Research Article

Program Development Skills Towards Work Performance of Extension Agent During Movement Control Order (MCO) in Peninsular Malaysia

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Abstract | Coronavirus disease (COVID-19), an infectious disease made Malaysia implemented a Movement Control Order (MCO) as a preventive measure towards the spread of the virus. Malaysia's Gross Domestic Product (GDP) in agriculture sector (2020) is 7.4 per cent, the percentage growth of this sector declined 2.2 per cent from 2.0 per cent in the previous year. The declination of the growth may be related with performance of extension agent during the pandemic due to 1st MCO regulations. In addition, the performance before MCO was high in 2019, hence, the aim of this study is to determine the skills and work performance of extension agents in their Program Development Skills (planning, implementing, monitoring and evaluating - PIME). Specifically, this research intended to determine the level of PIME skills and their work performance, to evaluate the relationship of PIME skills with the work performance of extension agent and to determine the most PIME skills that contributes to the work performance of the extension agent during MCO in Peninsular Malaysia. This study was driven by the Iceberg Model and distributed using a random sampling technique. A total of 362 extension agents from Peninsular Malaysia were participated in this research. Based on the result, all independent variables (PIME skills) indicated a positive correlation towards work performance. The monitoring and evaluating are the skills that significant towards work performance, and the evaluating skill became the highest independent variable that contributes to the work performance of extension agent. About 71.2% variance of work performance is explained by PIME and the balance 28.8% is explained by the other factors. This study suggest that the extension agent should improve their planning and implementing skills to suite with pandemic situation, so that the program that has been planned earlier can be done even though the situation might be challenging.

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Introduction

Coronavirus disease (COVID-19) is caused by a recently discovered coronavirus, an infectious disease (Ortiz *et al*., 2020). Most people who become ill with COVID-19 will experience symptoms that are mild to moderate and will recover without special treatment (Barati *et al*., 2020). The virus that causes

COVID-19 is mainly transmitted when an infected individual coughs, sneezes, or exhales through droplets emitted (Borak, 2020). When they're near someone who has COVID-19, or by touching a contaminated surface and then the eyes, nose or mouth, people may be infected by breathing in the virus (Chen, 2020).

In reaction to the COVID-19 pandemic in the region, Malaysia's Federal Government has proclaimed Movement Control Orders (MCO) as a preventative measure. The pandemic has a huge effect on the farming sector in Malaysia. Based on a report by the Department of Statistics Malaysia (2021) the contribution of the agriculture sector to Malaysia's Gross Product (GDP) in 2020 is 7.4 per cent, the percentage growth of this sector declined 2.2 percent to 2.0 per cent in the previous year.

Agricultural extension agents have great potential to increase agricultural productivity and increase income through the transfer and delivery of knowledge, skills, and technology (Feder *et al.*, 2010). Khalil *et al.* (2008) measured job performance using agent self -assessment based on eight dimensions of performance: work quality, work quantity, reliability, work schedule, work allocation, convenience and serenity, organization, and customer satisfaction. However, factors influencing job performance are still a major issue for practitioners and decision makers in the field of human resource management (Gberevbie, 2012). A large number of studies were conducted explicitly or implicitly to assess the performance and skills of agricultural extension agents. As agricultural technology often changes from time to time however it adds more challenges to agricultural extension agents when the covid-19 pandemic strike.

Performance of extension agent was high before the MCO according to the previous study by Olagunju *et al.* (2021). The declination of the growth of Malaysia's GDP (Gross Domestic Product) particularly in agriculture sector may be related with performance of extension agent during the pandemic due to 1st MCO regulations supported by Prosper *et al.* (2021) revealed in his research that agricultural extension and food supply was grossly affected by COVID-19 in Zimbabwe. However, study by Purwidyaningrum *et al.* (2021) stated that performance of farming extension workers during the COVID-19 pandemic in East Java Province was quite good.

An extension program is a comprehensive set of actions designed to achieve a set of outcomes among a specific clientele (Sanchez, 2016). Agricultural extension program development is a continuous and interconnected series of processes. According to Tiraieyari *et al.* (2010), program development is an ongoing process that includes assessing farmer needs, selecting appropriate content and methods for programming delivery, managing program delivery, monitoring the program process, and evaluating outcomes. Extension agents need program development skills in order to make an extension program success as informed that this study was carried out during the MCO, despite whatever calamities and incidents occur, this program development skill is important regardless of the development process or other programs. Program development skills in this study include planning, implementing, monitoring and evaluating.

