



Information Communication Technology Usus by Rusticarum Extension Muneris: Vertical Defiances

KEYWORDS

Information communication technology, agricultural extension, defiances, application.

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ABSTRACT *'Information communication technology in Agriculture' is turning up field gazing on the bells and whistles of agricultural and rural flourish in India. It comprehend innovative applications using Information communication technologies in the rural milieu. The ennoblement in Information communication technology can be exploited for providing precise, timely, relevant information and services to the farmers, thereby facilitating an milieu for more remunerative agriculture. About 60 percent of Indian Population subsist in rural circumference and they have very tenuous access to information. Information communication technology can bring about crucial alterations to the living conditions of rural population and in this regard, agricultural extension plays an crucial role. Howbeit, agricultural extension faces several defiances in using the Information communication technology in India. This study was conducted to recognize the defiances in application of Information communication technology by extension service. A questionnaire was developed and data collected from 200 extension specialists. The ordinal factor analysis was used and the results evince the classification of the defiances into six latent variables. The variables were assorted in organizational, technical, social, financial, regulatory and human factors.*

INTRODUCTION:

Magnanimous part of population in the developing world lives in rural areas and they have no or tenuous access to the information. India is no exception and about 60 percent of its population which survive in rural areas have limited access to the information. During the last two decades, the world testimonies an unprecedented growth in area of information and communication Technology. Information communication technology aids people to communicate effectively, overcomes the limitations of time and space, empowers people by providing information and knowledge, provides income generating and learning opportunities, assentuates government transparency and efficiency and enables people to reveal their concerns and to actively participate in decision making processes (Asian Development Bank, 2004). Testimony shows that even little efforts to put rural telecommunication policy on the National agenda can telecommunication policy and bridge the digital lacuna in Guatemala, Trinidad and Tobago, Canada and Australia have yielded impressive results. In terms of rural development, Information communication technology can play an important role in improving the quality of life for rural people. Howbeit, the promise has yet to be realized due to the lack of connectivity and accessibility to universal service and markets among rural communities. Consequently, it is *sin qua non* to remove the impediments faced by the developing rural economy and provide basic infrastructure in rural areas to enable the spread of Information communication technology. This would enable Information communication technology to be part of a comprehensive socio-economic development strategy for rural development as a means, not an end. The World Summit on Information Society (WSIS) has targeted by 2015 in that half of the world's population will have access to the internet. Howbeit, access to information by rural population is often very limited, hindering the use of recent technology and information by them. Rural and remote areas have less access to Information communication technologies compared to their urban counterparts. Rural areas are characterized by low infrastructure for Information communication technology usage, long distance to maintain and repair Information communication technology, small market size, low affordability, literacy, Information communication technology literacy, low awareness of opportunities and benefits of Information communication technology (Asian Development Bank, 2004). Howbeit, bridging the digital lacuna between urban and rural areas is one of the defy facing governments and policy makers today, Factors that contribute and exacerbate this lacuna

include; economic Information communication technology infrastructure remains cost prohibitive for many communities and nations, geographic, terrain, distance and infrastructure, technological, increasing skills required to participate in the Information communication technology, economy, cultural inequalities in access and participation and political long term investment versus short term political cycle. Agricultural Extension by its nature has an crucial role in the adoption of new technology and innovation. The trend from supply driven extension to demand driven extension requires a new approach which open the door for using Information communication technology as a cost effective and practical communication tool to address the needs and demands of rural population. Extension organizations have a key role in brokering amidst communication technologies, providers of those technologies and services, and the client group they serve. In this role, they must be able to examine the suitability of various Information communication technologies, the accessibility of Information communication technologies in rural and remote areas, how to best to reconcile costs and benefits, and how to insure that Information communication technology access includes a diversity of cultures, languages, social strata, and age groups, and is gender sensitive. Howbeit, adoption of Information communication technology has not been an easy task for extension and sometimes has been counterproductive. Adoption is usually not spontaneous, the technology has to be taught and learned adopted to existing experience and integrated into production. As is often the case with technological-innovation potential and expectations can outpace reality. The knowledge gap is compounded by a lack of essential skills, particularly in communication and management that are required by extension workers if they are to effectively transfer technologies to farmers in a manner that leads to sustainability. It is important to realize that the information that extension workers need includes not only technical knowledge but also knowledge and skills that increase the effectiveness of delivery. Improving access to these vital extension skills will lead to better designed, delivered and supported technologies (Bell, 2004). Extension organizations in fulfilling their tasks face several challenges in application of Information communication technology. Potential challenges are lack of training for agents, lack of knowledge and skills among agents, poor infrastructure, financial constraints, high cost of buying and marinating hardware and software and legislative, policy and regulatory impediments. High start-up costs, infrastructural obstacles, lack of good and skillful trainers, poor connectivity and rugged

hardwires are among some of the defiances (Mirzaei, 2003). In this regard, there is no single and appropriate Information communication technology intervention for developing countries and the constraints and opportunities should be addressed, in order to find location specific Information communication technology road map.

PURPOSE AND OBJECTIVES:

The paramount purpose of this research was to determine the defiances in the application of Information communication technology by the agricultural extension service. The objectives are to recognize the personal characteristics of the agricultural extension experts to recognize the factors which considered being defiances in the application of Information communication technology by the agricultural extension service in and to determine the relationship amidst factors and the application of Information communication technology by the agricultural extension service.

