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BIBLIOMETRIC ANALYSIS USING VOSVIEWER ON LEARNING AGILITY RESEARCH TRENDS IN GOOGLE SCHOLAR

Wayan Arya Paramarta
Doctoral Program of Management Science, Faculty of Economic and Business, Universitas Udayana, Indonesia
Correspondence author email: aryaajus@gmail.com

I Wayan Gede Supartha
Faculty of Economic and Business, Universitas Udayana, ndonesia

I Gusti Ayu Manuati Dewi
Faculty of Economic and Business, Universitas Udayana, ndonesia

Ida Bagus Ketut Surya
Faculty of Economic and Business, Universitas Udayana, ndonesia

Abstract

Bibliometric analysis is mapping research trends using metadata processing from Google Scholar. The aim is to find out research trends about learning agility. The research was carried out by searching the Google Scholar database with the keywords learning agility and the maximum number of results was 1000 journals as a sample. Retrieval of metadata using the Publish or Perish application version 8.94. The data from Publish or Perish is then analyzed descriptively based on the year the publication was published, publisher name, researcher productivity, and journal ranking. To obtain an accurate map of research progress, Publish or Perish data is exported to Exel CSV and Result as RIS file formats. CSV data was made into a pivot table and RIS data was analyzed using the VOSviewer application. The research results show that the number of research publications in 2000-2023 has fluctuated and most were published in Emerald. The most productive foreign researcher in publishing research results is Kenneth P. De Meuse with 12 articles. Through VOSviewer visualization, it shows that the learning agility research development map is divided into 5 clusters. Cluster 1 consists of 20 items, cluster 2 consists of 15 items, cluster 3 consists of 14 items, cluster 4 consists of 9 items and cluster 5 consists of 8 items with the most research covering effect, strategic agility, concept, skill and work.

Keywords*:* Bibliometric, Google Scholar, Learning Agility, Publish or Perish and VOSviewer.

INTRODUCTION

Changes in the work environment due to the presence of VUCA (Volatility, Uncertainty, Complexity, Ambiguity) have become increasingly significant in recent decades. VUCA is a concept used to describe the characteristics of a dynamically changing and uncertain environment. In the dynamic landscape of the modern

workplace, individuals and organizations face a myriad of challenges and opportunities. The ability to adapt, learn, and thrive in rapidly changing environments has become a hallmark of success. One of the key competencies that enable individuals to navigate this complexity effectively is learning agility.

Learning agility is defined as the willingness and ability to learn new competencies in order to perform under first-time, tough, or different conditions. It is measured using the Choices instrument, which assesses mental agility, people agility, change agility, and results agility. On-the-job learning, including job content learning and behavioral skill learning, is also considered part of learning agility (Dries, 2011). Right stuff success profile listing competencies that current executives possess or should possess in the future. Additionally, potential is defined as involving learning new skills or honing current ones in order to perform in first-time situations (Lombardo & Eichinger, 2000).

Learning agility to see current performance and long-term potential. The concept of learning agility has been used to describe individuals who have skills such as openness, willingness and ability to learn. Additionally, agile people learn to be curious about the world and have a high tolerance for ambiguity, good people skills, vision and innovation (Eichinger & Lombardo, 2004; Gravett & Caldwell, 2016). Learning agility relate to facing difficulties by having flexibility, the ability to see existing solutions (Lombardo & Eichinger, 2000). People with high agility take the right lessons from their experiences and apply these lessons in new situations, they tend to seek new challenges continuously, actively seek feedback from others with the aim of growing and developing, tend to reflect self and evaluate experiences and draw conclusions (De Meuse et al., 2010).

Lessons learned from experience are a major component of individual, group and organizational learning, growth and development. The ability to learn from experience allows some people to excel in contemporary organizations where change and dynamism are the new normal and learning is the source of achieving competitive advantage (DeRue et al., 2012). The ability to learn from experience reflects a person's ability to master and change the demands of his or her job and involves a variety of individual differences and characteristics. Specifically, an individual's ability to learn consists of a variety of specific attributes and competencies, not limited to individual human intelligence, personality attributes such as openness to experience, motivation to learn and seeking development opportunities (DeRue et al., 2012).

