The Effect of Technological Changes on Employees' Work Performance Among Non-Academic Staff

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ABSTRACT

Technological changes are important in improving performance as well as increasing productivity of the employees. The state-of-the-art technologies help placing organization a better position to face competitor and stay relevant through this technological advancement era. In this rapid changing of technologies, employees should fully utilize this opportunity to improve work performance and be able to adapt with these changes to raise their standard work performance. However, not all employees can cope with the changes of new technology in their organization and it is feared that such behaviour can influence job performance, since majority of the employees (non-academic staff) comprises of older generation workers who are against or resistant to this change. The purpose of this study was to determine the relationship between technological changes and employees' work performance. Quantitative data was collected using a self-administered questionnaire that consisted of items with five-point Likert scale. A total number of 250 non-academic staff was identified from the Administrative Department of Universiti Teknologi MARA (UiTM), Kelantan Branch. A stratified random sampling technique was applied as to ensure that the strata (or layers) in the population are fairly represented in the sample and 100 respondents were later determined. The questionnaires were then distributed randomly to 100 respondents from 10 different non-academic departments in UiTM

Kelantan Branch. Result of the findings showed that training of new technology is the most affecting dimension of technological change that affect non-academic staff of UiTM Kelantan Branch. It was also found that New Working Method and Training of New Technology have strong relationship with employees' work performance. However, Acceptance has no relationship with employees' work performance. It is therefore recommended that a new model for the independent variable should be developed by future researcher.

INTRODUCTION

A widely endorsed definition of work performance from Campbell (1993) stated that work performance is behaviours or actions that are relevant to the goals of the organization. Three views go along with this definition; first, work performance must be defined in terms of behaviour rather than outcomes. Second, work performance contains only those behaviours that are related to the objective of the organizations, and lastly, work performance is multidimensional. In the meantime, individual work performance is a hot issue and plays a vital function in our day-to-day workplace, in popular media, and in multiple fields within the scientific world, such as occupational health, work and organizational psychology, and management and economics (Koopmans, 2014), and therefore became popular and interesting topic because of ongoing globalization of the economy.

Economic globalization is the rise of economic integration and interdependence of national economies around the globe through a fast growth in the cross-border movement of capital, goods, technology, and service. As a result, this situation escalates competition among firms from around the world. Thus, competitive ability of companies needs to be maintained or improved. In this case, the world of rapid high-technology changes and technological advancement will continue to

accelerate the future (Muhammad et al., 2014). Technological advancement changes the organizational policies and strategies (Hampel & Martinsons, 2009) and Ahmad (2015) also mentioned that organizations are at potential risk of lagging behind competitively in this present era if they fail to advance their technology.

In addition, Klein and Poulymenakou (2006) stated that large corporations with managerial, financial and technological advantages tend to profit from their ideas, trademarks, expertise and technological innovations while contracting out the production. Organizations that decide to engage with new technology for these reasons: cost reductions; productivity improvements; increased quality; deducted dependence on skilled labour; being up to date; staying competitive; because new technology is interesting (Dawson, 2012).

Technological change could affect work performance in an organization. For instance, Drucker (2001) found that information and communication technology and the Internet do not only affect IT professionals and those employees that use IT for their work on a regular basis but also generate changes in the organization's environment, the organization itself and the "social universe". In any organization, most of the challenges are generated by competition, advanced technology, enhancing employee efficiency and rapid growth, new leadership and management (Madsen et al., 2005).

Ndubisi et al. (2003) explained that perceived ease of use of technology has been shown to be an important factor in the studies of information technology acceptance. The majority of people will find that the system is easy to use if they are familiar with the equipment and they agree that interacting with the system is clear and understandable and hence, improve work performance.

Human resources' performance is directly connected to technological changes and technological innovation. Human resource joint approach could help in managing technological change effectively. Great technological breakthrough can be innovated and achieved by individuals. However, the complexities of modern technology need effective combinations of various innovations through different aspects of technology (Dauda & Akingbade, 2011).

