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Mapping Research Trends in Competency and Performance among Faculties in Business Schools: A Bibliometric Study Using R

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Abstract:- This study was aimed as an attempt to examine the patterns, trends and insights into the research topic competency mapping and faculty performance in the business schools. An institutional strategy is required to be implemented for positioning competency mapping as one of the methods for identifying the skills and performance. Bibliometric analysis using 'biblioshiny ()' of R Analytics package was applied to review the literature from two renowned databases namely SCOPUS and WoS (Web of Science). The bibliometric comprises of citation analysis, articles produced over a period of time, most cited authors and articles etc. A significant increase is observed from late 1990s onward indicating the emergence and recognition of the research topic. Sharp upward increase took place after 2010 suggesting an expansion in the contributions of scholarly articles and academic interest.

Keywords: Competency mapping; performance excellence, faculty performance, business schools, correlation, training and development, strategic alignment.

1. Introduction

Competency Mapping is the process of figuring out what skills are most important for a business or organization and the jobs and tasks that need to be done. There are many things that affect the level of skill needed for a certain job. Some of the factors are the social culture, the type of business, the business environment, the organisational culture, the work environment, the organisational structure, the duties and responsibilities, the nature of the processes and activities assigned, the attitudes and motives of co-workers, superiors, and subordinates. Some of these factors might change over time, which would mean that the skills needed for the same job in the company would also change. Competency mapping is necessary to support the company's strategy, culture, and vision. Competency Mapping sets standards for performance excellence, which leads to a structured way to improve skills, higher job satisfaction, and lower employee turnover. It makes training and professional development programs more effective by connecting them to the success criteria (i.e., behavioural standards of excellence).

It gives people a common way to talk about how to put key strategies into action and share them with others. It helps everyone understand what a certain job entails and what is expected of them. It sets common, organization-wide standards for career levels that let employees move between different parts of the business. Competency Mapping finds performance standards that make the hiring and selection process more accurate and easier. It makes it easy for the manager and employee to talk about performance, development, and career-related issues.

2. Literature Review

According to Sahana and Vijaya (2015), educational competency is composed of proficient knowledge and effective instruction. It depends on learning a subject from top to bottom, connecting research and hypothesis information to teaching and learning, and using knowledge and skills in a foundational setting. This educational

competency system can serve as a framework for planning instruction, as well as for evaluating performance, recruiting, and preparation.

Teygong and Daniel (2017) carried out an examination to find out the impact of instructor educational skills on student scholastic execution in Kenyan elementary schools. Instructors have significant effect on students' scholarly accomplishment. The study's target population included 521 instructors and 47 head educators. A sample size of 42 head instructors and 226 educators was selected. The data was analysed both subjectively and quantitatively using both spellbinding and inferential metrics. It was found that teachers used student-centered methods more often than teacher-centered ones. In classrooms, print media like course books and reference books were used more often than sound and video media. The study suggests that teachers should receive in-service training and that head teachers should oversee teachers' use of various instructional resources in classrooms.

Thomas and Takiar (2015) conducted a study to identify the essential competencies necessary for Business School personnel to be proficient, and additionally to provide guidance to organisations on how to adjust performance metrics to evaluate workforce performance for the enhancement of the educational system's effectiveness. The study focused on senior faculty and heads of management departments at business schools in Bengaluru. A pre-designed poll was also set up based on the meetings, and 34 resources from different business colleges were chosen. They were then given a pre-designed survey about different parts of competency to find out what skills they could use as performance indicators and to help them do well in their careers. The study shows that 65% of the people who answered think that competency evaluation is necessary before making a big decision like hiring, choosing, promoting, or rewarding someone. The standard skills needed for some good employees, in order of importance, are showing expertise, researching traits, using better showing systems, and having good interpersonal skills. Teaching ability is half related to research skills, showing style, and relationship skills.

Tripathi and Ranjan (2015) determined that instruction should persist through research, experimentation, and progress. In light of the aforementioned challenges, employee expectations are elevated. Business college faculties must assess and revamp their knowledge, skills, and competencies to equip management students with the essential abilities and talents necessary to confront challenges and compete in the global arena. It is very important to recognise and improve teachers' teaching skills and give them the tools they need to do well in this job. Creating a competency structure for the board instructors will help them understand the activity requirements and the level of work expected. It will also help them adapt to change, increase productivity, and align their behaviour with the organization's systems and values.

