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THE ROLE OF COMPETENCY DIMENSIONS AND ORGANIZATIONAL SUPPORT IN CLIMATE CHANGE ADVISORY SERVICE DELIVERY

Sulaiman Umar

Department of Agricultural Extension and Rural Development, Institute for Agricultural Research, Faculty of Agriculture, Ahmadu Bello University, PMB 1044, Zaria, Nigeria
Department of Agricultural Technology, Faculty of Agriculture, Universiti Putra Malaysia, 43400, Serdang, Selangor, Malaysia
umars@abu.edu.ng

Norsida Man

Department of Agribusiness and Bioresources Economics, Faculty of Agriculture, Universiti Putra Malaysia, 43400, Serdang, Selangor, Malaysia
norupi45@yahoo.com

Hajara Shuaibu

Department of Agricultural Extension and Rural Development, Institute for Agricultural Research, Faculty of Agriculture, Ahmadu Bello University, PMB 1044, Zaria, Nigeria
hskugu@yahoo.com

Jasim Mohammad Saleh

Department of Agricultural Economics, Faculty of Agriculture, University of Al-Anbar, Iraq
jassimsalih8@gmail.com

Abstract

Agricultural sector is vital not only to the livelihood of Malaysian farmers but also to Malaysian economy. However, the sector is currently being threatened by environmental phenomenon in form of climate change. Majority of Malaysian farmers are small-holders who rely mostly on extension workers for information and advisory services. Hence, it is the job of these extension workers to facilitate adaptation among their clientele. This study assessed the factors influencing the performance of such job among the extension workers. The study sought to establish the role of relevant factors in effective performance. The factors have been tested separately previously, but this study brought them together to assess their respective contributions. The research design was quantitative cross-sectional survey of public agricultural extension personnel in Peninsular Malaysia. Data was obtained from 328 extension personnel. It was analysed using descriptive and inferential techniques. The results revealed that extension workers with higher core and adaptation-specific competencies; more work experience and younger in age are predicted to be more effective in job performance and facilitating climate change adaptation among clients.

Keywords

Agricultural Extension, Climate Change, Competency, Job Performance, Malaysia

1. Introduction

Contemporary environmental challenges – the most prominent of which is climate change – pose serious threat to the agriculture of tropical countries such as Malaysia resulting in lower productivity and the attendant escalation of food insecurity, poverty and environmental degradation (Devendra, 2012; Vaghefi, Shamsudin, Radam, & Rahim, 2016). The effects of such variability threaten food security and the contribution of agricultural sector to the national economy. Significant variations in rainfall, temperature, solar radiation and atmospheric gases would have impact on productivity and land use patterns (Ahmed, Al-Amin, Mohamad, & Chenayah, 2016; Siwar, Idris, Yasar, & Morshed, 2014; Tawang, Ahmad, & Abdullahi, 2001; Vaghefi et al., 2016). Moreover, the impacts vary across geographical locations because of high variation in elements of weather and climate, especially rainfall, even among relatively close locations (Alam, Siwar, Talib, & Toriman, 2014).

It is the role of agricultural extension to bring together agri-food stakeholders comprising of producers, researchers and extension personnel to discuss climate-related issues and proffer solutions to the menace of climate change. Meanwhile, the effectiveness of extension service delivery is critically dependent on the knowledge and competence of extension officers on the various agricultural innovations they disseminate to farmers (Oladele & Tekena, 2010). This also implies that for the extension personnel to be effective in disseminating information that would help the farmers in dealing with climate change in their agricultural enterprises, they (extension personnel) need to possess the requisite competence to be able to meet the increasingly sophisticated demands of their diverse clients. Considering the place of sustainability in agricultural and development circles, extension and advisory personnel are expected to be well equipped with the capacity and knowledge of climate change for transmission to the diverse farmer population (Alibaygi & Zarafshani, 2008).

This study assessed the competencies, perceived organizational support and job performance of extension personnel on climate change adaptation issues from the perspective of the personnel themselves. Generally, studies on POS are few in Malaysia (Mohamed & Ali, 2015). Literature has shown that performance is a complex concept that could not be explained by a sole factor or single antecedent (Viswesvaran & Ones, 2000). Although competency was found to be required in determining job performance, some studies (Tuđu, 2012) (Tuđu 2012) found that its predictive power as stand-alone factor is too low and emphasized the need for additional factors. Therefore, this work would take further the work of Tiraieyari (2009) by adding POS to competencies in determining performance level among extension workers. It is crucial for agencies (including public extension organizations which are the focus of this research) to realize the human capital value of their employees. This was shown to benefit both the organization and the worker by not just improving performance and competitive capacity but also reducing work stress, enhancing willingness to return to work soon (Eisenberger, Malone, & Presson, 2016).