During MCO, all activities were restricted, and due to Standard Operating Procedures (SOPs), all extension agents were prohibited to meet the farmers (Menhat *et al.*, 2021). Hence, since the extension agents are the front-line worker for technology distribution thus it is necessary to understand how program planning, implementation, monitoring and evaluation (PIME) can affect the performance of agriculture extension agents. Therefore, this study is conducted to identify the extension agents' work performance in PIME in order to improve competency as well as improve the agriculture sector during this pandemic outbreak.

In general, this study aims to determine the skills and work performance of extension agents in program development skills (PIME) activities during MCO in Peninsular Malaysia. The specific objectives are:

1. To determine the level of extension agent in program development skills and their work performance during MCO in Peninsular Malaysia.
2. To determine the relationship of program development skills with the work performance of extension agent during MCO in Peninsular Malaysia
3. To determine the strongest independent variables (PIME skills) that contribute to the work performance of the extension agent during MCO in Peninsular Malaysia.

The extension agent is an important component of an organization that can improve the knowledge of the

smallholders and farmers through extension activities and planning is a crucial step that must be taken to be met as a beginning for determining extension agents' performance (Rosnita *et al.*, 2017). Extension program planning is a social mechanism that includes decision-making to define the category of people's challenges, issues, strengths, resources and goals for greater education engagement and community members (Sanchez, 2016).

Implementing skill is important after planning skills. Durlak (2016) stated that implementing refers to efforts to ensure that evidence-based programs or practices of unknown dimensions are used through effective change. Implementing programs that will work requires advance planning involvement and a process that ensures accountability. In accordance with Ghimire and Suvedi (2017), farmers have mentioned the need for extension agents to be able to implement the extension program successfully.

Next, an extension agent should monitor and evaluate their client activities or performance to make sure that every activity that they had planned and implemented works for them. According to Suvedi and Stoep (2016), monitoring is intended to ensure that programs are implemented following their design and objectives and to answer questions. They also stated that extension managers use monitoring activities to track progress by collecting regular information on project inputs.

Various studies have shown a strong contribution between monitoring skills and the performance of employees (Yusof *et al.*, 2017). Based on recent studies on technology transfer upon rice control techniques shows that the monitoring and evaluation of the work performance do not have an impact on all crop types relating to the program development in a specific crop. This research must thus ensure, particularly during this outbreak of the pandemic, that extension agents' competent in all aspects of program development.

Materials and Methods

Iceberg model by Spencer and Spencer (1993) was used in this study. This model used an iceberg to explain the concept of competency. Only the visible or surface area of this model were used to measure the competency of the extension agents in transferring the technology. The components of the competency will include PIME activities during MCO in Peninsular Malaysia.

The sample population was the extension officers who directly contacted their clients (farmers) by phone during this MCO in Peninsular Malaysia. All of the individual contact details are supplied by the Department of Agriculture (DOA), according to their respective areas, with a telephone number and an e-mail address. There were four regions in peninsular Malaysia involved in this study: The northern region (Perlis, Kedah, Penang, and Perak), the east coast region (Kelantan, Terengganu, and Pahang), the central region (Selangor), and the southern region (Negeri Sembilan, Melaka, and Johor). The number of extension agents in each district varied depending on the size of the district and the state.

A questionnaire survey distributed to respondents via a Google Form was used to collect the data. The question was drafted in Malay because it is an understandable language for the respondents. The questions are straightforward and easy to interpret.

A random sampling technique was used in this study. The total population of extension agents in peninsular Malaysia was 403. The sample size was then drawn using the Raosoft sample size calculator, resulting in a 197 sample size. For each region, the sample size was calculated as shown in Table 1. However, the total number of respondents exceeded the sample size, which was 362 which was good.

Table 1: *Showing how the sample was proportionately arrived.*

Region	Population	Procedures= Population (n)/ Total population (N) × sample size (n)	Sample size
Southern	86	(86/403) x 197	42
Central	37	(37/403) x 197	18
Northern	123	(123/403) x 197	60
East Coast	157	(157/403) x 197	77
Peninsular Malaysia	403		197

These questionnaires consist of three (3) components. The components involved; (1) Respondents' demographic, (2) Independent variables as planning, implementing, monitoring, and evaluating skills and (3) Dependent variable as work performance of extension agent during MCO. To make it more manageable, the questionnaire has been comprised of six sections; Section A, B, C, D, E, and F.

