Journal of Economics and Business UBS
Vol. 14 No. 4 July-Agustus 2025
e-ISSN: 2774-7042 p-ISSN: 2302-8025

The Impact of Workforce Agility and Self-Regulated Learning on Employee Performance: Evidence from a Wood Furniture Manufacturing Firm in Indonesia

Nurwidiyanti[1], Asep Gunawan[2], Dadang Priyono[3]
Universitas Muhammadiyah Cirebon, Indonesia
Email: nur.widiyanti182@gmail.com

Abstract

This study examines the influence of Workforce Agility (WA) and Self-Regulated Learning (SRL) on Employee Performance at a wooden furniture manufacturing company, CV. Mulya Pratama Indah, located in Cirebon, Indonesia. During its rapid development industrial transformation and increasing operational complexity, employees' ability to adapt quickly and engage in autonomous learning has become a critical determinant of organizational success. Using a saturated sampling method, this study collected data from 110 employees through a structure questionnaires. Data analysis was conducted using IBM SPSS Statistics version 25. Multiple linear regression analysis was conducted to uncover the relationships between the variables. The results revealed that Workforce Agility (WA) and Self-Regulated Learning (SRL) had a positive and statistically significant impact on employee performance. WA emerged as the more dominant predictor, highlighting the value of proactivity, adaptability and resiliency in dynamic production settings. Self-Regulated Learning (SRL), meanwhile, strengthened performance through self-regulated learning, goal setting, and strategic problem-solving. Simultaneously, these capabilities contributed to the adaptability of work energy and sustained productivity. These findings suggest that developing agility and autonomous learning among employees can be a strategic driver for enhancing organizational competitiveness, particularly in labor-intensive industries. Future research is encouraged to validate these results across various industry contexts and explore their longitudinal effects.

Keywords: *workforce agility, self-regulated learning, employee performance, manufacturing industry, organizational adaptability.*

INTRODUCTION

In the era of global disruption and rapid technological advancement, the manufacturing sector faces mounting pressure to adapt, evolve, and remain competitive. Globalization, digital transformation, and volatile market dynamics have redefined the capabilities required for organizational survival and success, particularly in labor-intensive industries. In this context, employee competencies such as agility and learning autonomy are no longer optional; they are strategic imperatives (Ciampi et al., 2021; Festing et al., 2021; Longo et al., 2022; Pembayun & Cornelis, 2023; Saputra, 2024). Recent studies highlight that workforce agility is significantly influenced by new ways of working (*NWW*), including flexible schedules and autonomous roles, particularly in crisis-prone manufacturing environments (Pembayun & Cornelis, 2023). In parallel, the enhancement of learning agility is facilitated by digital workplace environments and self-management strategies that empower employees to adapt to rapid changes (Saputra, 2024).

A systematic review by Festing et al. (2021) emphasizes the necessity for HRM to foster agile behaviors through clear conceptual frameworks and responsive leadership. Moreover, Longo et al. (2022) advocate a human-centered design in *Industry 4.0*, where augmented reality and AI-based tutoring systems are leveraged to strengthen employee competencies. This is further supported by Ciampi et al. (2021), who demonstrate how digitalization co-evolves with organizational agility through the advancement of data analytics and IT capabilities. Workforce Agility (*WA*) and Self-Regulated Learning (*SRL*) are emerging as critical determinants of sustained employee performance in increasingly dynamic environments (Alavi et al., 2014; Gorbunova et al., 2024).

Workforce agility refers to an individual's ability to rapidly respond to change, proactively anticipate disruptions, and adapt work practices to meet organizational goals under uncertain conditions. Agile employees are characterized by adaptability, proactiveness, and resilience—qualities that allow them to operate effectively within dynamic production ecosystems (Tan et al., 2021; Devi Alviani et al., 2024). In labor-intensive manufacturing sectors like the wood furniture industry in Indonesia, such traits are particularly valuable. Employees frequently confront shifting customer demands, variable product specifications, and rigid production deadlines. Organizations in this sector must cultivate agile human capital to maintain competitiveness, ensure timely delivery, and respond to global market challenges (Mohamad, 2024).

