Relationship between Artificial Intelligence and Job Performance in Manufacturing Sector in Johor Bahru, Malaysia

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ABSTRACT

Along with the advancement of technology, artificial intelligence has become an indispensable part of our lives, especially towards the employee's job performance. Therefore, the objective of this study is to investigate the relationship between artificial intelligence and job performance in the manufacturing sector in Johor Bahru, Malaysia. The employee's job performance was identified through task performance, contextual performance, and counterproductive work behaviour. Past studies revealed that the adoption of artificial intelligence in the workplace could improve job performance. The quantitative method was used in this study, and the questionnaire was distributed to the 108 respondents involved in this study, which contribute to 100% of return rate. The researchers used a cross-sectional design to investigate the relationship between artificial intelligence and job performance in manufacturing sector in Johor Bahru, Malaysia. The researchers allocated the questionnaire through email to the respondents from the manufacturing industry in different companies which mainly focus on small-medium enterprise that located in Mount Austin and Kempas, Johor Bahru. Besides, the Statistical Package for Social Science (SPSS) version 27 was used to analyse the descriptive and inferential statistics of the data. The descriptive analysis included the mean score, frequency, standard deviation and percentage to identify the level of artificial intelligence and job performance of the respondents. Also, the inferential analysis which is the Pearson Correlation was used to examine the relationship between two variables. The findings showed the level of artificial intelligence and job performance of the respondents at a high level. Then, there is a significant and positive relationship between artificial intelligence and job performance. Furthermore, this study can be used as a guide and a reference for other researchers on related topics in future research, which the organisation can determine whether the use of artificial intelligence in the workplace will eventually affect job performance in the workplace.

Keywords— artificial intelligence (AI), job performance, task performance, contextual performance, counterproductive work behaviour.

INTRODUCTION

Employee job performance has become one of the significant outcomes that every company will be concerned about. According to Latif et al. (2013), an employee's effectiveness at work significantly impacts whether a business succeeds or fails. Additionally, an efficient organization will result from employee performance (Hammoud & Osborne, 2017). With coordination, communication, and collaboration, technology significantly impacts how well jobs are done (Chen et al., 2019). According to Salleh (2022) state in Business Today that 48% of businesses in the nation utilized digital tech platforms for daily operations in 2021 compared to 19% in 2020. Based on these statistical findings, many businesses depend on technology for day-to-day operations at the office due to its usefulness. Additionally, there is a strong correlation between technology adoption and employee job performance, such as motivation (Baskaran, 2020). Therefore, it could be concluded that technology significantly impacts how well employees accomplish their jobs in the workplace.

With the development of technology, artificial intelligence (AI) has emerged as one of the most popular discussions today. According to West and Allen (2022), artificial intelligence is a technology revolutionizing all aspects of life. The researchers added that AI is a multifaceted tool that helps humans to re-evaluate how we combine information, analyse data, and apply the ensuing insights to enhance decision-making. In addition, companies may benefit from long-lasting competitive advantages from AI technologies (Tewari, 2022). AI has the potential to help any organization improve its operations, maintenance, and supply chain procedures, as well as its goods and services, through novel capabilities and item suggestions systems for retail and other businesses (Kuzey et al., 2014; Pwc, 2019). Artificial intelligence technology would thus increase worker productivity and enhance worker performance to achieve the required goals (Ahmed, 2021). This study was examined at the relationship between artificial intelligence and job performance to support that claim.

The effects of the Covid-19 epidemic have caused various problems for numerous businesses. According to Shamsudin Bardan, executive director of the Malaysia Employer Federation (MEF), as reported in the New Straits Times by Haroon (2020), many employees' productivity has decreased dramatically because of the Movement Control Order. In addition, the reporter noted that according to the MEF report, 77% of employees reported a decline in productivity, only 23% claimed they were able to maintain the same or higher levels of productivity, and 56% of those who reported an increase in workload had also seen a decline in productivity. Additionally, some factors have a negative impact on the employee's ability to accomplish their job (Kheng, 2021). According to Wijayati et al. (2022), as the sector demands outstanding performance, employees are constantly stressed out and under much strain because of their dismissal and the threat of losing their employment if they do not meet the objectives. But the use of technology will improve employee performance (Imran et al., 2014).

