



Examining the Relationship Between Flexible Working Arrangements and Employee Performance Among ICT Sector Employees in Petaling Jaya: The Moderating Effect of Age

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ABSTRACT

The study examined how two dimensions of flexible working arrangements (FWAs), telecommuting and flexible working hours, relate to employee performance among ICT sector employees in Petaling Jaya, Selangor, Malaysia, with age tested as a moderating variable on both relationships. The study is grounded in Self-Determination Theory (Ryan & Deci, 2000), which holds that satisfying employees' basic psychological needs for autonomy, competence, and relatedness drives intrinsic motivation and, in turn, enhanced employee performance. Age was included as a moderator because prior research suggests that younger and older employees may respond differently to FWAs due to differences in technological adaptability and career-stage priorities. A quantitative cross-sectional survey design was adopted. Purposive and snowball sampling yielded 133 usable responses from ICT professionals, and data were analyzed using multiple regression and hierarchical multiple regression in IBM SPSS Statistics Version 29. Both telecommuting ($\beta = 0.437$, $p < .001$) and flexible working hours ($\beta = 0.370$, $p < .001$) were significant positive predictors of employee performance, together explaining 54.5% of its variance ($R^2 = 0.545$). The moderating effect of age was not significant, leaving H3 and H4 unsupported. Further analysis also identified differences in overall employee performance across generations, without changing the main moderation findings. Overall, the findings highlight the importance of telecommuting and flexible working hours for employee performance and suggest that flexible work policies should be inclusive of employees across different age groups.

Keywords: age, employee performance, flexible working arrangements, telecommuting, flexible working hours, Self-Determination Theory

INTRODUCTION

Flexible working arrangements (FWAs) have become increasingly important as organizations move beyond traditional office-based working models toward more flexible and technology-enabled ways of working. Telecommuting provides employees with flexibility in where work is performed, while flexible working hours provide greater control over when work is performed (Fathima, 2025). These arrangements have become particularly relevant to the ICT sector, where many work activities can be performed digitally and with less dependence on a fixed workplace.

Despite the growing use of FWAs, maintaining consistent employee performance remains an important challenge for organizations. Employee performance is a key organizational outcome because it reflects employees' ability to complete their work effectively and contribute to organizational goals. In flexible working environments, performance may be influenced by how work is arranged, particularly in terms of work location and working time. Telecommuting may provide employees with greater control over their working environment, while flexible working hours may help employees manage their work and personal responsibilities more

effectively (Bal & De Lange, 2014; Hamouche & Parent-Lamarche, 2022). However, FWAs may also create challenges such as professional isolation, blurred work-life boundaries, digital fatigue, and difficulties in coordinating work (Dong et al., 2025; Shamsuddin et al., 2024). Telecommuting and flexible working hours are therefore examined in this study as two factors that may contribute to employee performance.

Self-Determination Theory (SDT) provides a theoretical basis for understanding these relationships. SDT proposes that working conditions that support the psychological needs for autonomy, competence, and relatedness can strengthen employee motivation and performance (Ryan & Deci, 2000). In this study, SDT is used as a theoretical lens to explain how telecommuting and flexible working hours may relate to employee performance rather than to directly measure these psychological needs. Greater flexibility may provide employees with more autonomy over their work, but its benefits may be reduced when employees experience isolation, inadequate support, or excessive monitoring (Gagné & Deci, 2005; Chua et al., 2022).

Age may also influence how employees respond to flexible working arrangements. Employees at different life and career stages may have different technological experiences, work preferences, and personal responsibilities, which may shape how they experience telecommuting and flexible working hours (Bal & De Lange, 2014; Rudolph & Baltes, 2017). This raises the question of whether the relationships between these flexible working arrangements and employee performance differ across age groups.

Against this background, this study examines employee performance among ICT sector employees in Petaling Jaya by focusing on telecommuting and flexible working hours as the two dimensions of FWAs and age as a moderating variable. Accordingly, the study pursued four research objectives:

RO1: To examine the relationship between telecommuting and employee performance among ICT sector employees in Petaling Jaya.

