

## Enhancing Employee Productivity in Multinational Logistics Through Big Data Analysis: Investigating the Impact of Flexible Work Arrangements, Location, And Amenities

<sup>1</sup>Dr. Reda Salama, <sup>2</sup>Wajdi Alghamdi, <sup>3</sup>Dr. Kalaivani Balaji, <sup>4</sup>Dr. Malla Jogarao, <sup>5</sup>Prof (Dr.) Harikumar Pallathadka, <sup>6</sup>Elangovan Muniyandy

<sup>1</sup>Department of Information Technology, Faculty of Computing and Information Technology, King Abdulaziz University, Jeddah, 21589, Saudi Arabia, rkhalifa@kau.edu.sa

<sup>2</sup>Department of Information Technology, Faculty of Computing and Information Technology, King Abdulaziz University, Jeddah, 21589, Saudi Arabia, wmalghamdi@kau.edu.sa

<sup>3</sup>Assistant Professor, MEASI Institute of Management, University of Madras, Tamilnadu, India, kalaivani.balaji@measiim.edu.in, ORCID ID: 0000-0001-9095-7305

<sup>4</sup>Assistant Professor, School of Maritime Management, Indian Maritime university, Visakhapatnam, Andhra Pradesh, India, mjogarao@gmail.com

<sup>5</sup>Professor and Director, Manipur International University, Imphal, Manipur, India, harikumar@miu.edu.in,

<sup>6</sup>Adjunct Professor, Department of Biosciences, Saveetha School of Engineering, Saveetha Institute of Medical and Technical Sciences, Chennai, India, muniyandy.e@gmail.com

### ABSTRACT

In today's working environment, various organizations confront the significant challenges of productivity and performance. However, higher education institutes (HEIs) are also not free from this massive issue. Therefore, the present study investigates employee productivity and performance through work engagement (WEE) and organizational factors. The modes of study are quantitative and based on cross-sectional data. The study collects the response from academic and administrative staff from public and private HEIs of Saudi Arabia. The study applies convenience sampling and successfully proceeds 254 valid cases to conclude the findings. The applied structural equation model (SEM) path analysis demonstrates a positive and significant effect of WEE comprising vigour, dedication, and absorption factors on employee productivity (EPD). In addition, employee performance (EP) is predicted through organizational factors such as management support (MS), learning culture (LC), work environment (WE) and organizational commitment (OC). Finally, the study finds a significant and positive effect of EPD on EP among the employees of HEIs. The study findings would be guidelines for policymakers and the top management of higher education commissions to advance the knowledge and skills of EPD and EP of the organizations. The study would support achieving job tasks and goals through developing WEE and organizational factors for productivity and performance. Lastly, the findings will augment the literature and provide empirical evidence from Middle East countries. The study provides a vigorous model which connects the WEE theory and organizational factors towards EPD and EP in an integrated way.

**Keywords:** Employee Productivity, Employee Performance, Work Engagement, Organizational Factors, Higher Education Institutes, Structural Equation Model

### INTRODUCTION

Improving employee productivity has been one of the most important objectives for several organizations. This is because higher levels of employee productivity provide an organization and its employees with various advantages. For instance, higher productivity leads to favourable economic growth, large profitability and better social progress (Sharma & Sharma, 2014). Additionally, employees who are more productive can obtain better wages/ salaries, better working conditions, and favourable employment opportunities. Moreover, higher productivity tends to maximize organizational competitive advantage through cost reductions and improvement in high quality of output (Baily et al., 2005; Hill et al., 2014; Wright, 2004). All of these benefits have made employee productivity worthy of attention. Therefore, looking at its antecedents is very important to ensure organizational survival and long term success. Markos and Sridevi (2010) demonstrated that employers should consider investing in workforce engagement, because recent researches on this topic have clearly indicated that there was a positive association between work engagement and performance outcomes, such as employee retention and productivity. Certain scholars (Richman, 2006; Fleming & Asplund, 2007) added that employees who are engaged or involved with their jobs are perceived to be more productive because they are motivated toward accomplishing their work beyond any personal factors. They are also more focused than those of disengaged counterparts. Furthermore,

employees who are engaged are in most cases assumed to work more efficiently and with the aim of putting the success of the organization in their minds as a top priority.

Although several researches have emphasized about the significance of employee work engagement in driving performance and positive business outcomes, there are only few empirical evidences to support such claims (Saks, 2006). It is also noted that engagement should to be considered as a key organizational strategy that involves all the levels of an organization (Frank et al., 2004). Saxena and Srivastava (2015) reported that work engagement has become one of the main challenges/activities that need to be well managed to fulfil organization objectives. They also demonstrated that there is a need to test its effect on performance outcomes.

