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Core Competencies Influencing Agriculture Extension Workers' Job Performance (Quantity of Work)

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Abstract – **In Sri Lankan context in 2018, the Agriculture sector, which engages about 26.68 percent of the workforce, contributed about 7.8 percent to the national GDP and further the contribution has been steadily declining. Mainly, family-owned small sized farms contain agriculture sector as the number of commercial farms is low. Therefore, the need of agricultural extension worker's instruction, guideline for rural farmers is vital. Therefore, this study is an attempt to investigate what are the core competencies influencing the Agricultural Extension workers' job performance in terms of quantity of work at the Department of Agriculture in Central Province. The target population of this study consists of all extension workers (N = 92) in Department of Agriculture (DOA) in Central Province. A semi structured questionnaire was used to survey extension workers' job performance (Quantity of work). Principle Components Analysis Model (PCA) was used to generate new variable by reducing functions of X and Y. Multiple linear regression method was used to analyze the research data. Results showed that cultural competency, Program planning competency, Program evaluation competency, number of crop types in the division and number of farmers in the division, Cultural competency and number of farmers in the division positively influence the extension worker's job performance while program planning competency, program evaluation competency, number of crop types in the division negatively influence the extension worker's job performance. The findings suggest that cultural competency highly influences extension workers' job performance, hence the focus should be given to Improve the extension worker's awareness on local culture. It is strongly recommended for department of agriculture to increase the number of new recruitments of agriculture extension workers for employment and involvement of qualified extension workers from different ethnic groups in each districts of the country.**

Keywords – **Core Competency, Job Performance, Quantity of Work, Extension Workers, Principle Components Analysis Model.**

I. Introduction

Sri Lanka is a developing country. About four-fifth of the districts of Sri Lanka are carefully as agricultural, inhabited by over 60 percent of the total population. In 2018, the agriculture sector, which engages about 26.68 percent of the workforce, contributed about 7.8 percent to the national GDP even though the contribution has been steadily declining. Mainly, family-owned small sized farms contain agriculture sector as the number of commercial farms is low. Therefore, need of agricultural extension worker's instruction, guideline for rural farmers is vital.

The success of extension programs is going to be determined to a large degree by the ability of the extension worker to be qualified and competent since the whole extension process is dependent on them to transfer new ideas, knowledge and technical advice to the rural people. Productivity of the extension organization also highly depends upon the perform of extension workers. In fact, efficient extension workers ensure the success of the extension services and extension organizations as well. (Tiraieyari, 2009)

In Sri Lankan context, Department of Agriculture and its extension staff are playing a crucial role in the agricultural development of Sri Lanka. Recent technologi--cal improvements combined, with efforts at agricultural diversification have made new demands on the extension staff. The knowledge and experience' of extension personnel would ultimately determine the effectiveness of their performance as change-agents of agricultural and rural development. (Asmar, 1977).

Agriculture extension primarily deals with human resource development (HRD) and the transfer of techno--logy and knowledge from agricultural research centers to farmers. Improving human resource development (HRD) within rural corporation is essential for agriculture and community development. Extension workers are professionals in the extension system responsible for developing individuals in the society. (Sosyalarastirmalar, 2008)

Researchers have found that there are core competencies which influence the agriculture extension workers' job performance in order to effectively perform their role in the field. But, in Sri Lanka there are no adequate literature on the core competencies which influence the agriculture extension workers' job performance. These competencies should be possessed by extension workers in order to effectively carry out their role. Therefore, this research study is designed to investigate the core competencies which are influencing the job performance (Quantity of work) of the agriculture extension workers' at Department of Agriculture in Central Province to meet this literature gap. And also, this study will be benefit and help to future researchers as their guide and references as well as open more forum of study in the topic and broaden idea on the problem in the question. And also, it is creating awareness among farmers and extension agents about the concepts and practices of sustainable agriculture.

II. Materials and Methods

A. *Research design*

The research design that was used in this survey was descriptive in nature. The self-administrated survey is a popular method for studying human knowledge, attitudes and skills. This research method is widely used for examining human behaviors as well as program outcome

and impact. Vaske, 2008 mentioned that a survey is useful for explaining the characteristics of a large number of people. Numerous questions can be asked in single survey, and a large number of samples can be covered within a short time. In this survey, participants self-assessed the level of the competencies.in person based self-administrated surveys were used to collect data.in person surveys have high response rate, but it is relatively harder and time-consuming method.