Recent studies show that AI improves creative thinking and fosters logic, communication, and self-organization skills (Eriksson et al., 2020). As a result, businesses benefited from artificial intelligence. AI also improves the intelligence and performance of businesses (Selene & Gong, 2014). In contrast, Tarafdar et al. (2014) noted that some dysfunctional domains of role overload and role conflict might be caused worse by the adverse effects of technological interventions like artificial intelligence. This demonstrates that inconsistent findings between these variables have been established in earlier studies. This study will investigate and analyse the connection between AI systems and job performance in Johor Bahru's manufacturing industry to gauge the relationship between AI and work performance and to contribute to future research on the manufacturing sector.

PURPOSE OF STUDY

The study was conducted to examine the relationship between artificial intelligence and job performance in the manufacturing sector in Johor Bahru, Malaysia. The independent variable for this study is the artificial intelligence, and the dependent variable is job performance. Essentially, the study reports on the relationship between these two variables.

Moreover, this study's findings can be used by the manufacturing sectors to assess the extent to which artificial intelligence (AI) has a relationship with job performance of employee. Furthermore, this study's findings can help the sector better understand how the AI system relate to worker productivity. When senior management recognizes its significance, they are more ready to implement the AI system to improve employee performance in planning and completing the task given. In addition, implementing artificial intelligence at work may minimize indirect costs by as much as 15 to 20 percent (Espel et al., 2020). Consequently, the business could gain insight from this study into how significantly artificial intelligence can relate to the firm's output.

LITERATURE REVIEW

Job Performance

Job performance can be assessed through the development of company performance expectations (Darmawan et al., 2018). Therefore, a person's behaviour, the way they carry out a task, and the way they complete a task are all included in their job performance (Kummerfeldt, 2011). Shields (2016) argues that an employee's job performance serves as a platform for carrying out their obligations and responsibilities at work.

In addition, Armstrong and Taylor (2020) state that task performance and contextual performance are the two criteria used to measure job performance. Using data from earlier studies, the researchers concluded that task performance refers to a person's competence in tasks that support the technical core of an organization, whereas contextual performance refers to tasks that support the organizational, social, and psychological environment in which the company's objectives are being achieved but do not support the technical core (Sonnentag and Frese, 2002). However, the variations in the task and contextual performance depend on the skills and personalities of the employees (Daryoush, 2013). Also, some researchers indicated that job performance totally has three major domains, which are task performance, contextual performance, and counterproductive work behaviour (CWB) (Sackett and Lievens (2008); Rotundo and Sackett (2002); Viswesvaran and Ones (2000)). Sypniewska (2020) defines counterproductive work behaviour as the reverse of organizational citizenship behaviours. When taken as a whole, these dimensions offer a comparatively thorough and frugal approach to total work performance (Dalal et al., 2012). Therefore, it is appropriate to evaluate employee performance considering these three factors.

Model of Job Performance

Figure 1 show the job characteristics model was created and initially used in 1975 by J. Richard Hackman and Greg R. Oldham in their article "The Job Diagnostic Survey" (Hackman and Oldham, 1975). According to Hackman and Oldham (1976), the job characteristic model provides a framework for comprehending how job features influence work outcomes including motivation, job satisfaction, and performance. The five core job characteristics are skill variety, task identity, task significant, autonomy, and feedback (Hackman and Oldham, 1976).
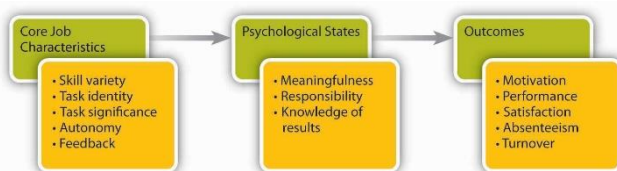

Figure 1: The Job Characteristics Model's five core job dimensions. (Hackman & Oldham, 1975)

