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"Pre -Post ICT usage -Happiness and stress comparative analysis for agriculture sector in various castes among various income groups in Ananthapuramu District Andhra Pradesh (AP) ."

Dilip Bathena Ph.D

M.S.C (IT) , MA (Soc), PG-Dip in Rural. Dev.

Abstract

"The farmers are very different from the Urban ICT users; they have very different problems which cause stress to them like low production, lack of market price, lack of subsidized loans, private money lenders, cold storage rents etc. ICT applications may impact Happiness and stress levels about ICT among various Caste Categories among various income groups to an extent according to various studies. There are various ICT initiatives taken by Government of India as well the state government of AP

The Pre and Post ICT Happiness and stress levels of respondents in agriculture sectors are studied. Farmers who are backbone of rural economy. There were several incidents which show that due to psychological stress and also overall well-being is affected due to stress.

This Study analyzes the Happiness and Stress levels or rural community in the selected study area with Total sample size of 320, 8 villages 40 in each village, Itkalapalle and Rachanapalle of Anantapur Mandal, Peddapappur, Juttur of Pedapappur Mandal, Kunuthuru and Chigicherla from Dharmavaram Mandal, Puttaparthi (rural) and Pedapalle from Puttaparthi Mandal in Ananthapuramu District of Andhra Pradesh.

This Study focuses on improving well-being of farmers by finding how ICT can play vital role in helping farmers in overcoming stress and improve happiness levels. This study also focuses on suggestions for improving ICT programmes to enable the rural communities to benefit maximum from the Government ICT Initiatives and schemes without any stress."

Key words: Happiness, ICT, Stress, Rural Communities, farming. Information, Happiness, farmers,

Introduction

Information and Communication technology plays vital role in the rural communities' .As the most of the villages are in remote placed and less facilities and infrastructure is there in general in any village in India. ICT can play a major role like removing gap between in terms of remoteness and other infrastructure and rural India. It can be also noted that rural communities are the back bone of Indian society in terms the food security and other basic necessities.

Happiness is a state of emotion which can be defined as feelings of joy, contentment and fulfillment. Happiness involves in positive emotions and satisfaction which is very essential for a person's general health and wellbeing.

Stress is emotional state or physical state of tension which can come from any event or thought which can make a person frustrated. Generally stress is a can regarded as body reaction to a physical or mental challenge or demand. High stress levels can cause overall negative effects to wellbeing and health of a person. So it is very essential to avoid high stress to avoid ill effects.

The users of ICT experience various levels of happiness, contentment and distress. To analyze the extent of these variables a Likert scale was used. The following indicators represented by "Very Happy", "Happy", "Neither Happy nor stressed", stressed, and Very Stressed were used. These variables have been analyzed for pre ICT usage and Post ICT usage for the selected activities in their daily life The Socioeconomic variables like caste and different income groups were considered for analysis across sectors , The analysis has been done separately for each income group viz. High Income group(HIG), Middle income group(MIG), Low income group (LIG). An analysis of this would throw light on the impact of ICT on the contentment and stress level under each income group across castes and sectors in which ICT is used. This would help- in fine tuning the ICT applications which are presently available in the important sectors so as to make it more adaptable and less stressful to uses of technologies. There were some who did not experience any changes in levels of contentment and dissatisfaction; they remained neutral from the pre and Post usage levels.

The Very Happy and Happy indicate a positive aspect in the use of ICT Techniques and the variables stressed and very stressed indicate a degree of negative impact of uses of ICT.

Review of literature

According to literature survey various research articles, it's been found that Rural there several problems and hardships faced by farmers. Some of the main problems which cause stress to farmers are Small Land holdings, Scarcity of quality and sufficient seeds and fertilizers, poor irrigation facilities, Lack of mechanization lack of affordable labor, lack off efficient Agriculture marketing systems , lack of finance, high interest debts. In overcoming those problems may be of ICT

applications give effective solutions which would lead to better agriculture outputs and which can strengthen rural economy and make the rural users more competent to be ready with the fast competitive world and make farmers stress relieved and increase happiness levels.

