Employee productivity: The effect of flexible work arrangement, indoor air quality, location and amenities at one of multinational logistics providers in Indonesia

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Abstract. This research aims to know the effect of flexible work arrangement, indoor air quality, location and amenities towards employee productivity. This study is an associative quantitative research. The data were collected using questionnaires. The population of this research was 200 head office employees of PT XYZ in Jakarta, Indonesia. To select the sampling size, simple random sampling technique using Slovin formula was used. 67 sample was used based on the Slovin formula calculation. Multiple linear regression analysis using SPSS software was used to analyze the data. The results of this research show that there is significant effect of flexible work arrangement, indoor air quality, location and amenities towards employee productivity. However, flexible work arrangement has no significant effect towards employee productivity. Meanwhile indoor air quality, location and amenities have significant effect towards employee productivity.

Keywords: flexible work arrangement, indoor air quality, employee productivity

1. Introduction

The employee productivity is essential for every companies. There are a lot of aspects that influence employee productivity. One of factors that affect employee productivity is flexible work arrangement. Flexible work arrangement come in a lot of formats. Flexi time, compressed work week, telecommuting, and part time work are the example of flexible work arrangement [1]. Flexi time and flexplace are also used by employees in order to achieve higher work outcomes [2]. Another employer’s policy related to flexibility is work from home. The employee’s productivity increases when they are given the choice to work from home [3]. Previous research in Spain showed that part time work, flexi time, compressed work week, and telecommuting are the most common flexible work arrangement practices which employees used [4]. However, previous research conducted in Indonesian setting explained flexible work options, specialized leave options, flexible working hours, telecommuting, and flexible shift arrangement are the flexible work arrangement that is commonly used [5], [6], [7]. Sustainable Human Resource Management has four dimensions such as justice and equality, transparent HR practices, profitability, and employee well-being. One of the transparent HR practices is flexibility [8]. The company in this research have no flexible work arrangement practices. The company is planning to apply the method in the near future based on the result of this research.
The next factors that could influence employee productivity is indoor air quality. The indoor air quality is still considered current subject of research even though the phenomenon already known for a long time. Indoor air quality is one of the indoor environmental quality factors [9]. Indoor air quality is a marker of air quality inside the buildings and has strong effect on the productivity in the workplace [10]. Indoor air quality is essential as many people live in urban area and work inside the office building. A facility or an energy manager should understand the indoor air quality in order to suggest natural ventilation strategies and supply enough amount of fresh air to employees [9]. A conducive workplace helps reducing employee’s absenteeism, turnover, and also increasing productivity and satisfaction [11]. Hence it is important to know the effect of indoor air quality towards employee productivity. Previous experiment showed that good air quality has significant effect towards employee’s productivity on everyday task such as text typing [12]. Good indoor air quality is essential for both employers and employees as air pollutants are one of the reasons of lower productivity in the workplace [9]. Previous research in China showed that higher levels of air pollution diminish employee’s productivity [13]. Jakarta, the capital city of Indonesia where this study is conducted, ranked number five in the world most polluted capital cities in 2019 [14]. Aside from that, the problems with the company in this study is it uses air conditioning without enough ventilation in the workspace. The company also use floor carpet which cause dust and dirt.

Another factors that might affect employee productivity is location and amenities. Office location and amenities are highly significant in characterizing the nature of working environment [11]. Previous research showed that if workplaces located near public infrastructure then employee would have higher satisfaction and the workplace would also attract more employees [15]. Offices that are located close to public transit services and cycle tracks would give health and well-being benefits to its employees. Such health benefits would result in more productive workplace. Amenities near the office could also influence employee productivity [11]. There are four types of primary amenities that the office should have near its location: health care or clinic, recreational spaces or sports facilities, entertainment options, and childcare facilities [16]. PT XYZ location is not near public infrastructure and a lot of employee use their personal vehicles to work. Related to facilities, the company only have meeting rooms and workspace. The company hopes to renovate its facilities in the future.

