

The Effect of Work Stress and Work Environment on Job Performance in Manufacturing Industry: A PLS-SEM Approach

Nur Aini Zurnizam, Mohd Fikri Ishak*, Janiffa Saidon, Syed Ashrene Syed Omar, Faizah Mashahadi
Faculty of Business and Management, UiTM Puncak Alam, Selangor Branch, Malaysia
ainizurnizam@gmail.com, *fikriishak@uitm.edu.my, janiffa@uitm.edu.my, ashrene@uitm.edu.my,
faizahmashahadi@uitm.edu.my
Corresponding Author: Mohd Fikri Ishak

Abstract: Employee performance is a critical determinant of growth and success within manufacturing organizations, making it essential to understand the factors influencing it. This study delves into the effects of work stress and the work environment on job performance, specifically within the electronics manufacturing sector in Penang, Malaysia. The research addresses how role ambiguity and conflict can act as stressors and also explores how intrinsic and extrinsic motivation factors related to the work environment affect job performance. The study sample comprised 116 participants from five electronics manufacturing firms located in Bayan Lepas, Penang. Data collection was conducted through a structured questionnaire, and the analysis was performed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The results confirmed that the measurement model was robust, providing a solid foundation for validating the structural model. The PLS-SEM analysis demonstrated that the model had significant predictive capability, revealing that both work stress and the work environment exert substantial effects on job performance within the electronics manufacturing industry in Penang. Specifically, role stressors such as ambiguity and conflict were found to negatively impact job performance, while a supportive and motivating work environment positively influenced it. The study's results align with the theoretical frameworks of role stressors and self-determination, suggesting that effective management of stressors and the cultivation of a motivating work environment are essential for optimizing employee performance in the manufacturing sector.

Keywords: *Works Stress, Work Environment, Job Performance, Electronics Manufacturing Industry.*

1. Introduction and Background

Competition in the manufacturing sector is increasingly intensified. The proliferation of new products and processes through invention and innovation has led to the firm's competitiveness. According to Solhi (2022), Penang is well on its way to becoming an innovation supercluster for the manufacturing industry because it adopted technology emerging from the fourth industrial revolution. This pertains to the correlation between employee productivity and the expectation for them to contribute extensively without taking into account the potential impact on their health and well-being (Engelbrecht et al., 2019). Stress has been an increasing problem in organizations and has been shown to negatively impact workplace productivity during the previous decade. Selye (1936) introduces the concept of stress in scientific research. Stress is a constant that affects workers all across the world (Dewe & Cooper, 2020). Employees' performance in the workplace is hindered by several factors. Every worker will likely experience some degree of stress related to their job at some point.

Employees' performance in the workplace is hindered by several factors. Every worker will likely experience some degree of stress related to their job at some point. Workers are the primary sufferers of work-related stress, but the company experiences the effect. Unhealthy health is a contributor to poor company efficiency, high turnover of workers, and sick days taken for both major and minor ailments, including obesity, heart disease, stomach issues, and mental health issues like anxiety and depression (Sari et al., 2020). There's a lot more stress in the workplace these days, and it's having an impact on everyone's productivity. Workplace stress is defined as the negative physiological and psychological reactions an individual has when their abilities, resources, and requirements do not match those of their employment. According to Sari et al. (2020), industrial sector employees might be negatively affected by work stress, which in turn leads to high turnover rates due to worker frustration caused by superior pressure.

Over the last few decades, the expansion of Malaysia's economy has been primarily reliant on the nation's electronics manufacturing sector, which has made major contributions to the country's gross domestic product, exports, and employment (Hashim & Abdullah, 2021). At the same time, studies conducted by Brady and Wilson

(2022) found that stress at work can significantly impact productivity. On the one hand, stress may be a driving force that gets people to do their best work and finish tough projects on time. That is because, these days, employers are becoming pickier about what they expect from their employees. Today's era has been aptly termed the 'Age of Anxiety and Stress' (Coleman, 1976). The level of stress experienced is generally related to the number of stressors one encounters. Conversely, Beehr and Newman (1978) describe stress as a condition where a person's usual functioning is disturbed or changed due to a shift in their psychological and or physiological state, whether for better or worse. Work stress has a negative and significant effect on employee performance, as found by the research of Putri and Suhartono (2021). Likewise, research shows that stress at work hurts productivity, there would not be any difficulties at work if stress levels were manageable. According to Nisa et al. (2023), the quality of the work environment has a significant effect on employee productivity. An improved work environment leads to increased productivity.

