Trend research of employee competence on employee performance using VOSviewer

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Abstract The development of publications on Employee Competence and its impact on Employee Performance over the past 15 years is the focus of this study. Publications from the Scopus database, totaling 994 documents according to the keywords, were collected, filtered, and narrowed down to 229 publications for analysis. It is evident that there has been a substantial and lucrative increase in publications addressing Employee Competence and its influence on Employee Performance during the past 15 years. Using the VOSviewer tool for bibliometric analysis, the results of the co-occurrence network visualization based on keywords revealed 35 items categorized into 6 clusters, each distinguished by a different color. This analysis underscores the extensive connections that research on Employee Competence and Employee Performance has with other subject areas, as observed through network visualization, overlay visualization, and density visualization. The practical implications derived from enhancing employee competence are substantial, leading to the improvement of employees' skills, increased productivity, and enhanced company effectiveness, thereby gaining a competitive advantage both in the present and the future, ultimately maximizing performance.

Keywords: employee competencies, employee performance, bibliometrics analysis

1. Introduction

Studies on competence have had a positive impact on performance and helped build company competitiveness in the last two decades (De Vos et al 2015; Shet et al 2019). The positive impact of competence is reflected in the characteristics of individuals or employees who can carry out tasks effectively and efficiently in any situation, such as the current COVID-19 pandemic (Aditya et al 2019; Shet et al 2019). The existence of rapid adaptation can optimize employee competence in understanding the situation and how to overcome it (Dirani et al 2020).

Findings from Hamlin and Stewart in the study Hecklau et al. (2016) develop knowledge, skills, and competencies as the main goal of future human resources programs that have an impact on increasing the effectiveness and performance of individuals or groups. Another study by Otoo (2019) suggests that competence can be defined as a person's ability, which generally consists of knowledge, skills, and attitudes that complement each other.

Employee competence is highly dependent on job design, which forms certain characteristics for employees to master (Yoon et al 2020). Job design is a determinant in a series of jobs that contain job standards and methods used (van der Baan et al 2022). The fulfillment of qualified employee competencies will improve employee performance, characterized by company productivity that can achieve predetermined targets and standards (Mahmood et al 2018). Even in the next few decades, competence will be closely related to technology based on digital work and various innovations (Mangkunegara and Waris 2015; McCartney et al 2021; McPhillips and Liczenska 2021). Therefore, competent employees will be able to adapt to change, be flexible, anticipate, and maximize their job potential (van der Baan et al 2022).

It is important from now on to assess employee readiness in the competency requirements needed to keep up with technological advances and changing situations to optimally improve employee performance (Mangkunegara and Waris 2015; Škrinjarić 2022). Employee competency development is very relevant because it provides efforts to prepare for better changes and provide satisfaction with future performance (Aditya et al 2019; Arnéguy et al 2020).

After looking at some recent studies, it is interesting to review and determine the development of research on the relationship between employee competence and employee performance. We will also specifically discuss the relationship between competencies and employee performance.

2. Literature Review

2.1. Employee competence
Many studies have addressed the topic of competence with various discussions or variables that can be linked to each other. Competence is certainly a major strength for companies to be able to continue to survive in competitive advantage (Ordóñez de Pablos and Lytras 2008). Similar to the findings of Heffernan and Flood (2000), the tendency of organizations or companies to adopt competence as a strength is characterized by having superior human resources in the organization. Therefore, the success of the company depends on employee performance supported by their competencies (Mahmood et al. 2018).

The ability of employees to complete work and be able to influence colleagues is another factor in the high competence of employees who consciously realize attitudes and behaviors in completing work (Rahmawati 2017). Studies conducted by Gachuru (2020) and Hartati (2020) state that skills can increase a person’s capacity to work and expand the range of job options in various fields. It can be said that developing competence can have a positive impact on employees other than in the work they are engaged in and provide broad opportunities to work in other fields that are not linear.

Employee potential in terms of competence can be assessed based on knowledge, skills, experience, attitude control, expertise, and skills to provide job satisfaction and improve performance (Saban et al 2020). A study from Elbaz et al. (2018) and Otoo (2019) mentions that competence has several aspects that can be developed and researched further, such as self-competence, competence in teams, change competence, communication competence, and ethical competence.

2.2. The relationship between employee competence and employee performance

Several elements of competence significantly improve employee performance. Studies conducted by Saban et al. (2020) suggest several elements that build employee competence, such as knowledge, skills, experience, mastery of attitudes, and expertise at work. Employee performance also has elements of assessment to consider performance achievement by looking at quantity, quantity, efficiency, effectiveness, and employee loyalty professionally (Hajiali et al 2022).

Competence has a significant influence because the higher the employee’s working knowledge, of course, the more skillful he is in developing his work creativity according to work experience (Hajiali et al 2022; Saban 2020). The relationship between employee competence and employee performance is very strong, and it is also evident that employees who have competence based on their expertise at work will produce excellent work and vice versa (Kurniawan 2021).