Learning agility is a critical competency that enables individuals and organizations to thrive in a rapidly changing world. By fostering flexibility, adaptability, curiosity, self-awareness, and resilience, individuals can embrace change, navigate uncertainty, and drive innovation. As organizations continue to adapt to evolving market dynamics, investing in the development of learning agility will be essential for future success. On that basis, in this research it is necessary to map the development of

research results on learning agility that have been carried out by researchers. The contribution of this research is to find research on learning agility that is still rarely researched and to develop learning agility research in the future.

THEORETICAL STUDY

Google Scholar Database

Google Scholar, which was founded in 2004, is a huge database of scholarly literature that allows users to access information, cross reference it with other sources, and stay up to date with new research as it emerges. Google Scholar is a freely accessible web search engine that indexes the full text or metadata of scholarly literature across an array of publishing formats and disciplines. It includes articles, theses, books, abstracts, court opinions, and patents (Karim, 2022).

Google Scholar is a valuable tool for researchers, students, academics, and anyone interested in accessing scholarly literature across various disciplines. It provides a user-friendly interface and access to a vast collection of academic resources. However, it's important to critically evaluate the quality and relevance of the sources you find through Google Scholar, as not all indexed materials may be peer-reviewed or reliable.

Publish or Perish

Publish or Perish or PoP is software that can be used to retrieve metadata for scientific works in all fields of science for free. PoP provides free metadata access services on CrossRef, Google Scholar, Google Scholar Profiles, Microsoft Academic*, PubMed, Scopus* and WoS. Harzing's Publish or Perish is software as a tool that can be used free of charge which makes the process of searching for articles neatly arranged and connected to various publication sites easier (Harzing, 2011).

In Harzing's Publish or Perish namely Google Scholar, Microsoft Academic, Scopus, and Web of Science thus making it easier for researchers to find articles that are used as reference material in literature studies. Next, the collected data was analyzed using the literature review method using traditional review techniques. In this analysis, researchers took data from Google Scholar using Pop because PoP provides a sophisticated filter feature for the category of metadata type in question, namely journal type publication name. PoP also provides Keywords and title word features which enable researchers to find accurate journal metadata.

VOSviewer

VOSviewer is software that helps in building and visualizing bibliometric networks. These networks can include journals, researchers, or individual publications, and can be built on citation relationships, bibliographic linkages, co-citation, or co-authorship. In addition, VOSviewer also offers text mining functionality that can be used

to build and visualize co-occurrence networks of important terms extracted from scientific literature (van Eck & Waltman, 2013).

In research, VOSviewer is used for bibliometric analysis, mapping topics to the latest research, searching for the most widely used references in a particular field and more. VOSviewer can for example be used to construct maps of authors or journals based on co-citation data or to construct maps of keywords based on co-occurrence data. The program offers a viewer that allows bibliometric maps to be examined in full detail. VOSviewer can display a map in various different ways, each emphasizing a different aspect of the map. It has functionality for zooming, scrolling, and searching, which facilitates the detailed examination of a map. The viewing capabilities of VOSviewer are especially useful for maps containing at least a moderately large number of items (van Eck & Waltman, 2010).

RESEARCH METHOD

The method used in this research is bibliometric through metadata mapping of scientific journals on the topic of learning agility obtained from the Google Scholar site. The reason is because bibliometric studies are an easy and cost-effective research study. Bibliometric is a research field that involves the quantitative analysis of publications, citations, and other bibliographic data to evaluate the impact, influence, and relationships within academic literature. It encompasses various metrics and indicators to assess the productivity, visibility, and scholarly impact of researchers, institutions, journals, and research areas. Bibliometric analysis is commonly used in research evaluation, academic rankings, and information retrieval to understand trends, patterns, and connections in scholarly communication (van Eck & Waltman, 2013).