Section A, consists of the respondent's profile and plantation field profile and constructed of closed-end or subjective questions. The objective of this section was to describe the respondents' socio-demographic background such as respondent's phone number, state, region they work in, gender, age, level of education and duration of experience from being extension agents. This was followed by section B, that focus on the communication platform that had been implemented by extension agents during MCO. Section C focused on the planning skill of the extension agents during MCO. The purpose of this section was intended to discover the planning project is being conducted, how the inputs like fertiliser, pesticide and herbicide are supplied and how the marketing planning is being conducted during the MCO. Section D covers the implementing skill which is a vital skill that can relate to the extension agent performance during that period. Questions asked in this questionnaire are how they implement the activities to the farmers and how they are supplying inputs and farm infrastructure to their clients while they cannot meet up as usual. Section E was asked about how they monitor and evaluate the work done by their client. The questions cover how they observed the method of pruning, fertilisation, pest and disease control, and product management during MCO. While in Section F, the last section is asked about the question that could link the independent variable with the dependent variable which is the extension agents' performance. The objective is to determine the extension agent's work performance like how they assist, communicate, and cooperate with their client during MCO.

All data completely collected using Google form and distributed to agricultural extension agents in Peninsular Malaysia. The researchers collaborate with the Department of Agriculture (DOA) headquarters to g*et al*l information needed related to the extension agent's data. It was a self-administered questionnaire where the survey was distributed directly to the respondent. A face to face interview cannot be done as the situation could avoid any mass gatherings and keep social distancing.

All data were extracted to IBM SPSS version 25 from Google Form. In this study, the socio-demographic profile of the respondents was analysed using descriptive analysis. The mean, frequency, percentage, and standard deviation of data obtained have been interpreted.

The study of the Pearson correlation coefficient was acquired in order to meet the next goal, which is to determine the association between the program development skills (PIME) and the job performance of the extension agent during MCO. The third goal of this study, which is to determine the (most) contribute PIME towards the performance of extension agents during MCO has been analysed through the Multiple Linear Regression Method.

Results and Discussion

Respondent's demographic profile

Based on the results in Table 2, men are more than women with the frequency of 250 men (69.1%) over 112 women (30.9%). In term of age, most of the respondents are from the age category of 31 until 40 years' old which make up to 50.5% of the total respondents. Meanwhile, the lowest age group of extension agents was in a category between 51 to 60 years old with a frequency of 44 (12.1%). There are eleven states involved in this research which located in Peninsular Malaysia. Perak has the highest number of respondents with 56 people (15.5%) and the lowest number of respondents from Perlis with 1.9%. Table 2 shows the respondents' demographic characteristics in this research.

Table 2: *Respondents demographic (n=362).*

Items	Peninsular Malaysia	
	Frequency	%
Gender		
Male	250	69.1
Female	112	30.9
Age (years)		
21-30	83	23.0
31-40	183	50.5
41-50	52	14.3
51-60	44	12.4
State		
Johor	43	11.9
Kedah	21	5.8
Kelantan	41	11.4
Melaka	18	5.0
Negeri Sembilan	32	8.8
Pahang	55	15.2
Perak	56	15.5
Perlis	7	1.9
Pulau Pinang	14	3.3
Selangor	32	8.8
Terengganu	43	11.9

The respondents' education can be classified into four (4) categories which are Secondary school, Diploma, Certificates and Bachelor as shown in Table 3. Most of the extension agents qualify for the Agriculture Certificate with a percentage of 74.9%. This is followed by Diploma with 15.2%, Bachelor which counts 8.3% and the least is from Secondary school (SRP, SPM or STP) which shows only 1.7%. This shows that the majority of extension agents are educated and qualified to guide the farmers.

Table 3: *Frequency distribution of respondents education (n=362).*

Level of education	Peninsular Malaysia	
	Frequency	Percentage (%)
Diploma	55	15.2
Bachelor/Degree	30	8.3
Agriculture Certificate	271	74.9
Completed secondary school	6	1.7

Table 4: *Frequency distribution of respondents' working experience (n=362).*

Working experience (years)	Peninsular Malaysia	
	Frequency	Percentage (%)
1-10	224	61.9
11-20	110	30.4
21-30	23	6.4
31-40	5	1.4

In term of working experience, most of the extension agents has been working between 1 to 10 years which represent 61.9% while the least extension agents had been working for 31 to 40 years at 1.4% (as depicted in Table 4). The mean experience of respondents in this study is 9 years.