Shukla (2014) made a big difference in creating a framework for education. It has been observed that, despite the intentional selection of the profession by educators, responsibility tends to diminish over time. Less responsibility affects how well schools work and can make teachers less effective in their jobs or even make them leave the field in extreme cases. Advancing skills should be a regular part of the organization. The most common way to see professional duty and encouraging competency is through the job satisfaction of the teachers. Occupation fulfilment, or job satisfaction, is the result of different attitudes that an employee has toward their work. These mindsets are linked to specific factors such as pay, the work environment, opportunities, working conditions, and coworkers. This study aims to examine the three essential components of teaching for educators: Professional Commitment, Job Satisfaction, and Teaching Competency.

Nessipbayeva (2013) conducted a study that delineated the competencies of contemporary educators, referred to as 21st-century teaching skills. They include a) The teacher must be the first person to study in the study hall; b) Teachers should also show initiative at school; c) The teacher must make sure that the study hall is a safe place for all kinds of students; d) The teacher must see students as people; e) The teacher needs to change how he teaches to help the students; f) The teacher must know what they are teaching; g) The teacher must make and explain exercises by following the right proficiency guidelines; h) The teacher must understand how the course is connected; i) Teachers should motivate their students to learn; j) The teacher needs to set up their directions in the right way; k) The teacher must show a variety of models and materials; l) The teacher needs to know how to be creative; m) The teacher needs to think about their training by looking at how their students are growing.

3. Methodology

Rowley and Slack (2004) introduced the bibliometric analysis methodology. This methodology is endorsed by other academics who have produced bibliometric studies across multiple disciplines (Pinto et al., 2020; Mahadevan and Joshi, 2021a & 2021b). Bibliometric analysis is employed by researchers for various objectives, including the examination of the intellectual framework of a particular domain within the existing literature and the identification of emerging trends in article and journal performance, collaboration patterns, and research components (Donthu et al., 2021a; Verma and Gustafsson, 2020). Bibliometric analysis focuses on the objective data, publications production over time, frequency of citations and the keywords prevalent. The interpretation of the results depend on the subjective assessments such as thematic analysis. Consequently, meticulously conducted bibliometric research might establish a foundation for the field's advancement in a more innovative and significant manner. This study allows researchers to gain a comprehensive understanding of the issue, identify knowledge gaps, generate fresh research ideas, and emulate the intended contributions.

4. Bibliometric Tool

"Biblioshiny" package and R program was used to perform the bibliometric analysis. R analytics is an open source programming language. Aria and Cuccurullo (2017) was responsible for this innovation and it has received lot of appreciation in this field. During the analysis and investigation, three steps were followed in alignment with the framework. To start, collecting data meant doing all of the tasks listed above, as well as getting, loading, converting, and cleaning the data. This crucial step ensured the information was of high quality and maintained its consistency.

The next step was to do a full data analysis that included both descriptive (main information, trends, etc.) and citation (author, country, etc.) analyses. The goal was to find the patterns and trends in the literature that was brought in from well-known databases. Also, the data visualisation process, which used different graphs from the biblioshiny tool, made the results easier to see. Some of the different kinds of networks that were used for a deep study were conceptual maps and phrase groups, co-occurrence networks, and country-based affiliation networks. Before moving on to the next steps, it was very important to set the search term, find the related papers, improve the results, and gather and clean up basic data based on Garza-Reyes's work (2015).

5. Search Syntax

It is very important to know how to search the databases, and it is one of the methodological steps in bibliometric analysis to make sure the search is thorough. Choosing the right keywords is very important because it makes it possible to search a lot of literature on the chosen areas of interest all at once. We used two well-known databases, Scopus and WoS, to search the literature. The literature search covered the years 1957 to 2024, and the search query was done on March 19, 2026 (Table 1).

Table 1. Search Syntax

Database	Search Syntax
Scopus (https://www.scopus.com)	TITLE (((competenc* OR skill* OR abilit* OR capabilit*) AND (performance OR "job performance" OR "teaching performance" OR effectiveness) AND (faculty OR teacher* OR academic* OR educator* OR "management institution*" OR "business school*") AND (correlation OR relationship OR association OR impact OR effect)))
WoS (https://www.webofscience.com)	TITLE (((competenc* OR skill* OR abilit* OR capabilit*) AND (performance OR "job performance" OR "teaching performance" OR effectiveness) AND (faculty OR teacher* OR academic* OR educator* OR "management institution*" OR "business school*") AND (correlation OR relationship OR association OR impact OR effect)))

6. Analysis and Results

Biobliometric analysis of the topic Competency mapping and faculty performance are presented in the following headings.

