

# Social and Cultural Hurdles Among Rural Inhabitants in Technological Transformation

Nimmy Maria Joseph, Research Scholar, Department of Communication and Media Studies,  
Bharathiar University, Coimbatore 641046 Tamilnadu, India

Dr. P. E. Thomas, Professor and Head, Department of Communication and Media Studies,  
Bharathiar University, Coimbatore 641046 Tamilnadu, India

**Abstract** - Technology is regarded as one of the inevitable elements in the environment of an individual. Even the interpersonal communication which is still found to be so effective and powerful got reduced over time with the intrusion of digitalization. Now the researches are being conducted to analyze the unconstructive impact of Information and Communication Technologies (ICT) on its users. This negative impact is an extreme side of ICTs where the opposite end is about the lack of awareness of even the basic electronic gadgets or internet applications. This is the disparity between the urban and rural population. When the urban geographies are significantly enjoying the merits of technological innovations, rural segments are even uninformed about the fundamental usage of ICTs. Thus digital divide is an unwavering concept which sustains among the people since the evolution of technologies through today. This paper attempts to list out the hurdles among the rural population in technological transformation as indicative of the existing literature. Apart from economic and access barriers, this paper analyses the social and cultural barriers among these people that resist ICT usage and thus the provision of associated benefits. Effective financial investments, free and compulsory education and effective mobilisation and participation are the possible solutions for the existing barriers, realizable, although in the long run.

**Keywords:** ICT, rural development, digital divide, technology

## I. INTRODUCTION

It is widely assumed that we are in the era of an 'information technology revolution' (Castells, 1996), bringing with it momentous social and economic renovations. While many are optimistic about the new ICT era many others express concern about the consequences of this revolution particularly, for those who are unable to take advantage of its anticipated benefits. The recent Indian studies (Kumar & Singh, 2014; Saxena, Tomar, Tiwari, & Kaushi 2014; Rai, Jirli, Singh, Deoraj, & Kumar, 2014; Nayak & Raj, 2014) show that ICT is a medium that has a tremendous potential to enhance the living standard of rural population in terms of education, health and economy but the drawbacks in implementation of projects as well as the user's acceptance of an adoption process makes it unsuccessful. While it is imperative to analyse the barriers to acceptance of technological change, the consequential disconnects that emerge in the social and cultural order require feasible solutions in the long run.

## II. HINDRANCES TO TECHNOLOGICAL ADOPTION

According to the Global Influence Technology Report (2015) India occupies only 89<sup>th</sup> position in terms of ICT

usage irrespective of many initiatives taken by the Government as well as the Non Governmental Organizations (NGOs). This shows that there are certain gaps in effective implementation as well as adoption of ICT in India. The adoption of innovations involves altering human behaviour and the acceptance of change so, it's natural that resistances to change exist and that too for several reasons. Careful analysis of literature facilitates to identify different categorizations of barriers according to its nature and context within the population.

### a. Cultural Barriers

**Pre-existing values:** India is considered as a traditional nation. There are enough and more reasons for terming it traditional. Enormous religions, castes, sub-castes, languages, traditional life styles and geographical variations create an enormous number of cultures and value systems. So India upholds the concept of "unity in diversity". The phrase appears decisive but Indian studies on "ICT in rural areas" explain that diversities in India remain a barrier for the effective implementation of ICT projects. The cultural barriers are as given here under:

- Strong religious boundaries of Indian society
- Superstitions are much dominant in a traditional country like India
- Stubbornness towards existing values and beliefs

- Family structure in India is so rigid that resist change
- Freedom and space for women are limited
- Caste systems

The above cultural barriers notwithstanding, their rigidity has loosened further in comparison with the earlier days. There exists a visible flexibility in the traditions not seen before. However, the rural and tribal populations are proven followers of traditional cultural values in India. Even the local languages and literature are also considered as a part of culture.

**Local affinity:** Local data bases and local web pages are the basic requirements for the rural development in developing countries (Arunachalam, 2002) as language barrier seem to be a major set back for ICT usage. Languages are the uniqueness of various cultures and thus contents in local language uphold a sense of cultural proximity. The same barriers almost retarded the successful ICT projects in India like Akshaya, IT@School, F.R.I.E.N.D.S (Fast, Reliable, Instant, Efficient, and Network for Disbursement of Services) and citizen call centres that are aimed at promoting the effective use of ICT among men, women and youth. Initially participation from the community is showed up to be significantly low even with all provisions (Pal, 2007). The lack of participation is due to the absence of local content, lack of customization, low connectivity, social stigma and the use of the English language for computing. Further, it is noted that regional languages can often be perceived as “inferior and lacking utility in modern life” (Meera, 2008) that again lays emphasis on the notion of local affinity which either increases the dissonance towards their culture or modernity. Thus sustainable development, by combining values of their culture and modernity, diminishes.