Flexible work arrangement, indoor air quality, location and amenities are important factors that influence employee’s productivity and their well-being. Moreover, HR should develop policies in a sustainable manner that focus on employee’s well-being [17]. The variables in this study is considered essential in order to practice the environmental sustainability within organization [18]. However, previous research stated that there would be conflict between productivity and employee well-being [19]. The tensions would arise because the company needs profit and at the same time has to meet the needs and aspirations of sustainable work environment [20]. Such conflict would be reduced if the sustainability is valued and promoted by the companies and line managers [21]. Based on the explanations above, therefore this research aims to find out the effect of flexible work arrangement, indoor air quality, location and amenities towards employee productivity at one of multinational logistic providers in Jakarta, Indonesia.

2. Literature review

2.1. Sustainable human resource management

The research in sustainable human resource management is developed in multiple levels of analysis: individuals, process, organization and society, economic, ecological, social and human, and short and long-term time perspectives [18]. The purpose of sustainable human resource management is to diminish the negative impacts of organization on the environment, individuals, and society [22]. Sustainable HRM boosts employee’s working life quality and performance [23]. Previous research on sustainable HRM and organizational outcome focused on turnover intention and employee engagement [24]. Good sustainable policies could improve workers’ sense of belonging and as a result motivates them to work harder [25]. Furthermore, HRM practices that acknowledge work-life balance
and ecology are connected to the environmental perspectives of HRM [26]. Another thing to consider in sustainable HRM is environmental protection that could be measured by pollution prevention [27].

2.2. The effect of flexible work arrangement on employee productivity
Employees would welcome the flexibility created from the availability of flexible work arrangement practices which serve their necessities and are most likely to give back the companies in the form of increased productivity [28]. Previous research related to flexi time as one of the flexible work arrangement practice showed that it influenced labor productivity [29]. Previous experiment also showed the increase in productivity when the employees used flexible work arrangement practices [30]. Another format of flexible work arrangement is teleworking. High telework intensity (more than 8 hours per week) has significant relationship with individual productivity [31]. Work from home is another flexible work arrangement practice. However, previous research showed that software engineers opted not to do it because they felt difficult to complete the work at home. In contrast, employees that worked in marketing department chose to work from home when feeling unproductive at office [32]. The result from previous research showed employees admitted that flexi time and telecommuting could improve their productivity [2]. Flexible work arrangement practices that is used in this research are flexi time, compressed work week, telecommuting, and part time work. Such practice is similar with previous research [1].

2.3. The effect of indoor air quality on employee productivity
There are three types of productivity that are influenced by environmental design of workplace: individual, group, and organizational productivity [33]. Individual productivity is commonly assessed on how micro-environment influences individual task performance, or in other words, how quick and precise employees complete their task at work. Individual productivity is influenced by environmental conditions such as lighting and visual conditions, temperature and humidity variations, indoor air quality, furniture ergonomics, and acoustics. Positive individual productivity means improved speed and accuracy of the tasks [34]. A decent indoor air quality improves production qualities and assist with increasing worker productivity [35]. Perceptions of indoor air quality could be measured by pollutant levels or actual exposures [36]. Previous research explained that good indoor environment quality could increase occupant productivity [37]. Poor indoor air quality would result in poor productivity [38].

2.4. The effect of location and amenities on employee productivity
One of the office features that might affect employee productivity is spaces for social interaction, relaxation, and psychological restoration [39]. Previous research also suggested several factors to support employee productivity such as space for concentration and solo work, visual and auditory accessibility, location proximity, central location, facilities and spaces for meetings, proper areas to take a break, well-designed furniture, sufficient and appropriate storage space [40]. Another research mentioned that proximity to home, amenities or supplies, building locations are factors that should be met by companies thus the employees felt satisfied [20]. Office location and amenities also influenced occupant productivity [41].