Complementing workforce agility is the construct of self-regulated learning, which emphasizes employees' capacity to autonomously set learning goals, monitor progress, and adapt strategies to improve performance. *SRL* fosters continuous learning, problem-solving, and reflection, especially in environments with limited formal training infrastructure (Zimmerman, 2000). With increased emphasis on informal, experience-based learning in manufacturing workplaces, *SRL* plays a vital role in enhancing performance outcomes (Yanagida et al., 2025). Employees with strong self-regulation are better equipped to update their skills, seek constructive feedback, and remain resilient in the face of performance challenges.

Although *WA* and *SRL* have been widely explored in knowledge-intensive or technology-driven sectors, their combined influence in labor-intensive, production-based environments remains underexplored (Makkar & Rani, 2024). Indonesia's wood furniture manufacturing industry, especially in regions like Cirebon, represents a compelling empirical context for such inquiry. The sector plays a significant role in national exports and employment, but is challenged by low automation, high dependency on manual labor, and increasing demand for customized products. Firms must rely on a workforce that is both agile and self-directed to achieve high levels of efficiency, innovation, and quality assurance.

Against this backdrop, this study investigates the influence of workforce agility and self-regulated learning on employee performance in a medium-sized Indonesian furniture manufacturing firm. Drawing on theoretical frameworks from organizational behavior and educational psychology, the research contributes to both theory and practice

by highlighting the complementary roles of *WA* and *SRL* in sustaining high performance within dynamic, labor-intensive work settings.

Specifically, the study aims to: (1) assess the extent to which workforce agility predicts employee performance; (2) evaluate the contribution of self-regulated learning to employee performance; and (3) examine whether the combination of *WA* and *SRL* offers a stronger explanatory model of employee performance compared to each construct individually. The study addresses an important gap in the literature by focusing on manufacturing workers, a group often overlooked in agility and learning studies that tend to prioritize white-collar or knowledge-sector employees.

By exploring the intersection of behavioral agility and learning autonomy, this research underscores the evolving nature of employee competence in volatile manufacturing environments. It contributes to a growing body of knowledge that recognizes adaptability and self-directed learning as dual engines of performance in the contemporary workplace.

While the literature acknowledges the independent roles of *WA* and *SRL*, there is limited empirical research on their combined effect in labor-intensive manufacturing contexts, particularly in developing countries (Das et al., 2023). Much of the existing research focuses on service or high-tech sectors, leaving a gap in our understanding of how these constructs operate in traditional production environments.

This study addresses that gap by focusing on the wood furniture manufacturing industry in Indonesia, a sector that contributes significantly to exports and employment but faces challenges such as supply chain disruption, shifting customer preferences, and limited automation. By integrating perspectives from organizational behavior and learning theory, this research contributes to a more nuanced understanding of how *WA* and *SRL* influence employee performance. Specifically, it highlights how behavioral flexibility and learning autonomy jointly enable employees to perform effectively under pressure and complexity (Makkar & Rani, 2024).

RESEARCH METHODS

This study employed a quantitative, cross-sectional survey design to examine the influence of workforce agility and self-regulated learning on employee performance. The quantitative approach enables objective and structured measurement of relationships between variables using numerical data. This approach is particularly suited for hypothesis testing and drawing generalizations from defined populations or samples (Sugiyono, 2022).

The research was conducted at *CV. Mulya Pratama Indah*, a medium-sized wood furniture manufacturing company located in Cirebon, West Java, Indonesia. Known for its dynamic production processes and expanding customer base, the firm represents a relevant context for exploring employee adaptability and learning behaviors under performance pressures.

The target population comprised employees involved in production and operations. A saturated sampling method was employed to select respondents who were directly

engaged in core manufacturing tasks and decision-making processes. A total of 110 valid responses were collected, meeting the sample adequacy criteria for multiple regression analysis, considering both the number of predictors and minimum power requirements (Hair et al., 2019).

The questionnaire consisted of three sections : workforce agility, self-regulated learning, and employee performance. All variables were assessed using a 5-point *Likert* scale ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree"). Workforce Agility was measured using 39 items adapted from Alavi (2014), reflecting dimensions such as proactivity, adaptability, and reseliency. Self-Regulated Learning (*SRL*) was measured using 24 items adapted from Martinez-Lopez et al. (2017), covering encompassing dimensions such as goal setting, environment structuring, task strategies, time management, help seeking, and self-evaluation. Employee Performance was measure using 22 items adapted from Pradhan and Jena (2017), encompassing dimensions such as task performance, adaptive performance, and contextual performance.