6.1. Main Information

The "Main Information" serves as the primary component of the bibliometric analysis since it offers details on trends, the quantity of documents, authors, relationships between documents in the research domain, authors of single-authored documents, international co-authorship, and more. Search was made between 1967 to 2026 and the results are presented in table 2, There were 245 documents processed from 209 distinct sources contributed by 831 authors. 89 documents were authored by a single person. Co-authorship with foreign authors accounted for about 13.88% of the total. Publications have an annual growth rate of 2.83%.

Table 2. Main Information

Description	Results
Timespan	1967:2026
Sources (Journals, Books, etc)	209
Documents	245
Annual Growth Rate %	2.38
Document Average Age	9.25
Average citations per doc	15.6
AUTHORS	
Authors	831
Authors of single-authored docs	29
AUTHORS COLLABORATION	
Single-authored docs	29
Co-Authors per Doc	3.47
International co-authorships %	13.88

6.2. Annual Scientific Production

Figure 1 illustrates the published articles distribution during the periods of search. The trend indicates that the scientific output was very less and relatively stagnant in the early decades, which emphasizes low intensity of publications and limited research. Increase gradually has taken place from 1990s onwards indicates the growing recognition of the research. Upward surge has actually started from 2010 signifying the scholarly contributions expansion and academic interest. The highest peak in the recent years shows that level of productivity and growing momentum of the research domain. There are fluctuations and declines which highlights the variability in the publications output. Overall, the graph illustrates the transition of the research from nascent to mature stage.

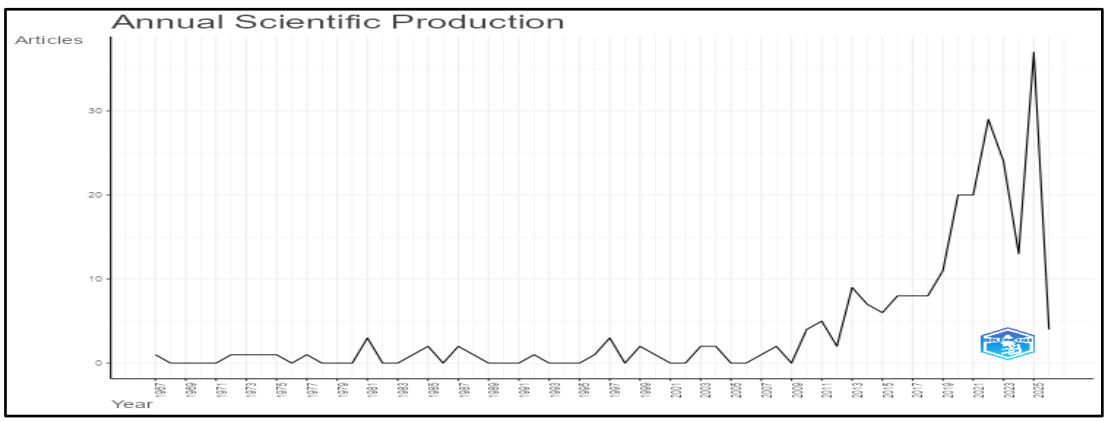


Figure 1. Annual Scientific Production

6.3. Average Citations Per Year

Figure 2 illustrates the citations over the period of search from 1967-2026. The trends indicate that citations were very low reflecting limited research and visibility of the topic in the initial years between 1967 to 1990. Among the scholarly community, recognition has come and academic output has grown upward during 1990-2005. Substantial increase in the citations have started from 2005 onwards indicating enhanced impact of citations and improved indexing in reputed databases. The highest peaks were noticed in late 2000s and early 2010s signifying scholarly influence. Overall, the patterns and trends suggest that impact of research has increased significantly over time but still remain uneven because of the influence of selective high quality contributions.

