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EMPLOYEES' COMPUTER COMPETENCY: EVIDENCE FROM GOVERNMENT DEPARTMENT

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Abstract: *The advancement of technology requires people to adapt with the changes in the working environment. The workers need to be able to use computers in their daily life, so that they can speed up the process of completing tasks efficiently. It was reported that Malaysian labour productivity experienced negative growth in 2020 due to lack of understanding on ICT among employees. A brief survey at a government organization reveals that most of the staffs were incompetent in using computer efficiently. They are experiencing some issues with computer system such as security problems, storage disk error and backup files problems. Ultimately, these issues lead to decreasing of productivity among the staff. Therefore, the objectives of this study were to identify the level of computer competency, individual factor, training, and computer experience among employees and to measure the significant difference of gender on employees' computer competency. As for the purpose of data collection, self-administered questionnaires were utilized by using stratified sampling. The results show that the level of computer competency, training and computer experience among employees were at a moderate level, while individual factors were found to be high. Additionally, it was found that no significant difference between male and female employees on computer competency. Based on the findings of the research, some practical suggestions have been put forward.*

Keywords: *Employee, Computer Competency, Individual Factor, Training, Computer Experience*

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Introduction

In the early 1980s, a major shift in technology occurred when businesses began to reassess business and work processes. To avoid redundancy, the utilization of computer technology unavoidable in an organization. The ability to use computer applications, internet and other information technology resources safely in a workplace is crucial to become a contributing member of society. According to the U.S. Bureau of Labour Statistics (2012), over half of the jobs needed some technology capability. Technological capability has been described as the firm's ability to design and develop new processes, product and upgrade knowledge and skills about the physical environment in a unique way and transforming the knowledge into instructions and designs for efficient creation of desired performance (Ortega, 2010). In Malaysia, lack of understanding in ICT tools among employees caused the decrease in labour productivity (Department of Statistics Malaysia, 2020). It is the matters to the economy, when people lack key skills, it becomes difficult to introduce productivity-enhancing technologies and new ways of working, which in turn stalls improvements in living standard.

In the age of the Fourth Industrial Revolution, online skills are more important than ever before. Digital technology permeates every aspect of our lives. It is part of many day-to-day activities and just about every job in every industry requires digital know-how of some kind. Yet many people struggle with it. Senior staff without computing experience were afraid to use computers and had difficulty understanding computer applications in English (Kamarudin & Jusoh, 2013). A brief survey at a government organization also reveals that most of the staffs were incompetent in using computer efficiently. They are experiencing some issues with computer system such as security problems, storage disk errors and backup files problems. Ultimately, these issues lead to decreasing of productivity among the staff.

Numerous studies were found on computer competency. However, there is lack of research were done specifically on employees in government department. Thus, this paper aims to identify the level of computer competency among employees in Malaysia. Besides, the level of individual factor, training and computer experience are also identified. This study also aims to measure whether gender has significant difference on employees' computer competency. As for the purpose of data collection, self-administered questionnaires were utilized by using stratified sampling. The findings will eventually assist government to manage their staff so that they will effectively perform their task efficiently. In general, the first section of this paper begins with an overview of the computer competency. Then, the second section highlights previous research on variable in this study. The following section presents the results and discussions, followed by a conclusion in the final section.

Literature Review

Computer Competency

The accelerated pace of technological advancement forces well-established organizations to foster both the technological and strategic facets of digitalization, and preserving a competitive edge requires both the adoption of the right digital technology and the development of employee technological competencies (Blanka, Krumay and Rueckel, 2022). If employees such as academic personnel explore various ICT tools or resources, their computer competency will increase and this will promote the computer's efficient use in teaching and learning (Ezugoh, Ifesiokwu and Eze, 2022). Moreover, Okeji, Tralagba and Obi (2019) identified employee competences in dynamic online work environments, including document uploading, email sending and receiving, and search abilities. When competences are viewed in this manner, the

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emphasis shifts from "what" to "how" an employee must carry out the appropriate activities that were assigned in order to maintain organization from the employer's perspective. In light of ratings, computer digital literacy improves in terms of knowledge and proficiency.

Individual Factor

According to the theory behind the study of human-computer interaction, the qualities of both the computer system and the user have an impact on how people and machines interact (Card et al., 1984; Shneiderman, 1980). In the context of computer competency and digital work, employee creativity is encouraged (Cai et al., 2020). Battistelli et al. (2019) indicates a positive association between individual knowledge learning and creative behaviour, which fosters high levels of creativity among employees. The results reveal that the perceived employee gains knowledge from a variety of tasks. To become computer competent, an employee impulsively involves self-directed use of learning possibilities; however, due to economic and geographical circumstances, an individual cannot be proficient in updated technological methods for personal and professional purposes. In these situations, self-education and development are becoming the unique method to learning (Sumuer, 2018), which can support as an enabler of computer competency.

