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Competence, Motivation, and Technology as Determinants of Employee Productivity: Systematic Literature Review (SLR)

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Abstract: The purpose of this paper is to provide a comprehensive and detailed insight into the role of competence, motivation, and technology in determining employee productivity, as well as how organizations can effectively manage these three factors to achieve greater success and competitiveness. The research method used in this scientific article is a structured literature review. Relevant scientific articles are selected, identified, and evaluated during the literature review process. The determination of the study scope was carried out using the PICO framework (population, problem, intervention, comparison), which provides a score to establish the study limitations. A collection of relevant scientific articles is selected, excavated, and reviewed during a literature review. Using the PICO framework (population/problem, intervention, comparison), the scope of the study is determined by the score. The results of the paper provide valuable insights for human resource management practitioners and other stakeholders in managing and improving employee productivity in various types of organizations. Recommendations for practitioners include developing strategies to increase employee engagement, encouraging more flexible work practices such as teleworking, as well as strengthening motivational practices such as training and development, performance-based rewards, and knowledge sharing.

Keyword: Competence, Motivation, Technology, Employee Productivity, SLR.

INTRODUCTION

In an era of globalization and digitalization that continues to evolve, organizations around the world are facing increasing pressure to increase the productivity of their employees. Employee productivity is one of the key factors that determine the success and competitiveness of an organization. Along with the rapid development of technology, organizations must adapt to changes in the dynamic business environment (Kumar & Mittal, 2024). Technology has become an integral part of almost all aspects of a company's operations, from communication, data management, to production processes. The effective use of technology can speed up work processes, reduce errors, and increase efficiency (Al-ali et al., 2024). However, the adoption of technology also requires employees who have

adequate competencies to operate and utilize the technology (Mandala et al., 2024). Employee competencies, which include knowledge, skills, and abilities, are crucial factors in determining how effectively technology can be implemented in the work environment.

In addition to competence, employee motivation also plays an important role in determining productivity. Motivation can come from a variety of sources, both intrinsic and extrinsic. Motivated employees tend to be more passionate, proactive, and committed to their tasks. They are more likely to reach or even exceed the productivity targets that have been set (Alanizan, 2023). Organizations need to create a supportive work environment, offer adequate incentives, and provide career development opportunities to maintain a high level of motivation among employees. Many organizations have difficulty in ensuring that their employees have the competencies needed to take advantage of new technologies. Employee training and development are often inadequate or not aligned with evolving technology needs (Maity, 2019). This competency gap can hinder productivity and reduce the effectiveness of technology implementation (Popang & Hendarman, 2024).

Employee motivation can be influenced by a variety of factors such as job satisfaction, compensation, recognition, and opportunities for growth. When employees feel undervalued or don't have the opportunity to grow, their motivation tends to decline. This can have a negative impact on productivity and quality of work (Uka & Prendi, 2021). While technology has great potential to increase productivity, many organizations experience failure to adopt new technologies effectively. This could be due to resistance to change, lack of training, or inadequate infrastructure. Failure to integrate technology can result in waste of resources and reduce productivity (Kahfi, 2022). Often, organizations see competence, motivation, and technology as separate elements without realizing the interconnectedness between them. The lack of a holistic approach to managing these three factors can hinder efforts to improve productivity across the board (Mao et al., 2020).

Employee competencies, which include knowledge, skills, and abilities, are an important foundation in improving productivity. High competence allows employees to complete tasks more effectively and efficiently (Shet et al., 2019). Competent employees can better overcome job challenges, innovate, and contribute more to the achievement of organizational goals. Competencies also help employees to more easily adapt to changes and new demands in a dynamic work environment. Employee motivation is an internal and external impulse that affects the passion and desire to work. High motivation encourages employees to work with passion, enthusiasm, and dedication (Jungert, 2016). Intrinsic motivation, such as job satisfaction and a sense of personal accomplishment, and extrinsic motivation, such as financial incentives and recognition, both play an important role in increasing productivity. Motivated employees tend to be more proactive, creative, and committed to meeting or even exceeding predetermined productivity targets (Bakker et al., 2020).