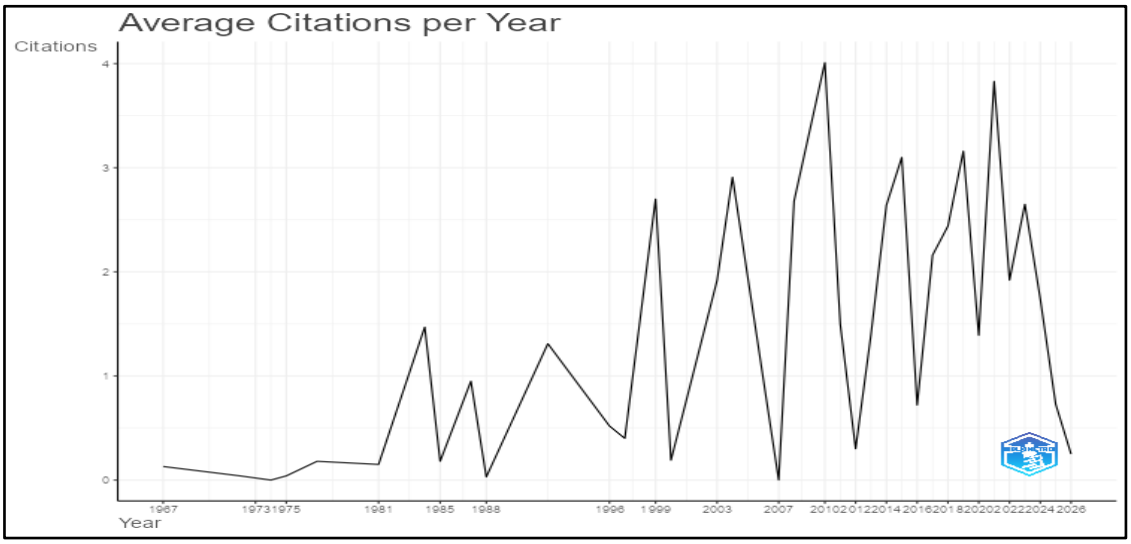


Figure 2. Average Citations per Year

6.4. Most Relevant Sources

Figure 3 illustrates the findings from the relevant sources of the papers. This picture depicts the journals that have published articles on competency mapping in the relevant manner. This analysis included articles that were most frequently published in "*ASEE Annual Conference and Exposition Conference* (N=5)", "*Behavioral Sciences* (N=3)", *"Cogent Education", "Current Psychology"* and *"Journal of Educational Research"* (N=3) respectively and other journals.

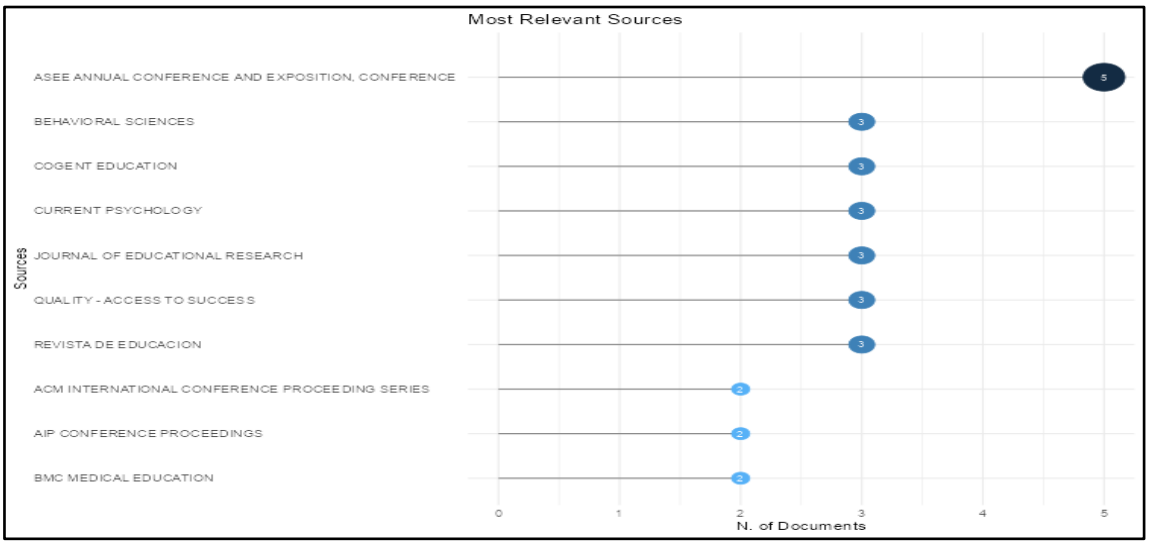


Figure 3. Most Relevant Sources

6.5. Country Production Over Time

Figure 4 depicts the production of research articles country-wise from 1967-2024 showing the trends across different countries viz., China, Indonesia, Iran, Spain, and the USA. It can be seen from the graph that USA is in lead started modestly in 1960 but steadily increased over time. Sharp rise in production was pronounced after 2000 and ultimately has become of the top country producing articles on this topic by 2024. In contrast to this, China, Indonesia, Iran, and Spain have shown very little activity until 2010 after which they have shown noticeable increase in the production of articles. China has shown rapid progress on this front after 2018 showing strong commitment to research productivity and academic interest.