RO2: To examine the relationship between flexible working hours and employee performance among ICT sector employees in Petaling Jaya.

RO3: To examine the moderating effect of age on the relationship between telecommuting and employee performance among ICT sector employees in Petaling Jaya.

RO4: To examine the moderating effect of age on the relationship between flexible working hours and employee performance among ICT sector employees in Petaling Jaya.

LITERATURE REVIEW

Self-Determination Theory

Self-Determination Theory (SDT), developed by Ryan and Deci (2000), proposes that human motivation and performance are influenced by the satisfaction of three basic psychological needs: autonomy, competence, and relatedness. Autonomy refers to a sense of control and choice over one's actions, competence reflects the need to feel capable and effective, and relatedness concerns the need to feel supported and connected to others.

In the workplace, conditions that support these psychological needs may strengthen employees' motivation and contribute to better work outcomes (Gagné & Deci, 2005; Van den Broeck et al., 2016). In the context of this study, SDT provides a theoretical explanation for how telecommuting and flexible working hours may relate to employee performance. Telecommuting may provide greater autonomy over work location, while flexible working hours may provide employees with greater control over their work schedules. At the same time, flexible work may create challenges when employees experience isolation, limited organizational support, or difficulties maintaining work-life boundaries.

Therefore, SDT is used as the theoretical foundation for explaining the proposed relationships between flexible working arrangements and employee performance, rather than as a direct measure of employees' psychological need satisfaction.

LITERATURE REVIEW

Telecommuting, flexible working hours, and employee performance

Telecommuting allows employees to perform their work away from the traditional workplace through the use of digital technologies. For ICT employees, telecommuting may provide greater control over the working environment and reduce disruptions associated with the physical workplace. Previous studies have linked telecommuting with positive work outcomes, including productivity and employee performance, particularly where employees have access to suitable technology and organizational support (Choudhury et al., 2021; Wang et al., 2024). However, telecommuting may also create challenges such as professional isolation, communication difficulties, and blurred boundaries between work and personal life.

Flexible working hours provide employees with greater discretion over when work is performed. Such flexibility may help employees organize their working time around personal responsibilities and periods of higher productivity, which may contribute to improved performance. Previous studies have reported positive relationships between flexible scheduling and employee outcomes (Chan et al., 2025; Timotius, 2025). However, excessive flexibility without sufficient coordination may create communication delays and difficulties in team-based work, particularly in interdependent and project-based ICT environments (Holovchenko, 2024).

Taken together, previous studies suggest that both telecommuting and flexible working hours may contribute to employee performance, although their effectiveness can depend on the work environment and how these arrangements are managed. Based on this discussion, the following hypotheses were proposed:

H1: Telecommuting has a significant relationship with employee performance among ICT sector employees in Petaling Jaya.

H2: Flexible working hours have a significant relationship with employee performance among ICT sector employees in Petaling Jaya.

The moderating role of age

Age has been examined as a moderating variable in organizational research because employees at different career and life stages may respond differently to the same workplace practices (Hayes, 2022). Differences in technological experience, work preferences, career priorities, and personal responsibilities may influence how employees experience telecommuting and flexible working hours.

Younger employees may be more accustomed to digital technologies and flexible working environments, but they may also experience challenges related to professional isolation and reduced face-to-face interaction. Older employees may have different preferences for workplace structure and support and may face different personal or family responsibilities (Rudolph & Baltes, 2017; Subramaniam et al., 2022). These differences provide a basis for examining whether age changes the strength of the relationships between flexible working arrangements and employee performance.

Previous studies examining flexible working arrangements are generally treated age as a moderator rather than a mediator. A moderator changes the strength or direction of a relationship, whereas a mediator explains the process through which one variable influence another (Ferdous et al., 2023; Hayes, 2022). Since age is an individual characteristic rather than an outcome produced by flexible working arrangements, it was examined as a moderating variable in this study.

Accordingly, the following hypotheses were proposed:

H3: Age moderates the relationship between telecommuting and employee performance among ICT sector employees in Petaling Jaya.