For many years, disputes in regard to whether technological change in an office environment will affect employee performance exist. Changes in the workflow for both private and public sectors in Malaysia have been driven by tremendous escalation in the use of information systems (Ramlah, Nor Shahriza, & Mohd Hasan, 2007). Today, employees should fully utilize the technological changes that are also needed to improve employee performance, where an employee must be able to adapt with these changes to raise their work performance for it to reach market standard performance. As stated by Hasan and Nadzar (2010), from rapid escalation and development of technology, also use of information in business, administrative support professionals must be experts in understanding and utilizing technological innovations as well as producing higher administrative and informational functions than they have previously.

Many studies have suggested that improvements in information technology does increase work performance. Information technology offers the potential for substantially improving white collar performance (Curley, 1984; Edelman, 1981; Sharda, et al., 1988).

In addition, Gallivan (2004), stressed that not all employees can cope with rapid changes of new technology in their organization and it is feared that such behaviour can influence job performance, since majority of the employees comprises of older generation workers who are against or resistant to this change. Moreover,

performance gains are often obstructed by users' unwillingness to accept and use available systems (Bowen, 1986; Young, 1988).

Hence, there is still an issue that has been going on, that is, what if, the employee wouldn't adapt to the changes? The same issue has been addressed and researched in India. However, in Malaysia, there is still less research regarding this matter to date. In Malaysia, Hasan and Nadzar (2010) has conducted a research related to this issue and concluded that there is a strong relationship between all dimensions of technological changes and work performance, but their studies are limited only to administrative personnel employed in one office in the district of Maran, Pahang. Even though this research has been conducted, but there is still lack of verification on how technological change could affect Employees' Work Performance in Malaysia and specifically in academic organization like Universiti Teknologi MARA. Therefore, this study intended to identify the relationship between technological changes and employees' work performance among non-academic staff of UiTM Kelantan Branch.

In order to achieve the objectives of study on the relationship between technological changes and Employees' Work Performance among non-academic staff of UiTM Kelantan Branch, the study aimed to identify the most affecting dimension of technological changes among the non-academic staff of UiTM Kelantan Branch; and to find out the relationship between technological changes and Employees' Work Performances in UiTM Kelantan Branch.

LITERATURE REVIEW

Technological Changes

Blomstrom and Kokko (1998) described technology as a term with intrinsically abstract concept that is hard to observe,

interpret and evaluate. Kumar et al. (1999) listed that technology comprise of two primary components, first is physical component which comprise of items such as products, tooling, equipment's, blueprints, techniques and processes. Second, is the informational components that include know – how in management, marketing, production quality control, reliability, skilled labour, and functional area.

Due to competencies in different technologies, the differences between organizations are observed (Dasgupta et al., 2011). Klien (2006) stated that large corporation are more likely to get profit more on their ideas, trademarks, expertise and technological advantages while reducing the production if they have advantages in managerial, financial and technology. This is supported by Ahmad (2015) and Samat, Ismail, Yusuf, Annual and Mamat (2017) who explained that if organizations fail to keep up to date with technology in competitive global economy environment will bear potentially huge risk of lagging behind competitively and also in productivity. Kraus et al. (2012) listed three ways on how technology increase productivity, first increase productivity in manufacturing, increasing productivity of work through the use of new technology, and lastly implementing New Working Method that new technology enables. Rahmati et al. (2012) predicted that there will be new establishment of organizational behaviour, a new feature of works, new model of production of goods and services and new style of employment.

Acceptance

The increase in labour cost and advances in technology encourage many organizations to explore technology-based service option (Dabholkar, 1996). According to Curran and Meuter, (2005) the use of new technology appeal to service provider because it is improving service operations, increase service efficiency, provides functional benefits to customers and expands service delivery options. Although the potential benefit of technological change is enticing, they cannot be realized unless the user embraces and use the new technologies (Lin & Chang, 2011). In response to this concern, scholars have proposed several theoretical models to better understand and explain individual attitudes and behaviours toward new technological changes. Thus, this help in measuring the acceptance of the user towards technological changes (Bitner et al., 2010). The main contributor to actual use of a new technology is its perceived usefulness. Hence, people primarily adopt new technologies based on their functions, rather than based on how easy it is to perform the function (Davis, 1989). Therefore, it was hypothesized that:

H_1: There is a relationship between acceptance and employees' work performance.