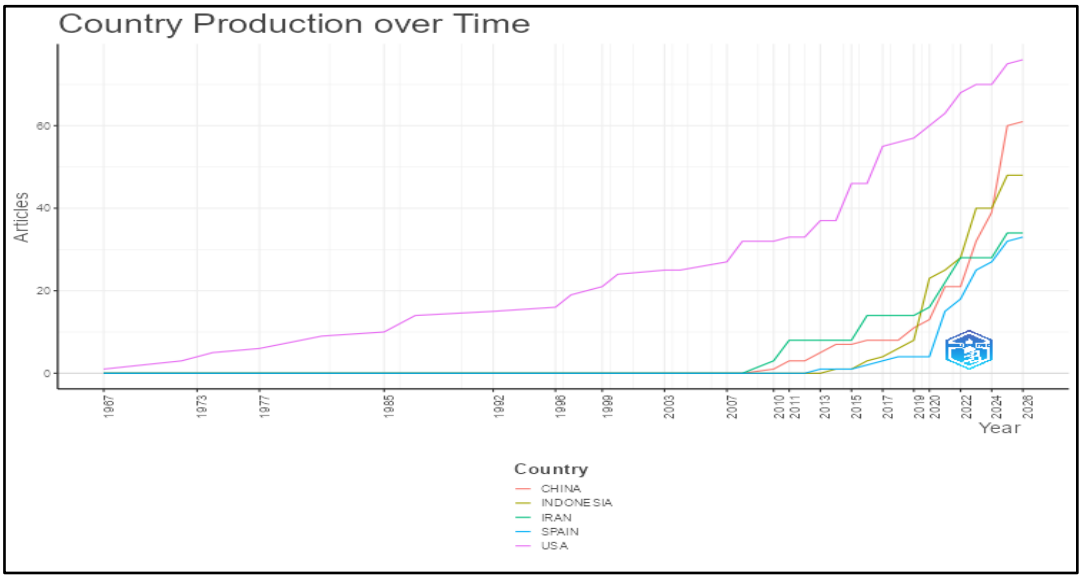


Figure 4. Country Production Over Time

6.6. Most Cited Countries

The figure 5 shows the number of citations received by different countries. The USA has the highest citations (545), followed by Hong Kong (372). China and Iran have moderate citation counts, around 240 and 231 respectively. European countries like the Netherlands, Finland, Germany, and Italy fall in the mid-range. Spain and the United Arab Emirates have the lowest citation numbers. Overall, the USA leads by a large margin compared to other countries.