Firstly, the first core characteristic, "skill variety" refers to the level to which a job demands various task execution activities, where various abilities and skills are utilized by the worker (Hackman and Oldham, 1976). Second, "task identity" describes how much a job necessitates finishing a certain piece of work. Thirdly, "task significant" employment gives employees an understanding of meaning and purpose because they can see how their job benefits others (Hackman and Oldham, 1976). The degree to which a job gives people discretion and control over their work is referred to as "autonomy" in a job characteristic (Hackman and Oldham, 1975). Finally, they added that "feedback" refers to the extent to which a job offers workers honest evaluations of their performance. According to Kamani (2020), an employee's performance can be improved by receiving performance feedback. Additionally, the five essential work traits can be combined to create a motivating potential score for a job, which can be used as an indicator of how likely it is for a job to influence an employee's behaviour and attitude (Syukrina Alini, 2014). In short, it can relate to the three dimensions of job performance proposed by Koopmans et al. (2014), in which an employee's job performance (task performance, contextual performance, and counterproductive work behaviour) is relies on the core job characteristics and psychological status.

Artificial Intelligence

According to Kaplan and Haenlein (2019), artificial intelligence (AI), defined as "a system's ability to comprehend external data properly, gain knowledge from such data, and to use those learnings to accomplish specific goals and tasks through flexible adaptation.". In addition, artificial intelligence (AI) is a subfield of computer science that focuses on creating intelligent computers that can carry out jobs that traditionally call for human intelligence (Manaware, 2020). Furthermore, Tuomi (2018) defines AI as "a machine that understands and interprets noises and languages and strives to solve issues. Many businesses have adopted artificial intelligence in the workplace and public discourse because of the growth of Big Data and advancements in computing power (Kaplan and Haenlein, 2019). This is because AI techniques have led to an enormous impact

in the field of information technology, as AI is a part of computer science, and it encompasses the creation of intelligent devices and programs that operate and communicate like humans (Kamble and Deepali, 2018). Abusalma (2021) claims that because AI connects employees, computers, information, and the physical environment, it is intended to enhance rather than replace human labourers' capacities.

Theory of Artificial Intelligence

Figure 2 shows the theory of mind (ToM) is one of the important components of cognitive functioning in society. It can be described as a collection of mental processes and abilities that enable one person to attribute other people's mental states to them (Cuzzolin et al., 2020). Additionally, as defined by David Premack and Guy Woodruff (1978), the theory of mind is the capacity of humans to assign others' beliefs, intentions, knowledge, and emotions. As stated by Baron-Cohen (1999), the theory of mind helps us understand one another's plans and objectives and to counteract them. Robots will eventually be able to perceive and project human emotions (Cuzzolin et al., 2020).

Figure 2: Theory of Mind (Thompson, 2017)

Cuzzolin et al. (2020) presented that ToM requires to be integrated into intelligent machines if they are effective and to share environments built by human beings for human beings smoothly. ToM has been purposefully incorporated into the system design as a separate module over time to aid robots in monitoring both the world and human states (Devin et al., 2016). ToM-based theory seeks to capture the strategic behavior and underlying beliefs of others for selecting the best course of action to link artificial intelligence. Kim et al. (2009) claim that the theory of mind aids robots in creating mental representations of user beliefs, plans, and ambitions. Robots have shown success in decision-making and teamwork through relating to the theory of mind (Devin & Alami, 2016; Hiatt et al., 2011; Görür et al., 2017). As a result, the theory of mind plays a significant role in the development of advanced AI systems, with understanding individual beliefs, intentions, knowledge, and emotions can then have a huge impact on job performance.
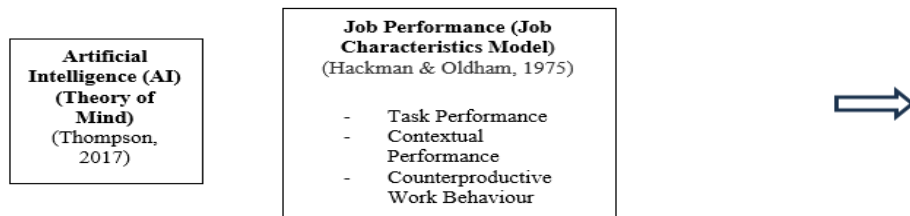
Relationship between artificial intelligence and job performance