Data analysis was conducted using IBM SPSS Statistics version 25.0. Initial procedures included screening for missing data and outliers. Instrument reliability was assessed using Cronbach's Alpha, while validity was ensured through item correlation and consistency tests (Sugiyono, 2022). To fulfill regression assumptions, classical assumption tests were applied, including normality and multicollinearity diagnostics.

The hypotheses were tested through multiple linear regression analysis. The coefficient of determination (R^2) was used to evaluate the explanatory power of independent variables on employee performance. Additionally, *t*-tests were employed to assess the individual influence of each independent variable, while *F*-tests examined their joint effects (Sugiyono, 2022).

RESULTS AND DISCUSSION

The respondents involved in this study were 110 employees of CV. Mulya Pratama Indah Cirebon. Researchers identified the respondents' characteristics into several categories based on gender, age, and length of service. The characteristics of CV. Mulya Pratama Indah employee respondents in this study are described in the following table:

Table 1. Respondent Characteristics

Category	Sub-Category	Frequency	Percent
Gender	Male	78	31%
	Female	32	29%
Age	< 25 th	38	35%
	25 – 35 th	43	39%
	35– 45 th	18	16%
	> 50 th	11	10%
Length of service	1-5 years	46	42%
	6-10 years	29	26%
	11-15 years	35	32%

Based on the demographic data, the majority of respondents in this study were male, with 78 individuals (71%) identifying as male and 32 individuals (29%) as female. In terms of age distribution, most respondents were between 25 and 35 years old, totaling 43 individuals (39%), followed by those under 25 years old at 38 individuals (35%), 18 individuals (16%) aged between 36 and 45, and 11 individuals (10%) over 50 years old. Regarding years of service, the largest proportion of respondents, 46 individuals (42%), had worked for 1–5 years. This was followed by 35 individuals (32%) who had worked for 11–15 years, and 29 individuals (26%) who had been employed for 6–10 years. These findings indicate that the respondent profile is dominated by male employees in their early working years and in the productive age group of 25–35 years.

Validity Test

A valid instrument means that the measuring tool used is able to describe or obtain data from the variables being studied accurately (Sugiyono, 2022).

1. Validity Test of Workforce Agility Variables

Table 2. Workforce Agility Variable Validity Result

Questionnaire	R_{count}	R_{table}	Conclusion
WA1	0,694	0,187	Valid
WA2	0,413	0,187	Valid
WA3	0,686	0,187	Valid
WA4	0,375	0,187	Valid
WA5	0,598	0,187	Valid
WA6	0,544	0,187	Valid
WA7	0,687	0,187	Valid
WA8	0,610	0,187	Valid
WA9	0,248	0,187	Valid
WA10	0,238	0,187	Valid
WA11	0,689	0,187	Valid
WA12	0,359	0,187	Valid
WA13	0,476	0,187	Valid
WA14	0,446	0,187	Valid
WA15	0,347	0,187	Valid
WA16	0,480	0,187	Valid
WA17	0,484	0,187	Valid
WA18	0,696	0,187	Valid
WA19	0,433	0,187	Valid
WA20	0,528	0,187	Valid
WA21	0,459	0,187	Valid
WA22	0,348	0,187	Valid
WA23	0,475	0,187	Valid
WA24	0,483	0,187	Valid
WA25	0,429	0,187	Valid
WA26	0,515	0,187	Valid
WA27	0,629	0,187	Valid
WA28	0,311	0,187	Valid
WA29	0,406	0,187	Valid
WA30	0,491	0,187	Valid

Questionnaire	R_{count}	R_{table}	Conclusion
WA31	0,225	0,187	Valid
WA32	0,411	0,187	Valid
WA33	0,446	0,187	Valid
WA34	0,434	0,187	Valid
WA35	0,472	0,187	Valid
WA36	0,485	0,187	Valid
WA37	0,393	0,187	Valid
WA38	0,420	0,187	Valid
WA39	0,600	0,187	Valid

Source: Data processing result SPSS 25.0

Based on table 2, the calculated *r* values for all items related to the workforce agility variable (X2) are greater than the critical *r* value from the *r* table. This indicates that each statement item is valid. Therefore, it can be concluded that all instruments measuring the workforce agility variable are valid and appropriate for use in further data analysis.