B. *Study Population and Sample*

The target population of this study consists of all extension workers in Department of Agriculture (DOA) in Central Province who deals directly with the rural people. There is a total of 92 extension workers within Agriculture Extension Worker's in Department of Agriculture in Central Province. The population for this study is (N = 92). Consider all extension worker's in the Central Province as required sample size for the study. The sample of 92 who selected from the Central Province. Participated in the study came from the 3 districts representing 25 respondents in Nuwaraeliya district,45 respondents in Kandy district and 22 respondents in Mathale district.

C. *Sampling method and procedure*

Central Province consists of three districts, Nuwarae--liya, Kandy and Mathale. In order to make sure consider all extension worker's in the three districts are included in this study.

D. *Survey Instrument*

The survey instrument was developed based on core competencies drawn from a review of the literature. This study utilizes a questionnaire as the survey instrument to collect data from the respondents. A questionnaire was created, which consisted of two sections. First part of the questionnaire is designed to collect General information of the respondents. It contained demographic items about District, Division/ Area of respondents, Total land extent in the division /area, Number of crop types in the division /area, Number of total farmers in the division /area. Section two had seven core competencies with five to seven statements in each. The constructs cultural competency, Program planning and Personal & professional development competency had five statements each; Program implementation, Program evaluation and Education and information technology competency had seven statements each; Communication skills competency had six statements each.

E. *Measurement of the Variables*

Independence Variables

1. *Cultural Competency:*

This variable was measured by the extent of extension worker's ability to understand and work within culture (local norms, values and traditions) of the rural people in process of technology transfer. This variable was measured by six items.

2. *Program Planning Competency:*

This variable was measured by the extent of extension workers' ability to plan extension program. Such as ability to collect data, analysis of situation, problem identification and setting objectives. This variable was measured by five items.

3. *Program Implementation Competency:*

This variable was measured by the extent of extension workers 'ability to implement activities which are geared towards solving the identified problems. Seven items were developed to measure this variable.

4. *Program Evaluation Competency:*

This variable was measured by the extent of extension workers' ability to determine value or amount of success in achieving predetermined objectives of technology transfer. This variable was measured by seven items.

5. *Communication Skills Competency:*

This variable was measured by extension workers' ability to interact effectively with farmers, colleagues and supervisor and to adjust their behavior to different situational demands. And Understand and take into account social, cultural, economic, educational contexts of the clients; effective trainer; effectively listen to clients; good speaking skills. Six items were developed to measure this variable.

6. *Personal and Professional Development Competency:*

This variable was measured by extension worker's ability to respect time; follow work ethics; maintain transparency in work; be motivated and positive about extension work; diligent; proactive to understand and solve problems. This variable was measured by five items.

7. *Education and Information Technology Competency:*

This variable was measured by extension worker's knowledge of Computer and e-extension friendly; use the Internet for learning; communicate through E-mails with clients and stakeholders when needed. Seven items were developed to measure this variable.

8. *Total Land Extent in the Division/Area:*

This variable was measured by using unit of Hectare.

9. *Number of Crop types in the Division/Area*:

This variable was measured by using Numbers.

10. *Number of Farmers in the Division/Area:*

This variable was measured by using Numbers.

Dependent Variable

Extension Workers' job Performance in the Term of Quantity of Work

Performance of extension worker's is defined as activities performed in a given position as carries out the responsibilities and duties of the position. Particularly those activities that are concerned with the fulfilment of the expectations associated with that position. In this study, extension worker's job performance in the term of quantity of work, the dependent variable was measured by using the different activities of their job. The job perfor--mance of agricultural extension workers was assessed by using different dimension of their job. But in this study job performance was measured by using dimension of quantity of work.

According to the Khalil & vd (2008) mentioned that quantity of work refers to completion of assigned work within the prescribed time limits.

The instrument contained seven activities of job performance in the term of quantity of work. That seven

activities are supposed to perform in their current position. Such as farmer training, farmer visits, farmer organization, fields days/ RED, demonstration, trials, crop clinics, crop clinic records.

The instrument was obtained the extension program target and progress report 2018.issued by Department of Agriculture, Central Province.

F. *Response Scale*

In this study, 1 to 10 scale was used to measure the competencies. According to the Tiraieyari, (2009) and Pallant, (2007) they mentioned that ten-point scale gives respondents a wider range of possible scores and increases the statistical analysis available to respondents by arranging a number from 1 to 10.

G. *Validity and Reliability of the Instrument*

As a first part toward validating the instrument, the items were reviewed by agriculture experts including an Assistant director, subject matter officers and the agri--culture instructors. They were consulted on face validity and content validity on every part of the questionnaire. A reliability analysis by using Cronbach's alpha was conducted to fulfill the purposes. The result of Reliability Statistics is summarized in Table 1.

Table 1. Reliability Statistics (Cronbach's alpha) for each.