Bibliometric analysis encompasses various types of analyses that can provide insights into scholarly communication and research impact. Some common types of bibliometric analyses include: 1) Publication Analysis: Examining the quantity and characteristics of publications within a specific field, institution, or author over time; 2) Citation Analysis: Studying the citations received by publications to assess their impact and influence within the scholarly community; 3) Co-authorship Analysis: Analyzing collaboration patterns among authors to identify key research networks and partnerships, 4) Co-citation Analysis: Identifying relationships between publications based on their co-citation in other works, revealing thematic connections and intellectual influences, 5) Keyword Analysis: Exploring the frequency and co-occurrence of keywords in publications to understand research trends and emerging topics, 6) Journal Analysis: Evaluating the performance and influence of academic journals based on citation metrics, publication output, and other indicators, 7) Institutional Analysis: Assessing the research output, collaboration networks, and impact of academic institutions or research organizations, 8) Author Analysis: Investigating the publication output, citation impact, and collaboration patterns of individual researchers, 9)

Network Analysis: Visualizing and analyzing relationships between entities (such as authors, publications, or keywords) to uncover hidden patterns and structures in scholarly communication (van Eck & Waltman, 2013)

These types of bibliometric analyses can provide valuable insights for researchers, institutions, funding agencies, and policymakers in understanding the landscape of scientific research and making informed decisions. Researchers use the Google Scholar database with the PoP application because the PoP feature can filter the journal categories in question, besides the application is free to pay. Data collection carried out on January 31 2024 with the keywords learning agility in the period 2000-2023 as shown in Figure 1.

Based on the search results, 994 articles were published in the form of articles. Data in the form of the number of publications per year containing articles about learning agility, author, origin of the author, productivity, publisher which were analyzed using Microsoft Excel 2021. Meanwhile, the development map of international publications on the topic of learning agility was analyzed using the VOSviewer application because this application can create research clusters and is free pay.

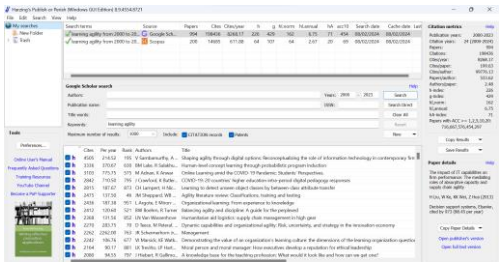

Figure 1. Metadata search results through PoP Version 8.94

RESULT AND DISCUSSION

Number of Research

Based on 994 research articles obtained from search results through the Google Scholar database, they were selected into 695 journal titles. In Table 1, based on search results on the Google Scholar database, it shows that the development of learning agility research during the period 2000-2023 experienced fluctuating conditions. Interestingly, the development of learning agility research increased significantly starting in 2003 as can be seen in Table 1.

Table 1. Number of Publications on Learning Agility Research Developments by Year

No.	Year of Publication	Total	Percentage
1	2000	8	1.15
2	2001	4	0.58
3	2002	8	1.15

4	2003	13	1.87
5	2004	15	2.16
6	2005	13	1.87
7	2006	24	3.45
8	2007	16	2.30
9	2008	14	2.01
10	2009	31	4.46
11	2010	21	3.02
12	2011	23	3.31
13	2012	29	4.17
14	2013	28	4.03
15	2014	31	4.46
16	2015	39	5.61
17	2016	23	3.31
18	2017	41	5.90
19	2018	39	5,61
20	2019	47	6.76
21	2020	60	8.63
22	2021	55	7.91
23	2022	45	6.47
24	2023	68	9.78
	Total	695	100.00

Source: data is processed, 2024

Based on Table 1, it can be seen that research trends on the topic of learning agility are very interesting to publish.