2.5. Research hypothesis
Based on the previous research above, the hypotheses of this research are:

- H1: There is significant effect of flexible work arrangement on employee productivity
- H2: There is significant effect of indoor air quality on employee productivity
- H3: There is significant effect of location and amenities on employee productivity
- H4: There is significant effect of flexible work arrangement, indoor air quality, location and amenities on employee productivity
2.6. Research framework
The framework of this research could be seen in Figure 1.

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Figure 1. Research Framework
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3. Research methodology
This research is a quantitative research. The type of quantitative research used in this study is associative. The data was collected using 5-point Likert scale questionnaire to head office employees of PT XYZ. The questionnaire was created in Indonesian language to measure the employee perception on the effect of flexible work arrangement, indoor air quality, location and amenities towards employee productivity. The items measurement translation could be seen in Table 1.

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Table 1. Items Measurement

| Variables                      | Items                                                                 |
|-------------------------------|-----------------------------------------------------------------------|
| Flexible work arrangement (X1)| I would feel more comfortable if I am allowed to set my own work start and finish (FWA1) |
|                               | I prefer to work 4 days a week with longer hours than 5 days a week with normal hours (FWA2) |
|                               | I feel happier to do work from home with the help of information and communication technology (ICT) than work at the office (FWA3) |
|                               | I would feel more satisfied doing part-time work (FWA4)               |
| Indoor air quality (X2)       | A good ventilation that creates good air circulation in the office would help me doing my job well (IAQ1) |
|                               | I would feel more comfortable working inside the office that have low level air pollution (IAQ2) |
|                               | I feel disturbed with the air pollution level outside my workplace (IAQ3) |
| Location and amenities (X3)   | I would be more motivated to go to work if there are various public transport options to reach my office (LA1) |
|                               | I would feel healthier and more productive if there is health clinic near my office (LA2) |
|                               | I would feel calmer if there is day care near my office               |
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Employee productivity (Y) 

- I would feel enthusiastic in working if my office is close to various recreational and sports venues (LA3)
- I would work harder if my office is located near entertainment place (movie theatre, etc.) (LA5)
- I feel motivated at work (EP1)
- I always go to work as scheduled and obey all company rules (EP2)
- I always respect and appreciate my co-workers (EP3)
- I always complete my assignments (EP4)
- I work better because of my work experiences (EP5)
- I feel at home and happy in my current work environment (EP6)
- I take full responsibility of my work (EP7)

The population of this research is 200 head office employees of PT XYZ. Simple random sampling technique using Slovin formula was used to select the sample size. 67 sample was used in this research based on the Slovin formula calculation. The data then analysed using multiple linear regression with the help of SPSS software.

4. Results and discussion

Table 2 explained the profiles of 67 respondents used in this research.

| Gender | Respondent | Age | Respondent | Highest level of education | Respondent | Length of employment | Respondent |
|--------|------------|-----|------------|----------------------------|------------|---------------------|------------|
| Male   | 37         | < 20 years old | 1 | High School | 3 | <5 years | 19 |
| Female | 30         | 20-24 years old | 3 | Diploma degrees | 14 | 5-10 years | 30 |
| Total  | 67         | 25-30 years old | 20 | Undergraduate degrees | 43 | 10-15 years | 9 |
|        |            | 31-35 years old | 15 | Postgraduate degrees | 6 | 15-20 years | 5 |
|        |            | > 35 years old | 28 | Doctoral degrees | 1 | >20 years | 4 |
|        | Total 67   | Total 67 | Total 67 | 67 | Total 67 |