In fact, the issue of employee productivity has recently emerged in the literature and carries extreme significance. For instance, previous research works surrounding the topic of employee productivity in service contexts have been largely neglected (Brown et al., 2009; Filtrault et al., 1996). As such, the definition of employee productivity has been hard to conceptualize and measure. For instance, the common definition of productivity has mainly emphasized on the ratio between input costs and output value, despite existing associated implications that it could depend on the nature of business. Overall, there appears to be an ambiguity in conceptualizing, measuring, and testing the antecedents of employee productivity. Hence, this study aims to test the effect of work engagement on employee productivity in Malaysian higher education sector to cover existing gaps in the literature. The next section presents the literature review concerning previous research on employee productivity and work engagement. It also explains the possible link between both variables.

## **LITERATURE REVIEW**

### **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].

### **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 are used in this research are flexi time, compressed work week, telecommuting, and part time work. Such practice is similar with previous research [1].

### **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 assists 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].

### **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].

### **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

### **Methodology**

This study followed the quantitative approach for collecting the relevant data from respondents. In particular, an online survey was administered to 870 administrative and academic staff at public universities in India. The measurement scales of constructs were adopted and adapted from previous studies to ensure that the respondents can easily understand them and suit the context of this study. As stated above in the literature review, work engagement is composed of three dimensions, namely Vigor, dedication, and absorption. All of the aforementioned dimensions were measured using the scale developed by Schaufeli and Bakker (2003); Vigor (three items), dedication (five items), and absorption (four items). Furthermore, employee productivity was measured using five items taken from the studies of Chen and Tjosvold (2008); Lee and Brand (2010). All the items were measured on five-point Likert scale ranging from “1=strongly disagree” to “5=strongly agree”.

The collected data was analysed on structural equation modelling (SEM) using AMOS 18. A number of tests such as Cronbach's alpha reliability, convergent validity, face validity, factor analysis, and regression were conducted to generate the outcomes of this study. The measurement model incorporating the resulting re-specified scales is then subjected to confirmatory factor analysis. After that, the structural model was assessed for model fit and to test the individual hypotheses. Structural equation modelling is used due to its strengths in yielding accurate and reliable results. According to Chin (1998), SEM is flexible in modelling the relationships between predictors and criterion variables.

Additionally, SEM is the preferred method to test causal relationships between any two or more Variables making it easy to articulate research hypothesis (Gunzler et al., 2013)

## ANALYSIS OF RESULTS

The results of respondents' profile are presented in Table 1. As it can be seen in the table, 65 (26.9%) of the participants are male, while 177 (73.1%) are female. On age profile, the majority of the participants (50%) belong to the age group of 26 to 35 years old, followed by the age of 36 to 45 years that is represented by 21%. Those whose ages between 18 and 25 years accounted for 2.9% of total response, and only 16 (6.6%) were 46 years and above. In terms of education, this study has 36 (14.9%) holders of diploma, 79 (32.6%) staff who have undergraduate degree, 125 (51.7%) with postgraduate certificate, and 2 (0.8%) with acquire other certificates. The majority of respondents (69%) had more than 5 years of working experience.

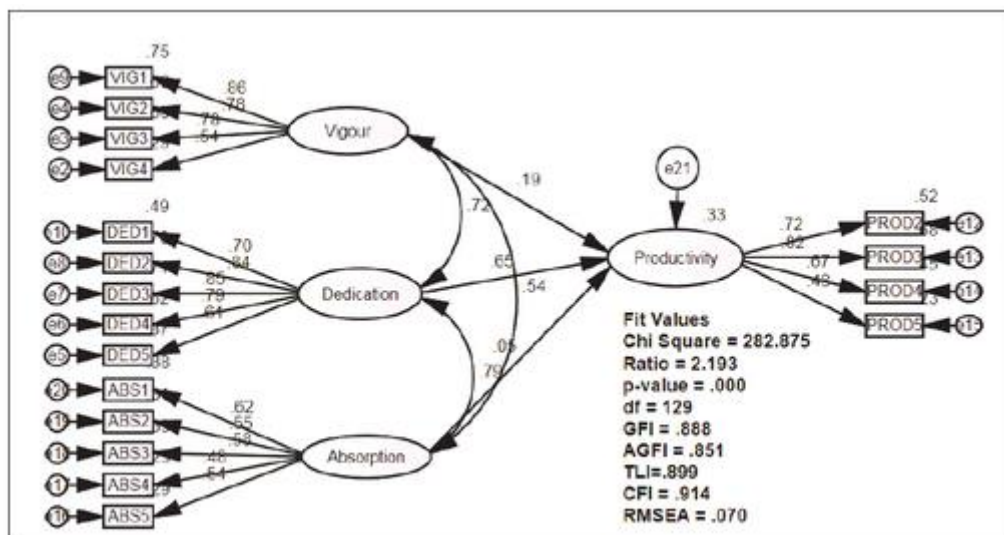
Table 1: Respondents' Profile

Code	Category	Frequency	Percent
Gender	Male	65	26.9
	Female	177	73.1
	<b>Total</b>	<b>242</b>	<b>100</b>
Age	18-25 Years	7	2.9
	26-35 Years	121	50
	36- 45 Years	98	40.6
	46 Years and above	16	6.6
Qualification	Diploma	36	14.9
	Undergraduate	49	32.6
	Master	74	30.6
	Doctorate	51	21.1
	Others	2	.8
Work experience	1 years – 2 Years	23	9.5
	Between 2 years and 5 Years	40	16.5
	More than 5 years	167	69

