Investigating the Relationship between Information System Usage and Employee Job Performance Among Staff at a Local Government Office in Malaysia

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Abstract: Employee job performance is part of crucial elements to increase company performance. Thus, this paper investigates the relationship between information system usage and employee job performance among staff at a local government office in Malaysia. Information system usage is measure for two elements; Information quality and System quality. Four elements were used to measure system quality namely integration, correctness, response time and reliability. Information quality was measured in term of accessibility, completeness, timeliness, relevant and accuracy. Meanwhile, seven elements for employee job performance were tested including productivity, timely, quantity, quality, efficiency, creativity and creating new ideas. By using stratified random sampling technique, a survey was conducted among 181 staff through the use of self-administered questionnaires. The data was analyzed by using statistical method Smart PLS. The result indicates that there was a significant relationship between information system usage and employee job performance. Hence, a company need to focus on information and system quality to ensure the employee's job performance increase and contribute to the survival of company in competitive environment.

1 INTRODUCTION

Evaluating employee job performance from information system usage has been an ongoing activity in information system research. Yaser, Alina and Nor (2014) has categorized seven elements of information system; people as IS user, the use of software and hardware, the communications tools, types of networks, the data resources, and existing policies and procedures that process the information in an organization. Information system is described as a knowledge intensive setting where IS professionals involved in frequent knowledge sharing activities with collegues, and discussion of information, knowledge and solution in a timely manner (Deng and Chi, 2015). According to Imran (2014), employee work behavior and performance is closely related to the use of technology-based systems. Employees who find information that relates to the job and use information system to complete their task effectively will have a better performance.

Past research on this topics revealed different results that identify various and unique relationship between IS and employee job performance range from positive to non-significant, to even a negative relationship. Goodhue and Thompson (1995) found a positive relationship between information system and individual job performance. Conversely, Pentland (1989) found a negative relationship. Meanwhile, Lucas and Spitler (1999) found that information system has no impact on individual job performance.

Having better productivity contribute a lot of benefits, either for the country, organization or individual through higher revenues or incomes, enhanced reputations and less wastage of resources. However, Malaysia Productivity Corporation (2016) currently claimed that labor productivity level was still at low rate compared to global frontier (USA). Hence, this research was conducted to investigate the relationship between information system and employee job performance at one of the local government office in Malaysia.

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2 LITERATURE REVIEW

Previous literatures look into how information systems influence on the employee job performance and productivity. This topic had become one of the great interest to many researchers to study types of relationship existed between these three variables. As a lot of works nowadays depend on the usage of information system, the information system availability and reliability is crucial to ensure the employee may perform their job well. User satisfaction is highly depends on the system quality leading to positive impacts on individual productivity or performance (Delone & Mclean, 2003). System quality is measure in terms of integration, correctness, response time and reliability. Meanwhile, information quality is measure in term of accessability, completeness, timeliness, relevant and accuracy (Delone & McLean, 2003).

Besides that, others researchers also discussed on the impacts of information systems on individual job performance. A theoretical model has been introduced by Stone et. al. (2006) shows an interrelationship between the quality of information, system and organizational performance with system ease of use and lead into increase or decrease individual job performance. Meanwhile, Bejjar & Younes (2013) found that the measures of the quality of information and system affect the tasks performed by the user. They study the relationships between information system and user performance by investigating several variables including system use, system quality, information quality and user performance. They indicated that the above factors affect user performance positively and has the strongest direct effect on individual job performance.

The use of information system will affect the employee when performing their task, and these individual impacts cooperatively result in organizational impact (Mclean, 2003). Information system has given the employee a better understanding of their task, coordination between co-worker and the decision making, improved in productivity, and change user's perception of the information system usage has importance influence on employee job performance. Direct positive result on individual performance was identified as perceived impact of computer system usage on decision making quality, performance, productivity, and effectiveness of the job (Hou C.K., 2012).

According to Ajoye & Nwagwu (2014), two factors that indirectly influence were by human and organizational factors. Therefore, measurement of information system impact and it success is a tough processes. System quality significantly related to user satisfaction of a management information system. The influence of system quality on user satisfaction was very strong and required a critical system analysis and proper adjustment to maximize users experience and satisfaction.