4.1 Validity and reliability test

The validity test was conducted using df= n-2 (67-2=65) and 5% significance with the help of SPSS software. The data is valid if validity coefficient is greater than r table. The r table is calculated using SPSS and the value is 0.2. Table 3 shows the result of validity test.
Table 3. Validity Test Result

| Variable                        | Items | Validity Coefficient | Decision |
|--------------------------------|-------|----------------------|----------|
| Flexible work arrangement (X1) | FWA1  | 0.496                | Valid    |
|                                 | FWA2  | 0.600                | Valid    |
|                                 | FWA3  | 0.514                | Valid    |
|                                 | FWA4  | 0.492                | Valid    |
| Indoor air quality (X2)         | IAQ1  | 0.639                | Valid    |
|                                 | IAQ2  | 0.605                | Valid    |
|                                 | IAQ3  | 0.600                | Valid    |
| Location and amenities (X3)     | LA1   | 0.310                | Valid    |
|                                 | LA2   | 0.575                | Valid    |
|                                 | LA3   | 0.601                | Valid    |
|                                 | LA4   | 0.553                | Valid    |
|                                 | LA5   | 0.515                | Valid    |
| Employee productivity (Y)       | EP1   | 0.815                | Valid    |
|                                 | EP2   | 0.770                | Valid    |
|                                 | EP3   | 0.914                | Valid    |
|                                 | EP4   | 0.806                | Valid    |
|                                 | EP5   | 0.783                | Valid    |
|                                 | EP6   | 0.492                | Valid    |
|                                 | EP7   | 0.881                | Valid    |

The reliability test was conducted using SPSS software. The variable is considered reliable if the Cronbach’s alpha value is greater than 0.6. The result of the reliability test is given in the Table 4.

Table 4. Reliability Test Result

| Variable                        | Cronbach’s alpha value | Decision |
|--------------------------------|------------------------|----------|
| Flexible work arrangement (X1) | 0.732                  | Reliable |
| Indoor air quality (X2)        | 0.770                  | Reliable |
| Location and amenities (X3)    | 0.746                  | Reliable |
| Employee productivity (Y)      | 0.930                  | Reliable |

4.2 Normality test

To test normality, this research use Kolmogorov Smirnov test. The data is distributed normally if the value of Asymp. Sig (2-tailed) is above 0.05. The normality test could be seen in Table 5.

Table 5. Normality Test Result

| Unstandardized residual | Decision         |
|-------------------------|------------------|
| Asymp. Sig (2-tailed)   | 0.958            |
|                         | Normal distribution |

4.3 Multicollinearity test

The aim of the multicollinearity test is to find out whether each independent variable have high correlation. Good regression model must not have correlation between independent variable. The multicollinearity test could be seen from the tolerance value and variance inflation factor (VIF). The multicollinearity does not happen if the tolerance value above 0.1 and the VIF value below 10. The result is shown in Table 6.
### Table 6. Multicollinearity Test Result

| Variable                        | Collinearity statistic | Decision     |
|--------------------------------|------------------------|--------------|
|                                | Tolerance   | VIF                  |              |
| Flexible work arrangement      | 0.881       | 1.136                | No multicollinearity |
| Indoor air quality             | 0.969       | 1.032                | No multicollinearity |
| Location and amenities         | 0.855       | 1.169                | No multicollinearity |

#### 4.4 Heteroscedasticity test

Good regression model should not have heteroscedasticity therefore the sig. value must be above 0.05. Table 7 shows heteroscedasticity test result.

### Table 7. Heteroscedasticity Test Result

| Variable                        | Sig       | Decision     |
|--------------------------------|-----------|--------------|
| Flexible work arrangement      | 0.757     | No heteroscedasticity |
| Indoor air quality             | 0.546     | No heteroscedasticity |
| Location and amenities         | 0.990     | No heteroscedasticity |

#### 4.5 Multiple linear regression test

Multiple linear regression test is used to analyse the relationship between independent variable and dependent variable.