Training of New Technology

Training has always been the most critical element in the business global as training may increase the performance and the effectiveness of both employees and the company. Training is one of the important factors that led to increasing employees' performance (Niazi, 2011). In addition, a comprehensive training programme allows in deliberating on the information, capabilities and attitudes that is essential to gain organization goals and also create a competitive advantage (Peteraf, 1993). This indicates that employees' performance is crucial for the company and training is useful for the employees to enhance their performance. In a study of training and technological change using the national Longitudinal Survey of youth (1987 – 1992) for men, Bartel and Sicherman (1998) discovered that the training hole through education narrows and the percentage of employees receiving training increases at higher rates of technological change. Therefore, it was hypothesized that:

H$_2$: There is a relationship between training of new technology and employees' work performance.

New Working Method

Davies, Walker and Grimshaw (2010) strongly believed that the choice of organizational design is one of the most important issues that manager faced, and this resulted from the introduction of new technology. When a new technology is introduced, implementation process has to be done, and implementation as the process from idea to practice, where the idea is often based on research results. Thus, implementation is understood as the process of practically applying scientific knowledge. Hence, the implementation of new technology will result in changes of working method, and the new working method is expected to be practiced by all the subjects that are affected by the changes. Laihonen, Jääskeläinen, Lönnqvist, and Ruostela (2012) stated that continuous improvement of knowledge work productivity also requires new working methods.

Thus, the dynamics of modern business environment poses organizations challenges that both necessitate and enable new ways of working where new ways of working refers to non-traditional work practices, settings and locations with information and communication technologies (ICT) to supplement or replace traditional ways of working (Gorgievski et al., 2010; Van Meel, 2011). However, the implementation of new technology or the new working method might face failure or rejection from the employees. For example, a research conducted in a Swedish psychiatric clinic regarding the process of implementing a new working method show result of only one of five participating wards met the criteria of a successful implementation process. Even though most participants agreed with the intention of model but reluctant to apply in practices (Cartin et al. 2014). Therefore, it was hypothesized that:

H$_3$: There is a relationship between New Working Method and Employees' work performance.

Work Performance

A wide supported definition of work performance from Campbell (1993) who stated that work performance is behaviours or actions that is relevant to the goals of the organization. Three perspectives go at the side of this definition; first, work performance should be outlined in terms of behaviour instead of outcomes. Second, work performance contains solely those behaviours that are in respect to the target of the organizations, and lastly, work performance is multidimensional. To differentiate between behaviour and results is difficult; others have enclosed leads to their definition of work performance. For instance, a definition created by Viswesvaran and Ones, (2005) stated that work performance as scalable activities, behaviour, and outcomes that staff have interaction in or originate that are connected with and contributes to organizational objectives. Barrie and Pace (1998), urged that organizations will improve work performance through controlling employees' behaviours. The key drawback with this concept is that if we tend to study work performance as a result of behaviour, this performance approach would be "mechanistic" (Bierema, 2000).

Technology change conjointly affects work performance in an organization. For instance, information and communication technology and the internet have not affected solely the IT professionals and those workers that use IT for his or her work on a daily basis however also the surroundings of the organization, organization itself and the "social universe" (Drucker, 2001). Managers need to be compelled to bear in mind of those changes, attempt to sense them beforehand and adapt to them suitably. Notably within the sphere of employee motivation, we are ready to expect essential changes (Baloh & Trkman, 2003).

At certain times, there has been disagreement on whether it is possible to make sure each employee agrees to take or adapt with the technological changes. However, when researching about work performance issue and its relation to technological changes,