A sociological study of rural development in Ireland (MackenWalsh, A (2009) revealed that one’s occupation is at times observed as a socio-cultural practice, emphasising the occupation of fishing (Vanclay, 2004). Irish farmers feel their fishing way of life is as highly valued than merely ensuring that fishing is a profitable means of ensuring their livelihoods” (McGoodwin, 2001) and thus they believe that fishing through modern technologies are against their occupational ethics. It is good to have a sense of affinity towards their occupation but it paves way to resist modern technologies as they are immovable in their traditions. In circumstances where local people are faced with leaving their fishing traditions behind, it has been the case that ‘barriers to change’ are often perceived as owing to ‘passiveness’, or worse, ‘backwardness’ on the part of the community (Duggan, 2004). They even fear that youngsters moving to other jobs may reduce the future scope of their traditional fishing or farming. Farmers and fishermen groups of Ireland possess a strong social and cultural attachment to their occupation and face strong language barriers (Macken-Walsh, 2009).

Bolivian farmers are found to be traditionally rich and maintained traditional farming practices. According to them, western development professionals and scientists promoted inappropriate technologies by not valuing local knowledge (Gilles, Thomas, Valdivia, & Yucra, 2013). Attitude of rural inhabitants toward their culture is so strong that they try to hold on to it under any circumstances. They take pride in their profession and traditional customs. So inducing ICT becomes hazardous in such cases. Concrete cultural barriers are reflective of Indian and foreign studies. The studies show that cultural customs, values and beliefs exist everywhere with certain variations that resist technologies from developmental aspects

### III. SOCIAL BARRIERS

Kelles-Viitanen (2005) surmised that the role of ICT is catalytic in the complex task of poverty reduction by leveraging the effects on financial enhancement, educational and health services, good governance and promotion of democracy. However, she emphasised that the use of ICT will be muted if other basic social needs are denied.

**Information barriers:** The under-privileged people are found to be unaware of their rights and the availability of various Government policies and services. It is the responsibility of the Government to deal with these people to provide proper and updated information about matters of public interest (Kelles-Viitanen, 2005). Even in the realm of agriculture, which is considered as a traditional mode of occupation, informed and knowledgeable farmers obtain more advantage. ICT trained farmers are found to be more knowledgeable than untrained farmers and score on knowledge, attitude and adoption quotient about the package of practices of high-yielding varieties of wheat and rice (Kumar & Singh, 2014). Illiteracy and lack of awareness (Venkatasubramanian et al, 2009 and Rai et al, 2014) are the major constraints against ICT use. . This is very evident from the Akshaya project of Kerala. Akshaya was more helpful for students who are literates and educated (Nayak and Raj, 2014) especially those in the age limit of 10 years to 19 years. ICT enabled them to perform well in their academics.

- *Deficiency of expert and committed trainers*

Rural areas are not preferred by the employers to reside in and work (Saxena et al, 2014). They provide a discontinuous form of service. This creates an inactive communication between the villagers and the trainers. Technological trainings demand a higher user-friendly atmosphere where the trainees should be fearless and comfortable to attend. It is imperative that the extension programmes for farmers are designed by not exploring the background (Saxena, 2014) of the targeted ones. The farmers are rarely consulted on their needs and preferences before the design of extension services. So in India many

ICT initiatives are just for the sake of profit and not for the rural people.

Capacity building requires a continuous process of reinforcing media, libraries and other institutions, for improving the knowledge and skills of professionals regarding ICTs (Venkatasubramanian *et. al*, 2009). But there the shortage of skilled candidates is prevalent. The trainers are essential to reach digitally isolated people who are also afar from the knowledge societies (Rai *et. al*, 2014). Training the trainers, re-training of the professionals and equipping them with proper facilities are of great concern in rural development. Provision of suitable remunerations can also amplify the interest level of the trainers.

- **Bureaucratic barriers**

Top-down mobilization of information, without an opportunity for feed-back, is not an appreciable method of information dissemination among rural public. Citizens' feedback to government stems the bureaucratic abuse and corruption (World Bank 2001). Waheed and Rehman (2012) deducted that poor co-operation from representatives of rural development programme occurred due to continuous interference of the local political leaders, particularly from the ruling party. It weakened the role of project managers considerably. There are successful initiatives in dissemination of technology in agriculture and allied enterprises. But most of the projects in India are concentrated only on technology and not on capacity-building.

The social structure of local inhabitants in foreign studies is explained in a different dimension. The studies of fishermen communities show that they are found to be socially connected (McGoodwin, 2001) and are bound in a broader network of members of the local community, where embedded gathering and rules are present to preside over collective action in response to issues of concern to the local economy (Duggan, 2004). Besides, the local people offer collective reactions to issues on their local fishing industry. Thus, any sort of individual change cannot be done without tackling a collective response, which will be highly strong in religious norms.