According to A discussion paper "Impact of ICTs on Agriculture growth and Development Case Studies from Karnataka" (2019) by MANAGE National Institute of Agricultural Extension Management (MANAGE) (An organization of Ministry of Agriculture and Farmers' Welfare, Govt. of India) revealed that stress in farmers is generally caused due to low income, access to information related to agriculture marketing, production trainings etc. The paper reveals how ICT can help to overcome stress by acquiring relevant information on good agriculture practices, weather, quality input, markets tendency etc. The papers also explained how smart phones and social media can be used to exchange of ideas and agriculture innovations among farmers and agriculture institutions for the betterment of farmers and helping farmers to overcome stress with various ICT advisory services.

But the study shows that although ICT can play a great role in overcoming stress if the ICT applications or programs are not made local farmers specific needs and skills and proper training is not given then the farmers stress level may not reduce in post ICT period or sometimes may even increase due to digital divide and high competition, technostress due to ICT etc.

It is also found that study very less studies have been made in India and particularly on happiness and stress levels of farmers, so this shows that its very essential to Happiness and stress levels analysis based study on ICT usage among farmers to help the farmers who are back bone of Indian society and economy, also it can be noted that the major rural work force and rural economy comes is dependent on agriculture sector is the back bone for Indian economy.

Study Area

This Study analyzes the positive and negative perceptions or rural community in in the selected study area with Total sample size of 320, 8 villages 40 in each village, Itkalapalle and Rachanapalle of Anantapur Mandal, Peddapappur, Juttur of Pedapappur Mandal, Kunuthuru and Chigicherla from Dharmavaram Mandal, Puttaparthi (rural) and Pedapalle from Puttaparthi Mandal in Ananthapuramu District of Andhra Pradesh.

Statement of problem

The Indian farmer in general who is generally a rural resident generally suffer lot of stress which effects wellbeing and his general health. The following below are some of the reasons for farmers stress. 1. Lack of produce, 2. Small and marginal lands

3. Lack of access to Bank loan and subsidized loan in right time , 4. Lack of access to Agriculture marketing information and systems, 5. Low rain fall, 6. Access to cold storage to store agriculture produce at affordable rates, 7. Private money lenders, chit funds and other unorganized finance

sectors high interest rates, This paper studies how ICT can be a tool to overcome stress and increase happiness levels among farmers among various socio-economic groups.

Objectives

Specific objectives

To understand the response of Beneficiaries of ICT initiative awareness and usage in selected study area, rural areas and to assess the Pre and post ICT usage happiness and stress levels.

The Major aspects that requires focus for achieving a good ICT application for farmers

1. Developing customized and location specific marketing information systems. User friendly which are very easy to use without causing stress and difficulty in understanding.

2. Removing stress caused due to digital class divide.

3. removing digital class divide among the people.

3. Giving suggestions to create user friendly and stress free ICT programs and applications for effective use of ICT for activities related E-agriculture.

Research Methodology

The study involved in three research methods as follows below.

1) Primary Data collection through Schedule

2) Participatory rural analysis (PRA)

3) Focus Group Discussions (FGD)

Primary Data Collection .This Methods Involves collecting primary data through interviewing respondents with help schedule.

Participatory Rural Appraisal (PRA) recently renamed Participatory Learning for Action (PLA), is a methodological approach that is used to enable farmers to analyze their own situation and to develop a common perspective on natural resource management and agriculture at village level.

A focus group discussion (FGD) is a good way to gather together people from similar backgrounds or experiences to discuss a specific topic of interest.

Socio economic Variables

Caste Categories

1) Other Castes (OC)
2) Backward Caste (BC)
3) Scheduled Caste (SC)
4) Scheduled Tribe (ST)

Income Groups:

1) High Income Groups (HIG)
2) Middle Income Groups (MIG)
3) Low Income Groups (LIG)

Analysis Techniques used

The following methods are used in researching in selected study area.

