

The Effect of Technical Competence on Employee Performance: A Systematic Literature Review

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ABSTRACT

This study aims to explore the influence of technical competence on employee performance. This study uses the Systematic Literature Review (SLR) approach, which refers to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. In the midst of the dynamics of the ever-evolving world of work, technical competence is one of the key factors in supporting increased productivity and work effectiveness. With reference to the PRISMA guidelines, a total of 21 articles published between 2020 and 2025 were systematically reviewed. The articles come from a variety of sectors, including government, private, and education. The results of the study show that technical competence consistently has a positive and significant effect on employee performance. Employees with adequate technical skills tend to complete tasks faster, produce quality output, and are able to adapt to technological changes. In addition, some studies show that the influence of technical competence can be amplified by other factors such as motivation, leadership, and work discipline. These findings support the importance of developing technical competencies as an integral part of human resource management strategies. This research provides theoretical contributions in strengthening competency-based management models, as well as practical implications for organizations in designing employee performance training and evaluation.

Keywords: technical competence; employee performance; job skills; competency management; systematic literature review.

INTRODUCTION

During technological developments and increasingly complex dynamics of the world of work, organizations are required to have competent human resources to achieve a competitive advantage. Employee performance as the main indicator of organizational productivity is greatly influenced by the technical abilities possessed by individuals. Employee performance refers to the work results of individuals in carrying out their duties and responsibilities, which reflects their contribution to the achievement of organizational goals (Dewianawati et al., 2022). Performance is influenced by many factors, both internal (such as motivation, ability) and external (work environment, training).

One of the important aspects in shaping the quality of human resources is technical competence. Technical competence refers to the specific skills and knowledge needed to carry out job duties effectively. This competency includes operational capabilities for devices, technologies, procedures, and work systems that are suitable for a specific field of work (Danianta et al., 2022). In the context of modern organizations, technical competence is an essential cornerstone in ensuring employees are able to adapt to dynamic work demands and produce high-quality output. The relationship between technical competence and employee performance can be understood through competency-based human resource theory (*competency-based HRM*), which states that

improving competencies directly impacts improving the quality of work of individuals and organizations. In many studies, technical competence is directly associated with improved quality of work, speed of task completion, and adaptability to changes in technology and work procedures. Therefore, an in-depth understanding of the relationship between technical competencies and employee performance is essential in efforts to develop strategic human resource management.

Several studies have explored the relationship between technical skills and employee performance using a variety of methods, such as quantitative, qualitative, and a combination of both. Several studies reveal that employees with good technical skills are more effective at completing tasks, producing quality results, and contributing to the achievement of organizational goals. Although there has been a lot of research on the influence of competencies on employee performance, systematic research that specifically maps and analyzes the influence of technical competencies on employee performance is still limited. Therefore, this study aims to compile a systematic literature review on the influence of technical competence on employee performance from various industrial sectors and organizations by analyzing 21 related articles. Through the Systematic Literature Review (SLR) approach, this research is expected to make a theoretical and practical contribution to the development of human resource management, especially in terms of improving technical skills-based work competencies.

RESEARCH METHOD

This study uses the Systematic Literature Review (SLR) approach which refers to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. The SLR implementation procedure includes four main stages:

1. Identification: A total of 124 articles were identified from databases such as Google Scholar, SINTA, Garuda, ScienceDirect, and ResearchGate using the keywords: "technical competence", "employee performance", "technical competence", and "employee performance".
2. Screening: From the initial identification results, 57 articles were screened based on topic suitability, year of publication (2020–2025), and peer-review status.
3. Eligibility: Articles are further selected through abstract and full-text reviews to ensure relevance to the study theme.
4. Inclusion: A total of 21 articles that met all criteria were included in the final stage and analyzed systematically.

The PRISMA flowchart briefly describes the process as follows:

1. Total articles identified: 124
2. Articles after duplicate and irrelevant filtering: 57
3. Articles evaluated for content eligibility: 35
4. Articles that qualify for final inclusion: 21

Of the 124 articles that were successfully identified through the initial search, 57 articles entered the screening stage. After evaluating the abstract and complete content, 21 articles met all inclusion criteria and were further analyzed using the SLR method. Data was obtained from several leading academic databases, including Google Scholar, Researchgate, ScienceDirect, SINTA, and Garuda (Garba Digital Reference Indonesia). Selected articles must meet the following inclusion criteria:

1. The article is a scientific journal publication

2. Published between 2020 and 2025
3. Written in English or Indonesian
4. The main focus of the research is the influence of technical competence on employee performance
5. Using quantitative, qualitative, or mixed methods approaches
6. Available in full-text format

Data analysis in this study was carried out using a qualitative thematic analysis method on the results of 21 articles that met the inclusion criteria. Each article is analyzed based on:

1. Types and sectors of the organization
2. Research methodology used (quantitative, qualitative, mixed, or literature review)
3. Variables studied and analysis instruments (linear, correlation, descriptive, and other regression)
4. Key results and findings related to the influence of technical competence on performance

Data were categorized and synthesized to identify patterns, similarities, and differences in findings between studies. This process aims to formulate general conclusions about the influence of technical competencies on employee performance in various organizational contexts.