A few earlier studies and research papers have been written to determine the connection between artificial intelligence and job performance. These results indicate a significant and favourable association between the two variables. Numerous investigations, including Abusalma, (2021), Tong et al. (2021), Alahmad & Robert (2020), Wijayati et al. (2022), Lestari et al. (2022), Younus (2022), and Xin (2022), provided support for the conclusion. According to these studies, artificial intelligence and job performance are positively correlated. Additionally, it was discovered that artificial intelligence could improve job effectiveness. Artificial intelligence adoption can increase employee motivation to fulfill tasks assigned at work. The adoption of AI in talent acquisition, human capital development, and performance management has a considerable positive impact on organizational performance, claims Xin (2022). Thus, it can be concluded that the development of artificial intelligence has had a substantial relation on how effectively employees perform their jobs.

Research Framework

The prior study's findings assist the researcher in developing a research framework, as seen in Figure 3.

Figure 3: Research Conceptual Framework

The research framework was developed to demonstrate the relationship between independent variables and dependent variables. This study examined the correlation between the artificial intelligence and job performance in the manufacturing sector in Johor Bahru, Malaysia. In the study, artificial intelligence serves as the independent variable while job performance serves as the dependent variable. To illustrate the relationship between independent and dependent variables, a study framework was developed. The conceptual framework linking these variables is shown in Figure 3. The level of artificial intelligence was determined by the artificial intelligence scale modified by Wang et al. (2022), and job performance was assessed using the Individual Work Performance Questionnaire (IWPQ) version 0.3 created by Koopmans et al. (2014). The study's specific hypothesis is that a dependent variable that measures work performance and an independent variable that measures artificial intelligence may be

highly connected. The significant between both variables is supported by past studies such as Abusalma (2021); Tong et al. (2021); Alahmad and Robert (2020); Wijayati et al. (2022); Lestari et al. (2022); Younus (2022); Xin (2022).

METHODOLOGY

In this study, the researcher used a cross-sectional design to investigate the relationship between artificial intelligence and job performance in Johor Bahru, Malaysia. The cross-sectional design is suitable for this study which collects the data in a one-time effort. Furthermore, a quantitative approach will be used in this study by collecting the data through questionnaire distribution. The dependent variable in this study is job performance which includes three dimensions: task performance, contextual performance, and counterproductive work behaviour as proposed by Koopmans et al. (2014). Besides, artificial intelligence will be the independent variable for this study. Throughout this study, the population is the employee working in Johor's manufacturing sector. The population in this research was 150 and according to Krejcie and Morgan (1970), the sample size from the target population of 150 (N) was 108 (S).

In this study, the researcher employed a quantitative approach to collect primary data from respondents working in the manufacturing sector in Johor. The online survey questionnaire, developed using Google Forms, consisted of three sections and was distributed to 108 respondents via email. Firstly, section A of the questionnaire gathered the demographic of respondents. Secondly, part B displays the questions about the artificial intelligence proposed by Wang et al. (2022), there are 12 items related to artificial intelligence in part B of the questionnaire. The 7-point Likert Scale, which consists of items rated on a scale from 1, strongly disagree, to 7, strongly agree. However, part C is about the Individual Work Performance Questionnaire (IWPQ), which was developed by Koopmans et al. (2014) and consists of 18 job performance items and is categorized into three dimensions. The questionnaire was distributed through email to the factory worker in Johor and the target manufacturing factory was small-medium enterprise (SME) that located in Mount Austin and Kempas, Johor Bahru and those company's client is focus on the Asia area. By using the online survey questionnaire, it can reduce the cost and make it quicker to receive the data from the respondents.

In this study, the data from online survey questionnaires was analyzed using the Statistical Package for the Social Sciences version 27 (SPSS v27). There are three research objectives in the research (refer to Table I). The descriptive analysis was measured the level of artificial intelligence and job performance in terms of mean, percentage, and frequency. However, the relationship between these two variables in the manufacturing sector will be analyse by using the inferential statistics (Pearson correlation).