1) Likert analysis
2) Cross tabulation of percentages

Likert Analysis:

These Happiness and Stress levels have been analyzed using Likert Scale with the value responses as follows Very Happy, Happy, Neither Happy nor Stressed, Stressed, Strongly Agree. These have been cross tabulated across Caste i.e. BC, OC, SC, ST, HIG, MIG,LIG across the study area of eight village in Ananthapuramu district.

Cross tabulations:

Cross tabulation is a method of analyzing relationship between multiple variables in tabular form. Also known as cross tabs in short form .The Happiness and stress variables responses have been analyzed using cross tabulation of percentages among various caste categories across various income groups.

Discussions, Results and Findings

It is interesting to note that even before the use of ICT techniques. There was a varying level of happiness and a varying level of stress for the operations in various sectors of the people were involved Agriculture, However the introduction and adaption of ICT has mostly led to increase in

happiness or a reduction in stress levels which is a welcome and positive sign. There are cases of adverse effects also. It is an indication that ICT tools are not contributing or serving the purpose for which they haven't been designed or difficult to use and cumbersome leading to problems. Thus warranting change in terms of ease of use, simplification, and provision of adequate training, familiarization, guidance and help.

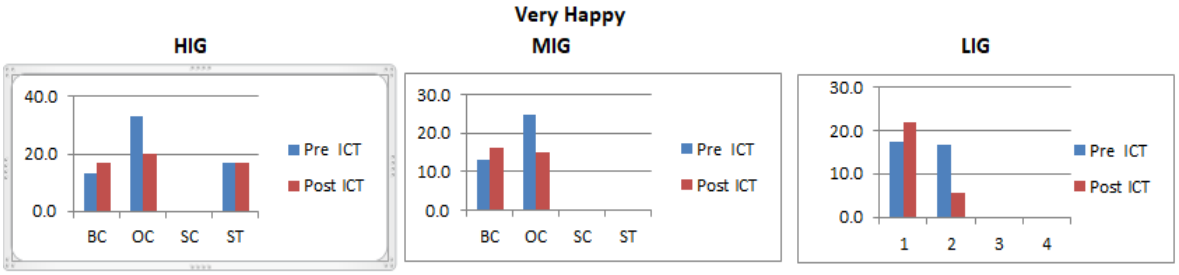
It is also an indication to make the ICT more customized and user friendly based on the local farmer skills, background, needs and demographic, geographic needs. The below table and charts are analyzed further to draw inferences on comparative analysis of Happiness and stress levels among farmers in Ananthapuramu district Andhrapradesh.

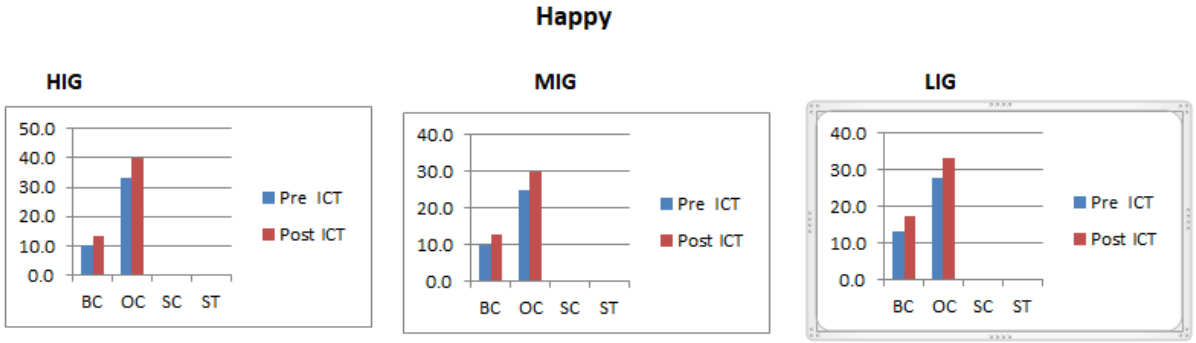
Table No: 1 Pre –Post ICT usage -Happiness and stress comparative analysis for agriculture sector in various castes among various Income groups.