Technology is a very important tool in increasing employee productivity. The use of the right technology can speed up work processes, reduce errors, and increase efficiency. Technology allows for the automation of routine tasks, so employees can focus on more strategic and value-added tasks (Haleem et al., 2021). Additionally, technology also provides access to a wider range of information and resources, allows for better collaboration, and improves employees' ability to work from anywhere. However, in order for technology to be able to Optimally utilized, employees must have adequate competence to operate and utilize it (Blanka et al., 2022). These three variables are interrelated and influence each other in determining employee productivity. High competence allows employees to use technology more effectively, while advanced technology can improve employees' ability to work more efficiently. On the other hand, high motivation encourages employees to continue to improve their competencies and make optimal use of technology. When employees feel competent and motivated, they are more likely to accept and adapt to new technologies, so their productivity

increases. The purpose of this paper is to provide a comprehensive and detailed insight into the role of competence, motivation, and technology in determining employee productivity, as well as how organizations can effectively manage these three factors to achieve greater success and competitiveness.

METHOD

Before discussing the results and discussion, it is better to provide a summary of the variables in this article as follows: Competencies, Motivation, Technology, and Employee Productivity. Employee productivity is the output obtained from employees in an organization. Human Resource Competency refers to the combination of knowledge, skills, attitudes, and behaviors possessed by an individual or group in the context of a particular job or organization. These competencies include the ability to complete assigned tasks effectively and efficiently, as well as the ability to adapt to change, collaborate with teams, and take initiative (Armstrong and Taylor, 2020).

The research method used in this scientific article is a structured literature review. Relevant scientific articles are selected, identified, and evaluated during the literature review process. The determination of the study scope was carried out using the PICO framework (population/problem, intervention, comparison), which provides a score to establish the study limitations. A collection of relevant scientific articles is selected, excavated, and reviewed during a literature review. Using the PICO framework (population/problem, intervention, comparison), the scope of the study is determined by the score. Table 1 lists the limitations of the scope of the study, with a literature review from several existing journals. Table 2, which will be described and presented in this scientific article, uses metrics from the scientific article to present relevant findings.

Table.1. Summary of PICO

Component	Information
Population/problem	Employee/Organization
Intervetion Comparison	n.a
Output/Output	Reinforcement comes from literature which is the result of research from other researchers

The research stages include making research questions, searching the literature, selecting studies, extracting data, assessing eligibility requirements, and evaluating quality. In this research paper, research questions are asked, including a literature search using databases from all available international journals. The importance of Competence, Motivation, Technology, and Work Productivity in the context of the organization is emphasized, with a search period from June to July 2024. PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) is used to select sources of literature and meta-analysis. Based on eligibility criteria, articles are selected in accordance with inclusion and exclusion standards: 1) Scientific articles written in Indonesian are a condition for participation, 2) Literature includes published scientific articles in journals in English or Indonesian. Research articles are excluded, and there is no limit to the year of publication sought.

Development involves discussing research articles about the importance of competence, motivation, technology, and work productivity. This article is compiled as a literature review; The availability of the full text is not explained, and this article is simple in scientific investigation. In this investigation, no criteria were applied to complete the resource selection procedure. Figure 1 shows the body of literature by comparing the assessment of supporting literature; The process involves the synthesis of matter. The last step is data, i.e. the quality of the synthesized data refers to the research findings, data mining in a fabrication matrix table represents the results of data extraction.

