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Demographic Factors and Innovative Work Behaviour of Malaysian School Teachers

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ABSTRACT

The emergence of Industrial Revolution 4.0 (IR 4.0) has changed several factors that drive worker capabilities and skills in a more inventive direction. Digital transformation necessitates digital literacy and technical expertise, as well as continual microlearning and personal development across employee engagement and commitment. However, studies found that, employees still seen not competent and innovative, which include teachers. Therefore, the objective of the study is to examine the perceived level of innovative work behaviour among Malaysian school teachers. In addition, it also explores the demographic factors against the innovative work behaviour. Adopting the survey research method, the study collected data using self-administered questionnaire. Drawing upon 356 usable responses the data were analysed statistically using descriptive and inferential statistic. The results showed that Malaysian teachers, generally perceived that their level of innovative work behaviour to be high. Except for length of service, no significant difference could be observed in terms of innovative work behaviour across other demographic factors, namely age, gender, grade level and education level. The findings suggest that innovation among Malaysian school teachers are very overwhelming and demographic factors have mixed bearing in shaping this form of behaviour.

INTRODUCTION

In considering innovation, organisations are required to capitalise on innovative work behaviour of employees which is an intriguing subject for both practitioners and researchers. By the same token, competitive advantage requires organisations to depend on human capital (Hakimian et al., 2016). Therefore, innovative work behaviour by employees is highly valued by organisations and is a priority. Various efforts have been made by the government to improve the level of innovative work behaviour among employees. This can be seen from the introduction of four concepts including *Cepat, Tepat, Integriti – Produktiviti, Kreativiti dan Inovasi* (CTI–PCI); National Blue Ocean Strategy (NBOS); principle of Value Innovation; and concept of Merakyatkan Perkhidmatan Awam (MPA). These four concepts can be achieved through effective management innovation for the improvement in efficiency, effectiveness or quality outcomes especially relevant for the public sector (Ab Rahman & Ismail, 2018). These efforts concentrated to civil servant in Malaysia including government school teachers.

Industrial Revolution 4.0 (IR 4.0) has also given a new impetus to educational transformation (Xing & Marwala, 2017). In recent years, education experts have recognised the profound impact of technological innovations in information and communication technology (ICT) on education (Haseeb, 2018). Thus, it can be agreed that emergence of Education 5.0 will be shaped by innovations along with the need to train students to produce innovations (Mirzajani et al., 2016). With efforts to improve innovative work behaviour among teachers, it is seen to have an impact on students' well -being (Zainal & Matore, 2020). Teachers are seen to be more likely to explore in teaching where they use diverse sources of information, engaging teaching platforms, and up -to -date teaching methods (Falloon, 2020). Another perspective is that the scope of teaching has become increasingly challenging with the introduction of online learning (Ghani et al., 2013; Md-Yunus, 2013) especially during COVID-19 pandemic (Kamal & Illiyan, 2021). Teaching methods need to be improved in line with development. As a consequence of this situation, it affects the performance and skills of teachers. Parthasarathy and Premalatha (2017) argued that research studies on innovative work behaviour have not yet received the level of attention in education. Meanwhile, Messmann, Mulder, and Palonen (2018) mentioned very few studies on how teachers are involved in innovation relating to work behaviour and how their active contributions can be encouraged and fostered. Although many studies on teachers have been done, the aspects on innovative work behaviour have been ignored.

Various individual internal factors have been proven to have a role in producing individual innovative work behaviour in previous studies. These internal factors, according to Gulbahar (2017), are variances in individual characteristics and demographic factors. Internal factors such as age, gender, educational background, years of service, personality, cognitive capacities, and risk-taking behaviour all have a favourable impact on the different stages of the innovation process (Menidjel et al., 2017). The individual factors related to this study's demographics are age, gender, grade, length of services and level of education. The challenge that arises is how to encourage teachers to implement innovation in their respective duties (Thibaut et al., 2018). Teachers are an important source for improving teaching and learning innovation through innovation. Based on the previous problems' description, the current study attempts to analyze innovative work behaviour among Malaysian school teachers based on demographic characteristics of age, gender, grade, length of services and level of education.

