

RESEARCH ARTICLE :

Attitude towards ICT utilization and its influencing variables among the agricultural officers in Andhra Pradesh

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SUMMARY : Information technology is a key to agricultural development. The use of information and communication technology (ICT) is becoming progressively more widespread throughout various sectors including education, business as well as agriculture. ICTs are all technologies used for the widespread transfer and sharing of information. Hence, the present investigation was carried out in Nellore, Srikakulam, Ananthapur districts purely covering all the three regions viz., Coastal Andhra, North Coastal and Rayalaseema regions in the newly formed state of Andhra Pradesh. The main objective of the study was to measure attitude towards ICT utilization and the relationship between selected profile characteristics of Agricultural Officers and attitude towards ICT utilization. *Ex post facto* research design was followed for the study. A total 120 respondents covering the three districts equally were selected for the study. It was found that nearly one third (31.66%) of the Agricultural Officers had neutral attitude towards ICT utilization followed by 20.84 per cent of them had shown moderately unfavourable, 19.16 per cent of them had moderately favourable attitude and about 15.84 had highly unfavourable attitude. On the other side, highly favourable attitude towards ICT utilization was noticed by nearly 12.50 per cent of the Agricultural Officers. 'Updating knowledge', 'Technology transfer', 'Unimaginable information', 'Global knowledge sharing', 'Time saving', these five concepts ranked from first to fifth respectively followed by 'Widens vision', 'Interest in ICT', 'Speedy delivery of information', 'Browsing time', 'Global development', 'Vital for extension growth' ranked from sixth to eleventh and 'Difficulty in understanding', 'Gravity of information', 'Oral face to face' 'Self-thinking', 'Practicality', 'Plagiarism' and 'Monotony' ranked from twelfth to eighteenth respectively are the critical concepts that contributed for positive attitude towards ICT utilization by the Agricultural Officers. The relationship between selected profile characteristics and their attitude towards ICT utilization indicated that job autonomy, convenience of posting, possession of communication gadgets, organizational climate and job satisfaction were positively significant related. Further, the selected twelve independent variables put together explained about 51.24 per cent variation in the attitude towards ICT utilization.

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BACKGROUND AND OBJECTIVES

Attitude of Agricultural Officers towards ICT utilization was operationalized as positive or negative feeling towards ICT utilization. Computer or ICT attitude is described as a person's general evaluation or feeling towards computer related technologies and its related activities (Smith *et al.*, 2000). In a modern agricultural extension system, they need to know how to use ICTs for facilitating innovations. They should also be encouraged to develop positive attitude towards the knowledge, experience and capacities of the local people. (Amalu, 1998). By measuring this attitude, we can examine user's interaction with computer hardware and software, other persons relating to computers and activities that involve computer use. Information is general defined as the "Knowledge communicated or received concerning a particular fact or circumstance". Information and Communication Technology (ICT) also referred to as Information Technology (IT) is the scientific, technological and engineering disciplines and the management technologies used in the handling of information, processing and application related to computers. Information and Communication Technology is an omnibus term that encompasses computer and telecommunications technology (Unagha, 2006). According to CTA Information and Communication Technologies (ICTs) are technologies which facilitate communication and thus the processing and transmission of information electronically. Information and Communication Technologies (ICTs) are steadily and increasingly influencing human beings and are changing our attitudes towards these technologies (Kubiato and Halakova, 2009). To make farm information and technology transfer more effective, greater use will need to be made of modern ICT among researchers, extension personnel, farmers and other stakeholders (Saravanan, 2010). The Academy for Educational Development and Win rock International (2003) defines Information and Communication Technologies as the combination of hardware, software, and the means of production that enable the exchange, processing, and management of information and knowledge. In the process of ICT use in agriculture, extension workers are considered as important stakeholders and a crucial part of extension development. In a modern agricultural extension system, they need to know how to use ICTs for facilitating innovations. (Martin *et al.*, 2001). Hence, the present

study was undertaken with an objective to find out the attitude towards ICT utilization and relationship between the selected profile characteristics of Agricultural Officers and their attitude towards ICT utilization in Andhra Pradesh.