Table I: Research objectives and Analysis Methods

Research Objectives	Analysis Method
To identify the level of artificial intelligence (AI) in the manufacturing sector.	Descriptive Analysis (Mean, percentage, and frequency)
To identify the level of job performance in the manufacturing sector.	Descriptive Analysis (Mean, percentage, and frequency)
To examine the relationship between artificial intelligence and job performance in the manufacturing sector	Inferential Statistic Pearson Correlation

The pilot test was conducted by 15 employees from the manufacturing sector through Google Forms platform. The value of Cronbach's alpha obtained from artificial intelligence in this pilot test (independent variable) was 0.755. It had shown that the result is acceptable in the pilot test. However, the value of Cronbach's alpha obtained from job performance in this pilot test (dependent variable) was 0.829 (refer to Table II). It indicated that the overall reliability assessment was considered very good which is supported by George & Mallery, (2018).

Table II: Reliability test

Variables	Alpha Value (α)	Internal consistency
Artificial Intelligence (Independent variable)	0.755	Acceptable
Job Performance (Dependent variable)	0.829	Good

RESEARCH FINDINGS

In this study, a total of 108 respondents participated from the manufacturing sector in Johor Bahru, Malaysia. The demographic result shows that the age range of 35-44 years old obtained the highest frequency in this study, which is 40 respondents (37%). Besides, most of the respondents are male, comprising 56 respondents (51.6%). In contrast, only 52 female respondents (48.1%) contributed to the study. Therefore, it can be said that the ratio of the respondent's gender is quite balanced in this research. Furthermore, most of the respondents are Chinese, which consists of 71 respondents (65.7%). Then followed by the Malay and Indian respondents, which are 30 respondents (27.8%) and seven respondents (6.5%). Next, the results showed that most of the respondents have a diploma, STPM, or matriculation education level, which 47 respondents (43.5%). Moreover, there are 64 respondents (59.3%) with married status as the highest population in this study.

Normality Test

Based on Mishra et al. (2019), the normality test is a significant step for continuous data in determining central tendency measures and statistical methods for data analysis. According to Nasution et al. (2022), the normality test aims to test whether the dependent and independent variables both have a normal distribution or not. Furthermore, the researcher also declares that the main reason for conducting normality testing is necessary to know whether the data involved in the research is in normal distribution. The most used approaches to test normality are skewness and kurtosis (Gupta et al., 2019). This is because the use of skewness and kurtosis distribution can test the relative accuracy of both small and large samples (Kim, 2013).

In this study, the researcher used skewness and kurtosis to test normality. Skewness is a measure of asymmetry, and kurtosis is a measure of the 'peakedness' of the distribution of each variable. The skewness and kurtosis values range between -2 to 2, which is considered normal distribution (Lomax & HahsVaughn, 2012). Besides,

descriptive statistics and inferential statistics are both employed in the scientific analysis of data and are equally important in statistics (Mishra et al., 2019). The descriptive analysis result shows that the distribution of both variables were normal. The skewness of artificial intelligence showed -.109, while the kurtosis showed -1.095. Meanwhile the skewness of job performance showed -.276 and .461 for the kurtosis.

Level of Artificial Intelligence (AI)

The first objective of this study is to identify the level of Artificial Intelligence (AI) in the manufacturing sector in Johor Bahru, Johor. There are a total of 12 items in this section. The data is measured using the 7-point Likert Scale questionnaire to identify this objective. **The overall means score for artificial intelligence was obtained at 6.38.** It showed a **high level** of the mean score in the study. This data indicate that manufacturing employees in Johor Bahru can utilize artificial intelligence effectively in the workplace.

Level of Job Performance

The second objective of this study is to identify the level of job performance in the manufacturing sector in Johor Bahru, Johor. There are a total of 18 items separated into three categories, which are task performance (5 items), contextual performance (8 items), and counterproductive work behaviour (5 items). However, items 14 until 18 are the reverse items modified during the data analysis. Furthermore, all of these items have been measured using a 5-point Likert scale. Table III shows the descriptive analysis of job performance dimensions. According to this analysis, the task performance dimension and contextual performance dimension had obtained the high level of mean score, which are 4.513 and 4.479. Then, the counterproductive work behaviour achieved a moderate level of mean score, which is 3.590. The mean score of the overall job performance is high level, which is 4.24 in this study.