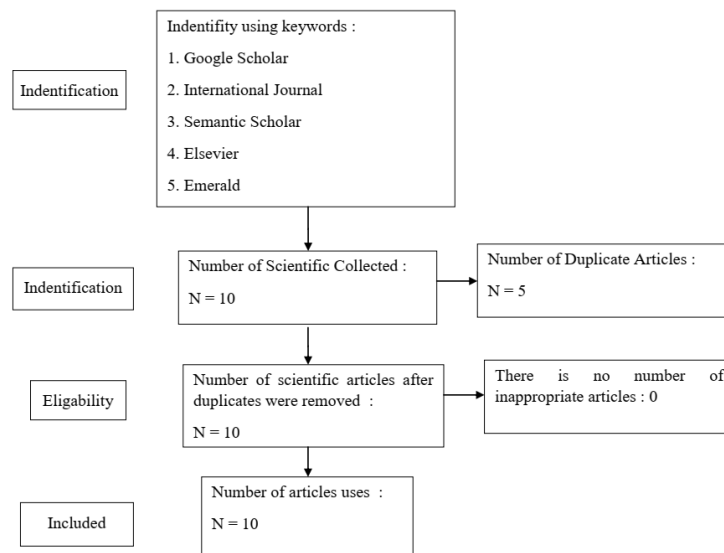


Figure.1 Scientific Article Selection Process

Table.2 Distribution of Journals , Publishers , and Findings

Number	Article Name	Authors	Journal	Publisher	Findings
1	The Effect of Work Discipline and Work Motivation on Employee Productivity with Competence as Interviening Variables	(Gómez Barroso & Valcarcel Martínez, 2019; Marlapa & Mulyana, 2020)	International Review of Management and Marketing, 2020, 10(3), 54-63	Econ Journals	Work discipline is an important factor in improving employee performance. With good work discipline from employees, such as coming on time, carrying out work in accordance with what has been set by the company, and complying with company regulations, it can improve employee performance so that the company's targets can be achieved.
2	EXPLORING THE IMPACT OF COMPETENCE, EDUCATION, AND WORK DISCIPLINE ON EMPLOYEE PRODUCTIVITY IN FINANCIAL INSTITUTIONS AND ASSET MANAGEMENT: A QUANTITATIVE ANALYSIS	(Armawan & Herlina, 2023)	Journal Of Resource Management, Economics And Business (REMIC) 2023	IJREMB	There is a partial influence of education on employee productivity at the Cirebon Regency Finance and Assets Agency. There is a partial influence of work discipline on employee productivity at the Cirebon Regency Finance and Assets Agency. There is a simultaneous influence of competence, education, and work discipline on employee productivity at the Cirebon Regency Finance and Assets Agency.
3	The impact of new production technology on employee productivity in the South African workplace	(Van Zyl, 2015)	Journal of Economic and Financial Sciences ISSN: (Online) 2312-2803, (Print) 1995-	jefjournal.org.za	Positive effect on employee productivity, with higher productivity increases occurring in the 35 to 55 year old employee age group and an increase in More Productivity big

			7076		occurs in the segment of employees with lower skills.
4	Employer Responses to Poaching on Employee Productivity: The Mediating Role of Organizational Agility in Technology Companies	(Li et al., 2023)	Sustainability 2023, 15, 5369. https://doi.org/10.3390/su15065369	MDPI	Valuable insights into the impact of an organization's response to talent hunt on employee productivity while considering the mediating role of organizational resilience. It contributes to the sustainability literature
5	Enhancing Employee Productivity Through Technology System AI-Based Approaches	(Fitri et al., 2023)	The 6th International Seminar on Business, Economics, Social Science, and Technology (ISBEST) 2023 e-ISSN 2987-0461 Vol 3 (2023)		Contribute to understanding how AI Technology Systems improve employee productivity and provide recommendations to expand the use of AI in employee engagement practices.
6	BALANCING PRODUCTIVITY WITH THE MORALE OF THE VIRTUAL EMPLOYEE: A CASE STUDY FOR OPTIMIZING AN INTEGRATED TECHNOLOGY PLAN	(Manko, 2020)	European Journal of Human Resource Management Studies ISSN: 2601 - 1972 ISSN-L: 2601 - 1972	www.oapub.org/soc	The relationship between employees and technology can be ascertained, by making the necessary changes, all based on the results of surveys and interviews conducted by objective external sources. A careful strategy to develop a systematic plan aimed at improving the balance between human satisfaction and technological functioning is the main goal
7.	Finding the Optimal Mix between Telework and Office Hours to Enhance Employee Productivity: A Study into the Relationship between Telework Intensity and Individual Productivity, with Mediation of Intrinsic Motivation and Moderation of Office Hours	(Hoornweg et al., 2016)	In New ways of working practices (Vol. 16, pp. 1-28)	Emerald Group Publishing	Finding the optimal combination between telework and office hours to increase employee productivity: A study on the relationship between telework intensity and individual productivity, taking into account the role of intrinsic motivation mediation and moderation of office hours.
8	Role of Different Employee Motivation Practices on	(Alketbi et al., 2023)	International Journal of Innovative Science and	IJRST	Key motivational practices to improve employee performance and productivity include work