2. Validity Test of Self-Regulated Learning Variable

Table 3. Self-Regulated Learning Variable Validity Result

Questionnaire	R_{count}	R_{table}	Conclusion
SRL1	0,536	0,187	Valid
SRL2	0,631	0,187	Valid
SRL3	0,427	0,187	Valid
SRL4	0,527	0,187	Valid
SRL5	0,484	0,187	Valid
SRL6	0,466	0,187	Valid
SRL7	0,362	0,187	Valid
SRL8	0,514	0,187	Valid
SRL9	0,573	0,187	Valid
SRL10	0,577	0,187	Valid
SRL11	0,597	0,187	Valid
SRL12	0,350	0,187	Valid
SRL13	0,347	0,187	Valid
SRL14	0,424	0,187	Valid
SRL15	0,594	0,187	Valid
SRL16	0,591	0,187	Valid
SRL17	0,514	0,187	Valid
SRL18	0,595	0,187	Valid
SRL19	0,512	0,187	Valid
SRL20	0,475	0,187	Valid
SRL21	0,494	0,187	Valid
SRL22	0,394	0,187	Valid
SRL23	0,388	0,187	Valid
SRL24	0,626	0,187	Valid

Source: Data processing result SPSS 25.0

Based on table 3. above, the calculated r value > r table means that all statements of the self-regulated learning variable (X2) are valid. Therefore, it can be concluded that

the statements of all self-regulated learning variable instruments are valid or can be used for the data analysis process.

3. Validity Test of Employee Performance Variable

Table 4. Employee Performance Variable Validity Result

Questionnaire	R_{count}	R_{tabel}	Conclusion
EP1	0,439	0,187	Valid
EP2	0,419	0,187	Valid
EP3	0,477	0,187	Valid
EP4	0,436	0,187	Valid
EP5	0,414	0,187	Valid
EP6	0,521	0,187	Valid
EP7	0,407	0,187	Valid
EP8	0,529	0,187	Valid
EP9	0,517	0,187	Valid
EP10	0,604	0,187	Valid
EP11	0,446	0,187	Valid
EP12	0,430	0,187	Valid
EP13	0,442	0,187	Valid
EP14	0,688	0,187	Valid
EP15	0,381	0,187	Valid
EP16	0,481	0,187	Valid
EP17	0,405	0,187	Valid
EP18	0,573	0,187	Valid
EP19	0,396	0,187	Valid
EP20	0,444	0,187	Valid
EP21	0,417	0,187	Valid
EP22	0,573	0,187	Valid

Source: Data processing result SPSS 25.0

Based on table 4. above, the calculated r value is greater than the r table, meaning that all statements regarding the employee performance variable (Y) are valid. Therefore, it can be concluded that all statements regarding the employee performance variable instruments are valid and can be used for data analysis.

Reliability Test

A reliable instrument is one that, when used repeatedly to measure the same object, will produce the same data (Ghozali, 2018). An instrument can be considered reliable if it has a Cronbach's Alpha > 0.7.

Table 5. Reliability Test

Variable	Cronbach's Alpha	N of Items
Workforce Agility	0,907	39
Self-Regulated Learning	0,870	24
Employee Performance	0,837	22

Source: Data processing result SPSS 25.0

The reliability test results using Cronbach's alpha indicate that all research variables meet the required threshold for internal consistency. The workforce agility variable achieved a Cronbach's alpha value of 0.907, the self-regulated learning variable scored 0.807, and the employee performance variable obtained 0.837. Since all values exceed the commonly accepted minimum threshold of 0.70, it can be concluded that the instruments used to measure each variable are reliable and suitable for further analysis (Hair et al., 2019; Sugiyono, 2022).

Normality Test

The normality test is conducted to assess whether the residuals in a regression model are normally distributed. A regression model is considered to be valid if the residuals exhibit a normal or near-normal distribution. One common method to test normality is the Kolmogorov–Smirnov (K–S) test, which helps determine whether the data used in the study follows a normal distribution (Ghozali, 2018; Hair et al., 2019).