Moreover, the reliability analysis was conducted on all variables using Cronbach's alpha. The findings revealed that the Cronbach's alpha values are satisfactory ranging from 0.755 to 0.882. Specifically, employee engagement achieved a Cronbach's alpha value of 0.882. The dimensions of employee engagement were also reported at high reliability Cronbach's alpha; Vigor (0.812), dedication (0.867), absorption (0.758). Similarly, employee productivity recorded a Cronbach's alpha value of 0.755.

Therefore, it can be concluded that the values of Cronbach's alpha for all variables are acceptable and satisfied the minimum requirement as suggested by Pallant (2007). Factor analysis was also conducted on all variables to ensure that each set of items are measuring what they are supposed to measure. It was also conducted to ensure the existence of convergent and content validity. As all the measures were adapted from previous studies, confirmatory factor analysis (CFA) instead of exploratory factor analysis (EFA) is done. The procedure for conducting the analysis was done using AMOS 18 through the measurement model which comprises all items together in one model. The results indicated that the factor loading for all items ranged from 0.48 to 0.86. Based on these results, it can be said that all items achieved the recommended value as suggested by Hair et al. (2010). Therefore, factor analysis is satisfactory for all constructs.

After ensuring acceptable factor loadings for all items using the measurement model, the structural model was then drawn. The main purpose of structural model is to ensure the goodness of model fit through a number of criterion values. As it can be seen in Fig. 1, the structural model achieved a reasonable fit for the data. Specifically, the value of Chi-square is equal to 282.875. Other fit criteria (df = 129, GFI = 0.888, AGFI = 0.851, TLI = 0.899, CFI = 0.914, and RMSEA = 0.070) were also used to provide further support for the chi-square and ensure that the assumptions of model fit are achieved. From these results, it can be concluded that the model reasonably fit the data.



## DISCUSSION

The rationale of this study was to examine the effect of work engagement and its dimensions on Employee productivity at public universities in India. The findings indicated that work engagement has a significant positive effect on employee productivity. It is also found that all dimensions of employee engagement (vigor, dedication, and absorption) have significant positive effects on employee productivity. The result was supported by previous studies which reported that work engagement plays an important role in driving employee productivity. Markos and Sridevi (2010) J. Hanaysha et al. / Management Science Letters 6 (2016) demonstrated that employees who are not engaged at their workplaces are most likely to waste their times on tasks that have low priority and fail to show their full commitment to do their tasks. Moreover, a number of studies reported that engaged employees tend to exhibit emotional job attachment and higher productivity (Abraham, 2012; Shuck et al., 2011).

Overall, this study provides empirical evidence that work engagement has a significant positive effect on employee productivity. Therefore, employers should put sufficient emphasis on work engagement and frequently evaluate the progress of their employees to ensure the welfare of their organizations. Besides, employers across public educational institutions are advised to conduct frequent surveys from time to time to clearly understand the level of work engagement among their employees and their satisfaction about work environment. Such activities would enable them to develop the suitable strategies for overcoming any issue. For example, the acquisition of talents is a good strategy to ensure effective recruitment. Moreover, providing sufficient resources those including financial, physical, or materials are necessary to reinforce employee productivity. It is also suggested that employers should adopt the two-way communication strategy between them and their employee to allow the employee share some ideas about their jobs and any issues that may affect their productivity. With such emphasis, it is believed that employee will be more engaged in their works and have higher inspiration to be productive.

Although the current study has presented some useful insights into the causal relationship between work engagement and employee productivity, it can be acknowledged that there are some limitations and suggestions to be considered in future researches. First, the participants of this study are only limited to administrative and academic staff working at the public universities in India.

This may hinder the generalizability of the findings of this study to other industry contexts. Therefore, future research should replicate this study by sampling employees from different industries with larger sample sizes. Second, this study has relied on a cross-sectional design where the data was collected from participants using survey method. Given this limitation, it is suggested that future research should investigate the antecedents of employee productivity using longitudinal research designs and methodologies. Finally, this study examined only one antecedent to employee productivity, hence, future research is suggested to test the effect of other human resource practices on employee productivity such as work specialization and leadership style.

## 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 this 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 minds 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.

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