academicJournals

Vol.9(8), pp. 155-162, August 2017
DOI: 10.5897/JAERD2017.0882
Articles Number: E41370865303
ISSN 2141-2170

http://www.academicjournals.org/JAERD

Journal of Agricultural Extension and Rural Development

Full Length Research Paper

Value of modern extension methods in improving image and quality of extension: Perception of extension agents in Trinidad and Tobago

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Received 3 May, 2017; Accepted 29 June, 2017

Agricultural extension services have undergone a significant transformation in order to effectively address issues of poverty and hunger. It is expected that modern methods of extension will improve image and quality of extension services offered in low-income regions. In Trinidad and Tobago, vibrant and transformative initiatives include institutional pluralism, farmer-led methods, farmer field schools, plant clinics, Information Communication Technologies (ICTs) and value chains. However, public sector extension organization is struggling to take up necessary roles and apply new competencies necessary for the success of these modern methods. In this context, this study was undertaken to investigate the perception of extension agents of the value of modern extension methods in improving image and service quality of the extension services in Trinidad and Tobago. Descriptive statistics and Ordinary Least Squares (OLS) regression analysis were conducted to analyze data collected during March and May 2015 using a structured, self-reporting questionnaire from 106 extension agents. The findings of the study indicated that extension agents held positive perceptions of the value of modern methods in improving image and service quality. Age, education and experience are important predictors of perception of modern methods. Agents belonging to the medium experience (5.1 to 10 years) group had more formidable perceptions about the value of modern methods in improving image and service quality. Supervisors and managers had a positive perception of the value of modern methods. The study argued for a capacity development initiative using a strategy of coaching and training and targeting new entrants and middle aged extension agents.

Key words: Modern extension methods, Image Perceptions, Quality of Extension Services, Trinidad and Tobago.

INTRODUCTION

The recent transformations of agricultural extension services require changes in attitudes, skills and capacities of extension agents. This change is necessary to adequately respond to the shift from the technology transfer model to facilitating extension services among various stakeholders which will ultimately benefit farmers and producer organizations (Swanson and Rajlahti, 2010). Jones and Garforth (2006) affirm that while

information and knowledge transfer through institutional training was the main function of extension systems, it is now evolving into a system that uses several adult education and experiential learning methods to empower farmers and thus improve livelihoods. Extension delivery systems have shifted from a focus on production. The emphasis is now placed on knowledge intensive methods and practices that bring systemic interaction among a multiplicity of actors aimed at collaborative learning and holistic development (Birner et al., 2006; Chowdhury et al., 2013; Davis and Sulaiman, 2014).

The extension, as a facilitating service system comprising diverse actors is yet to be proven as the most effective reform in low and middle income countries. Public sector organizations are struggling to build capacities of new methods and tactics in those countries (Allahyari, 2008; Mangnus and Bitzer, 2016). Extension agents are facing ambiguity and challenges in the face of changing extension practices from a technology transfer model to facilitating systems in Argentina (Landini, 2015).

An effective extension system contributes to achieving food security in low and middle income countries (Chowdhury et al, 2012; Mangnus and Bitzer, 2016). The absence of an effective extension system can lead to an impoverished rural life, uninformed farmers and an underdeveloped agriculture sector in a country (FAO, 2014). The questions pertaining to the quality of service, technical competency and performance are being raised as extension agents are looked upon with low esteem by farmers as a result of limited transfer of information between research and extension. Extension providers operate as change agents at the level which directly impacts the intended beneficiaries. As such, the development of rural livelihoods is directly reflected in the quality of services they provide (Rivera and Qamar, 2003; Anderson and Feder, 2004; Chikaire et al., 2011).

It is necessary to have a long-term strategy to improve the capacities of extension agents to address issues which limit agricultural development (Magoro and Hlungwani, 2014). There is an urgent need for a long-term competencies development strategy of extension professionals focusing on skills needed to work with groups, coordination and networking abilities, service attitudes and professionalism (Kibwika et al., 2009; Chowdhury et al., 2014). Reforming these areas, and redefining the role of government and private sector extension services is the key to meet the global challenges of poverty, food security, developing human resources and environmental conservation (Cristóvão et al., 2012; CTA, 2012).