RESULTS AND DISCUSSION

Based on the analysis of the literature collected, technical competence is one of the main predictors of employee performance. The selected articles reflect a wide range of industry sectors and diverse research methods. The following is a summary of the research results of 21 scientific articles analyzed based on methods, variables, and main findings:

Table 1. Systematic Literature Review (SLR)

No.	Article	Corresponding Variable	Methodology Used	Research Results
1.	(Novianingsih & Sarah, 2025) The Effect of Competency and Job Training on the Performance of Employees of the Chemical Laboratory Testing Function at the Bandung Food and Drug Supervisory Center	1. Competence 2. Performance	The method used is a quantitative approach with multiple linear regression techniques.	Competence significantly affects performance both partially and simultaneously
2.	(Djatniko et al., 2025) The Influence of Leadership, Competence, Work Discipline, and Work	1. Competence 2. Performance	The data analysis method in this study is quantitative	Partial and simultaneous competence has a significant effect on performance

No.	Article	Corresponding Variable	Methodology Used	Research Results
	Environment on Personnel Performance Military Academy		using the Descriptive analysis method	
3.	(Samsuri et al., 2024) The Impact of Technical Competence, Work Motivation and Self-Discipline on Employee Performance	1. Competence 2. Performance	This study uses a quantitative approach using multiple linear regression analysis.	Technical competence has a positive and significant effect on employee performance.
4.	(Suryana et al., 2024) Literature Review: The Effect of Competency on the Performance of Civil Servants	1. Competence 2. Performance	Literature review method or literature research	Competencies have a significant and positive effect on performance
5.	(Taha et al., 2024) The Influence of Technical Competence, Work Discipline and Motivation on the Performance of Village Apparatus in Pallangga District	1. Competence 2. Performance	Quantitative descriptive research methods and multiple linear regression methods	Technical Competence has a positive and significant effect on performance
6.	(Marliana et al., 2024) The Effect of Competency on the Performance of Public Works and Spatial Planning Office Employees of Cimahi City	1. Competence 2. Performance	This research uses the explanatory research method	Competence has a positive and significant influence on performance
7.	(Suryani & Makiah, 2024) The Influence of Competency on Employee Performance in the Communication Office and Tabalong Regency Informatics	1. Competence 2. Performance	This study uses Associative quantitative approach.	Competence has a significant effect on Performance
8.	(Ilham, 2024) The Influence of Competency on Employee Performance	1. Competence 2. Performance	Quantitative with questionnaire	Competence has no effect on performance

No.	Article	Corresponding Variable	Methodology Used	Research Results
9.	(Riyanti & Diwanti, 2023) Qualitative Analysis of the Influence of Employee Competencies on Employee Performance	1. Competence 2. Performance	Field research with qualitative approach method	Competence is able to improve employee performance.
10.	(Haeruddin et al., 2023) The Influence of Work Discipline and Technical Competence on the Performance of BKPSDM Employees in East Luwu	1. Competence 2. Performance	The research method used is correlational design	Technical competence moderately affects performance
11.	(Rochmah & Suhartono, 2023) The Influence of Work Environment, Compensation, Work Discipline and Work Competence on Employee Performance through Work Motivation as a Mediation Variable	1. Competence 2. Performance	This research is quantitative with questionnaires as the data source	Competencies have a positive and significant effect on performance
12.	(Sariana et al., 2022) The Influence of Competency on Employee Performance	1. Competence 2. Performance	This study uses a quantitative method with a questionnaire	Skill competencies have a positive and significant effect on performance
13.	(Afriyeni & Kurnia, 2022) The Effect of Competency and Job Satisfaction on the Performance of Employees of the Billman Section at PT. PLN (Persero) Indarung	1. Competence 2. Performance	This study uses a quantitative method with a questionnaire	Competencies have a positive and significant effect on performance
14.	(Dewianawati et al., 2022)	1. Competence 2. Performance	This study uses a quantitative	Competence and work have a