### Table 8. Model Summary<sup>b</sup>

| Model | R       | R Square | Adjusted R Square | Std. error of the estimate |
|-------|---------|----------|-------------------|---------------------------|
| 1     | .590<sup>a</sup> | .348     | .317              | .53824                    |

<sup>a</sup> Predictors: (Constant), Location and amenities, Indoor air quality, Flexible work arrangement
<sup>b</sup> Dependent variable: Employee productivity

Based on the adjusted r square value on Table 8, there is 31.7% of influence between flexible work arrangement, indoor air quality, location and amenities and employee productivity. While 68.3% are influenced by other variables not examined in this research.

#### 4.6 Hypothesis test

F test and T test are used to assess the hypothesis of this research.

### Table 9. Anova<sup>a</sup>

| Model        | Sum of Squares | DF | Mean Square | F       | Sig.  |
|--------------|----------------|----|-------------|---------|-------|
| Regression   | 9.734          | 3  | 3.245       | 11.200  | .000<sup>b</sup> |
| Residual     | 18.251         | 63 | .290        |         |       |
| Total        | 27.985         | 66 |             |         |       |

<sup>a</sup> Dependent Variable: Employee Productivity
<sup>b</sup> Predictors: (Constant), Location and amenities, Indoor air quality, Flexible work arrangement

Based on the F value in the Table 9, it could be concluded that there is significant effect between flexible work arrangement, indoor air quality, location and amenities towards employee productivity. Hence, H4 is accepted.
Table 10. T Test Result

| Variable                          | T   | Sig.  | Decision                     |
|----------------------------------|-----|-------|------------------------------|
| Flexible work arrangement (X1)   | -1.596 | 0.115 | Has no significant effect    |
| Indoor air quality (X2)          | 4.359 | 0.000 | Has significant effect       |
| Location and amenities (X3)      | 2.998 | 0.004 | Has significant effect       |

Based on Table 10, it could be said that there is no significant effect between flexible work arrangement and employee productivity. Therefore, H1 is rejected. In contrast, Indoor air quality has significant effect on employee productivity. Hence, H2 is accepted. Lastly, there is significant effect between location and amenities and employee productivity. Thus, H3 is accepted.

4.7 Discussion

This research showed that flexible work arrangement has no significant effect towards employee productivity. The result of this research contradicts previous research that stated flexible working arrangement has significant effect towards employee productivity [28]. Previous research in India showed that flexible work arrangement could impact employee’s productivity [42]. However, the research is conducted in IT sector. This study is conducted in logistic sector even though only focus on one company. Previous research in pharmaceutical industry showed that flexi time, one of flexible working arrangement practice, was responsible for ten percent increase in productivity [43]. Tele work intensity, another flexible working arrangement practice, also influenced employee productivity [31]. Another research in Great Britain also explained that flexible employment arrangements have significant and positive relationship towards workplace performance [44]. Furthermore, research in South Africa examined that certain flexible work practices could improve productivity [45]. However, research in financial industry stated that flexible working hours had no effect on productivity [46].

The result of this study also showed that indoor air quality has significant effect towards employee productivity. The result is strengthened previous research that explained indoor air quality has significant effect towards employee productivity [11]. Another research also stated that indoor air quality has greater effect on employee productivity. If the office has good indoor air quality, then its workers productivity would improve [47]. Moreover, previous research showed that air quality has significant impact on employee productivity [48]. Another study also explained if indoor air quality is not good enough then the health and productivity of employees would be affected [49]. Furthermore, previous research in Malaysia indicated that indoor air quality is believed to be one of the factors that affect occupants’ productivity [50]. Plants could be used to reduce indoor air pollutant [51]. The occupants of planted offices also feel more productive than occupants of non-planted offices [52]. Another research also showed that plants could affect employees’ productivity [53].

The result of this research also showed that location and amenities have significant effect on employee productivity. The result is aligned with previous research that stated location and amenities could improve employee’s productivity [11]. The rise of agile working affects the office function. The office is becoming a place to visit and interact with colleagues [54]. Thus, office location and amenities become important things. Spaces for social interaction, relaxation, and psychological restoration are one of the office features that affect employee productivity [39]. Other features that affect employee productivity are office proximity, central location, and decent area to rest [40].