RESOURCES AND METHODS

Ex post facto research design was followed to measure the attitude towards ICT utilization and relationship between selected profile characteristics of Agricultural Officers and attitude towards ICT utilization. The present investigation was carried out in Nellore, Srikakulam, Ananthapur districts purely covering all the three regions *viz.*, Coastal Andhra, North Coastal and Rayalaseema regions in the newly formed state of Andhra Pradesh. From each of the selected district, forty Agricultural Officers were selected as respondents by following simple random sampling procedure. The sample constituted to a total of 120 respondents. Keeping the objectives of the study, attitude of Agricultural Officers towards ICT utilization was measured with the help of a scale and pretested. This scale comprises of eighteen statements out of which four are negative and fourteen are positive. All these eighteen statements rated on five point continuum *viz.*, strongly agree (SA), agree (A), undecided (UD), disagree (DA), strongly disagree (SDA) with scores of 5, 4, 3, 2 and 1 respectively for positive statements and 1, 2, 3, 4 and 5 for negative statements. The possible minimum and maximum score was 18 and 90. The respondents were grouped into the following five categories based on the scores obtained by each of them duly following mean and standard deviation. The relationship between the selected personal characteristics with their attitude towards ICT utilization was measured by co-efficient of correlation and multiple linear regression analysis.

OBSERVATIONS AND ANALYSIS

The results obtained from the present study as well as discussions have been summarized under following heads:

Attitude of agricultural officers towards ICT utilization :

The results are presented in Table 1 indicated that, nearly one third (31.66%) of the Agricultural Officers

had neutral attitude towards ICT utilization followed by 20.84 per cent of them had shown moderately unfavourable, 19.16 per cent of them had moderately favourable attitude and about 15.84 had highly unfavourable attitude. On the other side, highly favourable attitude towards ICT utilization was noticed by nearly 12.50 per cent of the Agricultural Officers.

Even though the ICT are the important tools for effective transfer of technology, the Agricultural Officers might be very busy with their routine daily activities and

Table 1: Distribution of agricultural officers according to their attitude

Sr. No.	Attitude	Frequency	Percentage
1.	Highly unfavourable	19	15.84
2.	Moderately unfavourable	25	20.84
3.	Neutral	38	31.66
4.	Moderately favourable	23	19.16
5.	Highly favourable	15	12.50
Total		120	100
Mean=67.90		S.D. =5.53	

Table 2 : Critical analysis of attitude statements by the agricultural officers towards ICT utilization

Sr. No.	Statement	Critical concept	X value	S D	Z Value	Rank
1.	ICT utilization updates the knowledge of an extension officer	Updating knowledge	4.41	0.52	1.11	I
2.	Transfer of technology can be effective through ICT utilization	Technology transfer	4.34	0.57	1.00	II
3.	One can explore unimaginable information through ICT utilization	Unimaginable information	4.24	0.59	0.94	III
4.	ICT is an effective means for sharing of global knowledge	Global knowledge sharing	4.33	0.62	0.91	IV
5.	ICT utilization saves the time of an extension officer	Time saving	4.14	0.72	0.75	V
6.	ICT utilization widens the vision of an extension officer	Widens vision	4.06	0.73	0.73	VI
7.	I don't have interest to use ICT	Interest in ICT	4.12	0.81	0.67	VII
8.	ICT utilization helps in speedy delivery of information	Speedy delivery of information	4.28	0.87	0.64	VIII
9.	Most of my time is wasted in browsing of information	Browsing time	3.83	0.88	0.57	IX
10.	ICT utilization is the stepping stone for the global development	Global development	4.11	0.96	0.56	X
11.	ICT utilization is imperative for the growth of extension	Vital for extension growth	3.72	0.91	0.53	XI
12.	Utilization of ICT is very difficult to understand	Difficulty in understanding	3.46	0.94	0.48	XII
13.	ICT utilization is surpassing the gravity of information	gravity of information	3.33	1.05	0.41	XIII
14.	Oral Face to face communication is enough for extension work	Oral face to face	3.21	1.19	0.35	XIV
15.	Self-thinking is ignored due to high dependence on ICT	Self-thinking	2.68	1.13	0.31	XV
16.	ICT utilization will hamper the practicality of extension activities	Practicality	3.00	1.16	0.34	XVI
17.	More scope for plagiarism through ICT utilization	Plagiarism	2.39	1.04	0.30	XVII
18.	Monotony of work can be reduced by using ICT	Monotony	4.23	0.64	0.04	XVIII

not showing interest to use ICT. This might have developed an unfavourable attitude among one third of the Agricultural Officers. On the other side, the Agricultural Officers with high zeal and enthusiasm to use ICT for their day to day activities as well as office activities might have developed favourable attitude towards ICT. Overall the age and pattern of functioning of an Agricultural Officer might have contributed favourable attitude towards ICT.