	Employee Performance and Productivity		Research Technology Volume 8, Issue 5, May 2023		from home (WFH), training and development (T&D), performance-based rewards, and knowledge sharing. In addition, to benefit from WFH, it is important for companies to provide appropriate support to employees
9	The Effects of Wages and Welfare Facilities on Employee Productivity: Mediating Role of Employee Work Motivation	(Alam et al., 2020)	AABFJ Volume 14, No.4, 2020	ABFI	Indicates that all seven hypotheses are supported. Practical implications - These findings will assist policymakers, the Bangladesh government, factory owners, managers, and other stakeholders in formulating new policies and practices.
10	JOB SATISFACTION AND EMPLOYEE MOTIVATION MEDIATES THE PRODUCTIVITY OF COVID-19 INDUCED WORK FROM HOME	(Tardie & Umar, 2022)	JournalNX- A Multidisciplinary Peer Reviewed Journal ISSN No: 2581 - 4230 VOLUME 8, ISSUE 4, Apr. -2022	NOVATE UR PUBLICATIONS	Job satisfaction and motivation mediate the relationship between organizational factors, employee engagement, and technical support on the one hand, and productivity on the other. To achieve higher levels of performance, this study recommends that practitioners develop techniques to cultivate a good work attitude and improve the perceived organizational support.

RESULTS AND DISCUSSION

Results

Competence on Employee Productivity

According to (Dutta et al., 2022) Competence is a combination of knowledge, skills, and attitudes that a person possesses, which allows them to perform certain tasks or jobs effectively and efficiently. Competencies include the ability to apply knowledge and skills in a specific work context, as well as demonstrate appropriate behaviors and attitudes in carrying out those tasks. Competencies can be developed through education, training, and work experience. Another meaning states Competence can also be defined as a combination of personal characteristics that include knowledge, skills, attitudes, and values that enable a person to succeed in a certain role or job. This includes the ability to think critically, adapt to change, work collaboratively, and take initiatives to achieve organizational goals (Persaud, 2021).

The results of the research that underlie the variables in this paper with the results that state that Competence plays an important role in increasing employee productivity. Research studies have consistently shown that employee competencies have a positive influence on productivity, often combined with other factors such as organizational climate, compensation, and work discipline (Erfan et al., 2020; Putri et al., 2023). Other research also states that the selected HR intervention is influential in building employee competence, which in turn plays an important role in improving organizational effectiveness (Potnuru & Sahoo, 2016). Organizations must prioritize and invest in employee training and development programs,

building a creative, collaborative, and market-oriented company culture supported by transformational leaders, work-life balance, technological advancements, strategic employee engagement, as well as corporate strategies to achieve high employee productivity (Peer et al., 2024).

Motivation on Employee Productivity

Motivation is the drive or force that drives an individual to act or do something with the aim of achieving a certain satisfaction or achievement. Motivation can come from within (intrinsic motivation) such as personal satisfaction or a sense of accomplishment, or from outside (extrinsic motivation) such as recognition or financial rewards (Reeve, 2018). Motivation can also be understood as a psychological force that drives an individual to achieve a specific goal or perform a specific action with a high level of energy, perseverance, and focus. It involves complex internal processes that are influenced by a variety of factors, such as individual needs, values, expectations, and experiences (Ryan & Deci, 2017).