Previous research in the Middle East showed that refreshment areas and canteen are office amenities that influence employee productivity [55]. Moreover, high-quality facilities and central locations are valued more by knowledge workers [56]. The office location becomes one of important factor that affects employee productivity because previous research in Australia explained that commuting distance impact workers productivity [57].
5. Conclusion
To conclude, H1 of this research is rejected while H2, H3, and H4 is accepted. The result of this research showed that flexible work arrangement does not have significant effect towards employee productivity. The result explained that the company in this study should not apply flexible work arrangement practices in the office. Indoor air quality has significant effect toward employee productivity. Therefore, PT XYZ should pay attention and maintain indoor air quality as it affects employee productivity. PT XYZ could also grow more plants in the office to reduce indoor air pollutant. The result also showed that location and amenities have significant effect on employee productivity. Based on these findings, PT XYZ should improve existing facilities by adding health care facilities or clinics, recreation rooms, sports facilities, and day care facilities in order to exercise sustainable working environment and increase employee’s productivity. The result of this study could also be used as reference for further research. However, bear in mind that this research only used one company as sample. Therefore, further research should add another company in the same industry or in different industry in Indonesia to enrich the result of this study.

References
[1] Timms C, Brough P, O’Driscoll M, Kallialith T, Siu O L, Sit C, and Lo D 2015 Flexible work arrangements, work engagement, turnover intentions and psychological health Asia Pasific Journal of Human Resources 53 83-103
[2] Shockley K M and Allen T D 2012 Motives for flexible work arrangement use Community, Work & Family 15 p 217-231
[3] Timmsal A and Awais M 2016 Flexibility or ethical dilemma: An overview of the work from home policies in modern organizations around the world Human Resource Management International Digest 24 p 12-15
[4] Goñi-Legaz S and Ollo-López A 2015 Factors that determine the use of flexible work arrangement practices in Spain Journal of Family and Economic Issues 36(3) p 463-476
[5] Afrianty T W, Burgess J, and Issa T 2015 Family-friendly support programs and work family conflict among Indonesian higher education employees Equality, Diversity and Inclusion: An International Journal 34 p 726-741
[6] Setiyani A, Djumarno, Riyanto S, and Nawangsari L C 2019 The effect of work environment on flexible working hours, employee engagement and employee motivation International Review of Management and Marketing 9(3) p 112-116
[7] Capnary M C, Rachmawati R, and Agung I 2018 The influence of flexibility of work to loyalty and employee satisfaction mediated by work life balance to employees with millenial generation background in Indonesia startup companies Verslas: Teorija IR Praktika/ Business: Theory and Practice 19 p 217-227
[8] Järlström M, Saru E, and Vanhala S 2018 Sustainable human resource management with salience of stakeholders: A top management perspective Journal of Business Ethics 152(3) 703-724
[9] Mujan I, Andelković A S, Munčan V, Klijajić M and Ružić D 2019 Influence of indoor environmental quality on human health and productivity – A review Journal of Cleaner Production 217 646-657
[10] Clements-Croome D J 2008 Work performance, productivity and indoor air SJWEH Suppl 4 69-78
[11] Al Horr Y, Arif M, Kaushik A, Mzaroei A, Katafygiotou M, and Elsarrag E 2016 Impact of indoor environmental quality on occupant well-being and comfort: A review of the literature Int’l J. Soc. Built Environment 5(1) p 1 – 11
[12] Wargocki P, Wyon D P, Sundell J, Clausen G, and Fanger P O 2000 The effects of outdoor air supply rate in an office on perceived air quality, sick building syndrome (SBS) symptoms and productivity Indoor Air 10(4) p 222-236
[13] Chang T Y, Zivin J G, Gross T and Neidell M 2019 The effect of pollution on worker productivity: Evidence from call center workers in China American Economic Journal: Applied Economics 11(1) p 151-172