Variables	No of Items	Cronbach's alpha
Cultural competency (X1)	5	0.946
Program planning competency (X2)	5	0.889
Program implementation competency (X3)	7	0.928
Program evaluation competency (X4)	7	0.949
Communication skills competency (X5)	6	0.889
Personal & professional development competency (X6)	5	0.936
Education and information competency (X7)	7	0.741

H. *Data Collection Procedures*

In order to collect data, first the list count of numbers of extension workers in three districts were obtained from the department of Agriculture, Central Province. Then to meet extension worker's, the researcher participated their monthly conference in each district and the questionnaire were distributed among the extension worker's. Generally, extension workers responded within 20-30 minutes and researcher collected questionnaires personally from each three districts.

I. *Data Analysis*

After gathering the all the research data analyzed and interpreted. The analysis is based on quantitative and qualitative features. Principle Components Analysis Model (Factor analysis) was used to make individual variable by reducing functions of X and Y. Multiple linear regression method was used to analyze the research data. This analyzed data was then presented by way of tables.

III. RESULTS

The main objective of this study was to Determine the impact of Core Competencies that affecting on the Job Performance (Quantity of Work) of agriculture extension workers at Department of Agriculture in Central Province. The specific objective of this study was to determine the factors that affecting on the job performance (Quantity of Work) of agriculture extension workers at Department of Agriculture in Central Province. A ten predictors Multiple Linear Regression (MLR) model was proposed to explain the variation of job performance in the term of Quantity of work among extension workers. The Equation 1 proposed multiple linear regression models are as follows:

$$Y = b_0 + b_1(x_1) + b_2(X_2) + b_3(X_3) + b_4(X_4) + b_5(X_5) + b_6(X_6) + b_7(X_7) + b_8(X_8) + b_9(X_9) + b_{10}(X_{10}) + e$$

Where:
Y = Job performance in the term of Quantity of work
b_0 = Constant (intercept)
b_{1-10} = Estimates (regression coefficients)
X_1 = Cultural competency
X_2 = Program planning competency
X_3 = Program implementation competency
X_4 = Program evaluation competency
X_5 = Communication skills competency
X_6 = Personal & Professional development competency
X_7 = Education & information technology competency
X_8 = Total land extent in the division/area
X_9 = No of Crop types in the division/area
X_{10} = No of farmers in the division/area
Competency on teaching methods e = Error

Table 2. Estimates of Coefficients for the Mode.

Predictor	Coef (β)	SE Coef	T	P
Constant	-7.091	2.820	-2.51	0.014
X1	1.2085***	0.2528	4.78	0.000
X2	-0.9848***	0.3008	-3.27	0.002
X3	0.07108	0.06407	1.11	0.271
X4	-0.09193*	0.04999	-1.84	0.070
X5	0.13890	0.09281	1.50	0.138
X6	-0.02591	0.07469	-0.35	0.730
X7	-0.03184	0.03442	0.92	0.358
X8	0.00341	0.01203	-0.28	0.777

Predictor	Coef (β)	SE Coef	T	P
X9	-0.9809***	0.3425	-2.86	0.005
X10	0.016041*	0.008304	1.93	0.057

Notes: *Significance at 10%, **Significance at 5%, ***Significance at 1%
R-Sq = 55.5% R-Sq(adj) = 50.0%

To test to what extent the research data support the MLR model, the regression method was used. Based on the method used, three predictor variables were found to be significant in 0.01 significant level and two predictor variables were found to be significant in 0.1 significant level in explaining job performance in the term of Quantity of work. The five predictor variables were cultural competency (t = 4.78, p = 0.000), Program plan--ning competency (t = -3.27, p = 0.002), Program evaluation competency (t = -1.84, p = 0.070), Number of crop types in the division/area (t = -2.86, p = 0.005), Number of farmers in the division/area (t = 1.93, p = 0.057).

The Regression equation is

$Y = - 7.09 + 1.21 X_1 - 0.985 X_2 + 0.0711 X_3 - 0.0919 X_4 + 0.139 X_5 - 0.0259 X_6 + 0.0318 X_7 - 0.0034 X_8 - 0.981 X_9 + 0.0160 X_{10}$

To compare the strength of this coefficient to the coefficient for another variable, it can be referred to the column of Beta coefficient as known as standardized regression coefficients. As illustrated in Table 4.1, the largest Beta coefficient is 1.209 which is for Cultural competency. It has large contribution to job performance (Quantity of work) of extension workers. The Beta value for number of farmers in the division/area 0.016 is the smallest contribution to job performance (Quantity of work) of extension workers. As a measurement of whether the predictor is making a significant contribution to the model, it is easier to conceptualize the t-tests. If the t-test related with a β value is significant, then the predictor is making significant contribution to the model. The value of significance and the larger the value of (t), the greater contribution of that predictors. As a result, in this case from the magnitude of the t-test, the five mentioned factors are all significant predictors of extension worker's job performance (Quantity of work). Namely Cultural competency, Program planning competency, Program evaluation competency, Number of crop types in the division and Number of farmers in the division.