Critical analysis of attitude statements by the agricultural officers towards ICT utilization :

It is clear from the Table 2 that 'Updating knowledge', 'Technology transfer', 'Unimaginable information', 'Global knowledge sharing', 'Time saving' were found to be more significant concepts ranked first, second, third, fourth and fifth with Z values 1.11, 1.00, 0.94, 0.91 and 0.75 respectively. These five concepts contributed more for having positive attitude towards ICT utilization by the Agricultural Officers.

'Widens vision', 'Interest in ICT', 'Speedy delivery of information', 'Browsing time', 'Global development', and 'Vital for extension growth' were found to be other concepts ranked sixth, seventh, eighth, ninth, tenth and eleventh with Z values 0.73, 0.67, 0.64, 0.57, 0.56 and 0.53, respectively. These six concepts also might have influenced for having positive attitude towards ICT utilization by the Agricultural Officers.

'Difficulty in understanding', 'Gravity of information', 'Oral face to face', 'Self-thinking', 'Practicality', 'Plagiarism' and 'Monotony' were found to be the concepts ranked twelfth to eighteenth with Z values 0.48, 0.41, 0.35, 0.31, 0.34, 0.30 and 0.04, respectively. These six concepts also might have influenced for having positive attitude towards ICT utilization.

The Agricultural Officers might be effectively using ICT for regular updating of their technical knowledge at the needy situations and the same has been effectively transferring to the farming community through the available ICT. They also might have felt that the level of understanding of ICT as easy and helps in global dissemination of information. Accordingly they also might have perceived it as a tool for widening the vision of an Agricultural Officer and resulted in saving the time of an Agricultural Officer. Occasionally, they might be wasting the time through unnecessary browsing of different websites. The remaining statements like

practicality, plagiarism, monotony were not much influencing the attitude of Agricultural Officers towards ICT utilization.

Relationship between the selected profile characteristics of agricultural officers and attitude towards ICT utilization :

An attempt has been made to find out the association between independent variables and dependent variables through correlation co-efficient (r) values. The results are presented in Table 3 indicated that job autonomy (0.211*), convenience of posting (0.225*), possession of communication gadgets (0.587**), organizational climate (0.247**) and job satisfaction (0.334**) were positively significant related. Age (-0.218*) and perceived workload (-0.312**) were negatively significant related where as Gender (0.007^{NS}), Academic qualification (0.126^{NS}), personal importance (0.104^{NS}), social status attached to the job (0.021^{NS}) and work experience (0.019^{NS}) showed non-significant relationship with attitude towards ICT utilization.

Table 3: Correlation co-efficients between the selected profile characteristics and attitude towards ICT utilization

Sr. No.	Profile characteristics	'r' values
1.	Age	-0.218*
2.	Gender	0.007NS
3.	Academic qualification	0.126NS
4.	Work experience	-0.019NS
5.	Possession of communication gadgets	0.587**
6.	Perceived workload	-0.312**
7.	Organizational climate	0.247**
8.	Job autonomy	0.211*
9.	Personal importance	0.104NS
10.	Social status attached to the job	0.021NS
11.	Convenience of posting	0.225*
12.	Job satisfaction	0.334**

* and ** indicate significance of values at P=0.05 and 0.01, respectively
NS = Non - significant

There is no significant relationship between gender, Academic qualification, personal importance, social status attached to the job and work experience with their attitude towards ICT utilization.

The Agricultural Officers with relatively higher age might be more traditional in their way of functioning resulted in unfavourable attitude towards ICT utilization. On the other side, young Agricultural Officers might be

effectively utilizing ICTs and developed favourable attitude towards ICT utilization. Both male and female Agricultural Officers might be having almost similar attitude towards ICT utilization due to equality in their nature of work. Both of them might be performing their day to day activities with almost equal pace and pattern and resulted in non-significant relationship. Attitude is determined by the way of handling a particular entity than the academic qualification. The extent of use and utility in the day to day activities were the basic factors that influence the attitude towards ICT utilization. Hence the academic qualification has shown non-significant relationship with attitude towards ICT utilization. It is a known fact that all the ICTs are very important in speedy dissemination of information. As Agricultural Officers, they might be aware of the role of ICTs in transfer of technology and developed a positive attitude towards ICT utilization. Hence, a relatively uniform attitude being framed among the Agricultural Officers irrespective of their experience. This could be the possible reason for non significant relationship between experience and attitude towards ICT utilization. The possession of different ICT gadgets might be pushing the Agricultural Officers to learn the knowledge and application of skills which in turns develops positive attitude towards ICTs. The gravity of use of the ICTs can be known only through its utilization in their natural setting. This situation would have given scope for them to effectively utilize ICTs and developed positive attitude towards ICTs. On the other side, the Agricultural Officers with poor ICT gadgets might have developed negative attitude due to their lack