LITERATURE REVIEW

Innovative Work Behaviour

Ever since the concept of innovative work behaviour was launched by Scott and Bruce in 1994 and 1998, literature related to innovative work behaviour have been published progressively. Most of these studies were characterised by a diversity of research methods which are qualitative and quantitative, and approaches (innovative work behaviour as dependent and independent variables) (Nijenhuis, 2015; Spiegelaere, 2014b). Likewise, innovative work behaviour is generally outlined in the context of how individuals could facilitate the achievement of initiation and intentional introduction of new and useful ideas, processes, products, or procedures (Leong & Rasli, 2014). Innovative work behaviour thus includes behaviour of employees that directly and indirectly encourages the development and introduction of innovations in the workplace (Spiegelaere et al., 2012). In current working environment, innovative work behaviour is one of the important factors for organisational growth and development in both private and public sectors (Abdullatif et al., 2016). It is aligned with Hakimian et al. (2016) where innovative work behaviour can be a competitive advantage for an organisation. In this study, innovative work behaviour is the main highlight of the research. There are important arguments to push for innovation in education as a means to maximise the value of public investment.

The concept of innovative work behaviour differs depending on the perspectives of the researchers, based on previous literature. Most of the previous literature indicate that the definition by West and Farr

(1990) should be suitable for innovative work behaviour (De Jong & Den Hartog, 2010; Nijenhuis, 2015; Parthasarathy & Premalatha, 2017). West and Farr (1990) defined innovative work behaviour as the intentional introduction and application within a role, group, or organisation of ideas, processes, products, or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, organisation, or wider society. However, Spiegelaere, Gyes, and Hootegem (2014) pointed out that the definition of innovative work behaviour should relate to behaviour, not only attitude or output. De Jong and Den Hartog (2008) argued that innovative work behaviour does not only include idea generation, but also the behaviour needed to implement ideas and achieve improvements that will enhance personal or business performance.

Dimensions of Innovative Work Behaviour

According to Scott and Bruce (1994), innovative work behaviour in the workplace is considered a complex behaviour consisting of a set of three different behavioural tasks: idea generation, idea promotion, and idea realisation. This is agreed upon by Kheng, Mahmood, et al. (2013) and Spiegelaere, Gyes, and Hootegem (2014). Individual innovation begins with the production of new and useful ideas in any domain (Werleman, 2016), job-related problems, inconvenience, discomfort, and emerging trends which are often instigators of the generation of new ideas (De Jong & Den Hartog, 2008). The next task of innovation process consists of the promotion of ideas to potential allies. That is, once an employee generates an idea, they should engage in social activities to find friends, supporters, and sponsors who compose ideas, or build a coalition of supporters who provide the necessary strength behind it (Spiegelaere, Gyes, & Hootegem, 2014). The final task of the innovation process involves the realisation of ideas by producing prototypes or models of innovation that can be experienced and ultimately applied in the role of work, group, or organisation as a whole (Werleman, 2016).

Factors Influencing Innovative Work Behaviour

Theories and models aid in the explanation of behavior as well as the development of more effective methods for influencing and changing behavior. When investigating innovative work behaviour, one of the most popular theories is Social Cognitive Theory (SCT) (Bandura, 1986). SCT arose from social learning theory, which said that people learn from their own experiences as well as by watching others' experiences. Personal characteristics (age, cognitions, previous experience with the behavior, etc.), environmental characteristics (access to resources, safety, support from family/friends/colleagues etc.), and aspects of the behavior itself interact to influence behavior which includes innovative work behaviour. Past studies on innovative work behaviour by Baskaran (2018) and Loogma et al (2012) for instance used demographic profiles to relate with personal characteristics. Masrek et al. (2017) examined job design to relate with environmental characteristics when studying innovative work behaviour. Masrek et al. (2021) also investigated knowledge creation abilities to relate with the behaviour itself when exploring innovative work behaviour among Malaysian civil workers. In essence, that are many factors that can be associated to innovative work behaviour.