2. Literature Review

Job Performance

One of the critical determinants of a company's success is the management's ability to continually elevate performance standards across all levels of the organization. The topic of employee performance has been at the forefront of stakeholders' conversations for decades, and for good reason. In their study, Silitonga and Sadeli (2020) argued that the way an organization is perceived is directly affected by the performance of its employees. Performance has been seen as the result of both organizations and employees, according to Alase and Akinbo (2021). Organizational success and glory are attributed to productivity, service quality, employee happiness on the job, and loyalty to the company. As Pushpakumari (2008) emphasizes, the success of a company often hinges on how effectively management sets and maintains high-performance benchmarks for employees. This proactive approach ensures that only the most qualified candidates are selected and retained, fostering an environment where high performance is consistently achieved. The concept of job performance has been extensively explored in the literature, with Balouch and Hassan (2014) defining it as the effectiveness with which employees complete their assigned tasks. Performance is often viewed as a direct outcome of an individual's aptitude, skill, and effort within a given context, as noted by Lawler and Porter (1967). This perspective aligns with the notion that performance is not merely about the completion of tasks but also about the quality and efficiency with which these tasks are performed. Motowidlo (2003) offers a comprehensive definition, describing work performance as "the overall expected value to the organization of discrete behavioral episodes that an employee carries out over a standard period." This definition highlights the multifaceted nature of performance, which encompasses both the execution of specific job duties and the broader impact of these activities on organizational goals.

Work Stress

The term "stress" was coined by Dr. Hans Selye in 1956 to describe how people reacted to external factors that had an impact on their performance. Work stress has significant consequences on employee job performance and organizations, and it is present in all workplaces and all organizations because of the increased complexity of both. According to Rose (2003), long hours and high levels of concern about time decrease workers' motivation to do their best. Several factors contribute to stress at work, including family conflicts and work overload. According to Stamper and Johlke (2003), if an organization or its management fails to appreciate employees for their hard work or contributions, it can lead to increased stress and a higher likelihood of employees intending to leave the organization. According to Ahmed & Ramzan (2013), the research found that the majority of the workers were unhappy with the present culture where they were asked to work prolonged hours and cope with immense workloads while simultaneously reaching production objectives and deadlines.

When people are not able to manage their stress well, it shows in their interactions with everyone and everything around them, from coworkers to strangers. According to Virgiawan et al. (2021), the employee's performance at work was negatively impacted by the unfavorable symptoms they encountered. According to Greenberg et al. (2017), work stress is a concept that is very difficult to describe. Stress at work happens in someone when someone flees from difficulties as some workers raise the level of work to a predisposition to stress, job stress is a mix of causes of stress on the job, individual traits, and stressors outside the company. In view of the above, the following hypothesis was suggested for testing:

H1: A significant relationship exists between work stress and employee job performance within the manufacturing sector

Work Environment.

Normal temperatures, lack of unpleasant odors or dust, lack of crowding, and a serene atmosphere are all part of what we mean when we talk about a "work environment". Vischer, (2007), posits that unfavorable working circumstances contribute to employee stress and discontent on the job. Poor working circumstances may negatively influence the individual performance of workers. According to Aswar et al. (2022) "the work environment" refers to the physical setting in which workers perform their duties. Cleanliness, enough lighting, and a calm atmosphere are all features of this ideal workplace. Inside, there are two distinct personalities to be found in the workplace.

Furthermore, employees are easily distracted by a subpar working environment, resulting in less productivity (Yeow et al., 2014). Poor working conditions not only affect productivity but also increase the risk of occupational injuries. Capital returns might be negatively impacted by the prevalence of occupational accidents (Ng et al., 2014). According to research by Narasuci & Noermijati (2018), workers' productivity increases when they are provided with a pleasant and supportive workplace. Forms of environmental effects that give contextual characteristics promote or aid the formation of performance. In view of the above, the following hypothesis was suggested for testing:

H2: A significant relationship exists between the work environment and employee job performance in the manufacturing sector.