whether it is going to be overcome, Ndubisi (2003) has stated that though there are uncertainty because newer technology is more complex, employees will unconsciously form attitude and intention to learn on how to use the new technology.
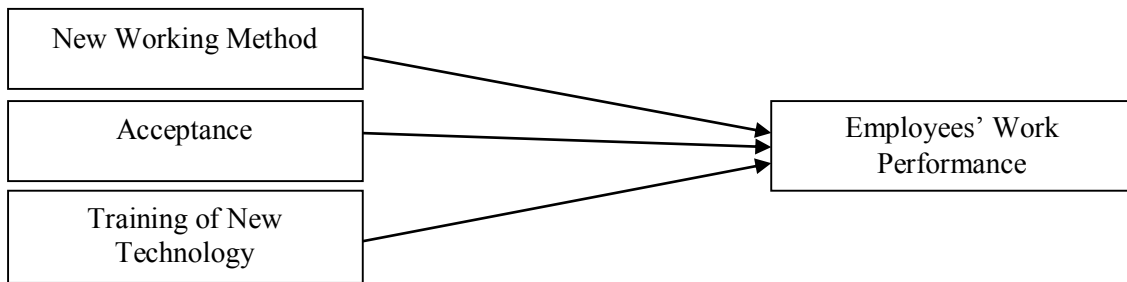
Sources: Hasan and Nadzar, 2010

Figure 1 Theoretical framework on the relationship between technological changes and employees' work performance

METHODOLOGY

In this study, a set of questionnaires that was adopted from Hasan and Nadzar (2010) and Dudeney and Hockly (2007) has been prepared and distributed to the non-academic staff of UiTM Kelantan Branch. A total number of 250 non-academic staff and their names were obtained and identified from the Administrative Department of UiTM Kelantan Branch. A stratified random sampling

technique was applied as to ensure that the strata (or layers) in the population are fairly represented in the sample.

When the strata have been determined, the amount of percentage represented by the amount of staff in each department is equal to the number of the questionnaires that need to be distributed and a total of 100 questionnaires were distributed successfully. The data were then analysed by using SPSS version 23.

FINDINGS AND DISCUSSION

Table 1 Test of reliability

Variables	N of items	Cronbach's Alpha
New Working Method	5	0.723
Acceptance	5	0.738
Training of New Technology	5	0.718
Work Performance	10	0.703

Each variable in Table 1 shows Cronbach's alpha being above 0.7 which was 0.723, 0.738, 0.718 and 0.703 respectively. The value of Cronbach's alpha for both independent and dependent variables stated above 0.7 in value. This is acceptable value of Cronbach's alpha by

referring to the Cronbach's alpha rule of thumb. Nunnally (1978) recommended that reliability of 0.70 or better (but not much beyond than 0.80) for basic research and between 0.90 and 0.95 in cases where important decision is to be made based on the test scores.

Table 2 Test of normality

Variables	Skewness	Kurtosis	KS	SW
New Working Method	−0.650	−0.182	.000	.000
Acceptance	0.702	0.591	.000	.000
Training of New Technology	−0.256	1.083	.032	.008
Work Performance	0.043	−0.358	.046	.286

Table 2 indicates the value of skewness, kurtosis, Kolmogorov-Smirnov (KS) and Shapiro-Wilk (SW). The measures for all data are in the range between −0.650 and 1.083. According to George and Mallery (2010), the value for skewness and kurtosis between −2 and 2 are considered acceptable to prove normal univariate distribution. Taking that into consideration, the skewness of this research study is in fact normal. For the value of Kolmogorov-Smirnov and Shapiro-Wilk, the value ranging between .000 to .286. According to Pallant (2007), a non-significant result (Sig. value of more than .05) indicates normality.

Table 3 Gender of the respondents

Gender	Frequency	Percentage (%)
Male	47	47.0
Female	53	53.0
Total	**100**	**100.0**

Table 3 shows the frequency of gender among the total of 100 respondents. From the table, it shows that the total number of female respondents is slightly higher as compared to the male respondents. From the data, female respondents are equal to 53.0% (53), meanwhile, only 47.0% (47) of the respondents is male.

Table 4 Descriptive statistics

	N	Mean	Std. Deviation
New Working Method	100	3.82	0.659
Acceptance	100	2.91	0.733
Training of New Technology	100	3.84	0.605

Table 4 shows the descriptive statistical analysis for the dimensions of technological change. There were three dimensions under the technological change namely New Working Method, Acceptance and Training of New Technology. The first dimension is New Working Method with the mean value of 3.82 and 0.659 standard deviation value. The second dimension is Acceptance with mean value of 2.91 and standard deviation value of 0.733. Finally, Training of New Technology that have the mean value of 3.84 and 0.605 standard deviation value. Based on the findings, Training of New Technology had higher scores as compared to the other two dimensions.