Using DeLone and McLean model refers to the both quality of data components and software to the system components that support the end-user and the way they interact with the system. There is a positive impact on the system quality with intention to reuse IS (Zaremohzzabieh, et al., 2016). Furthermore, according to Al-Mamary, Alina & Nor (2014), system quality has positive association with information quality, and information quality is positively associated with organizational impact that finally affect employee performance and lead to organizational impact (employee satisfaction).

Besides, Bharati & Chaudhury (2006) claimed that system quality and information quality, either singularly or jointly, impact use and user satisfaction. Their research model was based on the information system success model and employs some of the constructs of that model specifically at the technical level of system quality and information quality. This is because; user satisfaction can influence the intention to use information system that lead to the employee performance in performing their work in an organization and can make them do the right decision making.

According to Bejjar & Younes (2013), information system quality has direct and indirectly effect on individual performance with a strong direct correlation. Integration and system reliability were the most important elements contribute significantly to individual performance. Consistent with previous studies, the result of the study indicates that the impact of information quality on individual performance is positive and significant. This study has shown the importance of these qualities on individual performance.

2.1 Research Framework

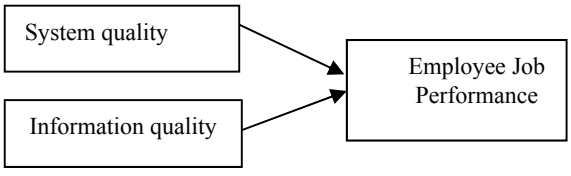

Figure 1: Information system.

Based on literature review and conceptual framework, hypotheses can be concluded into:

H1 There is a positive relationship between system quality and employee job performance.

H2 There is a positive relationship between information quality and employee job performance.

3 METHODS

This study was a quantitative research and was carried out based on correlational research. The unit of analysis was individual employee that currently worked at one of local government office in Malaysia. A total of 181 questionnaires were distributed and returned using stratified random sampling through self-administered questionnaire. The measurement for each independent variable and independent variable of this study were adapted from previous studies using Five-Point Likert scale, ranges from strongly disagree to strongly agree accordingly, Strongly Disagree=1, Disagree=2, Neutral=3, Agree=4 and Strongly Agree=5.

4 RESULTS AND DISCUSSION

4.1 Construct Validity

This type of analysis is conducted to measure the items used in the instrument, whereby the existence of acceptable level of items used in the model was equal to construct validity (Hair et al., 2014). The model validity of the measurement was assessed for both convergent validity and discriminant validity. If the indicators of one construct converge or share a higher proportion of variance refers to convergent validated and vise versa. The calculation of factors loadings, average variance extracted (AVE) and composite reliability (CR) for all items shows validity in the model.

The quality of the measurement model was assessed by examining convergent validity includes factor loading, average variance extracted (AVE), composite reliability (CR) as well as discriminant validity which is suggested by Hair, Ringle & Sarstedt, (2011) as a rule of thumb for model evaluation. Results show that indicator loadings for all items exceeded the recommended value of 0.6 (Hair, Black, Babin & Anderson, 2009). AVE were in the range of 0.535 and 0.639, which is above the recommended value of 0.5, and CR ranged from 0.850 to 0.925 which exceeded the recommended value of 0.7 (Hair et al., 2009). The results are shown in Table 1. Moreover Robustness of the model is verified through Collinearity statistic **(**VIF) which is significant (<5).

Table 1: Result of convergent analysis.

Constructs	Items	Loadings	AVE	CR	VIF
System Quality (SQ)	B1	0.775	0.567	0.797	1.244
	B2	0.763			
	B4	0.720			
Information Quality (IQ)	C1	0.645	0.535	0.850	1.244
	C4	0.601			
	C5	0.773			
	C6	0.826			
	C8	0.786			
Employee Job Performance (JP)	D1	0.762	0.639	0.925	
	D2	0.920			
	D3	0.831			
	D4	0.734			
	D5	0.865			
	D6	0.720			
	D7	0.742			

4.2 Discriminant Validity

The discriminant validity of the measurement items was tested through the criteria suggested by Fornell and Larcker (1981). Figures highlighted in Table 2 represent diagonal elements displays the correlation matrix square root of the AVE extracted from the variables. Findings indicate there is adequate discriminant validity since the diagonal elements are significantly greater in rows and columns than the off-diagonal elements.