Digital divide seems to be a common concern across the world. But comparatively India is a country with a large population and rural areas. A majority of the rural areas are untouched in terms of technology use due to various social causes such as social stratification, lack of awareness, inadequate field workers, bureaucratic issues, etc. Thus the impact of social barriers results in poor technology development in rural India.

### **b. Economic Barriers**

The capability of acquiring and running a personal computer is still a hard reality for the rural populace, but the

pace is on the rise even for a relatively small organisation (CTA, 1999) however, Internet speed in the rural areas is found wanting. According to Arunachalam (2002), those who use ICTs are generally the most educated well-off in the community, not the originally intended and most in-need beneficiaries. Also, human capital enhancement was understood to be the main remedial factor to change the low rate of ICT adoption.

Lack of proper infrastructure is considered to be a severe bottleneck for the efficient mobilization of Information and Communication Technologies. It occupies a major role in widening the digital gap (Meera, 2008). Some of the infrastructure include computer, mobile phone, internet connectivity as broadband or wireless connection; telephone, bandwidth, electricity, CDs. However, access to these ICTs is far-fetched for many of the rural areas due to poverty, illiteracy and isolation, where the economic crisis builds its basement. Venkatasubramanian *et al* (2009) added up two more barriers for the ineffective ICT use such as illiteracy and lack of awareness, in addition to financial constraints.

An ICT project named Akshaya in Kerala shares the benefits of ICT with its target audience. Even though it is a very successful, it is difficult to generate any income from the centre to meet the expenditure at the initial phase (Nayak & Raj, 2014). In the second phase, various paid e-learning programmes and courses were introduced to support entrepreneurs to generate a certain level of income. During this phase, the entrepreneurs are allowed to charge certain service fee as decided by the Kerala State IT mission. Usually, an amount of Rs. 5 per transaction for e-payment facility goes back to the credit of the entrepreneur.

Another reason mentioned in the study was respondents' low level of income that forces families to deny girls any sort of education particularly when they are considered to be soon married off. This leads to the decline of women ICT entrepreneurs who are deprived of opportunities to make them independent and self-reliant. But in terms of participation, women were found to be active participants in the Akshaya project. The reason behind this skewed graph is because most of the trainees are males who are daily wage earners, for instance bus drivers, petty shop owners, and manual labourers who hardly get time to visit a centre and learn computer skills.

Richards (2004) who took to a study of the rural population in UK pointed out that one of the barriers believed to prevent different people from using ICT is lack of financial resources and telecommunication infrastructure and they resist innovation if the expenditure for it is more than the earning from it. But he added that financial problems were secondary while lack of interest in technology use is found to be the fundamental barrier.

But the case of Ireland fisherman community seems to be different as the economic capital did not emerge as influential in the qualitative data on how farmers in Ireland evaluated their own or other farmers' performance. Any mention of valid economic problems among the Irish farmers and Fishermen was lacking rather than the grievance of unfair taxation from the Government (Macken-Walsh (2009).

While analysing the agricultural system of Bolivia, Gilles et. al (2013) noted that farming with the help of technologies demanded of farmers to have increased access to the use of the improved seed, fertilizer, and irrigation equipment which becomes unaffordable to the farmers. Financially equipped farmers were only found taking complete advantage of the technologies in most of the countries. This shows that the economic inequality among farmers is obvious in the rural.

Economic barriers take a good part in the ineffective implementation of Information and Communication Technologies. The key players to resolve the financial problem could be the Governmental and Non-Governmental Organizations. In India enormous ICT projects are implemented for the betterment of the rural populace, but the researches show that these innovations seldom reach the deserved ones.

#### IV. REQUIREMENTS FOR BETTER ICT ADOPTION

The requirements needed for the better adoption of ICT is explained in the theory of Diffusion of Innovation which include relative advantage, simplicity, ease to try, ease to measure, and inexpensiveness. The main concern mentioned in all Indian literature is lack of human capital. Researchers consider that the provision of funds is more important for the better implementation and adoption of ICT. Next, education is the course to facilitate learning, knowledge, skills, values, beliefs and habits of a person. It is clear that education deals with the cognitive values of a person and also it has the power to spot the adequate new innovations. So provision of education to all could be a requirement for easy use of ICT technologies.

The government adopted affirmative measures to encourage the inclusion of the disadvantaged sections in the society. In this process the participation of e-literates were included as it acts as a change agent. It is because, the rise of network society shapes the people who are within the society as well as outside (Castells, 1996). The main challenge is that the local communities should be involved in the design of universal access programs through consultations, surveys and demand studies. For that, techniques such as voice mail translation of content and icon-based telephones could be used for the illiterates (Kelles-Viitanen, 2005).