H4: Age moderates the relationship between flexible working hours and employee performance among ICT sector employees in Petaling Jaya.

Research gap and conceptual framework

Although FWAs have generally been associated with positive performance outcomes, empirical findings remain mixed, and research focusing specifically on Malaysia's ICT workforce, particularly in Petaling Jaya, remains limited (Anakpo et al., 2023; Choudhury et al., 2021). Furthermore, although age has been examined as a moderator in related flexible-work contexts, limited evidence explains whether age changes the specific relationships between telecommuting, flexible working hours, and employee performance within the Malaysian ICT sector (Pahos et al., 2021). This leaves a gap in understanding not only whether telecommuting and flexible working hours contribute to employee performance, but also whether these relationships differ across age groups. Therefore, this study tests a conceptual framework in which telecommuting and flexible working hours are proposed to relate directly to employee performance, with age examined as a moderator of both relationships.

METHODOLOGY

This study adopted a quantitative, cross-sectional survey design to examine the relationships between telecommuting, flexible working hours, and employee performance, with age examined as a moderating variable (Creswell & Creswell, 2018; Saunders et al., 2023). A cross-sectional design was appropriate because data were collected at a single point in time to examine employees' current experiences with FWAs (Bryman & Bell, 2015). Petaling Jaya, Selangor, was selected as the study area because of its concentration of ICT firms, multinational corporations, and shared-service centers operating in a highly digitalized business environment (Mohamad Shah, 2024; Malaysia Digital Economy Corporation [MDEC], 2024).

Population, sampling, and sample size

The target population comprised ICT employees whose primary workplace was located in Petaling Jaya and whose roles permitted or actively involved telecommuting and/or flexible working hours. These included employees working in areas such as software development, information systems, network administration, cybersecurity, data analytics, and telecommunications. ICT roles requiring continuous on-site presence, such as data center maintenance, were excluded because they were not meaningfully exposed to the flexible working arrangements examined in this study.

As no complete sampling frame was available for this specific population, non-probability purposive sampling was adopted and supplemented by snowball sampling through respondent referrals (Etikan et al., 2016; Saunders et al., 2023). The required sample size was therefore determined based on the statistical requirements of the planned analysis rather than the overall size of the ICT workforce in Petaling Jaya.

G*Power Version 3.1.9.7 was used to determine the minimum sample size. Based on a medium effect size ($f^2 = 0.15$), significance level of $\alpha = 0.05$, statistical power of 0.80, and five predictors comprising the two independent variables, age as the moderator, and two interaction terms, the minimum required sample was 92 respondents (Faul et al., 2009). This was also consistent with the recommendation of 15 to 20 observations per predictor (Hair et al., 2020). A target of 120 respondents was set to provide an additional allowance for unusable responses and data screening.

Research instrument

Data were collected using a structured, self-administered questionnaire comprising four sections. Section A collected demographic information, including age as the moderating variable. Sections B, C, and D measured telecommuting, flexible working hours, and employee performance, respectively, using established instruments adapted to a common five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Table 1 summarizes the research instrument.

Table 1 Summary of the Research Instrument

Section	Variable	No. of Items	Source
A	Demographic (incl. Age)	5	Self-constructed
B	Telecommuting (IV1)	10	Telework Attitude Scale (TAS); Junça-Silva & Caetano (2024)

C	Flexible Working Hours (IV2)	6	Flexible Work Options Questionnaire (FWOQ); Albion (2004)
D	Employee Performance (DV)	13	Individual Work Performance Questionnaire (IWPQ); Koopmans et al. (2014); Ramos-Villagrasa et al. (2019)

Note. IV = Independent Variable; DV = Dependent Variable.

A pilot study involving 30 ICT employees who met the eligibility criteria but did not participate in the main survey was conducted before the full data collection. The pilot study assessed the clarity, readability, and internal consistency of the questionnaire. Based on the pilot feedback, minor wording refinements were made and the measurement items were standardized to a common five-point Likert scale. The pilot results indicated excellent internal consistency, with Cronbach's Alpha values of 0.915 for telecommuting, 0.932 for flexible working hours, and 0.963 for employee performance. These results supported the suitability of the instrument for the main survey.