This would result in better equipped EAs capable of performing their job effectively and efficiently; who would facilitate adoption of technologies and practices capable of enhancing mitigation and adaptation as well as improving farm productivity and the livelihoods of farm households. In this study, it is assumed that the phenomenon of climate change is obvious among the respondents of the study (extension personnel) and that it elicits the need for new

competencies to enable effective advisory services. Also, the responses were from the perception of the extension personnel. It is assumed that the respondents are the best judges of their behaviour in terms of competency and job performance; and would honestly report their perceptions.

2. Theoretical Framework

2.1 The Concept of Job Performance

Performance implies different things to different people and organizations, but is seen as a product of complex combination of factors made up of human and structural dimensions (Laakso-manninen & Viitala, 2007). Job performance refers to an individual's behaviour that possess two attributes: measurability and relevance to organizational goals (Sonntag & Frese, 2002). There has been no consensus among scholars on what determines job performance. However, scholars agree that it is critical to determine predictors of performance which is a central focus of organizations and societies. The predictors were broadly divided into person-specific and situation specific variables (Sonntag, Volmer, & Spychala, 2008). Person-specific variables differ between individuals and include cognitive abilities, knowledge, experience and personality. Situation-specific predictors, on the other hand, include work characteristics and job design. Other factors are known to affect educators' performance such as technology reliability and effectiveness (Hartati & Arisandi, 2017).

According to Vroom's expectancy theory, an individual's work performance could be determined by two major factors: ability and motivation (Vroom, 1964). An employee needs both to perform efficiently and effectively. For example, a motivated extension agent needs the requisite knowledge, skills and ability to be able to facilitate adoption of a technology. Likewise, an able and capable personnel needs to be motivated enough to lead clients into development. About three decades later, Campbell and his colleagues developed a multidimensional model of work performance (Campbell, McCloy, Oppler, & Sager, 1993). The basis of the theory is that individual performance can be explained by job competencies in terms of motivation, declarative knowledge, and procedural knowledge (Tuğu, 2012). Lussier's theory indicates that performance is a function of three major determinants (Lussier, 2005). It is obvious that Lussier added resource to Vroom's ability and motivation to come up with the equation:

$$\text{Performance} = \text{ability} \times \text{motivation} \times \text{resource}$$

According to this theory, all three determinants must be high in order to achieve high performance by the worker. The theory has been successfully used to explain relationship between various competency dimensions and performance among Malaysian extension agents (Tiraeyari, 2009) (Tiraeyari 2009). Boyatzis' (2008) theory of performance used a basic contingency theory outline in search of maximum performance as illustrated in Figure 1.

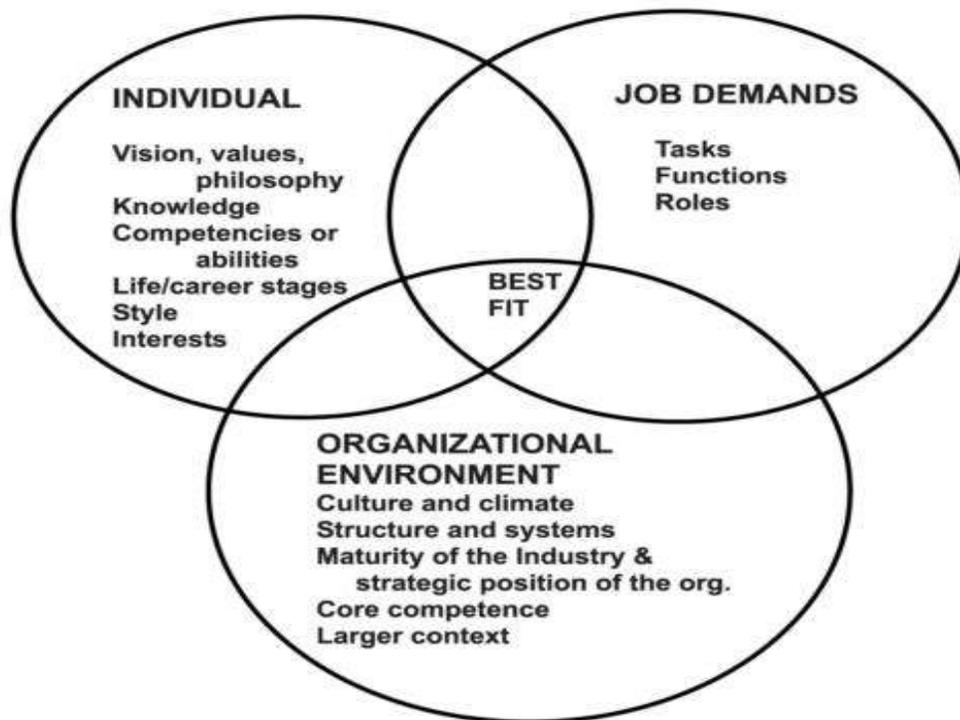


Figure 1: *Theory of effective job performance (Boyatzis, 2008)*

The theory shows that maximum performance is achievable in the area of “best-fit”, which is the area of overlap or integration of individual attributes, job demands and organizational environment (Boyatzis, 1982, 2008). Due to its suitability, this theory formed the theoretical foundation of this study.