of awareness and ignorance on the role of ICTs in transfer of technology. Due to the monotonous and drudgery work load on part of the Agricultural Officers, they might have developed a negative attitude towards ICT utilization. ICTs require more concentration and presence of mind especially in the initial stage of learning which might not be possible for them due to their heavy workload. This condition led to developing negative attitude towards ICT utilization. Encouraging organizational climate is the source of inspiration for anybody to handle the things creatively. The Agricultural Officers who perceived good organizational climate might have been attracted to ICTs and their application for their day to day activities have developed a positive attitude towards ICT utilization. On the other side, the Agricultural Officers with poor organization climate might have adjusted themselves with the available traditional tools of communication and developed unfavourable attitude towards ICTs. Job autonomy is the state of being independent in the system. It develops the scope for creative thinking and self motivation. The Agricultural Officers with high job autonomy might be more positive towards their working environment and trying to utilize the available ICTs in their real life situations. Due course of time they might have developed positive attitude towards ICT utilization. On the other side, the Agricultural Officers with low job autonomy might not be interested to use all these ICTs and in turn developed negative attitude towards ICTs. The Agricultural Officers with high personal importance might have perceived their role in building confidence among the farming community

Table 4 : Multiple linear regression analysis of selected independent variables with the attitude towards ICT utilization

Sr.No.	Variable	Partial regression co-efficient values	Computed 't' values
X ₁	Age	0.5869	1.8374*
X ₂	Gender	0.8426	0.1923NS
X ₃	Academic qualification	0.4468	0.0826NS
X ₄	Work experience	0.2237	-0.0347NS
X ₅	Possession of communication gadgets	0.0157	6.1375**
X ₆	Perceived workload	0.2189	4.2480**
X ₇	Organizational climate	0.6324	2.8916*
X ₈	Job autonomy	0.7165	1.249NS
X ₉	Personal importance	0.3343	-0.5257NS
X ₁₀	Social status attached to the job	0.9217	0.3048NS
X ₁₁	Convenience of posting	0.1824	0.9623NS
X ₁₂	Job satisfaction	1.0161	2.129*

R²=0.5124

* and ** indicate singificance of values at P=0.05 and 0.01, respectively

NS= Non-significant

through more face to face contacts as well as group contacts. This opinion might have resulted in non significant relationship between personal importance and attitude towards ICT utilization. Attitude towards ICT utilization might be reorienting the Agricultural Officers towards relatively less personal contacts resulted in less social status attached to the job of Agricultural Officers. Further the Agricultural Officers who aspire for high social status attached to the post of Agricultural Officer trying more towards influencing farming community through different ICTs. This resulted in non significant relationship between social status attached to the job and attitude towards ICT utilization. Placement of right people at right place as per the wish of an employee without dislocating the organization goals is a challenging task for the organisation. If any organization succeeded in such operation, definitely employees will be more energized and show positive attitude towards their job. The above fact might have contributed for developing positive attitude towards ICT utilization and vice versa for the other extreme category of Agricultural Officers. Job satisfaction is the psychological entity which induces the quality of work on part of the employee. It also motivates the employees to do something innovatively and this might have developed the positive attitude towards ICTs for improving their performance.

To determine the combined effect of all the selected independent variables in explaining variation in attitude towards ICT utilization, Multiple Linear Regression analysis was carried out. It was observed from the Table 4 that the twelve independent variables with the attitude towards ICT utilization taken on multiple linear regression analysis gave the R^2 (co-efficient of multiple determination) value of 0.5124. Hence, it could be depicted that all the selected twelve independent variables put together explained about 51.24 per cent variation in the attitude towards ICT utilization. The independent variables *viz.*, Age, Possession of communication gadgets, Perceived workload, Organizational climate and job satisfaction were found to contribute to the most of the variation in attitude towards ICT utilization.

Conclusion:

All the Agricultural Officers must be exposed to the different ICT tools as well as latest developments in the digital field. This facilitates the Agricultural Officers to know the different ICT tools and their utilization in their day to day operations. Awareness camps have to be organized by utilizing different state level and district level meetings organized by the State Department of Agriculture. Explaining the pros and cons of different ICT tools as well as their application in real life situation will establish a positive attitude towards different ICTs. The attitude will definitely helps in attracting the Agricultural Officers towards better utilization of ICTs.

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