Data Collection and Analysis Technique

The questionnaire was administered through Google Forms and distributed through professional networks, social media platforms, direct industry contacts, and invitations to approximately eight ICT companies in Petaling Jaya. Snowball referrals were also used to extend the reach to eligible respondents.

Data were exported to IBM SPSS Statistics Version 29 for screening and analysis. The dataset was screened for missing values, duplicate entries, straight-line responses, and univariate and multivariate outliers. The data were subsequently assessed for normality, linearity, homoscedasticity, and multicollinearity. Exploratory Factor Analysis (EFA) was conducted to examine the underlying factor structure of the measurement items, while Cronbach's Alpha was used to assess internal consistency reliability. Descriptive statistics were used to summarize the respondent profile and study variables, and Pearson's correlation was used to examine the strength and direction of the relationships among the study variables.

Multiple regression using the Enter method was conducted to test the relationships between telecommuting, flexible working hours, and employee performance (H1 and H2). Hierarchical multiple regression was used to test the moderating effect of age (H3 and H4). Telecommuting and flexible working hours were mean-centered before the interaction terms were created, and age was represented by dummy variables for the generational groups. The interaction terms were entered in the subsequent step to determine whether age significantly changed the relationships between the two dimensions of FWAs and employee performance (Hayes, 2022).

RESULTS AND DISCUSSION

Response rate and data screening

A total of 146 questionnaires were returned, exceeding the targeted sample of 120 by 21.7%. Four responses were excluded because the respondents did not meet the eligibility criteria, leaving 142 eligible responses. Data screening identified and removed seven straight-line responses and two multivariate outliers, resulting in a final usable sample of 133 responses. The final 133 responses represented 91.1% of all questionnaires returned. No missing values or duplicate entries were detected.

Harman's Single Factor Test showed that the first unrotated factor accounted for 26.16% of the total variance, below the 50% threshold, indicating that common method bias was not a serious concern (Podsakoff et al., 2003). Skewness values ranged from 0.167 to 0.810 and kurtosis values ranged from -0.616 to -0.045, which were within the acceptable ± 2 range. Tolerance and VIF values for the main regression model were 0.552 and 1.813, respectively, indicating no problematic multicollinearity (Hair et al., 2020; Tabachnick & Fidell, 2019).

Respondent profile

The final sample consisted of 133 respondents and was reasonably balanced by gender, with 51.9% female and

48.1% male respondents. The largest age groups were respondents aged 27–35 years and 36–44 years, each representing 25.6% of the sample. For the moderation analysis, these two groups were combined to represent Millennials aged 27–44 years. Most respondents had between one and ten years of ICT working experience. Project Managers formed the largest occupational group at 30.1%, followed by IT Support personnel at 23.3%.

Regarding work arrangements, Fully Remote with Fixed Hours and Hybrid with Fixed Hours were each reported by 27.1% of respondents, followed by Hybrid with Flexible Hours at 24.1%. The representation of employees across different age groups, job positions, and work arrangements provided a suitable sample for examining the relationships addressed in this study. Table 2 presents the demographic profile of the 133 respondents.

Table 2 Demographic Profile of Respondents (n = 133)

Variable	Category	n	%
Age	18–26 years	17	12.8
	27–35 years	34	25.6
	36–44 years	34	25.6
	45–54 years	30	22.6
	Above 54 years	18	13.5
Gender	Male	64	48.1
	Female	69	51.9
Working Experience	Less than 1 year	10	7.5
	1–3 years	38	28.6
	4–6 years	33	24.8
	7–10 years	29	21.8
	More than 10 years	23	17.3
Job Position	Software Developer	26	19.5
	IT Support	31	23.3
	Project Manager	40	30.1
	Analyst	25	18.8
	Others	11	8.3
Work Arrangement	Fully Remote, Flexible Hours	10	7.5
	Fully Remote, Fixed Hours	36	27.1
	Hybrid, Flexible Hours	32	24.1
	Hybrid, Fixed Hours	36	27.1
	On-site, Flexible Hours	19	14.3

Validity, reliability, and descriptive statistics

Exploratory Factor Analysis (EFA) using Principal Component Analysis with Varimax rotation showed adequate sampling suitability for the three study variables, with KMO values ranging from 0.764 to 0.810 and Bartlett's Test significant at $p < .001$. All measurement items were retained.