Training

Through training programmes for computer competencies, employees will get knowledge of the current technologies utilized in the workplace. In this practical course also, employees will gain computer literacy while learning how to utilize the internet efficiently and access, create, save, and manage documents, spreadsheets, and emails (Perdiguerra and Guillo, 2019). Kanbul et al. (2022) asserted that regardless of the skill levels or prior computer training, there are no barriers to computer technology training among teachers or employees for professional growth. Thus, the government (both Federal and State) should pay more attention to the ICT training needs of the academic staff by allocating adequate budget and financial support for staff continuous training and retraining in the areas of computer fundamentals (Ezugoh, Ifesiokwu and Eze, 2022).

Computer Experience

Experience with computer programming and graphics applications have experienced significant and strong effects on computer self-efficacy beliefs (Hasan, 2003). However, people find it challenging to accurately self-report their computer experience because they lack a valid comparison point. It is possible that individuals with high levels of computer self-efficacy would overestimate their level of experience (Wilfong, 2006). The digital or computer experience among employees is one of the results of pervasive digital transformation in the workplace. It has completely changed the way organizations operate by reorienting the emphasis away from managers' demands and toward the needs of all employees and their experiences at work (Gheidar and ShamiZanjani, 2020). Further, Skulski (2020) contend that computer experience and technology influence the environment and human relationships as a cultural system. From a systems viewpoint, technology includes technical support systems (software), capital technology, and knowledge sub-systems (hardware) (Afriyie, 1988). The experience in these systems will affect the computer competency among employees.

Methodology

The respondents of this study were government officials in one of the District Education Offices (DEO), Ministry of Education. The DEO only has 55 employees and all of them were using computer in performing their tasks daily. This study concentrated at an individual level. The

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purpose of this study is to identify the level of computer competency among employees. Other than that, the level of individual factor, training and computer experience are also identified. This study also aims to measure whether gender has significant difference on employees' computer competency. The focused population was 55. Therefore, the minimum sample size required for this study, according to Krejcie and Morgan (1970), must be 48. Hence, this study managed to get 48 respondents or 100% from the required sample size. With a reference to Roscoe (1975) suggested that the suitable sample size is larger than 30 and less than 500 for most studies.

Self-administered questionnaires were used for the purpose of data collection. Using stratified sampling, participants were guaranteed confidentiality and were informed that there is no right or wrong answers for the questions. In this study, all constructs were measured using established measures drawn from earlier studies. A 5-point response scale was used for all items, from 1 = strongly disagree up to 5 = strongly agree. The 5-point response scale was used by considering Chomeya's (2010) notion that the scale gives an opportunity for the respondents to answer the middle scale, which is '3' because they might think that answering the 'neutral' answer did not affect any disadvantages to data analysis of the research.

The skewness values for all variables were within the range of -0.665 to -0.565 and considered acceptable as pointed out by Sharma and Ojha (2020). For the kurtosis values, all fall within the acceptable range of data to be normally distributed which is -2 to +2. The values were within -0.351 and 0.249. Since the measure of skewness and kurtosis were within the appropriate cut-off values (Sharma et al., 2020), it can be concluded that the data distribution is normally distributed. The reliability of each construct was also examined to ensure internal consistency. These constructs have never been explored previously in studying computer competency among employees from this organisation, so, the primary concern is building internal consistency or the extent to which the items consisting of one another are united. The Cronbach's alpha coefficient was used to test for internal consistency. According to Nunnally and Bernstein (1994), the appropriate Cronbach's alpha coefficient for internal consistency must be above 0.7, while items rated below the recommended alpha level of 0.7 must be removed so that construction reliability can be improved. All constructs used in this study have achieved the acceptable level of reliability. First, there were 5 questions about computer competency (dependent variable) which showed high reliability with the Cronbach's alpha value at 0.876 which was in the range of 0.8 < 0.9. The value of Cronbach's alpha was very good and all the questions under this section can be accepted and positively correlated. There were five questions to measure individual factor in this research questionnaire. The value of Cronbach's alpha for this section was 0.537. The value of Cronbach's alpha for the next independent variables, computer training was 0.700 and 0.830 for computer experiences. Since all the constructs under investigation were above 0.70 except for individual factor, hence given all the benchmark, the constructs were found to be reliable.

Results And Discussion

Frequency Analysis

Regarding the respondents' gender, 52% were male while 48% were female with a majority of the respondents were between the ages of 51 to 55. Other than that, 66.6% of the respondents were bachelor degree holders, 18.8% were diploma holders while 12.5% and 2.1% were SPM and PhD holders respectively. From the population, it was found that a majority of them (51.3%) were employees from the Academic unit, followed by those from the School

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Management unit with 29.9%, the HR unit (16.7%) and the Counseling (2.1%). Finally, most respondents were found to have 6-10 years of work experience with 43.8%, followed by less than 5 years (35.4%), 11-20 years (18.8%) and more than 21 years (2%).

