 9 it can be seen that there are several yellow patterns with quite large diameters. These terms are product innovation, innovation capability, and technology innovation. This means that these terms are terms that are often used in existing studies.

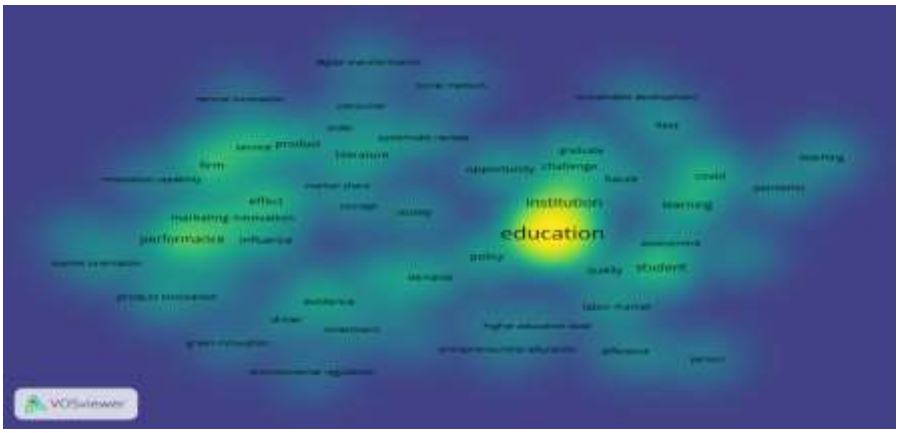

Figure 9. Density Visualization of Marketing Innovation Higher Education

5. CONCLUSION

This study aims to examine the bibliometric literature on Marketing Innovation in Higher Education. The keyword "Marketing Innovation Higher Education" is used to get the data, which is based on the topic area containing keywords, abstract, and title. After we filtered

the data, we obtained 981 relevant articles. We use VOSviewer software to generate mapping data. Mapping data is generated into network, overlay, and density visualizations. Based on the results of mapping and analysis using VOSviewer, it was found that Marketing Innovation research was most researched between 2018 and 2022. In this work, we use bibliometrics to identify the main themes in each previous research that are useful for assessing novelty in future research. This research is expected to contribute theoretically to the literature in the context of marketing management.

6. LIMITATIONS AND FUTURE WORKS

In this work, we use bibliometrics to identify the main themes in each previous research that are useful for assessing novelty in future research. The limitations of this study we only examined from 2018 to 2022. For future research, we can add discussions such as digital marketing, social media, and entrepreneurship. To add to the science, especially in marketing management.

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