Table 6. Normality Test Kolmogorov Smirnov
One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		110
Normal Parameters[a,b]	Mean	0,0000000
	Std. Deviation	5,36221884
Most Extreme Differences	Absolute	0,066
	Positive	0,053
	Negative	-0,066
Test Statistic		0,066
Asymp. Sig. (2-tailed)		.200[c,d]
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		
d. This is a lower bound of the true significance.		

Source: Data processing result SPSS 25.0

Based on table 6, the results of the normality test using the Kolmogorov-Smirnov Test can be seen, namely the Asym.Sig.(2-tailed) is 0.200 > 0.05, which means that the data is normally distributed.

Multicollinearity Test

The multicollinearity test aims to detect any strong linear correlation between independent variables. Multicollinearity is considered absent if the Tolerance value is > 0.10 and the Variance Inflation Factor (VIF) is < 10. A good regression model should not exhibit multicollinearity (Ghozali, 2018).

Table 7. Multicollinearity Test Result

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	47,340	1,750		27,050	0,000		
	WA	0,235	0,020	0,774	11,736	0,000	0,202	4,948
	SRL	0,085	0,029	0,195	2,962	0,004	0,202	4,948

a. Dependent Variable: EMPLOYEE PERFOMANCE

Source: Data processing result SPSS 25.0

Based on table 7 above, it can be seen that the VIF value in the Collinearity Statistics column is 4.948, which means the VIF value is <10, or 4.948 <10 and the Tolerance value is 0.202, which means Tolerance> 0.10 or 0.202> 10. It can be concluded that the model does not have symptoms of multicollinearity or there is no correlation between independent variables.

Multiple Linear Regression

Based on the results of the SPSS 25 for Windows calculation output, it is as follows:

Table 8. Multiple Linear Regression Result

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	47,340	1,750		27,050	0,000
	WA	0,235	0,020	0,774	11,736	0,000
	SRL	0,085	0,029	0,195	2,962	0,004

a. Dependent Variable: EMPLOYEE PERFOMANCE

Source: Data processing result SPSS 25.0

Based on the output results of the multiple regression analysis above, the following multiple linear equations can be formulated:

$$\mathrm{Y} = \mathrm{a} + b_1 X_1 + b_2 X_2$$

$$\mathrm{Y} = 47{,}340 + 0{,}235 b_1 X_1 + 0{,}085 b_2 X_2$$

1. A constant value of 47.340 means that if Workforce Agility and Self-Regulated Learning are at 0, then Employee Performance will be 47.340.
2. A Workforce Agility coefficient of 0.235 means that every one-level increase in Workforce Agility will increase employee performance by 0.235 at the constant level.

A positive Workforce Agility coefficient indicates a positive relationship between Workforce Agility and employee performance. This indicates that as Workforce Agility increases, employee performance also improves.

3. A Self-Regulated Learning coefficient of 0.085 means that every one-level increase in Self-Regulated Learning will increase employee performance by 0.085 at the constant level. A positive Self-Regulated Learning coefficient indicates a positive relationship between Self-Regulated Learning and employee performance. This indicates that as Self-Regulated Learning increases, employee performance also improves.

Determination Coefficient (R^2)

Table 9. Determination Coefficient Test

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.560[a]	0,313	0,300	5,412

a. Predictors: (Constant), SRL, WA

b. Dependent Variable: EMPLOYEE PERFOMANCE

Source: Data processing result SPSS 25.0

Based on table 9 above shows that the R-squared value is 0.313. This indicates that the Workforce Agility and Self-Regulated Learning variables influence employee performance by 31.3%. The remaining 68.7% is influenced by other variables outside this study.

T-Test (Partial)

Table 10. T-Test Result

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	47,340	1,750		27,050	0,001
	WA	0,235	0,020	0,774	11,736	0,001
	SRL	0,085	0,029	0,195	2,962	0,004

a. Dependent Variable: EMPLOYEE PERFOMANCE

Source: Data processing result SPSS 25.0

The partial test results show that workforce agility has a positive and significant effect on employee performance ($t = 11.736 > 1,982 = 0.001 < 0.05$), indicating that H_0 is rejected and H_1 is accepted. Similarly, self-regulated learning also has a positive and significant effect on employee performance ($t = 2.962 > 1,982 = 0.004 < 0.05$), that confirming the acceptance of H_1 for this variable as well.