Regression model:

Job performance (Quantity of work) $(Y) = - 7.09 + 1.21 X_1 - 0.985 X_2 + 0.0711 X_3 - 0.0919 X_4 + 0.139 X_5 - 0.0259 X_6 + 0.0318 X_7 - 0.0034 X_8 - 0.981 X_9 + 0.0160 X_{10}$

The R^2 value of 0.555 implies that the ten predictors explain about 55.5% of the variance/variation in the Extension worker's job performance (Quantity of work). The adjusted R^2 is 50.0%.

IV. Discussion

As noted earlier five factors are significant predictors of extension worker's job performance (Quantity of work). Some of the findings conforms and extends the results of previous researches. Results showed that cultural competency has the highest contribution to the job performance (Quantity of work) of the extension workers. In other words, cultural competency makes the strongest unique contribution to explaining job performance of the extension workers, when the variance explained by all other predictors in the model is controlled. It suggests that for each change of one unit in cultural competency, it lead to increase 1.209 unit in job performance (Quantity of work). This result confirms the study carried out by Tiraieyari (2009) that showed cultural competency positively related to job performance of extension workers. ($r = 0.611$, $p = 0.001$) Number of farmers in the division is the second highest factor which positively influences job performance (Quantity of work).It suggests that for each change of one unit in no of farmers in the division, it lead to increase 0.016 unit in job performance (Quantity of work). Program planning competency is negatively influencing job performance (Quantity of work) of extension workers. This result confirms the study carried out by Idris (2010) that showed Program Planning competency has negative impact to the job performance of extension workers. ($r = 0.544$, $p = -0.055$) Also Program evaluation competency is negatively influences job performance (Quantity of work) of extension workers. It suggests that for each change of one-unit Program evaluation competency, it led to decrease -0.092 in job performance. And also, number of crop types in the division negatively influence the extension worker's job performance (Quantity of work).

The result of regression analysis it shows that five factors are not significant in explaining extension worker's job performance (Quantity of work). Those are Program Implementation competency, Communication skills competency, Total land extent in the division/ area, Personal & Professional Development competency, Edu--cation & Information Technology competency. But program implementation competency, communication skills competency, total land extent in the division/area have a positive impact on extension worker's job performance (Quantity of work). Personal & professional development competency, education & information technology competency has a negative impact on extension worker's job performance (Quantity of work).

V. Conclusion And Recommendations

In this study, five variables influenced extension worker's job performance (Quantity of work) namely cultural competency, program planning competency, program evaluation competency, number of crop types in the division and number of farmers in the division. Cultural competency and number of farmers in the division positively influence the extension worker's Job performance while program planning competency,

program evaluation competency, number of crop types in the division negatively influence the extension worker's job performance (Quantity of work). Non-significant variables have positive and negative impact on extension workers 'job performance (Quantity of work). Program implementation competency, communication skills com--petency, Total land extent in the division /area have a positive impact on extension worker's job performance (Quantity of work.) Personal & professional development competency, education & information technology com--petency has a negative impact on extension worker's job performance (Quantity of work).

Therefore, author could conclude that the results support the importance of the selected factors for extension workers to ensure job performance. Hence to improve the performance of extension workers employed by Depart--ment of Agriculture Central Province, these competencies must be considered and upgraded. Sri Lanka is a multi-ethnic, multi-cultural, multi - religious country. As the study has indicated that cultural competency highly influences extension workers' job performance, focus should be given to improve the extension worker's awareness on local culture. It is strongly recommended for Department of Agriculture to increase number of new recruitments of agriculture extension workers for employment and involvement of qualified extension workers from different ethnic groups in each districts of the country. And also reduce the extension worker's work load and time wasting on paper work by introducing the ICT solutions to the extension program planning, implementation and evaluation. The seminars, workshops and awareness programs have to be conducted in order to increase extension worker's job performance (quantity of work). In addition, similar studies have to be carried out by adding quality of work, concerning all province in Sri Lanka. That provides opportunities for improving job performance is recommended for Department of Agriculture to maximize extension workers' potential.

As a result, the findings of this study emphasize that it is important for agricultural extension organizations to examine the policies they implement to improve extension workers' core competencies towards their job performance.

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