Like many other low and middle-income countries, the agricultural sector remains important to the national economy of Trinidad and Tobago. The development in the sector, according to the Ministry of Finance and the Economy has yielded a positive growth of domestic agriculture with the generation of surplus output for export. The growth of the sector has contributed to increasing GDP to more than 0.6 percent. Despite the crucial role assigned to agricultural extension it has been facing numerous challenges. The public extension system, a predominant extension model in the Caribbean, is being criticized for its failure to deliver efficient and relevant services to the beneficiaries (Ganpat, 2013). The service personnel in the public extension system are stated to be without clear mandates and policies. They possess low competencies, lack motivation and have undefined roles.

The current situations, therefore, raised questions about extension agents' performance and efficiency levels in Trinidad and Tobago. Attributed to these apparent inefficiencies is the fact that Ministry's extension staff are often engaged in many non-extension administrative type activities which results in officers spending less time on the actual advisory duties thus they are unable to adequately focus on assisting farmers to solve their problems (Spence, 2010). All these factors have contributed to unsatisfactory growth and development of the sector and as such the contribution to GDP remains low and farmers are not satisfied with the quality of the extension services (Qamar, 2013).

To address these concerns, the extension services in Trinidad and Tobago have been expanding its basket of extension methods such as, pluralistic service delivery (involving multiple service providers), farmer field schools, plant clinics, discovery learning, Information and Communication Technologies (ICTs) and value chain extension (Ganpat, 2013). Agricultural extension agents need to take up new roles such as, building new strategies, alliances, technologies and priorities in order to improve the service quality and image of the organization. Following global initiatives (e.g. World Bank, 2011; Bentley et al., 2015; Chowdhury et al., 2015), there are multidisciplinary collaborative efforts to develop agricultural knowledge provision databases using ICTs (AgriNett, 2014).

The image of an extension organization can be referred to as the sense of organizational staff (self-image) and other stakeholders (external image) about identity, organizational culture and functions of the organization to serve effectively to its constituencies (Van den Ban and Hawkins, 1996; Leeuwis and Van Den Ban, 2004; Bartunek, 2014). If staff of an extension organization can differentiate between 'what they are supposed to do' and 'what they actually do' it can lead to improvement of

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individual and organizational performance. As an extension organization is not a homogenous entity, staffs of an organization are likely to find themselves in a state of conflicting situations about how they perceive the image of the organization and the jobs they perform (Leeuwis and Van den Ban, 2004). The perception of extension staff about their image, especially when this differs from 'what they actually do' and 'what they are supposed to do', acts as catalyst for reflexive evaluation of professional practices. The recent changes require that extension services be context-specific since good extension practices cannot be standardized (Landini, 2015). The effective delivery of the services also depends on, among others, psychological states of extension agents about the organization they serve and the quality of the services being provided (Leeuwis and Van den Ban, 2004; Landini, 2016; Faure et al., 2016). There is a lack of research to investigate the perceptions of extension agents about the value of new methods and techniques in improving the image and quality of services in Trinidad and Tobago. Therefore, the study is aimed at determining the perceptions of extension agents about the value of modern methods in improving image and quality of services provided in Trinidad and Tobago. The study also seeks to determine factors that influence the perceptions of extension agents about the value of modern methods for image and service quality improvement.

METHODOLOGY

Sampling

The study was conducted in Trinidad and Tobago where the public sector agricultural extension service is organized into ten agricultural districts. The extension system of Trinidad and Tobago follows a pluralistic model with the Ministry of Food Production as the primary extension service provider. Other service provider includes private and state assisted organizations, producer organizations and to some extent research institutions. The sampling framework consisted of extension agents of the public, state assisted and private extension services of Trinidad and Tobago. The response rate was 96% which resulted in data collection from 106 extension agents.