2.2 Job Competency and Performance

Competencies are broadly classified into core competencies and specialized competencies. In the field of agricultural extension and rural advisory services, the core competencies are those identified by the Global Forum on Rural Advisory Services (GFRAS) Consortium as critical for extension agents throughout the world (Davis, 2015). Core competencies also refer to collective organizational skills upon which the organization bases its

primary operation or services (Suvedi & Kaplowitz, 2016). Competencies could also be seen as either technical (also known as “hard”) competencies or functional (soft, process) competencies. This categorization may differ with profession. For instance, special need educators were expected to master pedagogy, professional, social and personality competencies (Ghoer et al., 2017).

Competencies have always been linked to performance. This is because competencies are seen as behavioural factors that serve as efficient tools in measuring performance (Zaim, Yaşar, & Ünal, 2013). A study of Romanian workers found that the contribution of competencies alone in determining high job performance is low compared to when combined with other predictors such as organizational citizenship behaviour and organizational economic behaviours (Tuđu, 2012). Nevertheless, job performance correlated positively with all of standard competency, current competency and competency matching index (Tuđu, 2012).

2.3 Perceived Organizational Support and Performance

Perceived organizational support (POS) can be seen as involving the extent to which individuals feel their organization values their work contributions and cares for their well-being (Eisenberger et al., 2016). Perceived organizational support is used more frequently than organizational support in literature. This is because perception is more important than the actual support given (Özyer & Polatci, 2017).

Empirical studies have proved that POS is connected to employee psychological wellbeing and job performance. It also relates inversely with absenteeism and turnover (Eisenberger et al., 2016). The theory of organizational support states that “employees view their organization as having a disposition to view them favourably or unfavourably as reflected in the treatment it provides them” (Eisenberger, Huntington, Hutchison, & Sowa, 1986; Eisenberger et al., 2016).

POS has been empirically studied to show its association with various dimensions of performance. For instance, it showed significant positive relationship with work intensity, job involvement, and organizational commitment behaviours (McCook, 2002). However, in contrast, a study of the Taiwanese hospitality industry showed that POS had no positive effect on job performance, although it (and even psychological empowerment) had same on organizational citizenship behaviour (Chiang & Hsieh, 2012). Individual socio-demographic characteristics have also been shown to affect POS (Boyatzis, 2008). Some of these demographic characteristics

include: age, education, gender and tenure (Rhoades & Eisenberger, 2002). These features would represent the third set of factors in Boyatzis' theory which are individual attributes of the worker. Boyatzis (2008) particularly highlighted life and career stages as important factors. In this study, age serves as proxy for life stage, while tenure/experience represents career stage. Furthermore, level of formal education is for knowledge.

Extension agents need specific competencies in the rudiments of climate science, climate variability and change, and how it relates to agriculture, as well as training (and in some cases retraining) on effective communication strategies to pass climate information beneficial to the farmers (Diehl et al., 2015). Therefore, there is the need to evaluate how effective and efficient are extension personnel in terms of service delivery and enhanced dissemination of useful climate change adaptation and mitigation information to the clientele. Likewise, there is need to investigate the level of competency of extension personnel in delivering the service as well as the effect of the various competency levels on their performance. Another vital requirement for effective performance is conducive organizational atmosphere to function optimally. This study intends to determine the role of various competency dimensions and perceived organizational support (POS) in effective extension work performance with specific consideration on climate change adaptation in Peninsular Malaysia.

The following hypotheses were tested in line with the objectives of the study:

H_{a1}: There is significant linear relationship between job performance and core extension competencies;

H_{a2}: There is significant relationship between job performance and specific climate change adaptation competencies;

H_{a3}: There is significant relationship between job performance and POS among extension personnel; and

H_{a4}: There is significant relationship between job performance and socio-demographic characteristics of extension personnel.

3. Methodology

3.1 Design of Study

This study is quantitative in approach and is cross-sectional in design. A cross-sectional design requires only one contact with the subjects/respondents, unlike before-and-after (two

contacts) and longitudinal (three contacts) studies. Furthermore, non-experimental method of investigation was adopted (Kumar, 2011). Descriptive correlational design was employed to identify the pattern and magnitude of relations and interactions between the predetermined predictor variables and job performance among extension personnel.