Table 5 Correlation among variables

		New Working Method	Acceptance	Training of New Technology	Work Performance
New Working Method	Pearson Correlation Sig. (2-tailed)	1	−.152 .130	.666** .000	.621** .000
	N	100	100	100	100
Acceptance	Pearson Correlation Sig. (2-tailed)	−.152 .130	1	−.134 .183	.000 .996
	N	100	100	100	100
Training of New Technology	Pearson Correlation Sig. (2-tailed)	.666** .000	−.134 .183	1	.666** .000
	N	100	100	100	100
Work Performance	Pearson Correlation Sig. (2-tailed)	.621** .000	.000 .996	.666** .000	1
	N	100	100	100	100

Table 6 Summary of Hypotheses Results

Hypotheses	Direction	Results
H_1: There is a positive relationship between new working method and employees' work performance.	Positive, Linear and Strong Relationship	Accepted (r = .621**)
H_2: There is a positive relationship between acceptance and employees' work performance.	Negative, Non-linear and Very Weak Relationship	Rejected (r = .000)
H_3: There is a positive relationship between training of new technology and employees' work performance.	Positive, Linear and Strong Relationship	Accepted (r = .666**)

Table 6 shows the relationship between the dimension under independent variable and dependent variable. The Pearson correlation between New Working Method and work performance shows that there is positive correlation between them. New Working Method has a value of .621 and the significant (p-value) is .000. The value fall under the range of r = .60 − .79. According to the rule of thumb, New Working Method has a strong relationship with work performance. Therefore, the finding shows that there is a relationship between New Working Method and work performance. Thus, as shown in Table 6, Hypothesis 1 (H1) is accepted.

On the other hand, Acceptance has a correlation a value of .000 and significant value (p-value) of .996. According to the rule of thumb, .000 (0) is the lowest number and has no value of relationship. Acceptance fall under range of r = 0 − .19. Therefore, it was found that Acceptance has no relationship with work performance. Thus, as shown in Table 6, rendering Hypothesis 2 (H2) is rejected.

Lastly, it was found that there is a positive correlation between Training of New Technology and work performance. The training for new technology has a value of .666 and significant (p-value) is .000. The value falls under the range of r = .60 − .79. This means the relationship between Training of New Technology and work performance is a strong relationship. Thus, as shown in Table 7, Hypothesis 3 (H3) is accepted.

CONCLUSION AND RECOMMENDATION

This study concluded that in technological changes, there are dimensions that have strong relationships with work performance. However, Acceptance was surprisingly has no relationship with Employees' Work Performance. However, Al-Hariri and Al-Hattami (2017) found that technology usage was directly correlative and statistically significant with student achievement in physiology courses but not necessarily in others. According to Peek et al. (2014), Acceptance to technologies is fluctuating over time. This is caused by many factors of pre-implementation and post-implementation stages of the technologies. Moreover, according to Peek et al. (2014), concern regarding high cost of technology, privacy implications, expected benefit, need for technology, and alternative to technologies are the factor that influence one's Acceptance to technology.

It is recommended that a number of initiatives should be taken into considerations by UiTM Kelantan Branch in order to help its employees to accept technological changes. UiTM Kelantan Branch should conduct brainstorming sessions among the staff to find out the keys to make technological changes widely accepted throughout the system. In addition, constant training with the updated technologies is crucial to ensure that every employee is able to utilize the current technologies available to help them with their work. Leaders surely play important roles and top management of UiTM Kelantan Branch should show support to ensure non-academic staff accepts and embraces changes in technologies to a better level. Technologies are constantly changing and at rapid rate and training is the only way to ensure that employees can catch up with technologies.

With the ever-evolving office environment that sees rapid changes in technology, it is believed that upgrading of knowledge, trainings as well as re-trainings of existing employees should be given top priority by UiTM as these would have a direct influence upon their perceptions of the technology. Such perceptions affect the long-term performance and further innovations of the employees. In addition, awareness campaigns should be created in order not only to improve the performances of the individuals and organizations but also the productivity as a whole. An organization with a state-of-the-art technologies and up-to-date knowledge on how to use them is very critical in ensuring both individual work performance and organizational success.

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