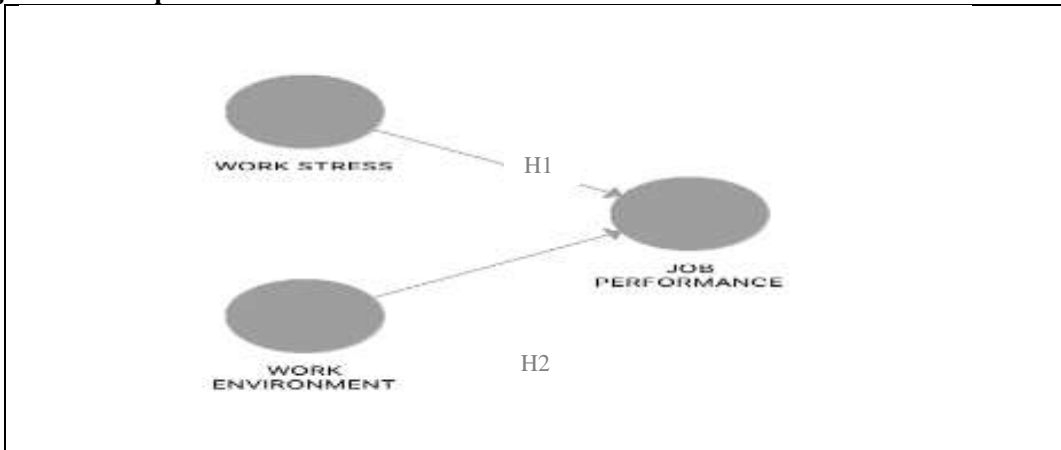
3. Research Methodology

This study adopted a quantitative approach that utilized a questionnaire survey in addressing the objectives of the study (1) To determine the relationship between work stress and employee job performance in a manufacturing company, (2) To determine the relationship between work environment and employee job performance in a manufacturing company. In addition, this study adopted the Likert scale to measure the responses. The study focuses on the impacts of work stress and work environment on job performance among manufacturer workers in selected electronic firms in Bayan Lepas, Pulau Pinang, Malaysia. Hence, the manufacturing workers will serve as the statistical unit of analysis in this study. The sample size was determined using the GPower calculator (effect size = 0.15 (for medium effect), alpha = 0.05, and power = 0.80). The GPower calculator suggested a minimum of 85 respondents. However, 116 usable responses conceived made a respectable percentage. This research will specifically examine the following research questions:

RQ1: What is the relationship between work stress and employee job performance in a manufacturing company?

RQ2: What is the relationship between work environment and employee job performance in a manufacturing company?

Figure 1: Conceptual Framework



The research examines two independent variables, work stress and work environment, and their direct influence on job performance (JP), which are measured through an observed variable. This study is grounded in the organismic metatheory of self-determination theory (SDT), which underscores the importance of developing internal resources for personality formation and behavioral self-regulation. Empirically, it has become a standard in the field of human motivation, and character is employed to assess their impact on overall job performance (Ryan et al., 1997). Figure 1 illustrates the study's conceptual framework, which includes the variables under investigation. Specifically, the latent variable of work stress (WS) is measured by five items, work environment (WE) is measured by five items, and job performance (JP) is measured by seven items. The best instrument to use to get standardized data from identical questions was a questionnaire survey. Thus, the questionnaire needs to be created according to the research objectives for this study. The questionnaire in this study was adapted from Sari et al. (2020) to align with the current study's context.

4. Results

The survey was conducted among employees from five selected electronics firms, and data was collected via an online questionnaire. Out of 145 distributed surveys, 121 were returned. After excluding five responses identified as outliers through an assessment of studentized residuals, the final dataset consisted of 116 usable responses. Outlier detection followed the guidelines proposed by Christopher et al. (2020), which suggest that studentized residuals outside the ± 2 range warrant attention, while those beyond the ± 3 range require serious consideration. Table 1.0 presents the outlier detection process, including the studentized residuals analysis performed using IBM SPSS.