Kumar and Singh (2014) conceived their study as an experimental investigation due to researchers being well-

conversant with the local farmers and a close rapport made during their regular visits to villages for extension activities of university with the expectation that respondents help in getting authentic and real data. It is understood that creating a rapport is a requirement in order to obtain authentic information as well as effectual involvement from the rural population.

Computer literacy for the low or illiterate can be attained by improving e-readiness of extension in the shortest possible time but the prerequisites are affordability, network accessibility, policy support and necessary skills to acquire the same (Rai et. al, 2014). The efforts of knowledge economy can develop e-ready extension professionals in the shortest possible time. The study revealed that a well-equipped guide is needed to enhance technology usage among the rural population (Rai, Jirli, Singh, Deoraj, & Kumar, 2014). The studies reveal that there are more unfulfilled objectives than fulfilled ones among the rural population.

#### ICT adoption in Indian context

Kelles-Viitanen (2005) studied the role of ICT in governing rural development in the Indian context. The study suggested that ICT can become an enabling tool for wider socio-economic development by providing cheap and efficient tools for access to information and exchange of ideas and knowledge. When properly used, it can greatly increase the ability of the poor people for economic development. In another study, the authors De and Jirli, (2010) observed that increased access to telephones and internet in Indian villages created an excellent opportunity for the use of ICTs for agricultural development. Mere implementation of ICT is worthless. Implementation with proper planning and mobilization would pave way to improve the interest among the people which leads to productive adoption of technologies (Kumar and Singh, 2014).

The reviews identify that India is a place where ICT could be applied effectively but ICT initiatives, irrespective of their potency, are not working in its complete sense due to social, cultural, psychological and economic barriers. That the number of efficacious ICT projects is insufficient in India to cope up with a vast rural population and their development is a foregone conclusion.

#### V. SUGGESTIONS AND RECOMMENDATIONS

- *Effective financial investments*

The government and other agencies have to take effective measures to allocate economic resources so as to boost the ICT adoption and its effectiveness. Even though if we gaze over the successful ICT projects there will be a financial barrier in its initial phases. The social, cultural and psychological barriers can be resolved with the successful incorporation of human capital. For example, few problems like bureaucratic barriers such as disinterest among

employers, lack of infrastructure, unequal distribution are due to the lack of resources. Social problems like poverty, education, health, etc; can be sorted out by the proper provision of funds. Rural people would get frustrated if ICT technologies are thrust on them by the Government when deprived of their basic needs. Indirectly human capital plays a remedial role in satisfying their basic needs which may lead to the easy psychological adoption of ICT. Fear of technology among villagers could be resolved by personalised use of computer systems or mobile phones with internet facilities, which needs human capital for its well-organized implementation. Incentives for the participants will help to improve their interest towards the project and will help to tackle their daily wage jobs. Thus the Government and Non Governmental organisations are responsible for improving provision of funds to these sorts of projects and also are necessary to monitor the process to avoid the wrong utilisation of it. But the challenge is the proficient and proper distribution or usage of funds.

- *Free and Compulsory education*

Education is mandatory to build a positive attitude towards the technological use in routine activities. The provision of education to use ICT as well as the need for ICT in education are interlinked. A person could get cognitive clarity through education that may help to identify the importance of technological innovations. It almost rectifies the psychological barriers of the people. But many of the children in rural India are deprived of basic education, thus they remain in their tapered knowledge level and are unable to update themselves to match with the needs of time.

- *Effective Mobilisation and Participation*

Taking reference from few successful ICT projects certain solutions can be identified. Ensuring adequate participation among the entire target group is mandatory. As an initial mobilization of Akshaya project, large-scale public communication campaigns were done via the print and electronic media to sensitize and attract all the sections of the society, irrespective of the caste, creed, religious and political affiliations (Nayak and Raj, 2014). It was to attract, generate interest and clear doubts of the people. Efforts should be taken to influence people to take to technological innovations. The participation of people helps decide upon the success and failure of the projects. Thus the upcoming projects are expected to be designed with a participatory approach.

## VI. CONCLUSION

The paper makes a meta-analysis of the available literature regarding the barriers that curb the inculcation of technology in rural population in the Indian context. The cultural, social, psychological and economic barriers have been identified. These obstacles can be overcome with a three tier solution. They are i) Effective financial

investments, ii) Free and Compulsory Education, iii) Effective Participation and Mobilisation.

It is concluded that India still needs many more efforts to improve the ICT projects in the rural areas. But the fact is that, ICT alone cannot eradicate the problems of the people. So it should be merged with other social, cultural, economic, and psychological factors to achieve success in a complete sense. Because, mere information is not a supernatural therapy for the access to basic needs.

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