Table III Descriptive Analysis of Job Performance

Dimensions

Dimension	Mean	SD	Level
Task Performance	4.51	0.439	High
Contextual Performance	4.48	0.437	High
Counterproductive work behaviour	3.59	1.144	Moderate
Overall job performance	**4.24**	**0.577**	**High**

Relationship between Artificial Intelligence (AI) and Job Performance

Objective 3 of this study is to examine the relationship between artificial intelligence and job performance in the manufacturing sector in Johor Bahru, Johor. **The Pearson correlation analysis revealed a correlation coefficient of 0.805, indicating a strong positive relationship between artificial intelligence and job performance (Hair et al.,2020).** Besides, there were high positive and significant between artificial intelligence and task performance (.725), contextual performance (.793), and counterproductive work behaviour (.700). Therefore, the relationship between independent variable and dependent variable can be considered high in this study as the result is more significant than (.700) and closer to (.900) (refer to Table IV). Then, the hypothesis of this study has been accepted.

Table IV Result of Pearson Correlation Coefficient

Variable and Dimension	Pearson Correlation	Sig (2-Tailed)	N
Artificial Intelligence and Task Performance	.725	0.001**	108

Artificial Intelligence and Contextual Performance	.793	0.001**	108
Artificial Intelligence and Counterproductive work behavior	.700	0.001**	108
Artificial Intelligence and Job Performance	.805	0.001**	108

**Correlation is significant at the level 0.01 level (2-tailed)

DISCUSSIONS AND RECOMMENDATION

The study aimed to examine the relationship between artificial intelligence and job performance in Johor Bahru's manufacturing sector. The data was collected by 108 respondents from the manufacturing sector in various company states in Johor Bahru. To collect the respondents' opinions on artificial intelligence and job performance, the researcher prepared a Google Forms questionnaire and distributed it to them via email. The research goal of this study was then examined using all 108 respondents' data. Most of the respondents are males and their age range is forming 25 years old to 34 years old. Most of them are Chinese and married. Also, they had a Diploma, STPM, and Matriculation education level with 4 years to 6 years working experience.

Level of Artificial Intelligence (AI)

The overall mean score revealed by the level of artificial intelligence in the descriptive statistic was high level. Based on the descriptive analysis of this study, is consistent with the research by Wang et al. (2022) which indicates the high level of mean of artificial intelligence. The results suggest that users' attitudes and behaviours towards the use of AI technology are significantly predicted by AI. We can conclude that people's behaviour in daily life can be changed by highly intelligent artificial intelligence, which helps people accomplish any work that is assigned to them. Furthermore, Rai et al. (2019) provide evidence for the idea that AI is becoming increasingly incorporated into people's daily lives. For example, online labor platforms (e.g., MTurk) replace the role of managers by adopting AI techniques.

Furthermore, Wijayati et al. (2022) also provided consistent with this study, which indicates that the study's mean artificial intelligence was high. Hence, there is compatibility with this research towards the utilization of artificial intelligence. Furthermore, Wijayati et al. (2022) stated that AI could result in an even greater increase in employee workload. Additionally, the researchers noted that a positive coefficient indicates that employee work engagement increases with the adoption of AI in the workplace. In addition, based on the result of level of Artificial Intelligence, it was at a high level of descriptive statistics. This suggests that most manufacturing workers have a positive opinion of artificial intelligence (AI) in the workplace based on the findings. For example, integrating AI into business operations will boost employees' return on investment (ROI) in the organization, as stated by Ojo et al. (2018). Besides, Younus (2022) asserts that utilizing AI instead of human agents can reduce transaction costs and expedite task completion. Furthermore, as reported by Matsa and Gullamajji (2019), "Using AI in company processes will increase the productivity of employees." These had indicated that people's perception towards artificial intelligence is high.