[14] World Air Quality Report Region & City PM 2.5 Ranking provided by IQ Air Visual. 2019. Available from https://www.iqair.com/us/world-most-polluted-cities
[15] Leaman A 1995 Dissatisfactice productivity *Facilities* **13(2)** p 13-19
[16] World Green Building Council 2014 *Health, Wellbeing & Productivity in Offices* (World Green Building Council) Available from https://www.worldgbc.org/sites/default/files/compressed_WorldGBC_Wellbeing___Productivity_Full_Report_Dbl_Med_Res_Feb_2015.pdf
[17] Bondarouk T and Brewster C 2016 Conceptualising the future of HRM and technology research *International Journal Human Resource Management* **27(21)** p 1 – 20
[18] Macke J and Genari D 2019 Systematic literature review on sustainable human resource management *Journal of Cleaner Production* **208** p 806-815
[19] Zink K J 2014 Designing sustainable work systems: The need for a systems approach *Applied Ergonomics* **45** p 126-132
[20] Wilkinson A, Hill M, and Gollan P 2001 The sustainability debate *International Journal of Operations & Production Management* **21(12)** p 1492-1502
[21] Pellegrini C, Rizzi F and Frey M 2018 The role of sustainable human resource practices in influencing employee behaviour for corporate sustainability *Business Strategy and the Environment* **27(8)** p 1221-1232
[22] Kramar R 2014 Beyond strategic human resource management: Is sustainable human resource management the next approach? *The International Journal of Human Resource Management* **25(8)** p 1069-1089
[23] Docherty P, Forslin J, Shani A B, and Kira M 2002 *Emerging Work Systems: From Intensive to Sustainable* (London: Routledge) p 3-14
[24] Santana M and Lopez-Cabrales A 2019 Sustainable development and human resource management: A science mapping approach *Corporate Social Responsibility and Environmental Management* **26(6)** p 1171-1183
[25] Zhou Z, Luo B N, and Tang T L P 2018 Corporate social responsibility excites ‘exponential’ positive employee engagement: The Matthew effect in CSR and sustainable policy *Corporate Social Responsibility and Environmental Management* **25(4)** 339-354
[26] De-Prins P, Van-Beirendonck L, De-Vos A and Segers J 2014 Sustainable HRM: Bridging theory and practice through the ‘Respect Openness Continuity (ROC) model *Management Revue* **25(4)** p 263-284
[27] Lober D J 1996 Evaluating the environmental performance of corporations *Journal of Managerial Issues* **8(2)** p 184-205
[28] Berkery E, Morley M J, Tiernan S, Purtill H, and Parry E 2017 On the uptake of flexible working arrangement and the association with human resource and organizational performance outcome *European Management Review* **14(2)** p 165-183
[29] Preenen P T, Vergeer R, Kraan K and Dhondt S 2017 Labour productivity and innovation performance: The importance of internal labour flexibility practices *Economic and Industrial Democracy* **38(2)** p 271-293
[30] Houghton K R, Foth M and Hearn G 2018 Working from the other office:GA trialling co-working spaces for public servants *Australian Journal of Public Administration* **77(4)** p 757 – 778
[31] Hoornweg N, Peters P and van der Heijden B 2016 Finding the optimal mix between telework and office hours to enhance employee productivity: A study into the relationship between telework intensity and individual productivity, with mediation of intrinsic motivation and moderation of office hours in J. De Leede (Ed.) *New Ways of Working Practices: Antecedents and Outcomes* 16 1-28 (Bingley, UK: Emerald Group Publishing
[32] Johnson B, Zimmermann T and Bird C 2019 The effect of work environments on productivity and satisfaction of software engineers *IEEE Transactions on Software Engineering* doi: 10.1109/TSE.2019.2903053
[33] Vischer, J C 2006 The concept of workspace and its value to management *California Management Review* **49(2)** p 1 – 18
[34] Vischer, J C 2008 Towards an environmental psychology of workspace: How people are affected by environments for work *Architectural Science Review* **51(2)** 97-108
[35] Martin J 1999 Addressing IAQ concerns in medical facilities *Engineered Systems* **16(6)** 53-57
[36] Steinemann A, Wargocki P, and Rismanchi B 2017 Ten questions concerning green buildings and indoor air quality *Building and Environment* **112** 351-358

