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Submission date: 05-Jul-2025 10:38AM (UTC-0500)
Submission ID: 2710408807
File name: Article_Sanggam_Larasati_.doc (626K)
Word count: 2304
Character count: 13216

Bibliometric Analysis of Sport Psychology Imagery Exercise in Scopus Indexed Scientific Articles 2010 – 2024

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Abstract
This study aims to analyze related to Sports Psychology with Imagery exercises in Scopus-indexed Scientific articles using bibliometric analysis methods. From a total sampling of 1886 scientific articles from the publication years 2010–2024, selected from 208 scientific articles, collected from the Scopus page, with a data collection period from May to June 2024. Sampling was collected in Comma Separated Value (CSV) format, and VOSviewer was used to perform the bibliometric analysis method. From 208 scientific articles, 30 keywords that met the criteria for a minimum appearance of five times were collected and produced six mapping clusters. The mapping results show that imagery exercises are a research topic that is quite often used in research on Scopus-indexed scientific articles. The results of the analysis show that there has been development in research on imagery exercises in Scopus-indexed scientific articles.
Keywords: Bibliometric analysis, Sports Psychology, Imagery.

INTRODUCTION

Imagery or visualization is a form of mental creation that is done consciously and intentionally and aims to form a perception of something by forming a creative image in a person's mind (Rifqi, 2020). Similar to what was said by (Puri, 2017) imagery is a mental exercise that optimizes the process of imagining using all five senses. In the world of sports, imagery training can be done during training or matches, during practice imagery training will be assisted by sports psychology experts. Mental imagery training is given to athletes to improve their concentration, self-confidence, interpersonal skills, and strategic abilities. Mental imagery training can be done during training and during matches. Imagery trains athletes to be able to form mental fantasies about a particular movement or skill or about what to do in a particular situation. Mental imagery training refers to efforts to create or repeat experiences in the mind, or recreate experiences in the brain. (Setyobroto, 2010) explains that mental imagery is a simulation that occurs in the brain. Mental imagery is collectively called images, which allows a person to form images in their brain. According to Quiin (2010) Imagery is the process of creating sketches in the minds of athletes related to the

actions they will take. Meanwhile, according to (Hidayat, 2008) mental imagery or mental imagery refers to a mental process that occurs when someone imagines an object, event or certain motion experience through multi-modalities such as visual, auditory, kinesthetic and others. Mental imagery is a series of actions that imagine or bring back in the mind an object, event, or experience that is true and has been stored in memory (Rinal et al., 2016). Imagery helps athletes visualize the problems and challenges that athletes may face during training or matches. Imagery is one of the techniques in sports psychology as a method to improve athlete performance, both in terms of physical and mental skills (Sutrisno E., 2018). (Wahyuni, 2020) (Desy Tya Maya Ningrum et al., 2024) Imagery supports the mental development and performance of athletes. Imagery as a tool to prepare athletes to face competitive situations and to improve technical and strategic abilities in sports. If (Komarudin, 2016) Imagery is a form of mental training that has a wide scope. The type of imagery has many definitions and categories. Basically, imagery training is a mental training that optimizes the process of imagining using all five senses (Puri, 2017). (Komarudin, 2016) classifies mental training into five forms, namely: • Cognitive Specific • Cognitive General • Motivational Specific • Motivational general araousal • Motivational general mastery. Imagery is one of the important components in improving sports psychology skills, further research is needed on the field of sports psychology studies. There are goals to be achieved in competitive sports. Supported by the preparation of a good training program, a trainer divides a training session into several parts for physical, technical, tactical and mental training sessions. Of course, the many training sessions that are carried out have several benefits for an athlete. No exception to the mental training session with imagery (Puri, 2017). Satiadarma (2000: 190-191) the benefits of using imagery training include: • Improving concentration • Increasing self-confidence • Controlling emotional responses • Improving skill training • Developing strategies • Overcoming pain. (Rahman, 2017) Imagery in sports functions as a very effective tool in preparing athletes mentally, not only to improve technical skills (cognitive), but also to manage emotional conditions. (Kartika, 2020) Imagery training has been shown to