Main journal in International Publications on the Topic of Learning Agility

Of the 695 journals, the top ten main journals in publications on learning agility topics on Google Scholar are Emerald, Elsevier and Taylor & Francis. Table 2 shows that the top ten journals that publish research results on the topic of learning agility are Emerald with 90 articles, Elsevier with 85 articles, followed by Taylor & Francis with 59 articles, Wiley Online Library with 39 articles and so on.

Table 2. Top Ten Scientific Journal Publishers on the Topic of Learning Agility

No.	Publishers	Total
1	Emerald	90
2	Elsevier	85
3	Taylor & Francis	59
4	Wiley Online Library	39
5	journals.sagepub.com	36
6	Springer	35
7	ieeexplore.ieee.org	31
8	journals.lww.com	25

9	search.proquest.com	15
10	dl.acm.org	12

Source: data is processed, 2024

Interestingly, based on Table 2, researchers on the topic of learning agility predominantly publish their research results in major world publishers such as Emerald, Elsevier, Taylor & Francis, Wiley, Sage and Springer.

The Most Productive Researcher

Mapping the development of applied mathematics research using VOSviewer 1.6.20. In selecting the type of data, the researcher used a map based on bibliographic data. Then in the data source use read data from reference manager files with supported file types RIS. Then the counting method uses full counting with a Maximum number of authors per document of 20 and a Minimum number of documents of an author of 4. As a result, out of 1971 researchers, there were 15 who met the criteria.

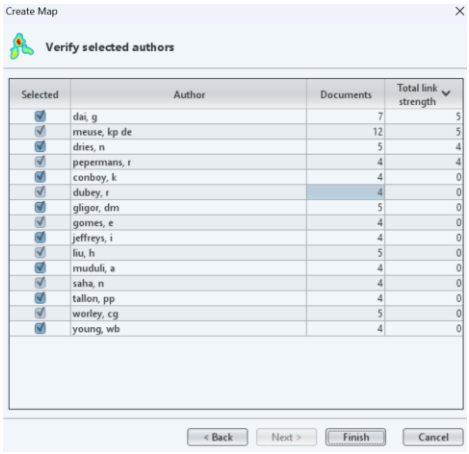

Figure 2. The most productive researchers on the topic of learning agility

There are fifteen researchers who have published the most research on the topic of learning agility. The researcher who has published the most research results is Kenneth P. De Meuse, a well-known professor in the field of human resource management and leadership, with 12 articles. Apart from that, Kenneth P. De Meuse is also active in providing training and consultation to large companies in various industries. Overall, his contributions and influence in the field of human resource management are highly recognized and respected by professionals and academics around the world. In second place is Guangrong Dai is a Senior Director of Intellectual Property Research for Korn Ferry, based in the firm's Minneapolis office. Mr. Dai conducts foundational and practical research in supporting the development of science-based talent management tools with the publication of 7 articles. The two researchers often publish joint research results. The correlation between the two is seen in Figure 3.

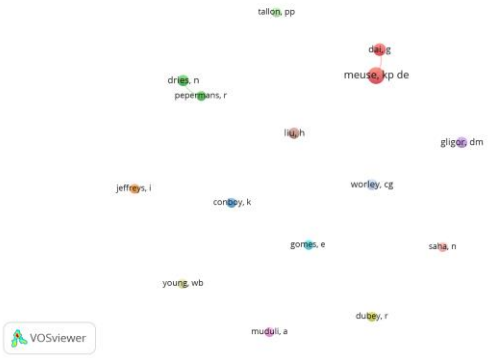

Figure 3. Correlation of the most productive researchers on the topic of learning agility