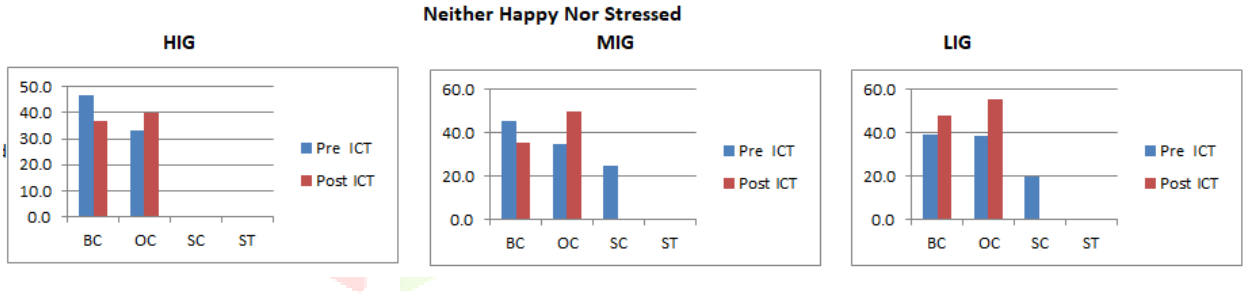
Sector	Source of Information	Very Happy				Happy				Neither Happy Nor Stressed.				Stressed				Very Stressed			
	Caste Category	BC	OC	SC	ST	BC	OC	SC	ST	BC	OC	SC	ST	BC	OC	SC	ST	BC	OC	SC	ST
HIG	Pre ICT	13.3	33.3	0.0	16.7	10.0	33.3	0.0	0.0	46.7	33.3	0.0	0.0	23.3	0.0	100.0	50.0	6.7	0.0	0.0	33.3
	Post ICT	16.7	20.0	0.0	16.7	13.3	40.0	0.0	0.0	36.7	40.0	0.0	0.0	10.0	0.0	100.0	50.0	23.3	0.0	0.0	33.3
MIG	**Pre ICT**	12.9	25.0	0.0	0.0	9.7	25.0	0.0	0.0	45.2	35.0	25.0	0.0	22.6	15.0	50.0	33.3	9.7	0.0	25.0	66.7
	Post ICT	16.1	15.0	0.0	0.0	12.9	30.0	0.0	0.0	35.5	50.0	0.0	0.0	9.7	5.0	75.0	0.0	25.8	0.0	25.0	100.0
LIG	Pre ICT	17.4	16.7	0.0	0.0	13.0	27.8	0.0	0.0	39.1	38.9	20.0	0.0	30.4	16.7	40.0	33.3	0.0	0.0	40.0	66.7
	Post ICT	21.7	5.6	0.0	0.0	17.4	33.3	0.0	0.0	47.8	55.6	0.0	0.0	13.0	5.6	60.0	0.0	0.0	0.0	40.0	100.0