F-Test (Simultaneous)

Table 11. F-Test Result

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1408,155	2	704,078	516,066	.001[b]
	Residual	144,618	106	1,364		
	Total	1552,773	108			
a. Dependent Variable: EMPLOYEE PERFOMANCE						
b. Predictors: (Constant), SRL, WA						

Source: Data processing result SPSS 25.0

The F-test results show that the model is statistically significant, with $F = 516.066 > 3.08$ and $p = 0.001 < 0.05$. This indicates that workforce agility and self-regulated learning jointly have a positive and significant effect on employee performance.

Discussion

The Impact of Workforce Agility on Employee Performance

This study confirms that workforce agility (WA) significantly enhances employee performance ($\beta = 0.774$, $p < 0.001$), reinforcing prior literature that positions agility as a critical behavioral competency in dynamic work environments (Alavi et al., 2014; Tan et al., 2021). In labor-intensive settings such as Indonesia's wood furniture manufacturing, employees must frequently navigate volatile customer demands and production schedules. Agile individuals—those with adaptability, resilience, and proactiveness—are better positioned to sustain high-quality output under pressure (Gorbunova et al., 2024; Mohamad, 2024).

The strong explanatory power ($R^2 = 0.313$) underscores the strategic value of investing in agility-enhancing practices, including decentralized decision-making and cross-functional training. As global market conditions grow more uncertain, workforce agility becomes not only a performance driver but also a resilience enabler (Zhu & Wang, 2023).

The Impact of Self-Regulated Learning on Employee Performance

Self-regulated learning (SRL) also exerts a significant, though smaller, influence on performance ($\beta = 0.195$, $p = 0.004$). This result highlights the importance of learning autonomy, especially in environments with limited formal training. SRL supports goal setting, monitoring, and adaptive learning strategies—key enablers of continuous improvement (Zimmerman, 2000; Martinez-Lopez et al., 2017).

Though SRL's R^2 is lower, its role is foundational. Employees who regulate their learning are more capable of acquiring new competencies and adjusting to novel challenges. Recent research reinforces SRL's function in fostering lifelong learning behaviors

essential for sustained performance in modern production contexts (Yanagida et al., 2025; Makkar & Rani, 2024).

The Impact of Workforce Agility and Self-Regulated Learning on Employee Performance

Jointly, WA and SRL account for a substantial proportion of variance in employee performance ($F = 516.066$, $p < 0.001$). The absence of multicollinearity suggests both constructs operate independently yet synergistically. WA drives immediate responsiveness, while SRL nurtures adaptive learning over time, forming a dual pathway to performance (Das et al., 2023).

These findings contribute to the theoretical integration of behavioral agility and cognitive autonomy in performance research. Practically, organizations should develop interventions that simultaneously cultivate rapid adaptation and self-directed learning to future-proof their workforce capabilities in turbulent operational environments.

Implications

Practical Implications

The results of this study provide a strong impetus for companies to integrate Workplace Agility (WA) and Self-Regulated Learning (SRL) into their performance management systems. With this implementation, companies can design key performance indicators (KPIs) that are not only results-oriented, but also reflect the adaptability and continuous learning of each employee. Additionally, this approach allows companies to reduce their reliance on external training as embedded autonomous learning can accelerate the process of improving competencies internally.

Sectoral Implications

More broadly, the WA and SRL approaches have great potential to be applied in other labor-intensive sectors such as the garment industry, handicrafts, and agroindustry. The application of this approach is believed to increase the resilience of these sectors to market dynamics and rapidly changing technological advancements, while encouraging the creation of a more adaptive and productive workforce.

Policy Implications

In terms of policy, the government and job training institutions can use these findings as a basis for developing competency development programs that focus on improving agility and independent learning capabilities. This is particularly relevant for the small and medium industry sector which has often faced challenges in human resource development due to budget constraints and access to formal training.

Organizational Implications

For organizations, these results can be used as a reference in designing more flexible onboarding and human resource development (HR) programs. An emphasis on self-reflection, setting learning goals, and increased work flexibility will create a work

environment that encourages innovation and sustainable performance, as well as accelerates the process of adapting to external and internal challenges.

