Information and Communication Technologies (ICT) in rural

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Abstract: Information communication technologies as itself do not change the social structure; the force for change is provided by the use of ICT in all spheres of everyday life activities. Information and knowledge we get by means of the Internet empower individuals to participate successfully in nowadays society's life. Thus unequal opportunities to use the Internet and other ICT are tightly related to an issue of social exclusion. In rural Internet and other information communication technologies (ICT) are mainly used by young, educated, well paid and urban consumers. Elderly, low-educated, low-paid and rural residents are among those who use the Internet the least. This great group consistent with men have had active role at areas of social-economic activities and always have had major part on economic production of society. ICT is now recognized as a technological tool which can serve as a catalytic intervention in respect of transforming the lives and livelihoods of rural families.The economic and income divides between urban and rural areas can be overcome only by the technological upgradation of rural professions. In our post-modern network society they are at the risk of social exclusion. This paper is aimed at the analysis of ICT diffusion in rural communities of Lithuania, exploring the main social patterns of diffusion and characteristics of rural Internet users. The study is based on focus group discussions and questionnaire-based survey of Lithuanian rural residents. The paper discusses types of change agents involved in the processes of ICT diffusion in rural communities and the main motives for using the Internet.

Keywords: Information and Communication Technologies (ICT), rural

Introduction:

Technologies (ICT) during the past two decades have had many points of contact with education and training. The development of technology is placing new demands on expertise, and it is also leading to the increased use of information technology (IT) in instruction and learning. As early as in the 1970s discussions of the future of school systems started to pay attention to the opportunities provided by ICT. Now with the approach of the new millennium, IT is playing an increasingly central role in almost all future planning of schools and instruction. (World Bank, 1999).

With the help of state and local funding, information technology has been purchased for schools ever since the 1980s. The state has also found many ways to support teacher training in the use of IT, and it has also allocated funds for the production of IT programs.

Instruction in the use of IT has also played an important role in teacher training organized by local school authorities (Becker, 2000).

There are two opposite perspectives on the role of ICT in society. One part of scholars views computers and the Internet as magic entities with the power to transform society. They consider the Internet as a new medium of communication, helping to cope with issues of social exclusion, social inequality. According to Manuel Castells (2002: xxxi), this is one of the reasons "why, after three decades of existence, it emerged from specialized communities in the world of researchers, techies, hackers, and countercultural communities, to catch fire in business and in society at large".

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The first group implies theories which explain the patterns of innovation diffusion in relation to communication flows. The diffusion research focuses on adoption by individuals (or by single organizations) and investigates the impact of such factors as the nature of innovation, characteristics of adopters, diffusion networks and other. (Attewell 1996, Harper 1989).

The most widespread theory of innovation diffusion is presented by Everett Rogers. According to this theory, diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers 1983:5), thus the main 4 elements, which are identifiable in every diffusion research study, are (1) an innovation, (2) communication through certain channels, (3) time and (4) members of social system.

The first element – innovation - is considered to be any idea, practice, or material artifact perceived to be new by the adopting organization or individual (Rogers 1983). In our case, we analyse ICT communication through certain channels among the members of rural communities.

The potential adopters can find about new ideas just

in case they are informed about them, thus the diffusion process implies the second element - communication through certain channels. According to Rogers (1983), innovations such as ICT can be transmitted to the receiver using 2 types of communication channels: (1) interpersonal channels, and (2) mass media channels.

First type implies direct (e.g. face-to-face) communication between transmitter and receiver; and the second type includes governmental policies communicated through TV, radio, newspapers, etc. This existing discourse makes an impact on beliefs and attitudes of people toward ICT use and is one of the means for ICT diffusion among society members.

The second group of theories - macro-diffusion theories – examines the diffusion of new technologies across entire populations, communities, society. Speed of adoption depends on such factors as population size of an area, the distance o that area from other centers of population (Attewell 1996:205).

John Carey (1996) distinguishes marketplace factors as a separate group in diffusion research. This group includes pricing policy, replacement cycles. The price of innovation (new product, technology, service, etc.) has an important role in the process of adoption by the public. Generally new products are introduced at a high price, as early manufacturing is more expensive (due to the costs associated with the research and development of the product, low scale of production). As John Carey (1996) argues: a new technology has to find some early users who are able and willing to pay a high price for the product or service in order to achieve the economies of scale in manufacturing that can reduce the price for the general public.

The mass production reduces the costs and the price of the product. Typical examples of such pricing policy are introduction of radio, black white and color TVs, telephone connection. The initial price of the new technology was very expensive for an average household and the technology was not widely used, but the decrease in price resulted in a wider adoption.