have a positive impact on improving athletes' cognitive abilities. By practicing imagery, athletes not only prepare themselves physically, but also prepare themselves mentally and cognitively, which is very important in facing challenges on the sports field. (Sutrisno, 2019) Imagery techniques are very effective in reducing athlete anxiety. Imagery helps athletes manage stress and anxiety by increasing self-confidence and preparing them mentally to face challenging situations in competition. (Yunita, 2021) Imagery training is effective in reducing stress in volleyball athletes. Imagery not only serves as a tool to improve technical performance, but also as an important stress management technique. Athletes who are trained with imagery can be calmer and more focused, and have lower stress levels when facing matches.

Imagery in sports psychology is a very relevant topic and is often used in the preparation of scientific papers. Bibliometrics is a branch of science that studies the statistics of information literature that can be used as a tool for evaluating and analyzing mathematical research results. By using mathematical formulas and statistical methods, bibliometrics can measure studies in the field of sports psychology. The word "bibliometrics" comes from the word "biblio", which means "book," and "metric", which means "to measure." Thus, bibliometrics is interpreted as measuring or analyzing books/literature using a mathematical and statistical approach. (Diodato 1994) in (Royani, 2018) (Aulia, 2020) (Tya Maya Ningrum et al., 2023). According to (Harande, 2001) in (Aulia & Rusli, 2020) (Donthu, 2021) Definition of Bibliometrics which states that bibliometric studies are the application of mathematical and statistical methods used to analyze scientific journals and other forms of written communication. This is in line with (Shah, 2016) in (Aulia & Rusli, 2020) which states that bibliometric analysis is an analysis technique that involves the process of collecting, calculating, analyzing, and interpreting citations contained in various literatures to find sources of information. Research mapping in the field of bibliometrics can be viewed from the pattern of interconnectedness between documents based on co-occurrence. In short, bibliometric analysis is a mathematical method used to analyze scientific documents as an effort in the communication process related to the aspects and

characteristics of the document. In the research conducted, bibliometric analysis functions to map the development of research in the field of sports psychology imagery training in scientific articles indexed by Scopus using the bibliometric analysis method for 2010-2024. Research topics are an important part of writing scientific articles because the topic will form the basis for thinking for further action. Research topics also function as a representation or description of the core of all thoughts written. Topics can be defined as a description of the content or writing; however, authors can sometimes change the title of the writing after the writing is completed to adjust to how the content develops. This bibliographic analysis uses VOSviewer software, the software is used to visualize or map research data using existing networks. VOSviewer software is used to process metadata of sports psychology scientific articles from 2010 to 2024. Furthermore, keywords or terms are found as research themes in the extract of publication titles and abstracts, or they can be taken from keywords given by authors in proceedings articles and other scientific works. For example, when two keywords or terms are created from outside the VOSviewer visualization. Then it will appear together in the publications that are in the imported metadata, both in the title, abstract, and keyword list. This shows that the keywords are a research topic or theme.

METHOD

This research was conducted using a bibliometric approach. Bibliometric analysis is a form of research that aims to map large amounts of bibliometric data so that it can provide a clear picture of research developments in a field of study, and emerging research trends. According to (Donthu et al., 2021) to obtain relevant results, this research was conducted for one month, starting in early May and lasting until July 2024. This research is all scientific articles indexed by Scopus with the theme of sports psychology using the imagery method on Scopus from 2010 - 2024 which have produced 208 scientific articles. In this study, a sampling technique was carried out using the total sampling method. The data collection technique used by the author in this study went through two stages,

namely: Stage I (Search Criteria and Source Identification) and Stage II (Software and Data Extraction.

RESULTS AND DISCUSSION

With VOSViewer software, the interpretation of bibliometric analysis is produced in the form of map visualization. There are three visualization views, namely: network visualization view, overlay, density.