Reliability analysis showed acceptable internal consistency for telecommuting ($\alpha = 0.748$) and good internal consistency for employee performance ($\alpha = 0.823$). Flexible working hours recorded a Cronbach's Alpha of 0.668, which was considered acceptable for the present study (Hair et al., 2020). The reliability results are presented in Table 3.

Table 3 Reliability Analysis of Study Constructs

Construct	No. of Items	Cronbach's Alpha
Telecommuting	10	0.748
Flexible Working Hours	6	0.668
Employee Performance	13	0.823

The mean scores of the three study variables were relatively similar. Flexible working hours recorded the highest mean ($M = 3.45$, $SD = 0.77$), followed by telecommuting ($M = 3.34$, $SD = 0.67$) and employee performance ($M = 3.33$, $SD = 0.69$). Overall, the results indicate moderate levels of telecommuting, flexible working hours, and employee performance among the respondents.

Correlation and regression analysis

Pearson's correlation analysis showed significant positive relationships between both dimensions of FWAs and employee performance. Telecommuting was positively correlated with employee performance ($r = .685$, $p < .001$), while flexible working hours was also positively correlated with employee performance ($r = .663$, $p < .001$). Telecommuting and flexible working hours were themselves positively correlated ($r = .670$, $p < .001$), as shown in Table 4.

Table 4 Mean, Standard Deviation, and Correlation Matrix of Study Variables (n = 133)

Variable	M	SD	1	2	3
1. Telecommuting	3.34	0.67	1		
2. Flexible Working Hours	3.45	0.77	.670***	1	
3. Employee Performance	3.33	0.69	.685***	.663***	1

Note. *** $p < .001$ (2-tailed).

Multiple regression analysis using the Enter method showed that telecommuting and flexible working hours together explained 54.5% of the variance in employee performance ($R^2 = .545$, Adjusted $R^2 = .538$). The overall regression model was statistically significant, $F(2, 130) = 77.792$, $p < .001$. Table 5 presents the regression coefficients for telecommuting and flexible working hours in predicting employee performance.

Table 5 Multiple Regression Coefficients for Employee Performance

Variable	B	SE	β	t	Sig.	VIF
(Constant)	0.702	0.215	—	3.264	.001	—
Telecommuting	0.446	0.081	0.437	5.489	<.001	1.813
Flexible Working Hours	0.330	0.071	0.370	4.644	<.001	1.813

Note. Dependent Variable: Employee Performance.

As shown in Table 5, both predictors made significant positive contributions to employee performance. Telecommuting recorded $\beta = .437$, $p < .001$, while flexible working hours recorded $\beta = .370$, $p < .001$. Telecommuting therefore showed a relatively stronger contribution to employee performance than flexible working hours. Based on these results, H1 and H2 were supported.

Moderation analysis

Hierarchical multiple regression was conducted to examine whether age moderated the relationships between telecommuting, flexible working hours, and employee performance. Age was grouped into Generation Z (18–26 years), Millennials (27–44 years), Generation X (45–54 years), and Baby Boomers (above 54 years), with Baby Boomers used as the reference group. Telecommuting and flexible working hours were mean-centered before the interaction terms were created. Table 6 summarizes the results for both moderation models.

Table 6 Hierarchical Regression Results for the Moderating Effect of Age

Model	R^2	ΔR^2	F Change	Sig. F Change
Telecommuting $\times$ Age – Step 1 (TC + Age dummies)	0.493	0.493	31.154	<.001
Telecommuting $\times$ Age – Step 2 (+ Interaction)	0.513	0.020	1.709	.169
Flexible Hours $\times$ Age – Step 1 (FH + Age dummies)	0.463	0.463	27.631	<.001
Flexible Hours $\times$ Age – Step 2 (+ Interaction)	0.482	0.018	1.485	.222

For telecommuting, the addition of the interaction terms increased R^2 from .493 to .513, representing a change of $\Delta R^2 = .020$. This change was not statistically significant (F Change = 1.709, $p = .169$). For flexible working hours, R^2 increased from .463 to .482 after the interaction terms were entered, representing $\Delta R^2 = .018$. This change was also not statistically significant (F Change = 1.485, $p = .222$).