MATERIALS AND METHODS:

We organized a serial of in depth interviews with diverse senior experts in the Directorate of Extension at Ministry of Agriculture to examine the validity of our questionnaire. A questionnaire was composed based on these interviews and quondam literature. The questionnaire comprised both open ended and close ended questions. Open ended questions were used to congregate information not covered by the close ended questions, and to encourage participant to provide feedback. The 5 point likert scale ranging from 1 as strongly disagrees to 5 as strongly agree used for the measurement. A pilot study was conducted with 50 extension experts that were not included in the sample population to determine the reliability of the questionnaire for the study. Computed Cronabch’s Alpha was 91.0% which indicated high reliability of the questionnaire. The research population included all agricultural extension experts in India. Using stratified sample technique and result with pilot test, 200 experts were surveyed. The data collected by mailing the questionnaire across the country and was analyzed by using ordinal factor analysis technique.

RESULTS

Table 1 summarizes the demographic silhouette and descriptive statistics. The results of descriptive statistics insinuated that bulk (78.7%) of extension experts are male with a mean age of 37 years old. Majority (65%) of respondents had graduate degree with major (67.4%) in agriculture. Table 2 by using the ordinal factor analysis evinces the classification of the defiances into six quiescent variables. The variables were classified in organizational, technical, social, financial, regulatory and human factors. Defiances faced by extension experts are in descending order organizational (29.312%), technical (8.194%), financial (7.38%), social (5.328%), regulatory (4.863%) and human (3.031%). The basic idea of factor analysis is to find a set of quiescent variables that comprise the identical information. The classic factor analysis presumes that the both observed and the dormant variables are continuous variables. But, at practice, the observed variables are time and again ordinal.

DISCUSSION

As the ordinal factor analysis evinced, factors were categorized into six defiances, organizational, technical, financial, social, regulatory and human defiances, ordered by their impact. Based on the findings, organizational defiances are the most pivotal issue. It reverberates that of Tai (2003). Technical defiances are always potentially bothersome in the application of Information communication technologies. Schmitz (2003) stated for extension organization, in order to fulfill its function, has to conquered technical defiances along with human, regulatory, financial, and social defiances as main constraints to apply Information communication technologies. The findings about financial defiances is in accordance with that of Stribhadung (2006) which evinces that cost of buying and maintaining the system would have affect on the

application of Information communication technology. The importance of technical factors pointed out by several authors such as Barajas et al. (2000), Ebadi (2005) and Castels (1996). The findings also reflect an pivotal fact that positive attitude and knowledge and skills of experts directly impacts the application of the Information communication technology. This is in corroborating with the findings of Lynch (2001). The results of study pointed out to this fact that there was relationship between social factors and application of Information communication technology by the extension service in India. The findings are in accordance with the studies by Sullivan (2002). Information communication technology has tremendous potential to help improve living conditions of rural population in India and it is evident now that Information communication technology will alter the way people live, work, and learn . In this regard, agricultural extension has the opportunity to harness the effective use of Information communication technologies. To achieve the goal of application of Information communication technology as an adaptable, available, accessible, affordable and extendable technology for extension service to deliver information to rural population, financial, social, human, and organizational sustainability need to be obtained over a period of time. Technology options that provide affordable access need to be carefully examined. Consequently innovative technologies and applications need to be developed that purvey specifically to rural areas. The financial burden on developing Information communication technology for rural areas is mainly on the governments and it is pivotal to help and introduce Non governmental organisations and private sector to partake in developing Information communication technologies in rural India. Howbeit a big portion of the rural population in India has yet to benefit from this technological revolution. Agricultural extension in India need to provide training in operation and maintenance, to raise the awareness of cotters about the benefits of Information communication technology and to address the policy and regulatory issues which impact on Information communication technology usage. The issue is not only the access to technology but it is equally crucial to provide training, tools and guidance to make rural population aware of what technology can do for them, and what they can do with technology. The agricultural extension services in India should conquer and transform the defiances into the opportunities. In milieu, agricultural extension organization cmony with the defiances could transform these potential defiances to the opportunities, alternatively lack of awareness with the nature of defiances would swerve them to jeopardy.

Table 1. Privy peculiarities of Extension Experts

Sex	Age/Year	Work experience/Year	Degree	Field of study
Female (21.3%)	Mean = 37	Mean = 15	Graduate (65%)	Agriculture (67.4%)
Male (78.7%)			Postgraduate (35%)	Other (32.6%)

Table 2. Classification of defiances by using ordinal factor analysis.

Factor Name	Variables	Variance by factor
Organizational	Lack of interest by high level managers and extension experts to use Information and Communication Technology, Concerns about the risk of using Information and Communication Technology, Low quality of Service provided by Service Centers, Lack of interest by private sector to participate in developing Information and Communication Technology for rural areas, Low number of Service Centers in rural areas.	29.312%

Technical	Low bandwidth, Lack of hardware, Lack of appropriate infrastructure, Lack of software, Low numbers of Persian Web Sites, Weak telecommunication systems Old telephone lines, Lack of expertise.	8.194%
Financial	High cost of buying hardware and software, High cost of access to internet, Cost of maintaining the system, Expense of upgrading the system, Lack of investment by private and public sectors	7.387%
Social	Technophobia, Negative attitude about modern technology, Not understanding about advantages and disadvantages of Information communication technology, Lack of social interaction, Prejudiced beliefs about advantage of Information and Communication Technology.	5.328%
Regulatory	Lack of intellectual property right, Centralized extension planning, Lack of policy support, Lack of adequate regulatory environment, Rigid and outdated regulations, Lack of strategic vision in development Information communication technology for rural areas, Current regulatory structures and existing national legislation unable to deal with the speed of changes in technology related changes.	4.863%
Human	Low level of knowledge and skills among farmers, Negative attitude about ability of extension experts, Weak experience of using Information and Communication Technology by extension experts, Not adequate instructors in Information and communication Technology, Complexity of e-learning, beliefs of farmers to traditional education.	3.031%
Total		58.108%

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