3. Materials and Methods

This study uses a bibliometric approach in its analysis of the relationship between employee competence and employee performance obtained through the SCOPUS database for the last 15 years (2008 - 2023). Furthermore, it will be compiled and visualized using the VOSviewer keel tool in the bibliometric network.

The reason for conducting this study in the last 15 years is to obtain a broad and complete picture and explanation of the development of article writing and publications related to employee competence and employee performance. To make the results more specific and appropriate, this study conducted several filters ranging from year, subject area, document type, keywords, and language. The full results are outlined systematically in Figure 1.

4. Results

4.1. Publications per Year

Based on the Scopus database, the development of the topic of employee competence with employee performance in the last 15 years has fluctuated in the number of documents per year. Based on Figure 2, the number of documents presented increased slowly from 2008 to reach the highest trend in 2021, with 32 documents.

4.2. Documents from affiliates

Based on the Scopus database in Table 1, we can see that in the last 15 years, 3 affiliates have a total of 4 publications, namely, Rijksuniversiteit Groningen, The University of Western Australia, and The UWA Business School.

4.3. Documents by country

Based on the Scopus database, Figure 3 shows the countries with the most publications according to the topics discussed. The highest is the US, with 47 publications, followed by Indonesia with 37 publications and China with 30 documents. It is quite interesting because the top 3 are Asian countries with the most contributors to publications, namely, Indonesia and China.

4.4. Analysis of Keyword occurrence
Figure 4 shows the visualization of the keyword occurrence network using VOSviewer. Resulting in 35 items with 6 clusters marked in different colors. Cluster 1 has 9 items, namely, employee performance, innovative work behavior, intrinsic motivation, OCB, psychological needs, self-determination theory, task performance, work involvement, and work motivation. Cluster 2 has 7 items, namely, commitment, human capital, innovation, job crafting, marketing orientation, service performance, and workload. Cluster 3 has 7 items, namely, compensation, experimentation, performance, self-efficacy, training, welfare, and workplace. Cluster 4 contains 4 items consisting of empowerment, knowledge management, and organizational performance. Cluster 5 contains 4 items, namely, competence, leadership, motivation, and organizational culture. Cluster 6 had 4 items, namely, creative performance, job performance, job satisfaction, and work competence.
Table 1 Top 10 affiliations.

<table>
<thead>
<tr>
<th>Affiliation</th>
<th>Number of Publications</th>
</tr>
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<tbody>
<tr>
<td>Rijksuniversiteit Groningen</td>
<td>4</td>
</tr>
<tr>
<td>The University of Western Australia</td>
<td>4</td>
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<tr>
<td>The UWA Business School</td>
<td>4</td>
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<tr>
<td>Sekolah Tinggi Ilmu Ekonomi Indonesia (STIESIA)</td>
<td>3</td>
</tr>
<tr>
<td>Faculteit der Managementwetenschappen</td>
<td>3</td>
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<tr>
<td>Seoul National University</td>
<td>3</td>
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<tr>
<td>City University of Hong Kong</td>
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<tr>
<td>Radboud Universiteit</td>
<td>3</td>
</tr>
<tr>
<td>Erasmus Universiteit Rotterdam</td>
<td>3</td>
</tr>
<tr>
<td>Hanyang University</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: Scopus Database

Documents by country or territory

Source: Scopus Database

4.5. Keyword occurrence “competence or employee competence”

Based on the results of the VOSviewer analysis, network visualization on the occurrence of the keyword "competence" produces several relationships, as shown in Figure 5. Upon further observation, there is a strong network relationship with several items of "competence", namely, employee performance, job performance, organizational performance, and motivation. Other items include training, compensation, empowerment, OCB, and market orientation.

4.6. Keyword occurrence of “employee performance”

Based on the results of the VOSviewer analysis, network visualization on the occurrence of the keyword "employee performance" produces several relationships, as shown in Figure 6. It is further observed that the network has a strong relationship with the keyword "employee performance", such as competence, organizational commitment, motivation, job performance, and job satisfaction. There are also other items, such as compensation, training, work competence, innovation, organizational performance, organizational culture, intrinsic motivation, OCB, work engagement, innovative work behavior, work motivation, workload, and empowerment.

Figure 3 Documents by country

Source: Scopus Database

Figure 4 Network visualization of co-occurrence based on keywords.

https://www.malque.pub/ojs/index.php/mr
4.7. Overplay Visualization of Competence in Employee Performance

Based on Figure 7, the overlay visualization illustrates the historical development of researchers from the previous year to the present, which is interrelated with the keyword "competence to employee performance". However, after making adjustments, the visualization started from 2017-2021. The colors that appear on the overlay visualization have different meanings, such as dark colors indicating publications made from the previous year; the darker the publication is, the older it is.