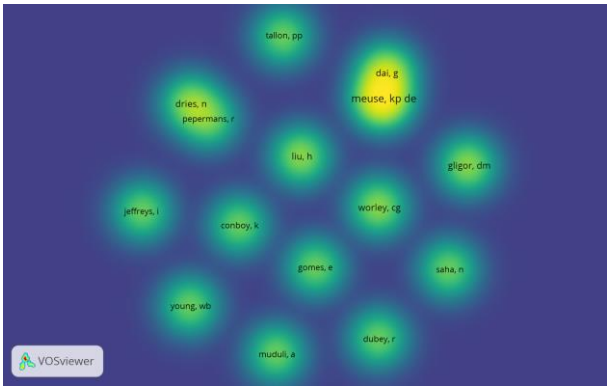

Figure 4. Correlation of the most productive researchers with the topic of learning agility in density mode

Learning Agility Research Development Map

Mapping the development of learning agility research using VOSviewer 1.6.20. In selecting the type of data, researchers used create a map-based text data. Then in the data source use read data from reference manager files with supported file types RIS. Then the counting method uses Binary counting with a minimum number of occurrences of terms of 10 and the number of terms to be selected is 66.

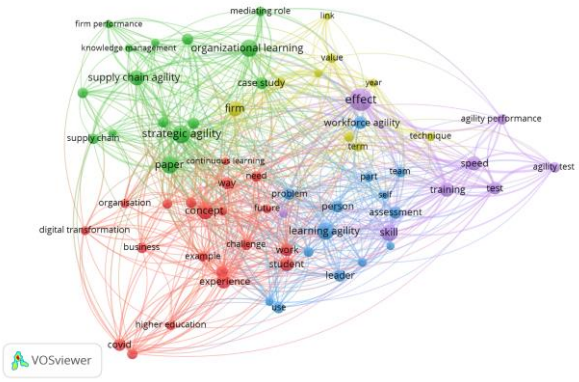

Figure 5. Results of Learning Agility research mapping with Network Visualization display mode

There are 66 items divided into 5 clusters. Cluster 1 consists of 20 items consisting of business, business agility, challenge, concept, continuous learning, covid, digital transformation, example, experience, future, higher education, importance, individual, need, opportunity, organization, pandemic, student, way and work. Meanwhile, cluster 2 has 15 items consisting of case study, dimension, dynamic capability, firm performance, knowledge management, mediating role, order, organizational learning, paper, resource, strategic agility, supply chain, supply chain agility, understanding and view. Cluster 3 has 14 items consisting of addition, assessment, issue, leader, learning agility, lesson, measure, part, person, problem, self, team, use and workforce agility. Cluster 4 has 9 items consisting of firm, learning organization, link, market, quality, technique, term, value and year. Meanwhile, cluster 5 has 8 items consisting of agility performance, agility test, effect, implication, skill, speed, test and training.

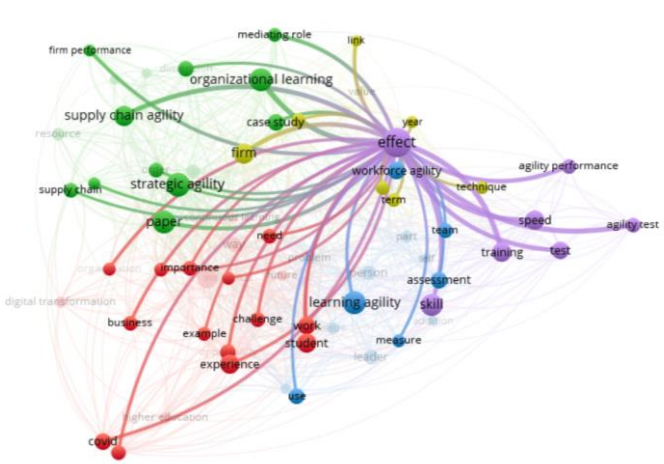

Figure 6. Results of learning agility research mapping with Network Visualization display mode

Learning agility research is connected to 703 research links in 5 clusters. Some of the strongest links to learning agility research are effect, concept, learning agility, firm and strategic agility. Meanwhile, the links that are not so strong are higher education, agility test, team and firm performance. Links that are not very strongly related are spread across 5 clusters marked with small circles. These small dots still do not have much research results and have the opportunity to carry out renewable research.