THEORETICAL FRAMEWORK AND HYPOTHESIS

Figure 1 presents the theoretical framework of the study. SCT is the underpinning theory used in this study. Age, gender, grade level, length of service and level of education are the demographic factors examined in the study. Drawing upon the work of Werleman (2016), innovative work behaviour is defined as comprising four dimensions which are opportunity exploration, idea generation, idea promotion and idea realization.

Opportunity exploration is defined as identifying and exploring new possibilities, as well as solving issues and puzzles relating to professional responsibilities (Gulbahar, 2017). Idea generation is defined as combination of information and existing ideas of solving problems and improving performance (Spiegelaere, 2014b). The efforts to promote ideas and seek support from fellow colleagues in school is referred to as idea generation (Spiegelaere, 2014b) while idea realization is described as developing and implementing the innovative idea related to teaching tasks (Spiegelaere, 2014b).

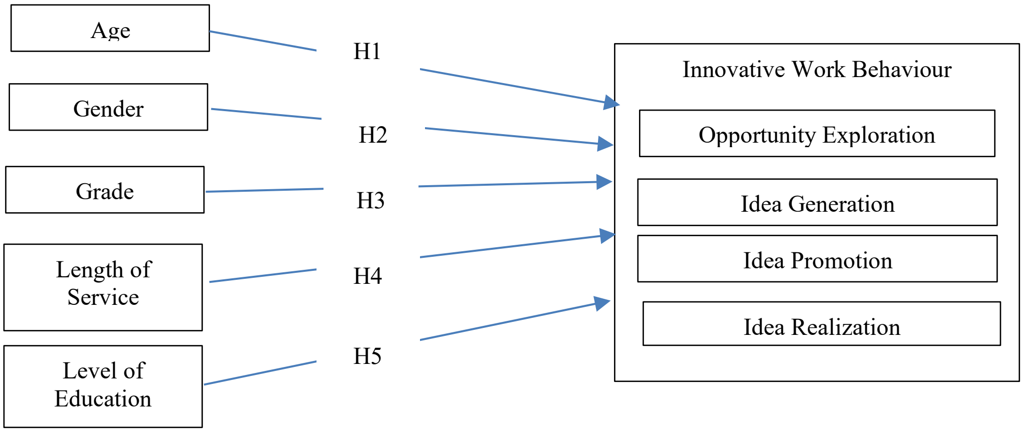

Figure 1: Theoretical Framework

Age is a demographic factor that is frequently examined in research on innovative work behaviour. Adolescent workers are often thought to be less mature and experienced, and hence less likely to come up with novel ideas. As an employee's age rises, so will his or her experience and abilities, making him or her more creative and imaginative. However, after a certain age, an employee's creativity would dwindle due to energy depletion caused by age-related variables. A study by Sari and Adi (2021) found that academicians of various ages have varying levels of innovative work behaviour, with those aged 36 to 54 being the most innovative and productive. Accordingly, this study hypothesizes that:

H1: The level of innovative work behaviour differs across different age group

The common consensus is that general intellect does not differ by gender. However, a review of the literature reveals that the consensus viewpoint is incorrect (Lynn, 1994). Even when body size is taken into account, males have larger brains than females, and brain size is linked to intellect. As a result, men are expected to have greater average levels of intelligence than women. Furthermore, men have slightly better linguistic and reasoning abilities than women, as well as a more apparent spatial superiority (Lynn, 1994). Given the differences, we also expect that innovative work behaviour between male and female teachers would be different. Hence, the following hypothesis is put forward:

H2: The level of innovative work behaviour differs between male and female

A person's maturity, experience, and talents are reflected in their post grade. In comparison to more junior personnel, the grade of a high-level post, also known as a senior post, suggests that the incumbent has high talents, in the sense of being more creative and imaginative. However, there have been other instances where senior executives have become complacent, resulting in a lack of innovation. Those in the junior group, nevertheless, are more creative and innovative due to the pressures and necessities of promotion. To this effect, we established the following hypothesis:

H3: The level of innovative work behaviour differs across different grade level

The length of service has a significant impact on a person's ability to be creative in carrying out his responsibilities. An individual who has worked in a specific job in an organization for a long period will have a greater understanding of the processes and task flow. When compared to new employees, these individuals can quickly spot areas for improvement. This makes them more innovative in the long run. New employees are typically less knowledgeable about the ins and outs of work processes, and their time is spent attempting to comprehend and study the subject. This puts them under pressure to come up with something more creative. With the aforementioned argument, the following hypothesis is developed:

H4: The level of innovative work behaviour differs across different length of service

An academic qualification reveals one's intellectual capacity. To put it another way, persons with a master's degree have a greater level of intelligence than those with a bachelor's or diploma. Although most Malaysian school teachers hold a bachelor's degree, many have also earned a master's degree. We assume that the level of innovative work behaviour will vary according to academic qualifications due to variances in academic qualifications. Based on this premise, we established the following hypothesis:

H5: The level of innovative work behaviour differs across different level of education

RESEARCH METHODOLOGY

The data for this study was collected using a survey questionnaire, which is a quantitative research method. Each variable is measure using multiple items and the respondents were asked to rate those items based on the following Likert scales between 1 till 7 namely: (1) Strongly Disagree, (2) Disagree, (3) Sometimes Disagree, (4) Neutral, (5) Sometimes Agree, (6) Agree, and (7) Strongly Agree are the seven levels of disagreement. To ensure that the questionnaire fulfilled the validity and reliability requirements, it was pre-tested and pilot tested. As for the pre-testing exercise, experts, including two Associate Professors specializing in education and innovative work behaviour and four school teachers were engaged. Comments and feedbacks obtained from the pre-testing exercise were used to revise the questionnaire. Accordingly, it was pilot tested with 30 school teachers and the results of the exercise showed that the measurement was acceptably reliable.

The study population was school teachers from one type of selected school in Malaysia after sought of ethical clearance and approval from authorized bodies. The difficulty in obtaining the sampling frame, prohibited the researcher to employ probability sampling. Because of this reason, the researchers to use convenience sampling which is considered appropriate when the intent of the study is more towards theory generalization. The data collection exercised managed to collect 356 usable responses. These responses were analysed descriptively and inferentially. The SPSS Version 26.0 was used to analyse the data. Descriptive analysis was carried out on both demographic profiles and the innovative work behaviour variables. An independent sample t-test and ANOVA were used to test the established hypotheses.

FINDINGS

The breakdown of the age of the respondents are as follows: between 30–39 years old (48.9%), between 40–49 years old (32.9%), and between 21–29 years old (12.6%) and above 49 years old (5.6%). Male teachers account for 96 (27%) of the 356 responses, while female teachers account for 260 (73%). The biggest number of teachers was DG44 (n=155, 43.5 percent), followed by DG41 (n=142, 39.9 percent), DG48 (n=43, 12.1 percent), and DG52 (n=14, 3.9 percent). Meanwhile, just 0.6 percent (n=2) of teachers in the DG54 grade responded to the survey.

In terms of length of service, the majority of respondents (n=108, 30.3 percent) served 11 to 15 years, followed by 6 to 10 years (n=88, 24.7 percent), 1 to 5 years (n=74, 20.8 percent), 16 to 20 years (n=66, 18.5 percent), 21 to 25 years (n=13, 3.7 percent), and 26 to 30 years (n=4, 1.1 percent). The lowest number of participants (n=3, 0.8 percent) were those with more than 30 years of service. With regard to education level, most of the teachers involved in this study held Bachelor's Degree (n=304, 85.4%) followed by Master's Degree (n=51, 14.3%). Only 0.3% (n=1) of the respondents held a PhD.