Level of program development skills and work performance

The program development skill and work performance level of extension agents in the Peninsular Malaysia during MCO are presented in Table 5. For planning skills, the high level shows the highest frequency which is 213 out of 362 respondents (58.8%), followed by the moderate level with 40.6%. The mean for competency level in planning skill is 2.58 (with SD = 0.50). For implementing level, it shows that the extension agents rated at a high level of competency in implementing skills, which is 55.0%, followed by 43.4% with frequency 157 respondents for moderate competency and 1.7% with only six respondents for low competency. The overall mean score for implementing skills is 2.52 (with SD= 0.53).

Monitoring skills also noted as high percentage which is 55.5% while the low level has the lowest percentage which is 2.5%. For evaluating skills, the overall mean score is 4.37 (with SD = 0.81). From the results, it shows that the extension agents rated high level on their evaluating skills with 55.2%, followed by 42. 52.2% for moderate and only 2.2% rated low level of evaluating skills. The mean for evaluating skills is 2.53, and the standard deviation for overall is 0.54.

In term of the work performance of extension agents during MCO, the overall mean score is 4.37 with a standard deviation of 0.81. Table 6 shows that the majority of extension agents having a high level of work performance (58.6%), followed by moderate with 40.1% and only 1.4% show a low level of work performance.

Table 5: *Level of program development skills in extension agents (n = 362).*

Skills	Level	Frequency	Percentage (%)	Mean	Standard deviation
Planning (IV)	Low (1.00 - 2.669)	2	.6	2.58	0.50
	Moderate (2.67 - 4.339)	147	40.6		
	High (4.34 - 6.00)	213	58.8		
Implementing (IV)	Low (1.00 - 2.669)	6	1.7	2.531	0.53
	Moderate (2.67 - 4.339)	157	43.4		
	High (4.34 - 6.00)	199	55.0		
Monitoring (IV)	Low (1.00 - 2.669)	9	2.5	2.53	0.55
	Moderate (2.67 - 4.339)	152	42.0		
	High (4.34 - 6.00)	201	55.5		
Evaluating (IV)	Low (1.00 - 2.669)	8	2.2	2.53	0.54
	Moderate (2.67 - 4.339)	154	42.5		
	High (4.34 - 6.00)	200	55.2		

Table 6: *Level of work performance of extension agent (n=362).*

Skills	Level	Frequency	Percentage (%)	Mean	Standard deviation
Work performance (DV)	Low (1.00-2.669)	5	1.4	4.37	0.81
	Moderate (2.67-4.339)	145	40.1		
	High (4.34-6.00)	212	58.6		

Table 7: *Relationship between PIME skills towards work performance.*

	Work perfomance (Y)	Planning (X1)	Implementing (X2)	Monitoring (X3)	Evaluating (X4)
Work perfomance (Y)	1	.790**	.815**	.857**	.858**
Planning (X1)		1	.875**	.851**	.837**
Implementing (X2)			1	.905**	.865**
Monitoring (X3)				1	.905**
Evaluating (X4)					1

**. *Correlation is significant at the level of p < 0.01.*

From the results above, all PIME skills were at a high level which means that the extension agents have a high level of skills in planning, implementing, monitoring and evaluating during MCO. Nevertheless, there is a study that contradicted the result of this research, which stated that monitoring showed a moderate level but it is still a vital skill that can make sure all the information and knowledge transferred to the farmers can be used effectively (Yusuf *et al*., 2017). Furthermore, the performance of the extension agent also was a high level, same as stated by Olagunju *et al.* (2021) that the performance of extension agent was high before the MCO.

Relationship between program development (PIME) and work performance of extension agent during MCO

The relationship between program development skills and work performance of extension agents during MCO is indicated in Table 7. The results show that all the PIME skills correlate significantly at the level of 0.01%. Based on Guildford (1973) Rule of Thumb, these findings show that all the PIME skills correlate significantly and show a high and positive relationship with work performance. The result revealed that all PIME skills contributed to the work performance of the extension agent.