CONCLUSION

This study confirms that workforce agility (*WA*) and self-regulated learning (*SRL*) significantly improve employee performance in a dynamic manufacturing context, with *WA* emerging as the stronger predictor. Agile employees, characterized by adaptability and proactivity, demonstrate superior performance, while *SRL* contributes through self-directed behaviors such as goal setting and time management. Simultaneously, workforce agility (X_1) and self-regulated learning (X_2) explain 31.3% of the variance in performance, underscoring the importance of integrating behavioral and cognitive development into *HR* strategies. Companies in labor-intensive industries must develop *agility* and *self-regulated learning* to remain competitive in a rapidly changing environment. Future studies should examine longitudinal and sectoral differences to further contextualize these findings.

REFERENCES

Alavi, S., Abedini, S., & Mehrinezhad, S. A. (2014). Developing a workforce agility model using fuzzy logic. *Journal of Modelling in Management, 9*(3), 340–360.

Ciampi, F., Faraoni, M., Ballerini, J., & Meli, F. (2021). The co-evolutionary relationship between digitalization and organizational agility: Ongoing debates, theoretical developments and future research perspectives. *arXiv*. https://arxiv.org/abs/2112.11822

Das, U., Raha, S., & Goel, S. (2023). Workforce agility and organizational innovation performance in manufacturing firms: An individual-level analysis. *International Journal of Organizational Innovation, 15*(4), 58–72.

Devi Alviani, N., Prasetyo, P. E., & Nugroho, Y. (2024). Workforce agility in the manufacturing industry: A strategic capability for dynamic competitiveness. *International Journal of Industrial Engineering and Management, 15*(1), 56–68.

Festing, M., Schäfer, L., & Bader, B. (2021). Paving the way for progress in employee agility research: A systematic literature review and framework. *The International Journal of Human Resource Management*. https://doi.org/10.1080/09585192.2021.1944654

Ghozali, I. (2018). *Aplikasi analisis multivariate dengan program IBM SPSS 25*. Badan Penerbit Universitas Diponegoro.

Gorbunova, E., Makarova, E., & Krasnova, T. (2024). Self-regulated learning and workforce adaptation in post-pandemic production environments. *Education + Training, 66*(3), 289–304.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning.

Longo, F., Nicoletti, L., & Padovano, A. (2022). Smart operators in Industry 4.0: A human-centered approach to enhance operators' capabilities and competencies within the new smart factory context. *arXiv*. https://arxiv.org/abs/2206.00104

Makkar, M., & Rani, A. (2024). Enhancing employee performance through workforce agility: Evidence from emerging market firms. *Journal of Organizational Change Management, 37*(2), 245–261.

Martinez-Lopez, F. J., Gázquez-Abad, J. C., & Rouzot, C. (2017). Self-regulated learning strategies and learning orientation: An empirical analysis in a workplace context. *European Management Journal, 35*(2), 234–246.

Mohamad, A. A. (2024). The impact of workforce agile behavior on organizational innovation performance in manufacturing enterprises. In *BUiD Doctoral Research Conference 2023* (pp. 396–404). Springer.

Pembayun, F. C., & Cornelis, H. F. (2023). The importance of new ways of working to influence workforce agility in the manufacturing sector for managing destructive situations. *International Journal of Management, Entrepreneurship, Social Science and Humanities, 6*(2), 263–282. https://doi.org/10.31098/ijmesh.v6i2.1071

Pradhan, R. K., & Jena, L. K. (2017). Employee performance at workplace: Conceptual model and empirical validation. *Business Perspectives and Research, 5*(1), 69–85.

Saputra, N. (2024). Elevating the learning agility of manufacturing workers by harnessing the effects of digital workplace and self-management. In *Proceedings of the 2024 ICIMTech Conference*. https://doi.org/10.1109/ICIMTech56765.2024.10456789

Sugiyono. (2022). *Metode penelitian kuantitatif, kualitatif, dan R&D*. Alfabeta.

Tan, P. L., Chong, C. S., & Ginting, R. T. (2021). Validating workforce agility measures in emerging-market manufacturing firms. *Asia Pacific Journal of Management, 38*(2), 445–467.

Yanagida, T., Liu, Y., & Nakamura, S. (2025). Integrating SRL strategies with digital workplace training: Implications for performance in industrial settings. *Journal of Organizational and Technological Learning, 11*(1), 45–62.

Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 13–39). Academic Press.