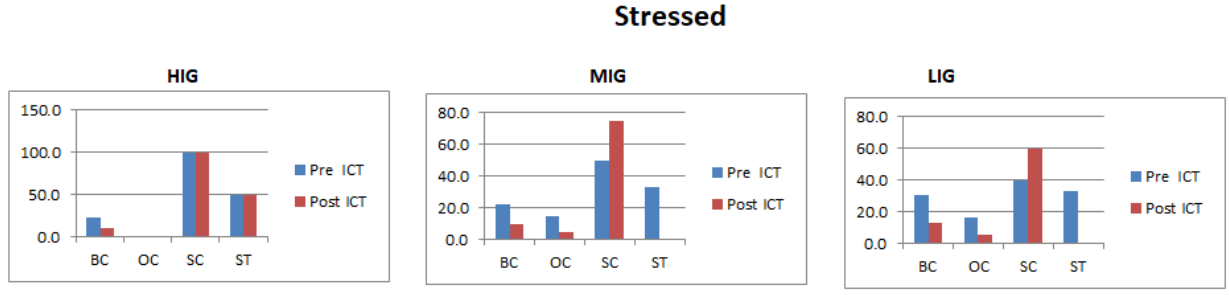
Source: Primary Data

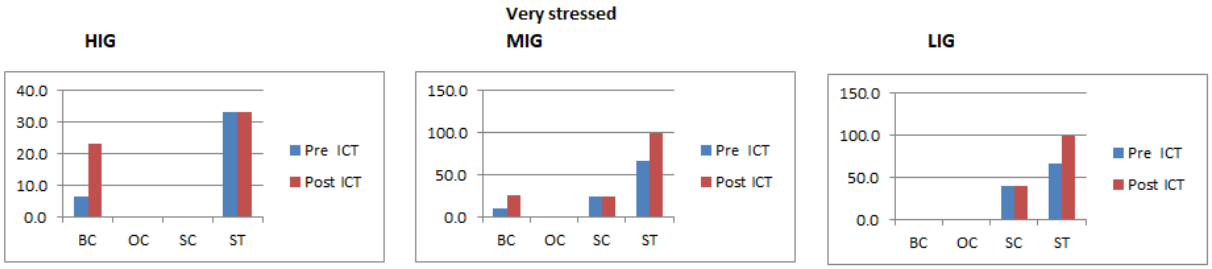
Charts of Percentages Distribution of Happiness and Stress Levels in Experienced by sample Respondents in Pre and Post ICT usage across castes across various Income groups.











Source: Primary Data

Above Table and charts depicts the impact of using ICT on socio-economic groups viz castes and income groups. A pre and post analysis has been done before the ICT was introduced and after its introduction and its use. The variables are analyzed based on a degree of stress and happiness levels experienced by the sample respondents who are classified by caste and income categories for the sector E-Agriculture. The observations and its interpretations are described below.

Pre and Post ICT Happiness and Stress Comparative analysis in Agriculture sector

It can be observed for the agriculture sector from the tables that the members belonging to all the communities wise BC,OC,SC, and ST were already at a threshold level of feeling very happy or happy before the use of ICT in fact the 33.33% of OC's were very happy or happy without ICT Introduction in the High Income Group**(HIG).** It can also be seen that BC's and SC's were very stressed in the Pre-ICT Period and the Post ICT period there was improvement in the BC's very happy or happiness levels, however there is increase in happiness only to an extent of 2-3 %.It can also be observed that Stress levels of BC's have decreased in POST ICT period. The much stressed condition of BC's has increased by 23.33% this is due to fact that the adoption of ICT practices is very stressful to them for the agriculture sector.

In The Middle Income Group the happiness levels of the BC's have increased (shift) considerably from 12.90 -16.13% in the very happy group 9.68% – 12.90% in the Happy group. During the pre and post ICT usage.

It's interesting to note that there is fall in the neutral group of BC and in the stressed group. Whereas there is some increase in the very stressed group of BC after using ICT, due to the fact that ICT packages were not very simple and one has to look in to ease of use factor. Similar trends are observed among the OC in the very happy and happy category in the pre and post category. But the neutral group seems to have considerably increased to 50.0%. In the stressed section also the trend is decrease from the pre-ICT period to a just 5% in the post ICT period. In the case of SC and ST the stress level have seems to have increased from pre top post under the stressed and Very stressed responses for the agriculture sector.