Table 1: Outliers Detected using SPSS

RESPONDENT NO.	STUDENTIZED RESIDUAL
4	-3.87969
16	-2.74520
17	2.30179
23	2.16002
113	2.04360

Demographic data were collected and analyzed descriptively as the initial phase of the questionnaire, aiming to gather comprehensive, non-sensitive personal information from respondents, including age, gender, race, marital status, and monthly income. This detailed demographic information is crucial for contextualizing the study and understanding the characteristics of the participant pool.

As illustrated in Table 2.0, the majority of respondents were young adults aged between 20 and 29 years, comprising 74 employees, or 63.8% of the sample. The next largest age group was those aged 40 to 49 years, with 17 employees, or 14.7%, followed by individuals aged 50 to 59 years, totalling 10 employees, or 8.6%. Employees aged 30 to 39 years amounted to 8 individuals, or 6.9%, which is slightly higher than those below 19 years, who numbered 6 employees, or 5.2%. The smallest age category was those above 60 years, represented by only 1 employee, or .9%. Regarding gender distribution, the study included 69 male respondents (59.5%) and 47 female respondents (40.5%), indicating a higher proportion of male participants. Table 1.0 further reveals that most respondents were Malay, totalling 111 employees, or 95.7%, followed by Indian and other racial groups with 2 employees, or 1.7%, and Chinese respondents with 1 employee, or .9%.

In terms of marital status, 73 respondents were single (62.9%), 43 were married (37.1%), and there were no respondents classified as divorced, highlighting that a significant majority of participants were single. Regarding monthly income, the predominant income bracket was between RM1,201 and RM3,000, with 48 employees, or 41.4%, falling into this category. Additionally, 28 employees (24.1%) reported earning more than RM5,001, while 20 employees (17.2%) had incomes between RM3,001 and RM5,000, or below RM1,200. Consequently, the data suggest that most respondents' monthly incomes were concentrated in the RM1,201 to RM3,000 range, indicating a general trend towards financial stability among the participants.

Table 2: Demographic Profile of the Respondents (N=116)

Demographic	Category	Frequency (N)	Percentage (%)
Age	19 and under	6	5.2
	20-29	74	63.8
	30-39	8	6.9
	40-49	17	14.7
	50-59	10	8.6
	60 and above	1	.9
Gender	Male	69	59.5
	Female	47	40.5
Race	Malay	111	95.7
	Chinese	1	.9
	Indian	2	1.7
	Others	2	1.7
Marital Status	Single	73	62.9
	Married	43	37.1
	Divorced	0	0
Monthly Income	RM 1,200 and below	20	17.2
	RM 1,201 - RM 3,000	48	41.4
	RM 3,001 - RM 5,000	20	17.2
	RM 5,001 and above	28	24.1

To address the research objectives, this study utilized the SmartPLS 3 analytical tool to perform variance-based structural equation modelling (SEM) analyses, examining both the measurement and structural models. A two-stage approach was adopted in line with the methodological techniques proposed by Anderson. This approach involved distinct evaluations of the measurement model and the structural model. The first stage, focusing on the measurement model, is pivotal for assessing the reliability and validity of the study's items and latent constructs and the second stage is to assess the relationship between variables in the model, and it is essential for hypothesis testing (Ghozali & Latan, 2015; Sarstedt, Ringle, & Hair, 2021)

Measurement Model Analysis (First Stage)

During this phase, internal consistency was scrutinized through composite reliability (CR) and Cronbach's alpha, with the recommended thresholds set at .5 and .7, respectively (Fornell & Larcker, 1981; Hair et al., 2017). These initial outer model analyses were employed to ensure that the constructs demonstrated adequate reliability and validity. The results from the measurement model analysis confirmed that both the items and constructs met the requisite minimum cut-off points, thereby validating their robustness. Table 3.0 below provides a comprehensive presentation of the outcomes from these analyses, as obtained through the PLS-SEM technique for evaluating the measurement model.