No.	Article	Corresponding Variable	Methodology Used	Research Results
	The Influence of Emotional Intelligence, Competence, Communication and Work Discipline on Employee Performance		method with a questionnaire	significant effect partially and simultaneously on performance.
15.	(Krisnawati & Bagia, 2021) The Influence of Work Competency on Employee Performance	1. Competence 2. Performance	This research is a type of causal quantitative research	Work competence has a positive and significant influence on performance
16.	(Krisnandi & Saputra, 2021) Competence, Communication, Discipline, and Work Environment Towards Employee Performance	1. Competence 2. Performance	Methodology This study uses quantitative methods	Competence partially and simultaneously has a positive and significant effect on performance
17.	(Yanti & Mursidi, 2021) The Influence of Transformational Leadership and Competence to Employee Performance	1. Competence 2. Performance	This study uses a quantitative approach, with data collection through surveys	Competence has a significant influence on employee performance
18.	(Kanafiah et al., 2021) The Effect of Hard Skills and Training on Technical Implementer Performance through Job Satisfaction as an Intervening Variable (Study on the Technical Implementer of the Serang Regency PUPR Office)	1. Competence 2. Performance	Quantitative descriptive method	Competencies (hard skills) have a significant positive effect on performance
19.	(Febrina & Aisyah, 2021) The Effect of Mastering Technical Competencies on Employee Performance	1. Competence 2. Performance	Quantitative	Technical Competence has a positive influence on performance

No.	Article	Corresponding Variable	Methodology Used	Research Results
	Moderated by ASN SMART Competency in the Position of Implementing Compiler of Publication and Public Relations Materials			
20.	(Tjahyanti & Chairunnisa, 2021) Competence, Leadership, Work Discipline on Employee Performance Human Resources and Facility Management Directorate	1. Competence 2. Performance	The methods used are Descriptive and Causality	Partially, competence affects performance
21.	(Muslimat, 2020) The Influence of Competency on Employee Performance At PT. Gramedia in Jakarta	1. Competence 2. Performance	The method used is explanatory research	Competencies have a positive and significant effect on performance

Based on an analysis of 21 scientific articles, technical competence is proven to be one of the main determinants of employee performance. The articles cover a wide range of sectors (government, education, private companies, and SOEs) as well as diverse research methods (quantitative, qualitative, and SLR). Most studies show that technical competence has a positive and significant influence on performance (e.g.: Samsuri et al., 2024; Taha et al., 2024; Febrina & Aisyah, 2021; Muslimat, 2020).

These studies indicate that employees with good technical skills are better able to complete tasks efficiently, adapt to new technologies, and produce quality output. This reinforces the view that technical competence is an important foundation in improving individual and organizational performance. However, one study by Ilham (2024) showed that competence had no significant effect on performance, suggesting the possibility that other factors such as organizational culture or managerial support influenced the outcome.

In addition, there is a tendency that technical competencies do not stand alone, but are interrelated with other variables such as motivation, work discipline, leadership, and work environment (for example: Rochmah & Suhartono, 2023; Dewianawati et al., 2022; Kanafiah et al., 2021). Some studies also use a mediation model approach, where competence affects performance indirectly through other variables.

Qualitative approaches (e.g. Riyanti & Diwanti, 2023) also show that employees' perceptions of the importance of technical skills are quite high, especially in dynamic work environments. This study emphasizes the importance of adaptation and continuous renewal of competencies.

Overall, the findings from the literature reviewed reinforce the theoretical framework that technical competencies are a fundamental element of human resource development and strategic assets to achieve organizational goals. This also confirms the relevance of competency-based HR models in contemporary workforce management.

CONCLUSION

Based on an analysis of 21 relevant articles published between 2020 and 2025, it can be concluded that technical competence plays an important role in improving employee performance in various sectors. Employees with strong technical abilities tend to show higher productivity, efficiency, and work quality. The review also shows that while technical competence significantly affects performance, its impact can be amplified or mitigated by other factors such as motivation, discipline, leadership, and work environment. Thus, technical competencies should not be viewed in isolation, but rather as an integral component of a broader performance management strategy. For HR practitioners, it is important to design relevant technical training as well as develop a periodic evaluation system based on technical competencies to ensure the sustainability of individual and organizational performance. From a practical standpoint, the findings suggest that organizations should invest in technical training, ongoing skills development, and performance-based evaluations to ensure their workforce remains competent and competitive. For future research, further investigation using *meta-analytical* techniques or sector-specific reviews can provide deeper insights into contextual differences in competency-performance relationships.

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