[37] Miller N G, Pogue D, Gough Q D and Davis S M 2009 Green buildings and productivity *Journal of Sustainable Real Estate* **1** p 65-89

[38] Satish U, Mendell M J, Shekhar K, Hotchi T, Sullivan D, Streufert S and Fisk W J Is CO₂ and indoor pollutant? Direct effects of low-to-moderate CO₂ concentrations on human decision-making performance 2012 *Environ Health Prospect* **120** 1671-1677

[39] Thompson B and Kay S 2008 *Property in the Economy: Workplace Design and Productivity- are They inextricably linked?* (London: RICS)

[40] Duffy F, Laing A, Crisp V 1993 *Responsible Workplace* (Oxford: Butterworth Architecture)

[41] Bhatta J 2016 Flexible office occupation and productivity in Indian IT sector: A study *IPE Journal of Management* **6(1)** 80-104

[42] Shepherd III M E, Clifton T J and Kruse D Flexible work hours and productivity: Some evidence from the pharmaceutical industry 1996 *Industrial Relations A Journal of Economy and Society* **35(1)** p 123-139

[43] Giovani E 2018 The relationship between flexible employment arrangements and workplace performance in Great Britain *International Journal of Manpower* **39(1)** p 51-70

[44] Appiah-Mfordua A, Horwitz F, Kieswetter G, King D and Solai L 2000 Flexible work practices, productivity improvement and employment *Society in Transition* **31(2)** p 95-110

[45] Schein V E, Maurer E H and Novak J F 1977 Impact of flexible working hours on productivity *Journal of Applied Psychology* **62(4)** p 463-465

[46] Esfandiari M, Zaid S M, Ismail M A and Aflaki A 2017 Influence of indoor environmental quality on work productivity in green office buildings: A review *Chemical Engineering* **56** p 385-390

[47] Wargocki P, Wyon D P, Baik Y K, Clausen G and Fanger P O 1999 Perceived air quality, sick building syndrome (SBS) symptoms and productivity in an office with two different pollution loads *Indoor Air* **9(3)** p 165-179

[48] Dorgan C E and Dorgan C B 2005 *Assessment of Link between Productivity and Indoor Air Quality* (London: E and FN Spon) p 113-135

[49] Kamaruzzaman S N and Sabrani N A 2011 The effect of indoor air quality (IAQ) towards occupants’ psychological performance in office buildings *Journal Design+ Built* **4** p 49-61

[50] Smith A J and Pitt M 2009 Sustainable workplaces: Improving staff health and well-being using plants *Journal of Corporate Real Estate* **11** p 52-63

[51] Smith A J, Fsadni A, and Holt G 2017 Indoor living plants’ effects on an office environment *Facilities* **35(9/10)** p 525-542

[52] Bakker I and Van der Voordt T 2010 The influence of plants on productivity: A critical assessment of research findings and test methods *Facilities* **28(9)** p 416-439

[53] Harris R 2019 Defining and measuring the productive office *Journal of Corporate Real Estate* **21(1)** p 55-71

[54] Haynes B, Suckley L., and Nunnington N 2017 Workplace productivity and office type: An evaluation of office occupier differences based on age and gender *Journal of Corporate Real Estate* **19(2)** p 111-138

[55] Hills R and Levy D 2014 Workspace design and fit-out: What knowledge workers value *Property Management* **32(5)** p 415-432

[56] Ma L and Ye R 2019 Does daily commuting behaviour matter to employee productivity *Journal of Transport Geography* **76** p 130-141