Table 3: Internal Consistency and Convergent Validity Assessment.

Latent Construct	No. of Predictors (Items)	Cronbach Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
WS (IV)	3 (2 were excluded due to low loading)	.894	.841	.645
WE (IV)	5	.816	.881	.598
JP (DV)	7	.894	.917	.612

In addition, measurement model assessment of discriminant validity was carried out, this study employed the HTMT (Heterotrait-Monotrait) criterion, a sophisticated approach for determining whether the constructs within the model are sufficiently distinct from one another (Henseler, Ringle, & Sarstedt, 2014; Hair et al., 2017). The selection of the HTMT criterion was deemed suitable by its advanced statistical capabilities and its superior

performance, especially in variance-based structural equation modelling (SEM), offering a more precise assessment of discriminant validity compared to traditional methods such as the Fornell-Larcker criterion or cross-loadings (Henseler et al., 2014; Sarstedt, Hair, Ringle, Thiele, & Gudergan, 2016).

Accordingly, established guidelines were referred to regarding the discriminant validity assessment. The analysis is confirmed to achieve discriminant validity if the HTMT coefficient falls below the critical threshold of .85 (Henseler et al., 2015). In this study, Table 4.0 provides a detailed presentation of the results obtained from the HTMT-based assessment, illustrating the effectiveness of this criterion in verifying the distinctiveness of the model's constructs.

Table 4: HTMT Criterion for Discriminant Validity Assessment.

	JP	WE	WS
JP (Job Performance)	1		
We (Work Environment)	.790	1	
WS (Work Stress)	.738	.463	1

As for the measurement model assessments, the overall analysis results confirmed that the study employed valid and reliable measures for both items and constructs. The statistical justification for the measurement model indicated its suitability for further analysis of the structural model, specifically in predicting relationship paths and assessing the significance of the developed hypotheses.

Structural Model Analysis (Second Stage).

After the evaluation of the measurement model, the second stage of the PLS-SEM analysis focused on the assessment of the structural model to scrutinize the causal relationships among the latent constructs. This phase involved a meticulous examination of path coefficients (β) and the outputs from the bootstrapping routine to determine both the strength and significance of these inter-construct relationships. The evaluation of path coefficients was based on Cohen's (1988) criteria, which suggest that β values range from -1 to 1, with values closer to 0 indicating weaker relationships and those further from 0 reflecting stronger associations (Cohen, 1988).

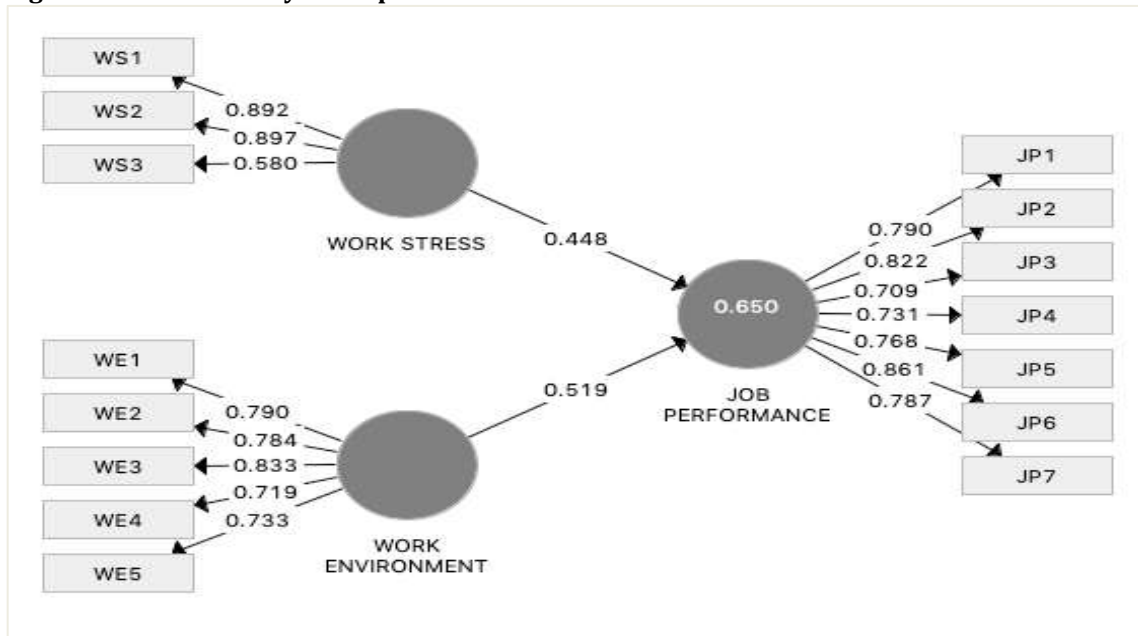
Furthermore, the bootstrapping routine was carried out. This statistical assessment provided compelling evidence of significant positive relationships of the path coefficient between variables under investigation. The significance relationship path analysis outcome explicated the following: work stress (WS) and job performance (JP) causal relationship was found to be $\beta = .448$, with a t -value of 6.903 and a highly significant $p < .001$. Likewise, the causal relationship between work environment (WE) and job performance (JP) was also positively significant, with a path coefficient of $\beta = .519$, a t -value of 9.043, and a $p < .001$ (Cohen, 1988; Hair et al., 2017). These results strongly support the hypotheses H1 and H2, confirming the validity of the proposed structural relationships within the model. Table 5.0 and Figure 2 below exhibit the PLS-SEM analysis outcome for the structural model assessment.