The overlay visualization is marked with bright colors indicating the latest publications, such as in 2020-2021, which are bright green and yellow. This publication covers several topics, namely, employee performance, performance, work engagement, innovation, work competence, job crafting, creative performance, workplace, experiment, intrinsic motivation, and psychological needs. All topics can be interconnected with "competence" through direct or mediated mechanisms.

4.8. Item Density visualization of competence in employee performance

The density visualization in Figure 8 shows that "competence" and "employee competence" are topics that are often studied and researched because the visualization is marked with bright colors and prominent writing. Colors that tend to be dark, such as the topics of well-being, compensation, experiment, workplace, work competence, innovative work behavior, creative performance, workload, and commitment, are topics that are rarely studied and require much exploration.

According to the number of publications produced in the last 14 years, the topic of "competence on employee performance" has always fluctuated. This topic can be further explored by combining other topics to enrich research themes and become future innovations.
Figure 7 Overlay visualization of employee competence on employee performance publications in 2017-2021.

Figure 8 Density visualization of employee competence on employee performance publications in 2017-2021.

5. Discussion

Research about employee competence on employee performance is still an interesting topic to continue to be researched and developed. This is evidenced by developments in the last 15 years, which fluctuate continuously based on the Scopus database and subsequent years.

The results of the VOSviewer analysis also contribute greatly to the topic of employee competence on performance, which can be developed with other topics. Thus, this research will enrich knowledge and publications between topics that can be developed with each other, which can be observed in Figure 4 of the VOSviewer results.

5.1. The relationship between competence and employee performance

Based on the findings depicted in Figure 9 of VOSviewer, it is elucidated that competence and employee performance are robust keywords and share a mutual relationship in various recent studies. Competence can serve as a causal factor for elucidating and forecasting an individual’s performance, as demonstrated by Dhyan Parashakti et al. in 2020. In simpler terms, when employees possess a high level of competence or are deemed competent, it can be inferred that they will generate high-quality and efficient performance in their workplace.

Thus, competence can affect a person’s performance. Therefore, employees who work must be able to improve their abilities and skills, as well as the knowledge they have to improve performance and make a full contribution to the company. In the future, competence will be the solution to the challenges of human resources, and companies will be able to continue to compete and exist (Hajiali et al 2022).
5.2. The Relationship between Training and Employee Competency and Performance

Based on the results of VOSviewer Figure 10 on the topic of improving employee competence, companies usually need to provide training and development. This aims to improve organizational performance and increase employee expertise that will contribute to overall company functions (Otoo 2019). The training provided will be seen to what extent it is effective, which aims to reduce the competency gap between employees. In one study (Mahmood et al 2018), the effectiveness of training is given to improve skills, performance, motivation, efficiency, employee attitudes, and knowledge to competently carry out tasks and work in the future to close the gap that occurs.

5.3. Relationship between Compensation and Employee Performance

Derived from the findings presented in Figure 11 of VOSviewer, compensation is a subject occasionally mentioned in conjunction with employee performance. Compensation constitutes a sensitive topic in the realm of many discussions since every worker’s contributions warrant just and equitable compensation in return.

Therefore, the company should make a fair compensation procedure so that employees who work will feel satisfied and motivated to improve their performance (Hidayat et al 2017). The concept of compensation provided has two forms, namely, financial compensation and nonfinancial compensation (Hidayat et al 2017; Saban et al 2020). Types of financial compensation in the form of certain rewards and benefits. Nonfinancial in the form of career clarity and a comfortable and friendly work environment.
6. Final considerations

The study of “employee competence on employee performance” is important because it has a great opportunity to be developed and dissected in further research. The results of the analysis that have been carried out from the Scopus database provide good results with a fluctuating increase in publications in the last 15 years. Although the COVID-19 pandemic had experienced a slight decline, it increased again in 2022 with 35 publications.

The results of the VOSviewer analysis in Figure 4 show that many keywords have a relationship between employee competence or competence and employee performance with a category of 6 clusters. One of the results of density visualization in Figure 8 that is interesting to discuss is compensation that should affect employee performance and even competence. There are many topics of opportunity for further research in addition to compensation, such as well-being, creative performance, innovative work behavior, work engagement, innovation, and knowledge management, each of which can be related to employee competence or employee performance.

6.1. Limitations and suggestions for future research

The limitation of the results of this bibliometric study is that it only uses one database, namely, Scopus, and one analysis tool in the form of a VOSviewer. In addition to SCOPUS, there are still many other citation and abstract indexing databases that can be used, such as Web of Science, Dimension, PubMed, Crossref, Publish or Perish, and Europe PMC, with their advantages and disadvantages.

It is highly recommended that future researchers expand the analysis and combine several existing databases. This is interesting to do because it provides a broad review and can analyze the comparison of several databases. The VOSviewer results in Figures 4, 7, and 8 can be used as future research ideas in the form of empirical research and library studies for further exploration.

Ethical considerations

Not applicable.

Conflict of Interest

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