Data collection

Data were collected during March and May, 2015 using a structured, self-administered and pilot-tested questionnaire. Two Likert type scales were used. One to measure agents' perception of the value of modern methods in improving image and the other to measure the agents' perceptions of the value of modern methods in improving the quality of extension services offered. Each scale had four response options such as, (4) = strongly agree, (3) = agree, (2) = disagree and (1) = strongly disagree. Respondents were asked to rate their level of agreement to each of the 11 questions. We followed reverse scoring which is a well-established method of measuring psychological variable (Edwards, 1957; Rosen et al., 2013). A positively worded question referred to an item where 'strongly agree' was scored 4, while a negatively worded question considered an item where 'strongly disagree' was scored 4. Each response was then converted to a number in the response scale previously provided and responses for negatively worded questions were reversed to match the response scale for the positively worded questions.

These scales were validated by a panel of six experts in the field of extension which comprised extension directors, university lecturers with experience in the Trinidad and Tobago extension system. The survey instrument also captured demographic, socio-economic, job related information (Table 1). The instrument was pre-tested with ten extension agents and adjustments were made accordingly.

Data analysis

The data were coded and analyzed using analytical software the Statistical Package for the Social Sciences (SPSS), Version 22. A descriptive analysis such as, means, frequencies and percentages was conducted for the agents' perception. In the analysis model, we considered summated score of individual items for measuring dependable variables. There is a long standing debate about use of appropriate measure for analyzing the data obtained from the rating scale. The single item measure does not fulfill the conditions of a parametric test (Alexandrov, 2010) but summated score of individual item can be used for parametric test (Sullivan and Atino, 2013). Following this, multiple regression analysis was conducted to determine the factors influencing perception of extension agents of the value of modern methods for image and service quality improvement.

The majority of the extension agents in Trinidad and Tobago (88%) were from the public extension – Ministry of Food Production (MFP), followed by 8% from private input suppliers and 4% from state-assisted agencies. Most extension agents belonged to the category field agents (47%). Most of the extension agents attained tertiary level education, 27% possessed diplomas, 26% possessed associate degrees, 24% possessed undergraduate degrees, and 18% held postgraduate degrees and of the field agents 5% had other certificates (secondary school education alone).

Some 34% of the extension agents had 6 to 10 years work experience, 29% had 1 to 5 years work experience, 19% were in the 11 to 15 years work experience and 18% had over 16 years work experience.

The highest percentage of extension agents (53%) fit into the age category range from 31 to 45, 26% fall into the 18 to 30-year age categories and 21% into the 46 to 60-year age category range. In the category of gender, there slightly were more males (54%) than females (46%).

RESULTS

Perception of the value of modern methods in improving image and quality of extension services

The results indicate that agricultural extension agents had a strong positive perception about the value of modern extension methods in improving the image of extension services (Table 2; overall mean score for perception of image is 2.80). Examining specific statements revealed that the specific areas which they perceived help improve the image of their service (Table 2). Extension agents perceived that modern extension methods helped making information accessible to their

Table 1. Description of independent variables and specification for use in multiple regression analysis.

Explanatory variables	Catergories of sample	Specification	X_i
Age[a]	18 to 30 years; 31 to 45 years; 46 to 60 years	1 – If 18-30 years 0 – Otherwise	X_1
		1 – If 31-45 years 0 – Otherwise	X_2
Gender	Male Female	1 – If male 0 – Otherwise	X_3
Service provider[b]	Ministry of Food production (Public); Private input suppliers; State assisted	1 – If Private input suppliers 0 – Otherwise	X_4
		1 – If State assisted; 0 – Otherwise	X_5
Position in organisation[c]	Managerial level; Supervisory level; Field level	1 – If Managerial level 0 – Otherwise	X_6
		1 – If Supervisory level 0 – Otherwise	X_7
Education	Secondary; Diploma; Associate degree; Undergraduate degree; Post graduate degree	1 – If Secondary 2 – If Diploma 3 – If Associate degree 4 – If UG degree 5 – If PG degree	X_8
Experience[d]	5 years and less; 6 to 10 years; Over 10 years	1 – If 5 years and less 0 – Otherwise	X_9
		1 – If 6 to 10 years 0 – Otherwise	X_{10}
Expertise	Crop; Livestock	1 – If crop 0 – Otherwise	X_{11}

clients (67% agents agreed) (Table 2). This might be due to the fact that extension agents started using different types of ICTs in face-to-face (e.g. multimedia presentation) and virtual methods of extension (e.g. social media, website, learning repositories). Using ICTs extension agents were able to deliver different information in a readily accessible format. A majority of the extension agents (84%) were in agreement that they were able to achieve satisfaction and respond to client's needs by using modern extension methods. Over 90% of agents attribute the use of modern methods in solving client's problem and improving their satisfaction (Table 2).