Table 5: Bootstrapping Output – Path Coefficient.

	Original Sample	Sample Mean	Standard Deviation	T-Statistics	P-Values
WS -> JP	.448	.441	.065	6.903	.000
WE -> JP	.519	.524	.057	9.043	.000

Source: SmartPLS output

Figure 2: PLS-SEM analysis output



Additionally, in the evaluation of the overall structural model, the R^2 (coefficient of determination) was assessed to measure the predictive power of the model concerning the endogenous constructs that linked to the exogenous construct. This assessment involved using all data for model estimation to determine the model's predictive power (Ghozali & Latan, 2015; Hair et al., 2017). The R^2 for the relationship between the exogenous and endogenous constructs was found to be convincing at .650, or 65%.

5. Discussion and Conclusion

This study examined the relationship between work stress and job performance within an electronics manufacturing company in Bayan Lepas, Penang. The findings confirm a significant relationship between work stress and job performance, thereby supporting the first hypothesis. These results suggest that reducing workplace stress could positively impact productivity. Factors such as excessive workloads, tight deadlines, and high-risk job conditions contribute to increased work stress, which in turn diminishes employee productivity, as noted by Widayati et al. (2022). This observation contrasts with Puspitasari (2024) study, which indicated that workplace stress negatively affects productivity.

Furthermore, the study explored the second hypothesis concerning the direct relationship between the work environment and job performance. The results indicate a strong, significant correlation between these two variables among employees at the electronics manufacturing company. This finding underscores the role of external factors, such as working conditions, in influencing organizational performance. Employee performance is influenced by intrinsic motivation, skills, and the ability to function effectively within and adapt to challenging environments. Al-Omari and Okasheh (2017) emphasize the importance of these factors, as neglecting them can lead to behavioral issues and poor performance. A positive work environment, including optimal sound conditions and supportive workplace features, has been shown to enhance productivity. Sari et al. (2020) report that a well-designed workspace and recognition from superiors contribute to improved mental health and performance.

In conclusion, the tested hypotheses reveal a statistically significant connection between the examined factors. It is essential to implement improvements comprehensively to enhance workers' performance and job satisfaction. While some challenges may be managed individually, a holistic approach involving systemic changes and managerial interventions can significantly improve both work style and productivity.