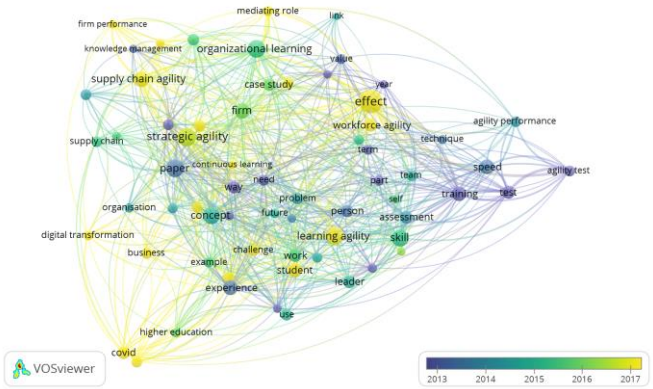

Figure 7. Results of learning agility research mapping with Overlay Visualization display mode

The latest research that is most closely related to learning agility research was in 2015. This research is related to higher education, work, skills and addition.

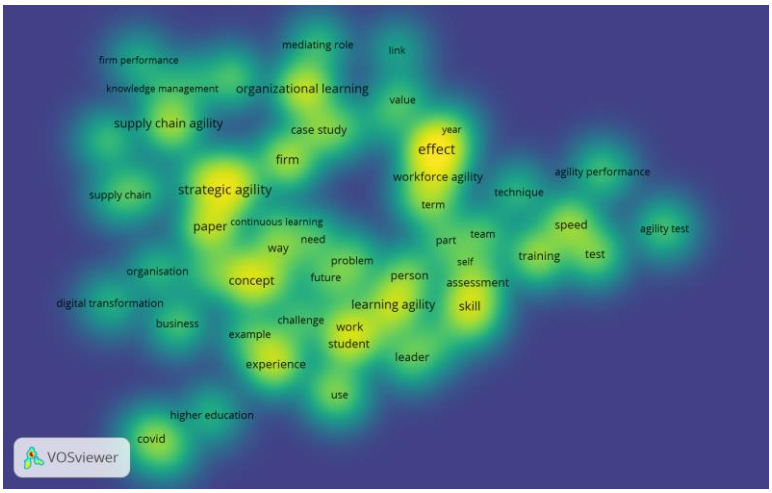

Figure 8. Results of learning agility research mapping with Density Visualization display mode

The density display mode in Figure 8 shows that the most research related to learning agility is effect, strategic agility, concept, skill and work marked in bright yellow. The

brighter the color, the more research there is. The research that is still very little is higher education, digital transformation, agility test, agility performance, mediating role, link, firm performance, resource, organization, team and business marked with a color that is not lit. In this way, opportunities for renewable research are opened by taking these items.

CONCLUSION

This section explains the general conclusions from the research results in accordance with the research objectives. Based on the research that has been carried out, conclusions can be drawn and based on the results of the research above it can be concluded that the amount of research on learning agility fluctuates. The most publications will occur in 2023 with 68 articles. The researcher who has published the most research results is Kenneth P. De Meuse, a well-known professor in the field of human resource management and leadership, with 12 articles.

The most research related to research on learning agility is effect, strategic agility, concept, skill and work is marked with a bright yellow color. The brighter the color, the more research there is. The research that is still very little is higher education, digital transformation, agility test, agility performance, mediating role, link, firm performance, resource, organization, team and business marked with a color that is not lit. In this way, opportunities for renewable research are opened by taking these items. Based on the conclusions above, the next most recent research that is of concern to learning agility researchers is related to higher education, digital transformation, agility test, agility performance, mediating role, link, firm performance, resource, organization, team and business due to research on this still very little.

Based on the conclusions above, the next most recent research that is of concern to learning agility researchers is related to higher education, digital transformation, agility test, agility performance, mediating role, link, firm performance, resource, organization, team and business due to research on this still very little.

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