However, only one-third of the respondents agreed that their job provided opportunities to practice the skills obtained in the provision of modern extension methods. Agricultural extension agents in Trinidad and Tobago are expected to perform many non-extension activities (e.g. accounting and regulatory duties). This might conflict with their schedules of services to farmers and create obstacles to apply their skills in provision of modern extension methods.

On the other hand, there was a high overall agreement among extension agents about the quality of the service provided as indicated by a high overall mean value (2.883) (Table 2). The analysis of individual statements indicated that the majority of extension agents were in agreement that modern extension methods helped them in improving quality of several service areas such as, meeting clients' needs, increasing efficiency, knowledge and skills of the agents and contributing to institutional development goals (Table 2). This suggests that the majority of agents recognized improvements in their job satisfaction which reflects improvements in the quality of

Table 2. Perception of extension agents of the value of modern methods in improving image and service quality.

S/N	Statements	Frequencies					Mean ± SD Score	Overall mean score
		SA	A	DA	SDA	Total		
	Perception of value of modern methods for improvement of image							
1	As information becomes more accessible to clients the extension agent's role becomes more important.	12 (11.32)	59 (55.66)	27 (25.47)	8 (7.55)	106 (100.00)	2.708± 0.773	
2	I am able to improve client satisfaction by applying modern methods of extension.	13 (12.26)	70 (66.04)	20 (18.87)	3 (2.83)	106 (100.00)	2.877±0.641	2.801
3	Using new extension methods allows more efficient response to clients.	19 (17.92)	71 (66.98)	16 (15.09)	0	106 (100.00)	3.028±0.586	(0.646)
4	If problems are solved using modern methods this would lead to a positive image by clients.	39 (36.79)	60 (56.60)	7 (6.60)	0	106 (100.00)	3.301±0.595	
5	My job makes good use of my skills in modern extension methods	4 (3.77)	30 (28.30)	43 (40.57)	29 (37.36)	106 (100.00)	2.085±0.936	
	Perception of value of modern methods for service quality improvement							
1	I am able to improve the quality of services offered to clients, using new methods.	32 (30.19)	61 (57.55)	10 (9.43)	3 (2.83)	106 (100.00)	3.151±0.701	
2	I can contribute to national agricultural development goals by using new methods.	26 (24.53)	68 (64.15)	11 (10.38)	1 (0.94)	106 (100.00)	3.123±0.615	
3	I am better able to meet the clients' needs when modern methods are used.	23 (21.70)	66 (62.26)	16 (15.09)	1 (0.94)	106 (100.00)	3.047±0.642	2.883
4	I am encouraged to find new and better ways of doing things when modern methods are applied.	23 (21.70)	70 (66.04)	11 (10.38)	2 (1.89)	106 (100.00)	3.075±0.627	(0.546)
5	I believe my knowledge and skills can be improved by using new methods.	35 (33.02)	63 (59.43)	8 (7.55)	0	106 (100.00)	3.255±0.592	
6	I am not very interested in learning modern methods of extension.	6 (5.66)	16 (15.09)	47 (44.34)	37 (34.91)	106 (100.00)	1.915±0.856	

SA: Strongly agree; A: agree; DA: disagree; SDA: strongly disagree. Figures in parentheses indicate per cent to total response. SD: Standard deviation.

the services they offer.