3.2 Population and Sampling

The population studied is made up of all public extension personnel in Peninsular Malaysia. The sample frame was obtained after compiling lists of personnel from these agencies: Muda Agricultural Development Authority (MADA), Kemubu Agricultural Development Authority (KADA), Integrated Agricultural Development Authorities (IADAs), and the overarching Department of Agriculture (DOA). A total of 1,307 personnel were listed. Simple random sampling procedure was used to obtain the sample. Computation using Raosoft® Sample Size Calculator indicates that a sample size of 298 is appropriate. However, a higher number of respondents (328) was selected to off-set non-response and unusable questionnaires. The sample selection was conducted using Random Number Generator.

3.3 Data Collection

Primary used for the study was collected using the instrument of structured questionnaire. Letters were sent to each of the agricultural agencies, requesting for permission and mobilization of personnel to participate in the survey. Lists of eligible respondent population were obtained from which the sample was selected randomly. Self-administered questionnaire (Bernard, 2006) was employed to collect the data. This was made feasible as the questionnaire was translated to Malay language by professional translators. Drop-off and pick-up method was used in data collection. The method ensured that all respondents were reached during questionnaire distribution and collection. It also afforded the respondents ample time to answer the questions.

3.4 Data Analysis

After successful collection, the data was appropriately cleaned and coded. The data was analysed using Statistical Package for Social Sciences (SPSS®) Version 21. Multiple regression analysis was used to find the influence of the independent variables (X_i) on the dependent variable (Y).

$$Y = \alpha + \beta_1 X_i + \varepsilon$$

Where: Y = the dependent variable: job performance

α = constant

β_i = regression coefficient

x_i = independent variables: competencies, POS, socio-demographic characteristics

ε = error term.

4. Results and Discussion

The analysis indicated that 51.2% of the variance in the job performance on issues of climate change among extension workers in Peninsular Malaysia could be explained by the model. This is obtained from the R-squared = .512. From the model summary, the regression is highly significant ($p < 0.001$). This implies that multiple R among the variables within the population studied (extension workers in Peninsular Malaysia) was not equal to 0.

The variables that could significantly influence job performance were found to be age, tenure on the job, core competencies and adaptation competencies. Age was found to be negatively related to performance. This implies that the younger the extension worker, the higher his/her level of performance. Young age has been associated with self-efficacy, which, in turn, has positive relationship with performance (Clark, 1996). Other studies, have shown negative significant relationship between age and performance (Hochwarter, Witt, Treadway, & Ferris, 2006). Perhaps, the younger workers used their agility and strength as additional advantage in disseminating climate change adaptation strategies, thereby enhancing their performance levels. Tenure, which is the duration in years a worker has spent on the job, was found to have a significant positive influence on job performance. This was expected, as the longer a worker has been on the job, the higher the performance. Literature has shown that tenure has similar effect on job satisfaction (Oladele & Mabe, 2010).

relevant agricultural, environmental and educational policies. Going by these, this study is both timely and crucial.

5. Conclusion

This study has reiterated the importance of competencies to job performance. It showed that in agro-environmental issues, not only are the individual advisory workers required to possess the basic (core) knowledge, skills and abilities expected of an extension personnel, but they are also required to have special competencies that are peculiar to that context. In this case, the special context is climate change and having the both aspects of competency have shown tendency to enhance performance. From this study, extension workers with higher core and adaptation-specific competencies; more work experience and younger in age are predicted to be more effective in facilitating climate change adaptation among clients. Therefore, it is recommended that development initiatives targeting climate change adaptation among farming communities should pay special attention to training and capacity development of extension personnel as this would improve their performance in facilitating adaptation. Due to the widely acknowledged issue of shortage of manpower, it would be suggested that agricultural extension agencies should recruit more personnel, particularly younger ones whom are shown to exhibit higher level of performance. Moreover, these would be willing to learn and be mentored by their experienced colleagues, thereby consolidating performance and enabling goal realization.

5.1 Scope of Future Research

This research has thrown opened some questions in need of further investigation. For instance, the coefficient of determination in this research was .512. Further work needs to be done to incorporate other relevant variables in the model to enhance its power of determining or predicting performance. Also, the research should be replicated in other organizations and locations to test the applicability of the model. In terms of analysis, future studies should test the hypotheses using more advanced techniques such as the structural equation modelling.

5.2 Research Limitations

This study is limited by the use of cross-sectional design in its data collection procedure. Also, the study sampling frame is confined to extension workers in Peninsular Malaysia. A larger sample across various organizations in different locations would have given more generalizable results.

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