References

- Alase, G., & Akinbo, T. (2021). Employee Motivation and Job Performance: Empirical Evidence from Nigeria. *Applied Journal of Economics, Management and Social Sciences*, 2, 16-23. <https://doi.org/10.53790/ajmss.v2i2.20>
- Al-Omari, K., & Okasheh, H. (2017). The influence of work environment on job performance: A case study of an engineering company in Jordan. *International Journal of Applied Engineering Research*, 12, 15544-15550.
- Aswar, S., Abdul, R. & Ella, S. C. (2022). The Effect of Work Environment and Work Pressure on Job Satisfaction and the Impact on Employees Performance of West Jakarta DJP Regional Office. *Journal of Economics, Finance and Management Studies*. 5 (3), 509-518
- Ahmed, A., & Ramzan, M. (2013). Effects of job stress on employees' job performance a study on the banking sector of Pakistan. *IOSR Journal of Business and Management*, 11(6), 61-68.
- Balouch, R., & Hassan, F. (2014). Determinants of job satisfaction and its impact on employee performance and turnover intentions. *International Journal of Learning & Development*, 4(2), 120-140.
- Brady, J., & Wilson, E. (2022). Comparing sources of stress for state and private school teachers in England. *Improving Schools*, 25(2), 205-220.
- Beehr, T. A., & Newman, J. E. (1978). Job stress, employee health, and organizational effectiveness: A facet analysis, model, and literature review 1. *Personnel Psychology*, 31(4), 665-699.
- Cui, W., Cao, G., Park, J., Ouyang, Q., & Zhu, Y. (2013). Influence of indoor air temperature on human thermal comfort, motivation, and performance. *Building and Environment*, 114-122.
- Christopher, O. A., Emmanuel, O. B., & Maxwell, A. I. (2020). Outlier Detection and Effects on Modeling. *Open Access Library Journal Volume 7(9)*, 1-30
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- Coleman, J.C., (1975). *Abnormal Psychology and Modern Life* (Indian reprint). Taraporewalla: Bombay.
- Dewe, P., & Cooper, C. L. (2020). *Work and Stress: A Research Overview*. London: Routledge.
- Engelbrecht, G. J., Beer, L. T., Schaufeli, W. B. (2019). The relationship between work intensity, workaholism, burnout, and self-reported musculoskeletal complaints. *Wiley Periodical Inc.*, 1-12.
- Greenberg, M. T., Domitrovich, C. E., Weissberg, R. P., & Durlak, J. A. (2017). Social and emotional learning as a public health approach to education. *The future of children*, 27(1), 13-32.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research*, 18(1), 39-50.
- Ghozali, I., & Latan, H. (2015). *Partial Least Squares, konsep, teknik dan aplikasi menggunakan program Smartpls 3.0 untuk penelitian empiris*. Semarang: Badan Penerbit UNDIP.
- Hashim, N., & Abdullah, M. (2021). Technical Efficiency (TE) in Malaysia Electric and Electronic Manufacturing Industry: A Stochastic Frontier Analysis (SFA) Approach. *Global Conference on Business and Social Sciences Proceeding*.
- Hair Jr, J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, 1(2), 107-123.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., & Thiele, K. O. (2017). Mirror, mirror on the wall: a comparative evaluation of composite-based structural equation modelling methods. *Journal of the academy of marketing science*, 45, 616-632.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modelling. *Journal of the academy of marketing science*, 43, 115-135.
- Kahn, R., Wolfe, D., Quinn, R., Snock, J., & Rosenthal, R. (1964). *Organizational stress: Studies in role conflict and ambiguity*. New York: Wiley.
- Lawler, E., & Porter, L. (1967). The effect of performance on job satisfaction. *Industrial Relation: A Journal of Economy and Society*, 20-28.
- Motowidlo, S. (2003). Job performance. In W. Borman, Ilgen D.R, & R. Klimoski, *Handbook of Psychology: Industrial and Organizational Psychology*. New York: John Wiley.
- Narasuci, W., & Noermijati, M. S. (2018). Effect of Work Environment on Lecturer Performance Mediated by Work Motivation and Job Satisfaction. *Journal of Applied Management*, 16(4), 645- 653.
- Ng, P. K., Jee, K. S., Saptari, A., & Leau, J. X. (2014). The Effects Of Office Equipment Familiarity In Reducing Human Errors And Accidents. *Applied Mechanics and Materials*, 564, 717-722.