Although VIF values increased after the interaction terms were introduced, this was interpreted cautiously because interaction terms and their component variables are inherently related in moderated regression (Hayes, 2022). The moderation results therefore showed no statistically significant evidence that age changed either relationship. Accordingly, H3 and H4 were not supported.

Supplementary analysis: generational differences in performance

The moderation analysis showed that age did not significantly change the relationships tested in H3 and H4. A supplementary one-way ANOVA was therefore used to provide an additional view of whether overall employee performance differed across the four generational groups. This analysis is different from the moderation test because it compares average performance levels rather than examining whether the relationships between FWAs and employee performance vary by age.

The one-way ANOVA showed a statistically significant difference in employee performance across generations, $F(3, 129) = 6.476$, $p < .001$. Millennials recorded the highest mean employee performance ($M = 3.571$, $SD = 0.760$), followed by Generation X ($M = 3.113$, $SD = 0.414$), Generation Z ($M = 3.059$, $SD = 0.511$), and Baby Boomers ($M = 3.043$, $SD = 0.593$). Since the overall ANOVA result was significant, a Tukey HSD post hoc test was conducted to identify which generational groups differed significantly. Table 7 presents the pairwise comparisons between the four generational groups.

Table 7 Tukey HSD Post Hoc Comparisons for Employee Performance by Generation

Comparison	Mean Difference	SE	Sig.
Millennials vs. Generation Z	0.512*	0.175	.021
Millennials vs. Generation X	0.458*	0.142	.008
Millennials vs. Baby Boomers	0.529*	0.171	.013
Generation Z vs. Generation X	-0.054	0.196	.993
Generation Z vs. Baby Boomers	0.016	0.219	1.000
Generation X vs. Baby Boomers	0.070	0.193	.983

Note. * The mean difference is significant at the .05 level.

As shown in Table 7, Millennials reported significantly higher employee performance than Generation Z ($MD = .512$, $p = .021$), Generation X ($MD = .458$, $p = .008$), and Baby Boomers ($MD = .529$, $p = .013$). No statistically significant differences were found among Generation Z, Generation X, and Baby Boomers.

These results show that overall employee performance differed across generations, particularly for Millennials. However, this finding does not change the moderation results. The ANOVA reflects differences in overall performance levels, whereas the moderation analysis examined whether age changed the relationships between telecommuting, flexible working hours, and employee performance. Therefore, H3 and H4 remain not supported.

Summary of hypothesis testing

The results of the four hypotheses are summarized in Table 8. Overall, H1 and H2 were supported, confirming significant positive relationships between the two dimensions of FWAs and employee performance, whereas H3 and H4 were not supported because age did not significantly moderate either relationship.

Table 8 Summary of Hypothesis Testing Results

No.	Hypothesis	Test	β / ΔR^2	Sig.	Decision
H1	Telecommuting → Employee Performance	Multiple Regression	$\beta = 0.437$	<.001	Supported
H2	Flexible Working Hours → Employee Performance	Multiple Regression	$\beta = 0.370$	<.001	Supported
H3	Age moderates Telecommuting → Employee Performance	Hierarchical Regression	$\Delta R^2 = 0.020$	.169	Not Supported
H4	Age moderates Flexible Working Hours → Employee Performance	Hierarchical Regression	$\Delta R^2 = 0.018$	.222	Not Supported

DISCUSSION

The results showed that telecommuting was a significant positive predictor of employee performance, supporting H1. This finding is consistent with Self-Determination Theory, which suggests that greater autonomy over how and where employees work may support motivation and performance (Ryan & Deci, 2000). In the ICT sector, where work is strongly supported by digital technologies and virtual collaboration, telecommuting may provide employees with greater control over their working environment while allowing them to complete tasks outside the conventional office setting. This finding is consistent with previous research linking remote work and geographical flexibility with positive performance outcomes (Wang et al., 2024; Choudhury et al., 2021).