Factors influencing perception of the value of modern extension methods to improve the image and quality of extension service

The findings of the Ordinary Least Square Regression (OLS) analysis using summated scores for image and service quality perception are presented in Table 3. The perception of service quality model fitted on the total response score showed a good fit explaining that 61 per cent of the variation (the value of adjusted R^2 is 0.616) in the dependent variable due to changes in the independent variables. The perception of image model fitted on the total response score showed a good fit explaining that 54 per cent of the variation (the value of adjusted R^2 is 0.545) in the dependent variable due to changes in the independent variables. Thirteen explanatory variables were used in both models: age, gender, management level, supervisor level, private service provider, education, experience (5 years and less), experience (5.1 to 10 years) and livestock expertise. Out of thirteen variables, five variables had significant relationships with value of modern extension methods in improving the perception of image and eight variables had significant relationship with the value of modern extension methods in improving perception of service quality.

The findings indicated that the extension agents aged 18 to 30 years had unfavourable image perception compared to the older group of extension agents (45+). The effect of age is positive for the elder group. Therefore, where image perception is concerned there would be a positive impact for these agents. The extension agents with medium levels of experience (5.1 to 10 years) had a better perception of value of modern extension methods for both image and service quality improvement, as compared to those highly experienced (over ten years) agents. However, it was found that those with a medium age (31 to 45 years) had significantly better perception of value of modern methods for service quality improvement alone. This indicates that as extension agents gain practical experience in employing modern methods of extension, positive perceptions of value of modern methods for improvement of image and service quality develops.

The findings revealed that extension agents with

Table 3. Determinants of image and service quality perceptions of extension agents.

Factors	Perception of image			Perception of service quality		
	Coefficients	t	Sig.	Coefficients	t	Sig.
Constant	36.237** (6.566)	5.519	0.000	14.403** (0.740)	19.477	0.000
Age: 18-30 years[a]	-6.548* (3.028)	-2.162	0.033	-0.329 (0.341)	-0.963	0.338
Age: 31-45 years[a]	1.805 (2.391)	0.755	0.452	-0.591* (0.269)	-2.194	0.031
Gender	4.012* (1.698)	2.363	0.020	0.605** (0.191)	3.164	0.002
Service: State[b]	1.180 (4.591)	0.257	0.798	0.016 (0.517)	0.030	0.976
Service: Private[b]	20.331** (3.488)	5.829	0.000	0.310 (0.393)	0.790	0.432
Position: Managerial[c]	18.006** (4.654)	3.869	0.000	1.798** (0.524)	3.430	0.001
Position: Supervisory[c]	0.330 (2.516)	0.131	0.896	1.871** (0.283)	6.604	0.000
Education	-1.631 (0.929)	-1.755	0.083	0.336** (0.105)	3.207	0.002
Experience: 5 years and less[d]	4.226 (2.735)	1.545	0.126	0.725* (0.308)	2.352	0.021
Experience: 5.1 – 10 years[d]	6.279* (2.428)	2.586	0.011	0.543* (0.273)	1.985	0.050
Expertise: Crop	-0.643 (2.102)	-0.306	0.760	-0.353 (0.237)	-1.492	0.139
Expertise: Livestock	-2.704 (2.626)	-1.030	0.306	0.943** (0.296)	3.190	0.002
Adjusted R^2	0.545			0.616		
F	10.680**			13.969**		
N	106			106		

Figures in parentheses indicate Standard Errors; *Significant (P≤0.05); **Highly Significant (P≤0.01); [a]ref. category - 46 to 60 years; [b]ref. category - Ministry of Food Production ; [c]ref. category - Field Agents; [d]ref. category: Over 10 years.

livestock expertise had a very positive perception of modern methods for service quality improvement. Agents with livestock expertise as compared to those with crop and general extension expertise perceived that the use of modern extension methods improved the quality of the extension services offered to the clients. The perception of extension managers about value of modern extension methods in improving image and service quality were positive as compared to the extension field agents. This suggests that the managers viewed modern extension methods as initiatives which essentially enhanced the image of extension and created significant improvements in the quality of extension services offered. The results further showed that in comparison to the field agents, the extension supervisors held positive perception of the value of modern methods for improvement of the extension service quality. Managers and supervisors supported the use of modern extension methods as a means to improve the quality of the service delivered by their agents. The findings, therefore, indicate that younger and middle aged extension agents should be targeted for coaching and capacity building support on use of modern extension methods in Trinidad and Tobago.