Descriptive analysis

Mean score of computer competency

In determining the level of computer competency among respondents, they need to answer five Likert-scale questions. The mean score for computer competency was 3.48. According to Terano (2015), values ranging from 2.50 to 3.49 are considered a moderately acceptable category. Therefore, the mean value for computer competency is between this range and this level is considered an acceptable category. There are two highest mean scores corresponding to the statements "I always use Microsoft Word" and "I am computer literate" with the mean score of 4.38 and 3.77, respectively. From these findings, it can be concluded that employees felt that they are computer literate as they always use Microsoft Word in performing their task. Only a minority in this study were not sure of their computer skills and were believed to be those who lack computer skills, especially those aged between 51 years and above. It was assumed that employees who have a lower level of computer proficiency have more impact on their productivity at work. In Van Deursen and Van Dijk's (2012) study, a selected participant worked with a computer every day for six hours and two minutes. On average, computer efficiency issues put them 12 minutes and 13 minutes behind production time.

Mean score of individual factors

The mean score for individual factor was 4.15. The highest mean score was 4.54 which refers to the statement "Using computers in my job increases my productivity" and "Using computers enhances my effectiveness in my job". It means that most of the respondents agreed with individual factor as a factor that will lead to computer mastery. The results were acceptable where it was based on the experience of a few employees who may have concerns about using computers and have a low attitude towards computers, especially employees aged 51 and over. They feared using the computer and felt anxious if they touch the wrong button. This is consistent with previous findings from Kamaruddin & Jusoh (2008) pertaining adults' perceptions of computer literacy classes revealed that ones with low computer attitudes disliked using computers and concerned about computers that may create technical errors and always left behind in class.

Mean score of training

For computer training, the mean score was 3.26. The highest mean score was 4.06 which refers to the statement "My staff is helpful in teaching me about computers". It means that most of the respondents agreed that assistance from other employees such as colleagues and technician will motivate employees to use computer. The second highest mean score was 3.02 with the statement, "Computer training is available and conducted to all employees". It can be concluded that employees preferred computer training to be conducted with the help of people who are experts in helping them master computers to perform their tasks. This is in line with the views of Winter et. al. (1997) that a course must be created by the vendor or IT staff within the company to improve computer skills.

Mean score of computer experience

Lastly, to look at the respondents' response on computer experience, respondents need to answer five Likert-scale questions. The mean score for computer experience was 3.40 which

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represented similar moderately acceptable result with a study by Devalawattee (2018). The highest mean score in computer experience was 4.15 to the statement of "I can make a backup copy of key applications and documents". This means that most respondents have experience and computer skills that help them use certain functions in computers. Although Kamaruddin & Jusoh (2008) asserted that the English language used in computers and applications is always considered difficult to understand by most participants who follow computer literacy classes, they have computer experience as an element to encourage them to use computers efficiently.

ANOVA

To identify the difference between male and female employee on computer competency, ANOVA and Measures of Association were executed as measured by Salleh, Hamid et al. (2022) in studying online learning between male and female students. The result was shown in Table 1.

Table 1: ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
COMPETENCIES_COMPUTER *gender?	Between Groups (Combined)	.643	1	.643	.907	.346
	Within Groups	32.579	46	.708		
	Total	33.222	47			

From Table 1, p-value was greater than 0.05 representing insignificant effect between male and female employees with regards to computer competency. It means that there is no difference in computer competency practices between male and female employees with the Eta squared value for gender and computer competency was 0.12 representing small effect (McLeod, 2019). This can be explained because the level of ICT training and computer use was the same regardless of gender. In fact, past studies (e.g., Baturay, Gökçearslan et al., 2017; Eastman & Krendl ,1987; Scherer & Siddiq, 2015) have confirmed that gender factor does not influence computer competency and emphasis on daily computer use to positively affect computer proficiency (Baturay et al., 2017). However, Goktas et. al. (2009) found that gender significantly affects computer proficiency. Likewise, computer proficiency among teachers was reported to have changed significantly to their gender (in favour of men), computer ownership and access to computers (Russell and Bradley, 1997).

Conclusion and Future Direction

The level of computer competency was at moderate level because there are some employees who are lack of computer skills specifically senior staff that aged between 51 and above. Additionally, the level for individual factor is high while the level for computer training and computer experience is moderate. The most contributing factor for computer competency among government staff is individual factor. This was due to the fact that senior employees experienced computer anxiety and low computer attitudes. Clearly, a high level in individual factor plays a main role on employees' computer competency that contributes to decreasing of productivity. Still, there are other potential factors that need to be addressed by future researchers in evaluating computer competency among employees in government sector. Besides that, future studies can be conducted in bigger context or scope that could represent government employees in Malaysia. Since the study was conducted in a department, whether the findings are generalizable to all government employees would need to be validated by

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studies conducted on all government sectors in Malaysia. Eventually, the findings will assist government to effectively manage their staff so that they will perform their task efficiently.

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