The results of research related to this variable in this paper state that motivation can improve or decrease employee performance. If the chosen form of motivation meets the needs of the employee, their performance improves. On the other hand, if the form of motivation yang dipilih tidak memuaskan kebutuhan karyawan, manfaatnya menurun. Oleh therefore, this encourages organizations to understand the motivational needs of each employee to improve performance (Naa et al., 2021). The results of other studies also stated that work-from-home (WFH) practices, training and development (T&D), performance-based rewards, and knowledge sharing are key motivational practices to improve employee performance and productivity (Alketbi et al., 2023).

Technology on Employee Productivity

Technology in the context of human resources (HR) refers to the use of digital-based tools, systems, and applications that support employee management and development in an organization. This technology covers a wide range of aspects, from recruitment and selection, training and development, performance management, to communication and collaboration between employees. HR technology aims to improve operational efficiency, optimize employee performance, and facilitate the data-driven decision-making process (Rachmad, 2021). Meanwhile, another meaning also states that Technology in the context of human resources (HR) refers to the use of various digital tools, information systems, and technology platforms to manage and optimize HR functions in an organization. This includes the utilization of technology for the recruitment process, training and development, performance management, internal communication, data analysis, and talent management strategies (Lez'Er et al., 2019).

The results of the related study stated a statistically significant combined influence of all predictor variables (Information technology knowledge; Management support for the use of information technology; Frequency of use of information technology; and access to information technology to the productivity of commercial bank employees. Based on these findings, this study recommends that banks use IT in a way that meets the desired quality of flexibility and scalability and provide regular training to employees to keep up with the development of information technology innovations (Angioha et al., 2020). Another result states that employees are not very enthusiastic about using employee monitoring technology to increase productivity or organizational profits. However, since this technology can reduce unnecessary harassment in the workplace, this variable reflects their intention to accept even employee monitoring technology if implemented in the workplace (Anjum & Ismail, 2022).

Employee Productivity

Refers to the level of efficiency and effectiveness in producing the desired results or outputs in the context of the work or tasks given to employees. This is often measured by comparing the results produced with the resources used, such as time, labor, and cost (Moulton, 2018). Meanwhile, another meaning also states that employee productivity can also be understood as the ability or level of efficiency of employees in producing the expected output or achievement in the context of their work. This includes both the number of results produced and the quality of those results, which are often measured against the resources used to achieve them (Ma & Ye, 2019).

The systematic results of the literature above show that the basis of the variables in this study is fully supported by dozens of existing articles found from various international journal sources, where the competency variable shows significant and positive results on employee productivity, where the competency variable is an intervening variable (Gómez Barroso & Valcarcel Martínez, 2019; Marlapa & Mulyana, 2020). The simultaneous influence of competence, education, and work discipline on employee productivity (Armawan & Herlina, 2023). Significant and positive motivation with employee productivity (Tardie & Umar, 2022).

AI technology improves employee productivity and provides recommendations for expanding the use of AI in employee engagement practices (Fitri et al., 2023).

Discussion

From the findings of the above results, the perspective according to the researcher as a discussion will be detailed with the narrative that first, this perspective emphasizes the importance of managing work discipline as a strategy to increase the effectiveness and efficiency of employees in achieving organizational goals, and then the importance of appropriate organizational support in supporting these practices to ensure the success and sustainability of improving overall employee productivity. This summary covers the core of key findings that can be used as a guide in managing human resources and improving organizational performance in a variety of industry and organizational contexts.

CONCLUSION

Provides valuable insights for human resource management practitioners and other stakeholders in managing and improving employee productivity in various types of organizations. Recommendations for practitioners include developing strategies to increase employee engagement, encouraging more flexible work practices such as teleworking, as well as strengthening motivational practices such as training and development, performance-based rewards, and knowledge sharing. Strong organizational support is also considered crucial in supporting the implementation of these practices.

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