In the Low Income group also same level of Increase in very happy and happy category of BC and OC from pre to Post ICT period has been observed. The stress levels of BC and OC also have been decreased in this income category. However stress levels are very high and also show increase in the case of ST in the Low Income group.

Conclusion

It is Observed that SC and ST Happiness levels are less both in Pre and Post ICT periods it is evident that farmers stress in Post ICT is more than Pre-ICT. Indicating that farmers are unable to accept change or unable to cope with new technologies due to high cost equipment, complex operations. This trend warrants an immediate attention for customization and simplification of the ICT application suited to their capabilities and need. More better and efficient ICT infrastructure like Internet, ICT equipment or devices and power needs to be provided. In the absence of there is bound to be a gap that causes the Digital Divide.

The PRA and Focus group discussions FGD

It is revealed in the PRA and Focus group discussions FGD that Low Income Group SC and ST especially expressed that they are not very happy with the existing ICT facilities for all the sectors. Most of the ICT users felt stressed while using the ICT applications due to the fact the ICT applications are not tailored made for specific purposes and keeping the socioeconomic characteristics of the users.

The HIG among OC and BC feel that their personal and financial information may be stolen and used by other. This has led to some stress among such users. Most of the people expressed High Stress Due to ICT especially while making financial payments for agriculture related activities.

Majority Say ICT is making them happier for the entertainment than for livelihood or any other rural services.

Rural community expressed their sadness and disappointment they expressed opinion that they are not much Useful for applying farming Loans. They indirectly hinted of still using private money lenders or through societies etc.

Only Some Agriculture related private business People like commission agents and traders expressed happiness as they could they could buy raw material and sell agriculture products online in competitive prices thus drawing heavy profits.

Majority of senior citizen farmers expressed stress using ICT and most of them took help of third party or some educated relative, friends or Neighbors for ICT usage. Technical Problems Lack of Power and Assured Network signal connection for Mobile internet is making them stressed

All have expressed stress for Data or Internet Connection Charges which usually are high. Users want the Applications to the simplified and customizing to Local needs

People felt that Availability of ICT Application does not ensure its Utilization. It is also found that mostly educated people like Teachers and Rich class are aware and using ICT.

Many Lower Income group and Middle Income group feared that ICT is causing Class divide and which is causing stress in them. Many people told that because of ICT divide many people who don't have access to ICT they are not able to compete with ICT users and they are very stressed for this reason.

Many farmers feeling stressed due to inferior feeling because of no smart phones. Many farmers are not using ATM fearing and stressed of fraud and Bank charges. Most of the farmers say ICT is headache and say before ICT only there was equality and no class divide due to ICT gadgets. Many of the Farmers said that only society based members getting benefits only Rich. They said for name Sake ICT initiatives are there but not use full to them. Many Respondents said High tensions and Head ache techno stress after continuous use of ICT Mobile.

Recommendations and conclusions

- Government, NGOS should help rural farmers by giving ICT applications, with help of ICT the traditional farmer's people can market their products and get good price easily compared to selling locally. Or use it for digital payments or transfer of payments etc without travelling far distances to sell their agriculture produce.
- They can also get information or procure seeds and fertilizers and other agriculture inputs cheaper by comparing and researching about raw material online.
- They can also Sell and receive money through Online with help of ICT applications for their agriculture related transactions.
- Government and ICT providers should develop ICT Apps by checking the Actual Problems of the users and their specific needs and skills.
- Government should take farmers usage Acceptance opinion Of the ICT Applications before developing and designing them.
- ICT Training and extensions should be designed specifically for local language and exposure needs and based on their skill. So, this gap should be filled.
- Very good Local specific Weather forecasting applications which give exclusive weather forecasting on rainfall and other agriculture related weather updates related to their Mandal and village should be made. As the general weather forecast ICT applications may give overall state or district weather related updates but not to the focus of their specific Mandal or

village. This can create gap in the information accuracy especially in the low rain fall areas of Ananthapuramu district of Andhra Pradesh.

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