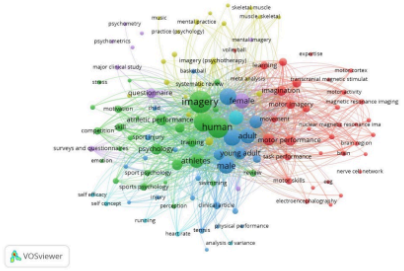

Figure 1. Network visualization

The network visualization view will show the network between the visualized terms.

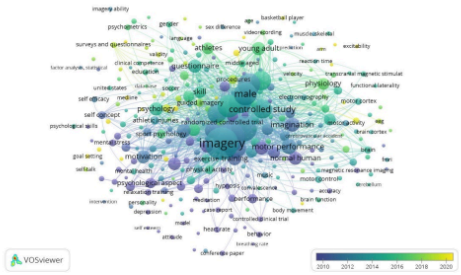

Figure 2. Overlay visualization

The overlay visualization display will show the research history trail.

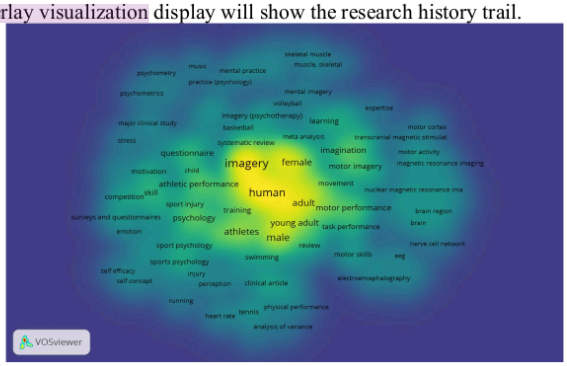

Figure 3. Density visualization

The density visualization display will show the density (emphasis) of the research group and can be used to see parts of the research that have not been done much.

DISCUSSION

According to Waltman in (Martha et al., 2022) explains that mapping and clustering complement each other. Mapping is used to get a specific picture of the structure of the bibliometric network, while clustering is used to gain insight into categories or groups. Figure 1 visualizes a keyword or term that often appears, the larger the circle, the higher the intensity of its appearance (Aribowo, 2019). Overlay visualization is used to find out research on limited and increasing topics in the near future according to Mardi (Martha, 2022) (Aulia, 2020) (Aribowo, 2019) in (Fitri et al., 2022). The lighter the color shown in the overlay visualization, the more the data is the result of the latest scientific article research that has been published in a scientific article indexed by Scopus. Meanwhile, the darker the color shown, the more the research falls into the publication category with a maximum year limit in the search conducted (Aribowo, 2019). Based on Figure 2, it is known that the latest research published and indexed in Scopus is a keyword related to imagery.

Based on Figure 3, it is found that words that have a bright yellow color compared to other keywords can mean that the topic has been widely researched.

Meanwhile, keywords with increasingly faded colors mean that the topic is still rarely researched according to (Waltman, 2013) in (Millenia & Sunarti, (Fitri, 2022). Keywords with almost invisible colors are shown in motivation, motor activity, meaning that if research is carried out on the topic, it is likely to produce a high novelty. will likely produce a high novelty.

CONCLUSION

Based on the results of research and data analysis on all scientific articles on sports psychology imagery training in 2010-2024, it can be concluded that imagery or visualization in sports psychology is an important mental exercise to improve athlete performance, both in training and matches. The use of imagery helps athletes improve concentration, self-confidence, and strategy. Bibliometric analysis is used in this study to map the development and trends of research on imagery in sports psychology from 2010 to 2024. The bibliometric method is used to analyze 208 Scopus-indexed scientific articles in this field. The use of VOSviewer software helps in data visualization and mapping, including identifying key themes and relationships between scientific articles. This study aims to provide a clear picture of the development and focus of emerging research on this topic.

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