Level of Job Performance

The degree of job performance in descriptive statistics indicated an overall mean score that was very high. As a result, it suggests that most Johor's manufacturing workers have performed well in the job. High job performance could increase the degree to which a worker's productivity level satisfies the company's performance requirements (Thompson, 2005 & Armstrong, 2006).

According to Koopmans (2011), job performance is divided into three categories. The researcher in the current study receives a high level of task performance in the first dimension. The outcome, however, differed slightly from Van Der Vaart's study (2021), which revealed a moderate mean level. On the other hand, he claimed that all the job resources have a positive correlation with task performance. With flexibility and control, support from coworkers and superiors, and the chance to grow and learn, the employee can accomplish the task effectively.

High task performers are more likely to assume leadership positions and successfully guide teams towards organizational objectives. Besides, the second dimension of this study was supported by Van Der Vaart (2021) which shows the high level of contextual performance. It can be said that the primary justification for the high contextual performance level is social support. According to Badrianto et al. (2020), the workplace environment can have an impact on an individual's contextual performance level. When an employee feels at ease in their workplace, they will perform their tasks efficiently and make the most of their working hours.

Additionally, this study finding on the third dimension—counterproductive work behavior showed a moderate level, which differs slightly from previous research. According to Van Der Vaart (2021), the CWB is linked to opportunities for growth and autonomy, but predictably in a way that is detrimental to the organization's development. Furthermore, the researcher believes that behavior detrimental to the organization's well-being cannot be stopped, even with the help of peers and supervisors. As a result, these kinds of behavior not only have an adverse effect on the caliber of work that the employees using CWBs produce, but they can also have an adverse effect on the productivity of other employees within the organization.

Relationship between AI and Job Performance

The result of the study revealed that there is a positive correlation between artificial intelligence and job performance in the manufacturing sector. This positive sign indicates that the employees who have a high level of artificial intelligence will also have a high level of job performance. Based on the research of Abusalma (2021), the findings reveal that a significant effect of artificial intelligence positively impacts job performance through Genetic Algorithms (GA) and Intelligent Agents (IA). Artificial intelligence's GA can support the clever solution, and information science (IS) can assist employees in making prompt administrative decisions. Abusalma (2021) notes that GA and IA are the artificial intelligence variables. It demonstrates how artificial intelligence can enhance workers' job performance and assist them in achieving their objectives, which is consistent with the findings of the current study. Furthermore, the current study discovered a strong and favorable correlation between artificial intelligence and job performance. This result was also consistent with another investigation by Wijayati et al. (2022), which showed that AI significantly improves worker engagement and performance. AI and its technologies provide a wide range of possibilities, benefits, and services to boost employee performance in the banking and services industry sector, according to thorough and exhaustive investigation. It transformed the process into more intelligent, optimized, and automatic and eliminated the previous process that had been done manually.

Moreover, there is a study that shows a significant level of relationship between artificial intelligence and task performance, which is the first dimension of job performance (Hemmer et al, 2023). It is consistent with the results of the current investigation. According to the study conducted by Hemmer et al. (2023), task performance was higher in the artificial intelligence delegation group than in the human-only scenario. This indicates that task performance for humans is enhanced by AI delegation. According to Hemmer et al. (2023), it may also lessen labor-intensive jobs for humans and enhance individual and group performance. Using artificial intelligence can help tasks be completed more efficiently. As a result, the worker can use AI to help them effortlessly finish their work.

Besides, the second dimension of the dependent variable was also supported by the study conducted by Taşgit et al., (2023). The results of the study showed that contextual performance is positively impacted by an optimistic AI mindset. According to Taşgit et al. (2023), employees who have a positive attitude toward artificial intelligence may also be more inclined to stay on the forefront of their work, take on extra responsibilities, begin new tasks as soon as their current work is completed, take on challenging work tasks when possible, continue to look for new areas of struggle, and willingly engage in order to find effective solutions to new issues that appear. As a result, by focusing on the positive aspects of the company, the employee with a positive attitude toward artificial intelligence could improve their contextual performance.