Table 2: Result of discriminant validity.

Construct	IQ	JP	SQ
Information Quality (IQ)	**0.731**		
Employee Job Performance (JP)	0.604	**0.799**	
System Quality (SQ)	0.443	0.707	**0.753**

Note: Values in the diagonal (bold) are square root of the AVE while the off diagonals are the inter construct correlation.

4.3 Hypotheses Testing

The hypotheses of this study were tested using structural equation modelling by examining the path coefficients to identify the relationships of variables rather than using traditional regression coefficients (Gefen, Straub & Boudreau, 2000). Path coefficients indicate the strengths of the relationships among variables, while the R^2 value shows the degree of predictive power of a model for dependent variable. Moreover, t-values of the parameter refers the strength of the relationship; therefore, the higher t-value equal to stronger relationship (Hair at el., 2014). Subsequently, the t-values of each coefficient were obtained by using the bootstrapping resample technique (Chin, 2010; Efron & Tibshirani, 1993). Figure 2 represents the results of the analysis.

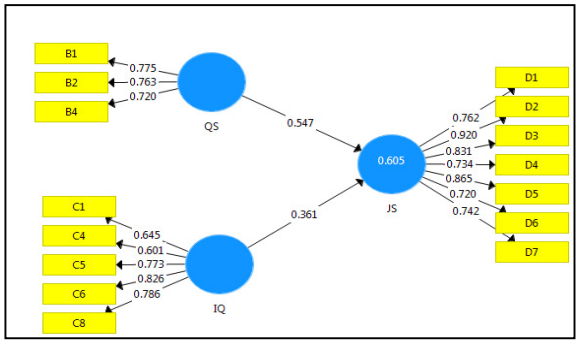

Figure 2: Structural model.

This study has developed two hypotheses and tested using path analysis from the research model. The result for R^2 is 0.605, indicates 60.5 percent of the variance can be explained in the extent of information quality and system quality. Based on path coefficient and t-value results show that H1 and H2 are both supported which refers to System Quality and Information Quality were positively influence Employee Job Performance at significant level of $p<0.05$ (See Table 3).

Table 3: Hypotheses testing.

Hypothesis	Relationship	Std. Error	T values	P values	Result
H1	SQ -> JP	0.052	10.451**	0.000**	Supported
H2	IQ -> JP	0.038	9.426**	0.000**	Supported

*Note: Significant if the t-value is greater than 1.645 (*p<0.05)*

The above table summarizes the results of the best-fitted model and explains the direct relationship between exogenous variables and endogenous variable. Two exogenous variables refers to system quality and information quality, have a direct significant effect on employee job performance (JP). The result indicates that information quality (*t-values=9.426*) and system quality (*t-values=10.451) has a* significant relationship with employee job performance. Thus, the H1 and H2 of this study were supported.

The employee's job performance will be better if the system can support employee's task effectively and efficiently. Goodhue et al. (2000) also found that when a system has the features needed to accomplish a task, better performance is achieved. More specifically, the study shows that information quality and system quality have significant impact on their performance.

5 CONCLUSIONS

The result found that there was a significant positive relationship between Information System and Employee Job Performance. It also supported by Abugabah, Sanzogni, & Poropat (2010), the relationships between Information System and user performance by investigating several variables including system use, system quality, information quality and user performance. They indicated that the above factor affect user performance positively and has the strongest direct effect on individual performance.

The system quality plays an important role in improving the performance and increase the volume of users work. Thus, the company need to constantly update and upgrade their systems to ensure that the system support the employees to get information efficiently. The company should also provide training to employees to equip them with up-to-date information and can fully utilize company's information system. Therefore, the employee may serve customers better with excellence services.

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