But, as John Carey (1996) argues, the personal computer has followed a different pricing pattern: "rather than drop the price of personal computers, manufacturers have increased the capabilities of PCs each year". Replacement cycles are also important. The growth of some technologies is linked to the purchase of other media. In this sense, replacement cycles for existing media can provide an important way to introduce new media. For example, in U.S. households, the average color TV is replaced after 8 years, the average telephone answering machine after 5 years and the average personal computer after 6 years (Carey 1996).

Information technology is the core element analyzing the new, global, knowledge-based society. In today's world the use of ICT becomes one of the most influential factors that determine both the present performance and the future conditions for the person. The Internet offers a variety of ways for interaction. Lelia Green (2001:197) distinguishes 3 ways of interaction: (1) information access and retrieval, (2) private interactive

communication with individuals or small groups and (3) public interactions. But unequal opportunities to use the Internet eliminate this variety of interaction. When we talk about the impact of new information communication technologies on the society, we analyze mainly two aspects of impact– networked or socially excluded people.

Contemporary scientists have formulated the terms like information poor and information rich (Green 2001). An approach like this emphasizes the circumstances of people with access to minimal or large amounts of information. People who do not have or have limited access to information resources (non-haves of information or information poor) are in the social position lower than information rich. The policies based on the idea of fundamental equity are that all people should have "trouble-free access to information" and this will promote equality (Green 2001:105).

Of course, not everything depends on the access: "Access to technology does not necessarily lead to its use, and information does not necessarily fuel self-empowering activity" (Green 2001:105). As Lelia Green argues: access is a necessary, but by no means sufficient, condition of equitable participation. To talk simply in terms of equity of access ignores the fact that effective interaction in the information society requires high levels of motivation and sustained effort. Such keenness to interact with the technology of information cannot be assumed. Continuing motivation is perhaps the key determinant of successful participation – more important than access per se (Green 2001: 104). The diffusion of ICT and adoption in everyday life activities such as e-learning, ecommerce, e-banking, etc. are rather complicated phenomena, depending on various characteristics of an individual and a certain social system.

Considering the use of the Internet, it is obvious that socio-demographic characteristics determine a gap between different groups of the population. According to the data of a survey Digital Lithuania 2001, performed in the framework of a study Lithuanian Information Society, carried out by The Open Society Fund (Šaulauskas, 2001), the Internet and other information technologies are mainly used by young, educated, well paid and urban consumers. The statistical data of this survey showed that people at the age of 15 – 49, who have acquired higher education or live, or aim at living in Vilnius, Kaunas and other major cities of the country, and have high income are the most involved in the processes of information society development

(Šaulauskas, 2001).

According to the statistical data, the lowest awareness of the processes and opportunities of information society development is among the Lithuanians over 60, who have acquired secondary or special secondary education, live in villages, rural centres or towns and have rather low income (Šaulauskas, 2001). It is obvious that different socio-demographic characteristics have determined a gap between different groups of the population. This can lead to the information gap, when one part of the population uses digital devices, while the other part of the population is in a digital divide. Thus the residents of rural communities are at the risk of being in a digital divide or even in a social exclusion.

Conclusions

Public access is emphasised as one of the ways in making the Internet available to greater numbers of individuals and firms in rural regions of Lithuania. Statistical data show that socially excluded groups (retired, elderly and unemployed people) use the Internet very little or do not use it at all. This case study also suggests that the methodology of the pilot study should be revised, because it is quite complicated to answer the question about the impact of ICT on social exclusion. Data show that people consider that there is a threat of social exclusion of some groups (ICT non-users) in Lithuania. But they are also positive about the role of the Internet in solving problems of exclusion. The use of the Internet is considered as an effective mean to integrate socially excluded people into society's life, because living in rural region is not the key issue for being excluded.

A common strategy in higher education ministries in developing countries is public and private sector partnership in strategy or pursue rapid ICT projects is based. This partnership has different forms such as grant aid private sector interaction with public assistance, donated educational equipment and components by companies to public schools, providing technical assistance for planning, management and consolidation tools and human resources at the local level. But after financial aid, testing programs based on ICT is critical.

Many of the ICT training programs based on the charitable agencies aid have been unable to have high durability. Because the government has failed in its financial assistance in this situation none of the local communities to provide resources do not needed to continue these programs. Two strategies in here "to support government and local communities to move" are important. Since the 21st century, is century of education support about youth in Asia, to find sustainable ways to bridge the digital age in Asian countries is a real priority. And work through partnership that local leaders and guides are experts it

can be lasting forever.