- Nisa, A., Malik, M., & Begum, R. (2023). Effect of Work Environment on Employee Performance at Educational Institution. *Journal Of Law, Social And Management Sciences*, 2(2), 72-86.
- Putri, M. Y., & Suhartono, S. (2021). The Effect of Work Stress, Work Motivation, Work Environment and Job Satisfaction on Employee Performance PT Bank Central Asia, Tbk Surabaya.
- Pushpakumari, M. D. (2008, January). The impact of job satisfaction on job performance: An empirical analysis. *City Forum*, 9(1), 89-105.
- Puspitasari, N.K.D. (2024). Job Satisfaction as a Mediation of Influence Work Training and Work Stress on Employee Performance: A Study of Pejaten Ceramics Industry at Tabanan District). *Syntax Literate; Jurnal Ilmiah Indonesia*, 9(4), 2825-2836.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78
- Ryan, R. M., Kuhl, J., & Deci, E. L. (1997). Nature and autonomy: An organizational view of social and neurobiological aspects of self-regulation in behavior and development. United States of America: Cambridge University Press.
- Rose, M. (2003). Good Deal, Bad Deal? Job Satisfaction in Occupations. *Work Employment Society*, 503.
- Sarstedt, M., Hair, J. F., Ringle, C. M., Thiele, K. O., & Gudergan, S. P. (2016). Estimation issues with PLS and CBSEM: Where the bias lies! *Journal of business research*, 69(10), 3998-4010.
- Sarstedt, M., Ringle, C. M., & Hair, J. F. (2021). Partial least squares structural equation modelling. In *Handbook of market research* (pp. 587-632). Cham: Springer International Publishing.
- Sari, D. L., Storyna, H., Sinaga, R. I., Gunawan, F. E., Asrol, M., & Redi, P. (2020). The effect of job stress on employee performance: A case study of the manufacturing industry in Indonesia. *International Conference on Eco Engineering Development*. Jakarta: IOP Publishing.
- Selye, H. (1956). Endocrine reactions during stress. *Anesthesia & Analgesia*, 35(3), 182-193.
- Silitonga, E. W., & Sadeli, J. (2020). Factors contributing to employee performance. In *Contemporary Research on Business and Management: Proceedings of the International Seminar of Contemporary Research on Business and Management (ISCRBM 2019)*, 27-29 November 2019, Jakarta, Indonesia (p. 15). CRC Press.
- Stamper, L., & Johlke, C. (2003). The Impact of Perceived Organizational Support on the Relationship Between Boundary Spanner Role Stress and Work Outcomes. *Journal of Management* 29(4), 569-588.
- Solhi, F. (2022, May 31). Penang is set to be an innovation supercluster for manufacturing. Retrieved from *New Straits Times*: <https://www.nst.com.my/news/nation/2022/05/801073/penang-set-be-innovation-supercluster-manufacturing>
- Theodara, O. (2015). Pengaruh Motivasi Kerja Terhadap Kinerja Karyawan Pt.Sejahtera Motor Gemilang . *Agora*, 3(2), 187-195.
- Ursprung, A. (1986). Incidence and Correlates of Burnout in Residential Service Settings. *Rehabilitation Counselling Bulletin*, 225-239.
- Virgiawan, A. R., Riyanto, S., & Endri, E. (2021). Organizational Culture as a Mediator Motivation and Transformational Leadership on Employee Performance. *Academic Journal of Interdisciplinary Studies*, 10(3), 67-79.
- Vischer, J. C. (2007). The effects of the physical environment on job performance: towards a theoretical model of workspace stress. *Stress and health: Journal of the International Society for the Investigation of Stress*, 23(3), 175-184.
- Yeow, A. J., Ng, K. P., Tan, S. K., Chin., S. T. and Lim Y. W., (2014). Effects of Stress, Repetition, Fatigue and Work Environment on Human Error in Manufacturing Industries. *Journal of Applied Sciences*, 14, 3464-3471.
- Widayati, C. C., Arijanto, A., Magita, M., Anggraini, W., & Putri, A. (2022). The Effect of Work-Family Conflict, Job Stress, and Job Satisfaction on Employee Performance. *International Journal of Digital Business Management*. Managerial issue. *International Review of Business Research Papers*, 468-477.