The extension agents working in private sectors considered the use of modern extension methods to be very important for improving image of the service. Results showed a positive and highly significant coefficient when perception of private extension agents was compared with the perception of the public extension agents. With respect to service quality the analysis found that education was a significant predictor positively associated with agents' perceptions of using modern extension methods in delivering extension services. This suggests that extension agents with higher education have better perception about how modern extension methods lead to better service quality.

DISCUSSION AND CONCLUSION

The findings of the study add important insights into on-going global and regional discussions surrounding competencies development of use of modern extension methods from personal and psychological perspective of extension agents (Landini, 2015; Davis and Sulaiman, 2014; Chowdhury et al., 2014; Strong et al., 2014; Kibwika et al., 2009). Overall, there is a positive perception of the extension agents that modern extension methods contribute to improving image and service quality in Trinidad and Tobago. Extension agents who use modern extension methods improved access of relevant and timely information to their clients which led to a positive perception of the value of modern extension methods to improve the quality of services being offered. Nevertheless, a majority of them perceived that they could not utilize their skills and competencies due to their involvement in non-extension activities. This can be related to what Strong et al. (2014) reported that extension agents recognized the value of ICT but were less likely to report intentions to use technology with client.

There are several factors which significantly influenced

the extension agents' perception about image and service quality as it relates to the use of modern extension methods. Age and experience are important predictors for developing a favourable perception of the value of modern methods in improving image and service quality perception. The findings are in line with Akinsorotan and Oladele (2009) who revealed that extension agents developed better perception of organizational value as they gain more experience. The present study indicates that middle-aged (e.g., 30-45 years) extension agents developed better perception of the value of modern extension. Most notably, the agents at their later years of career (46 to 60 years' experience category) were less motivated to use the advanced methods; indicating that technical confidence plays a key role. It is likely that agents belonging to this category did not perceive learning and adopting new methods of technology dissemination as part of a learning context which could enhance image and service quality outcomes. As such, continuous training to include motivation for this category may help in this regard.

Extension supervisors and managers perceived new methods as valuable tools for improving image and service quality and overall development of the extension services. The findings suggest that supervisors and managers should identify and provide the necessary training opportunities for personal growth and development of junior field agents. The findings echo with the policy suggestion for developing capacity of new hires of extension agent through appropriate educational training and coaching so that they realize the value of modern methods and techniques (Kibwika et al., 2009; World Bank, 2012; Davis and Sulaiman, 2014). Education played an integral part in agents' perception of value of modern methods in improving image and service quality. This is supported by the study of Strong et al. (2014) who concluded that education background of the Caribbean extension officer was a key predictor for developing competencies of ICT and other relevant methods. On the issue of gender, mostly males were positively recognising and then endorsing new extension methods as a means to improve service quality and image. This is in contrary of the findings of Akinsorotan and Oladele (2009) who reported that sex has nothing to do with the organizational value.

Overall the findings reconfirm that an extension organization is not a homogenous entity as individuals working in the organization usually recognize ongoing practices from a differential psychological and personal state (Leeuwis and Van den Van, 2004; Akinsorotan et al., 2009; Landini, 2015). Also, such a predisposition might differ between organization and the subject matter. For instance, the study indicated that private sector agents had positive perception of the value of modern methods in improving image of service. Moreover, extension agents working in the livestock sector had positive perception of the value of modern methods in improving service quality. Abdel-Ghany (2014) reported that it is necessary to identify employees' readiness, beliefs and resistance before introducing modern methods of extension, for instance, mobile extension in the New Valley governorate, Egypt. In the Latin American and Caribbean (LAC) context, it is necessary that psychological dispositions of public sector extension agents favour use of new modes and methods of extension. Otherwise, it may lead to rejection and ultimately failure of current reforms that are being pursued (Landini, 2015, 2016). Therefore, it is recommended that extension service institutions should perform evaluations to determine the capacity of agents to enable them to utilize the acquired skills in improving job performance and enhancing the quality of services offered by the extension services of Trinidad and Tobago. The importance of continued use and practice of modern methods and the need to reinforce the sustained provision of supporting infrastructure has been emphasized by the agents' positive indications.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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