In addition, the relationship between artificial intelligence with the third dimension of the dependent variable was also consistent with the study conducted by Taşgit et al., (2023). According to this study, the mean for counterproductive work behavior is moderate. In this study, the researcher reversed the scale measuring counterproductive work behaviors. Reversing the third-dimension question, it was discovered that employees

with high artificial intelligence levels are less likely to engage in unproductive work practices. Additionally, adopting a positive outlook on AI will stop unproductive work practices (Taşgit et al.,2023).

RECOMMENDATIONS

According to the findings, the level of artificial intelligence and job performance of the manufacturing sectr in Johor Bahru is at a high level. An employee may benefit from artificial intelligence in terms of increased job performance. Therefore, in an effort to increase efficiency, the company might consider adopting artificial intelligence. This is due to AI's ability to expedite processes, allocate resources optimally, and shorten task completion durations. The upper management of the business ought to endorse the use of AI to enhance worker performance.

Additionally, artificial intelligence might help the company with data analysis and decision-making. The company may use the AI system in this competitive sector to swiftly analyze big databases and derive insightful information. With AI, the company can comprehend consumer preferences and even rival brands' marketing strategies. Furthermore, by offering pertinent data and forecasts, this capacity supports decision-making processes. Employees can make more informed decisions, leading to improved overall job performance.

There are some limitations and recommendations for the current research that can be improved by future researchers. Firstly, the investigation was limited to workers in Johor Bahru, Johor's manufacturing sector. As a result, the data were limited to this Malaysian state and this limited to geographic scope. Future scholars should think about investigating the same subject with a larger sample that includes many kinds of states or nations. Other limitations such as a single online survey may introduce common method variance (CMV), which could inflate or deflate the observed relationships among variables. Finally, the study relied heavily on online self-report tools, which depend on participants' honesty, self-awareness, and willingness to provide accurate information. Such reliance may lead to issues such as social desirability bias, misunderstanding of items, or inconsistent engagement, all of which could affect the validity of the results.

Even though the study's conclusions indicated a strong correlation between artificial intelligence and job performance. However, there are a few things that can affect the way work is done. For example, ability and proficiency in applying artificial intelligence, environmental characteristics, work design and role clarity, and training and development. Therefore, when examining the relationship between these two factors, future researchers can incorporate the moderation variable.

The present investigation applied a cross-sectional design to investigate the correlation between the two variables. In turn, it is advised that researchers working in the future use a longitudinal study design. Furthermore, the participant's self-reports provided the basis for the data, and the present researcher was unable to guarantee the accuracy of each data-gathering process. As a result, homologous bias has the potential to affect the research outcomes. To address this, future researchers might consider using a different methodology, such as the qualitative method, to ensure the retrieval of more precise data and information. Future studies may investigate potential mediating variables, including employee digital literacy, job autonomy, and skill variety, which are underscored in the Job Characteristics Model.

CONCLUSION

The researcher discovered at the initial phase of the investigation that the results for these two factors differed. Previous research suggested that the performance of workers could be negatively impacted by artificial intelligence. On the other hand, other researchers discovered that implementing AI could enhance job performance. Consequently, it is reasonable to suppose that there are gaps in the evidence about the association between job performance and artificial intelligence. Subsequently, the investigator employed a cross-sectional research strategy to examine the correlation between the two variables. Convenience sampling, or non-probability sampling, was the sampling method employed in this investigation. The primary information from the respondents was gathered for the current study using a quantitative approach. To analyse the data from the online survey questions, the Statistical Package for the Social Science version 27 (SPSS version 27) application was utilized. The results of this study demonstrated a high degree of work performance and artificial intelligence.

The hypothesis of this study has been accepted. Aside from that, the results demonstrated a strong and favourable correlation between AI and workers' job performance in the manufacturing industry. This shows that workers' job performance will increase if they have a highly positive perspective on AI. The current researcher concluded that job performance can be influenced by the degree of artificial intelligence. The results matched and were corroborated by earlier national and international research. This research report can serve as a valuable resource and guide for prospective researchers and employers in Malaysia.

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