Table 1 - 4 presents the results of the descriptive analysis of the innovative work behaviour variables. Based on the rating scale of between 1 and 7, the mean score stood between 5.77 and 6.22 implying that the respondents have rated their level of innovative work behaviour as high. Opportunity exploration has

the highest score followed by idea generation. Idea realization scored a mean value of 5.94 and ranked third among the four dimensions of innovative work behaviour. Idea promotion even though ranked fourth, still scored a mean value above the mid value 4, hence indicating that these teachers agreed that they engaged in activities promoting their innovative ideas.

Table 1: Descriptive Analysis for Opportunity Exploration (OE)

	Items	Min	Max	Mean	Std. Error	Std. Dev	Var
OE1	I pay attention to issues that are not part of my teaching work such as changes of organizational structures within the school	2.00	7.00	6.04	.053	1.004	1.009
OE3	I regularly search out new working methods, techniques or instruments for class teaching	3.00	7.00	6.25	.038	.731	.534
OE4	I keep abreast about the latest developments at the school, for example upcoming events etc.	4.00	7.00	6.32	.037	.708	.502
OE5	I exchange thoughts with colleagues on recent developments in the field of work	3.00	7.00	6.19	.037	.712	.508
	Overall Mean Score for Opportunity Exploration			**6.22**			

N = 356
1 = Strongly Disagree; 2 = Disagree; 3 = Sometimes Disagree; 4 = Neutral; 5 = Sometimes Agree; 6 = Agree; 7 = Strongly Agree

Table 2: Descriptive Analysis for Idea Generation (IG)

	Items	Min	Max	Mean	Std. Error	Std. Dev	Var
IG1	I innovate solutions for problems related to class teaching	3.00	7.00	6.09	.046	.868	.754
IG2	I find new approaches to execute teaching tasks	4.00	7.00	6.17	.036	.687	.473
IG3	I propose the innovative ideas to solve any issue regarding teaching and learning	4.00	7.00	5.91	.044	.841	.707
IG4	I ask critical questions about ideas proposed by the colleagues	3.00	7.00	5.94	.042	.810	.657
IG5	I suggest improvements on the ideas presented by colleagues	4.00	7.00	6.00	.041	.781	.611
	Overall Mean Score for Idea Generation			**6.02**			

N = 356
1 = Strongly Disagree; 2 = Disagree; 3 = Sometimes Disagree; 4 = Neutral; 5 = Sometimes Agree; 6 = Agree; 7 = Strongly Agree

Table 3: Descriptive Analysis for Idea Promotion (IP)

	Items	Min	Max	Mean	Std. Error	Std. Dev	Var
IP1	I make important school members enthusiastic with my innovative ideas	2.00	7.00	5.91	.057	1.087	1.182

IP2	I make strong effort to convince people in my school to support my innovative idea	2.00	7.00	5.67	.056	1.058	1.121
IP3	I conduct a discussion to present my innovative ideas to others	2.00	7.00	5.84	.060	1.143	1.308
IP4	I promote the application of the new solution within colleagues' work context	2.00	7.00	5.73	.056	1.070	1.146
IP5	I systematically introduce innovative ideas into work practices in school	1.00	7.00	5.72	.064	1.213	1.473
	Overall Mean Score for Idea Promotion			**5.77**			

N = 356
1 = Strongly Disagree; 2 = Disagree; 3 = Sometimes Disagree; 4 = Neutral; 5 = Sometimes Agree; 6 = Agree; 7 = Strongly Agree

Table 4: Descriptive Analysis for Idea Realisation (IR)

	Items	**Min**	**Max**	**Mean**	**Std. Error**	**Std. Dev**	**Var**
IR1	I provide a suitable plan for developing the ideas in teaching and learning	3.00	7.00	5.84	.049	.930	.865
IR2	I contribute to the implementation of new ideas in teaching and learning process	3.00	7.00	5.90	.050	.954	.911
IR3	I put effort in the development of new things (for example the implementation of new policy)	2.00	7.00	5.76	.054	1.034	1.071
IR4	I accept opinions on the methods of implementation from colleagues	3.00	7.00	6.15	.039	.751	.565
IR5	I identify needed resources before implementing the idea such as manpower, money, time, space, etc.	2.00	7.00	6.09	.047	.893	.799
	Overall Mean Score for Idea Realisation			**5.94**			