Monitoring (r= 0.857) and evaluating (r= 0.858) have the highest correlation toward work performance extension agents during MCO because they can cope with the situation and use alternative ways to do the process of monitoring and evaluation with the help of modern technology, despite the fact that the government applied strict regulation during MCO. Therefore, extension agents seem to be more technically experts in monitoring and evaluation. Planning and implementing scored the lowest correlations with work performance, with r values of 0.790 and 0.815, respectively. This shows that extension agents might not be prepared thoroughly for planning and implementing due to a sudden pandemic outbreak and may not have experienced the situation during MCO.

Table 8: *Multiple regression analysis for work performance in Peninsular Malaysia.*

Coefficients					
Model	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. Error	Beta (β)		
(Constant)	.381	.130		2.924	.004
Planning	.117	.063	.103	1.855	.064
Implementing	.057	.071	.054	.807	.420
Monitoring	.355	.073	.355	4.893	.000
Evaluating	.401	.062	.404	6.476	.000

Strongest variables influencing work performance during MCO

The results show that monitoring skills and evaluating skills provide significant results to the performance of agricultural extension agents. Monitoring and evaluating skills play an important role in achieving program objectives. Among four (4) independent variables, the monitoring and evaluating skills are the skills that significant with work performance as both p-value is 0.000. The highest Beta between monitoring and evaluating is the evaluating skill (0.401) followed by the monitoring skill with a 0.355 Beta value (as depicted in Table 8). This indicates that evaluating

skills, followed by monitoring skills contributes to work performance. A study has proven that monitoring and evaluating are necessary, especially towards the performance of extension agents (Tiraieyari *et al*., 2010). However, before MCO, Tiraieyari *et al*. (2010) study also stated that planning skills indicate the success of extension agents.

The Iceberg model, by Spencer and Spencer (1993) is adapted in this study to strengthen the PIME skills in improving the work performance of extension agents during MCO. This model uses ice cubes to explain the concept of efficiency. The efficiency component includes planning, implementation, monitoring and evaluating activities. Only the surface area or model can be seen to be used to measure the efficiency of the extension agent which is measured by work performance. The hidden part of the iceberg explained how program management skills (monitoring and evaluating) that were significant in this study affected the extension agent's performances.

This study shows that during MCO, most of the activities are limited and not only Malaysians but everyone around the world must adapt to the new norm where all meetings and activities can be done online. It is clear that monitoring and evaluating are easily done using an online platform as opposed to performing skills.

The value of adjusted R Square is 0.773, which further indicates that 77.3% variance of work performance is explained by monitoring and evaluating, and the balance 22.7% is explained by the other factors. It is undeniable that other factors also play an important role in contributing to the work performance of development agents. Therefore, appropriate action should be taken to identify such factors.

Planning and implementing are not significant maybe because the pandemic was a new thing to adapt in this situation, so the extension agents need to be proactive and creative to change the strategy and increase knowledge about the technology that is suitable to be used in this pandemic outbreak. Consequently, people were in a continuous struggle to adapt themselves to the new work patterns and cope with the increasing demand for technology use, this intrusive and ubiquitous nature of technology led to changes in the nature, pattern and duration of work, increased uncertainties and challenged people's capabilities and competencies (Dey *et al*., 2020).

Conclusions and Recommendations

In conclusion, extension agents should improve their skills in planning, implementing, monitoring, and evaluating particularly in this endemic phase, so that they will be able to achieve better work performance and knowledge transfer in Peninsular Malaysia. Hence, this study proves that developing a program and amending it based on the situation (particularly during the pandemic) could not affect the performance of extension agents in transferring knowledge and skills to the farmers.

For recommendation, the non-significant variables like planning skills and implementing skills should be more emphasized and improved in the future to make it more meaningful and be prepared for future disaster. This can be done through excessive training to improve their competencies. It is also to improve the work performance of extension agents during and after the pandemic. Thus, farmers will be more prepared and ready to face any challenges with the guidance of efficient extension agents.

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Novelty Statement

This research identifies the most PIME skills that contributes to the work performance of the extension agent during MCO. The findings will lead to the way in guiding the agricultural extension agents on how to increase their performance in future even though new challenges will be facing.

Author's Contribution

Jihan Abd Wahab: Conceived, designed, coordinated data collection, data analysis and writing the draft

manuscript.

Nur Bahiah Mohamed Haris: Contributed in designing and validating of the instrument, validating research framework and supervision.

Jasmin Arif Shah: Contributed in designing and validating of the instrument, assisting data interpretations and editing of the manuscript.

Conflict of interest

The authors have declared no conflict of interest.

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