Flexible working hours were also a significant positive predictor of employee performance, supporting H2. Giving employees greater flexibility over their working time may allow them to organize work around personal responsibilities and periods when they are more productive. This finding is consistent with previous studies that have linked flexible scheduling with employee performance and work-related outcomes (Chan et al., 2025; Muchowe et al., 2025). Although both dimensions were significant, telecommuting showed a somewhat stronger contribution to employee performance than flexible working hours.

Age, however, did not significantly moderate either relationship. Therefore, H3 and H4 were not supported. This means that the study did not find sufficient evidence that the relationships between telecommuting and employee performance, or between flexible working hours and employee performance, differed according to generation. This differs from earlier studies suggesting that age-related differences in technological adaptability, career stage, and work preferences may shape employees' responses to flexible work arrangements (Bal & De Lange, 2014; Pahos et al., 2021). At the same time, the finding is consistent with more recent research suggesting that increasing exposure to digital technologies may have reduced some generational differences in flexible working practices (Aksoy et al., 2025; Gonzalez et al., 2025).

The supplementary analysis provides another perspective on age. Although age did not significantly moderate the two relationships, overall employee performance differed across generations. Millennials reported significantly higher employee performance than Generation Z, Generation X, and Baby Boomers. This suggests that generational differences may exist in overall performance levels without necessarily changing how telecommuting or flexible working hours relate to employee performance. The two findings are therefore complementary rather than contradictory.

Taken together, the results suggest that ICT organizations should not assume that flexible working arrangements are suitable only for particular generations. Instead, telecommuting and flexible working hours may be designed in an age-inclusive manner while recognizing that employees across generations may still differ in their overall work experiences and performance levels. Clear work expectations, adequate digital support, and performance-focused management may help organizations implement flexible working arrangements more effectively.

Limitations and future research

Several limitations should be considered when interpreting the findings. First, the cross-sectional design limits causal inference because the data were collected at a single point in time. Second, the use of self-administered

questionnaires may introduce response or social desirability bias, although Harman's Single Factor Test did not indicate a serious common method bias concern. Third, the sample was limited to 133 ICT sector employees in Petaling Jaya, which may limit the generalizability of the findings to other geographical areas or industries. In addition, the study examined only two dimensions of FWAs, telecommuting and flexible working hours, with age as the moderating variable. Other factors that may contribute to employee performance were outside the scope of this study.

Future research could extend the study to other geographical areas and industries and include larger samples to determine whether similar findings are observed in different contexts. Other dimensions of flexible working arrangements and additional moderating or mediating variables, such as organizational support, digital competence, or job satisfaction, could also be examined. Longitudinal or mixed-method designs may provide further insight into how flexible working arrangements relate to employee performance over time.

CONCLUSION

This study examined the relationships between telecommuting, flexible working hours, and employee performance among 133 ICT sector employees in Petaling Jaya, with age tested as a moderating variable through the lens of Self-Determination Theory. Both telecommuting and flexible working hours were significant positive predictors of employee performance, together explaining 54.5% of its variance, with telecommuting showing a relatively stronger contribution. Age did not significantly moderate either relationship, and therefore H3 and H4 were not supported. Further analysis also identified differences in overall employee performance across generations, with Millennials reporting significantly higher performance than the other generational groups. This additional finding does not change the main moderation results, as it reflects differences in overall performance levels rather than differences in the relationships between FWAs and employee performance.

Overall, the findings highlight the importance of telecommuting and flexible working hours in relation to employee performance within the ICT sector in Petaling Jaya. Since age did not significantly change either relationship, organizations should consider flexible work policies that are inclusive of employees across different age groups. Clear guidelines, performance-based evaluation, and adequate digital support may further help organizations manage flexible working arrangements effectively.

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