N = 356
1 = Strongly Disagree; 2 = Disagree; 3 = Sometimes Disagree; 4 = Neutral; 5 = Sometimes Agree; 6 = Agree; 7 = Strongly Agree

Table 5 showcases the results of ANOVA test between the four demographic characteristics and innovative work behaviour. The results suggest that no significant difference could be observed on age, grade level and education level in terms of innovative work behaviour. Given these results, H1, H3 and H5 are not supported. However, for length of service the results showed that significant different could be detected. Upon further scrutiny unveiled that the longer that the teacher were in service, the higher is the tendency to indulge in innovative work behaviour. Therefore, H4 is supported.

Table 5: ANOVA Test

		Sum of Squares	Df	Mean Square	F	Sig.	Hypothesis
ANOVA: Age vs INNOVATIVE WORK BEHAVIOUR	Between Groups	1067.012	3	355.671	2.150	.094	H1: Not Supported
	Within Groups	58229.370	352	165.424			
	Between Groups	523.290	4	130.823	.781	.538	

ANOVA: Grade vs INNOVATIVE WORK BEHAVIOUR	Within Groups	58773.092	351	167.445			H3: Not Supported
ANOVA: Length of Service vs INNOVATIVE WORK BEHAVIOUR	Between Groups	2145.241	6	357.540	2.183	.044	H4: Supported
	Within Groups	57151.141	349	163.757			
ANOVA: Level of Education vs INNOVATIVE WORK BEHAVIOUR	Between Groups	691.823	2	345.912	2.084	.126	H5: Not Supported
	Within Groups	58604.559	353	166.019			

As there are only two categories in gender, independent sample t-test was performed and the results are shown in Table 6. Contrary to our expectation, the result indicates that significant different could not be observed, implying that H2 is not supported.

Table 6: Independent Sample t-test

		Lavene's test of Equality of variance				Significance		95% Confidence Interval of the Difference		Hypothesis
		F	Sig.	t	Df	One-Sided p	Two-Sided p	Lower	Upper	
INNOVATIVE WORK BEHAVIOUR	Equal variances assumed	.687	.408	1.700	354	.045	.090	-.41068	5.64433	H2: Not Supported
	Equal variances not assumed			1.728	175.228	.043	.086	-.37123	5.60488	

DISCUSSION

The results suggest that the teachers assessed themselves relatively highly in terms of their degree of innovative work behaviour, based on the results of the descriptive analysis. Opportunity exploration received the greatest score out of the four innovative work behaviour aspects, followed by idea generation, idea realization, and idea promotion. A study by Messmann et al. (2017) came to the same conclusion (2017). Teachers have investigated the potential for innovation in the classroom, as well as the production, promotion, and implementation of creative ideas. Teachers are also kept informed about what is going on in the school. This gives people the most up-to-date information about events and policies in which they may participate and make a difference. Teachers with a high innovative work behaviour would usually appreciate contributing their thoughts and views.

Meanwhile, five hypotheses were developed to address demographic characteristics that work against innovative work behaviour among teachers. With the exception of length of service, no significant differences in innovative work behaviour could be found across other demographic parameters such as age, gender, grade level, or education level. The results are nearly identical to those of Baskaran (2018) and Loogma et al (2012). Work experience is also one of the elements believed to be relevant in predicting employee work performance, according to Sari and Adi (2021). This study also implies that any teacher who has worked in education for a long time will be more interested in innovation work because they recognize the importance of a range of teaching methods.

CONCLUSION

Based on the preceding description, it can be stated that length of service is a demographic element that influences the innovative work behaviour of teachers. Teachers' innovative work behaviour is unaffected by demographic criteria such as age, gender, grade level, or education level. According to the results, Malaysian school teachers are quite innovative, and demographic factors play a mixed role in developing this type of behavior. Psychological and other factors, in addition to demographic considerations, can influence innovative work behaviour among teachers, therefore suggestions for further research can include these.

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