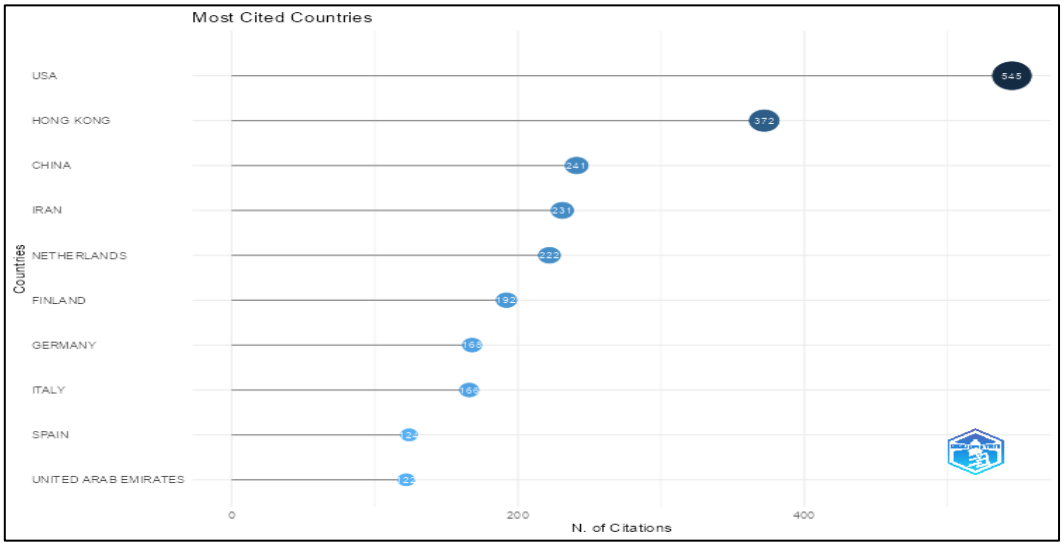


Figure 5. Most Cited Countries

6.7. Wordcloud

Figure 6 word cloud illustrates the relative prominence of terms associated with academic outcomes, with "academic performance" emerging as the most dominant construct, indicating its central role in the study. The size and boldness of this term suggest that it is the primary focus and most frequently occurring concept within the dataset. Other significant terms such as "academic achievement," "students," "education," and "learning" appear with moderate prominence, reflecting their strong conceptual association with performance outcomes. The presence of terms like "assessment," "skills," and "results" indicates an emphasis on evaluation mechanisms and competency development as contributing factors. Additionally, words such as "success" and "study" highlight the broader academic context in which performance is situated. The distribution of terms suggests a multidimensional perspective, where academic performance is influenced by both learning processes and evaluative frameworks. The relatively smaller size of peripheral terms implies lower frequency but still meaningful contributions to the overall theme. This pattern demonstrates a coherent thematic structure centered on student outcomes and educational effectiveness. Consistent with text-mining literature, word clouds emphasize high-frequency terms while potentially underrepresenting contextual nuances. Overall, the visualization confirms that academic performance is the core construct, supported by interconnected academic and evaluative dimensions.



Figure 6. Wordcloud

6.8. Tree Map

This figure 7 represents a tree map visualization of keyword frequency within a dataset related to academic and educational research. Each rectangle corresponds to a specific theme or keyword, and its size reflects the relative frequency or importance of that term in the dataset.

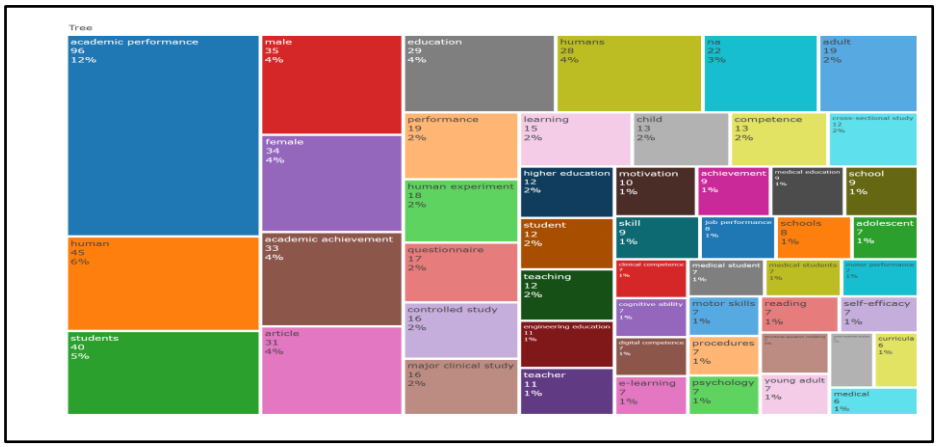


Figure 7. Tree Map

The largest segment, *academic performance* (12%), dominates the visualization, indicating that it is the most extensively studied or discussed concept. Other prominent categories include *students* (5%) and *human* (6%), suggesting a strong focus on learner-centered and human-related educational research. Keywords such as *male* (4%), *female* (4%), *education* (4%), and *academic achievement* (4%) show balanced attention across demographic and performance-related dimensions. Mid-sized segments like *performance*, *learning*, *child*, and *competence* (each around 2%) indicate moderately explored areas, reflecting diverse but less dominant research interests. Smaller segments such as *motivation*, *skill*, *teacher*, *e-learning*, and *psychology* (1% each) highlight niche or specialized topics that contribute to the broader academic discourse. Overall, the treemap suggests that research is heavily concentrated on performance outcomes and student-related factors, while pedagogical methods, psychological aspects, and emerging areas like e-learning receive comparatively less emphasis. This distribution reveals both the core priorities and potential gaps in the existing body of literature, offering direction for future research exploration.

7. Conclusion

Competency mapping has become one of the important tool or framework for identifying the competencies and performance standards required by the faculty and aligning them with the institution's expectations. Evaluation of competency is regarded as essential before the recruitment of faculty or promotion which reinforcing the role in talent management.

The bibliometric analysis is a tool that provides structured way of understanding how the research in competency mapping is evolving using the indicators such as count of publications, citations count, keywords prevalent supported by the thematic interpretation. Churning out systematically volumes of literature, bibliometric methods help to identify the trends, patters and the knowledge gaps which can guide for future research.

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