Several recommendations that emerged from the discussions emphasized on the need to think of ICT in education beyond computer aided learning and investigate the potential other technologies like community radio and other medium. These mediums could not only be cost effective but also has a greater outreach potential. It was also pointed out that low cost software solutions for e-learning that have scopes for innovation, should be incorporated in large scale projects. With an indication to open source solutions, the sessions recommended that such solutions should become a part of the overall policy for implementating technology supported education interventions.

Sustainability and scalability of project are also issues that needed serious considerations. While moving beyond the pilot and experimental phase, projects especially those that needs a considerable financial contribution should have a viable sustainability model for up scaling. It was also recommended that implementers needs to be cautious when selecting areas for implementing ICT in education projects.

Projects should also not lose priority of the education objectives. In some cases ensuring school accountability system and teachers attendance may be more important that investing time and resources in ICT integration in schools. One fact that emerged in the sessions was that ICTs effectively computers, initiated in government department and schools were being used as decision support in education. Essentially, clear criteria, norms and standards needs to be developed for the information that was being used for decision-making.

This paper is a multidisciplinary study of ICT initiatives for rural development. It emphasizes adoption of a more systematic approach for integrating Traditional Knowledge Systems (TKS) and ICT inputs to ensure sustainability of rural e-governance projects. The study of literature related to rural development and e-governance has indicated various issues impeding success of such initiatives. The main issues are lack of localization of content for rural communities and inadequate participation of rural communities in design of rural ICT initiatives. The study therefore suggests the use the systems-approach to integrate the relevant TKS along with ICT initiatives in the design of e-governance systems for rural development. This participatory approach can lead to creation of more acceptable and sustainable e-governance projects**.**

Regardless of the wide differences in ICT access between rich and poor countries and between different groups in the country, there are concerns that challenge the application of ICT in education with the existing differences among the lines of economic, social, cultural, geographic and gender will be broader.

Everyone equal opportunities in terms of suitability for participation are necessary, but access to various factors, either as users or as producers through their sources is difficult and heavy. Therefore, the primary differences enhance and even grow. Consequently, programmers' international education is faced with a difficult challenge and how to help solve the problem and its development.

Promoting ICT in education, when done without careful study, can lead to the marginalization of those with more favorable conditions are unknown. For example, "women compared with men, because of illiteracy, lack of higher education, lack of time and mobility and poverty, controlling access to ICT and fewer opportunities for training are relevant. Also, more boys than girls' access to computers at home and school are not strange to say that if more boys than girls are willing to work with computers. The report of the University Association of American Women is that "Although some girls have an important gender gap have been limited, but today's technology, technology club, and boys in public schools while its own problems and programs are settled girls use computers for word processing the brand"**.**

References

1. Becker, H.J. When powerful tools meet conventional beliefs and institutional constraints: National survey on computer use by American teachers. Baltimore, M.D: Center for Social Organization of Schools. John Hopkins University, 1990.

2. Cecchini, Simon & Talat Shah .Information & Communications Technology as a Tool for Empowerment. World Bank Empowerment Sourcebook, 2002.

3. Collis, B.A. The ITEC Project: Information technology in education and children. Paris: UNESCO, Division of Higher Education, 2002.

4. Collis, B.A., Knezek, G.A., K-W. Lai, K.T. Miyashita, W.J. Pelgrum, T. Plomp & T. Sakamoto. Children and computers in School. Machwah, NJ: Lawrence Erlbaum, 2004.

5. Dadgaran, M. Principles of mass communication. Tehran, Firoozeh Publications, 2002.

6. FAO. Improving access to Agricultural Information. 1stConsultation on Agricultural Information Management, 2000.

7. Falk, M. and Wolfmayr, Y. "Services and materials outsourcing to low-wage countries and employment: Empirical evidence from EU countries," Structural Change and Economic Dynamics, vol. 19, pp. 38–52, 2008.

8. Hakkarainen, K. Cognitive value of peer interaction in computer-supported collaborative learning. Paper presented at the American Educational Research Association (AERA) Annual Meeting, San Diego, April 13–17, 2000.

9. Harris, R. Success Stories of Rural ICTs in a Developing Economy. Report of the PANAsia Telecentre Learning and Evaluation Group's Mission to India. MSSRF, Chennai, 1999.

10. Mohseni, M. Sociology of Information Society. Tehran. Didar Publications, 2003.

11. Saadan, Kamarudin. Conceptual Framework for the Development of Knowledge Management System in Agricultural Research and Development. Asia Pacific Advanced Network Conference, Malaysia, 2001.

12. Swaminathan, M. S. Research Foundation (MSSRF). Available at http://www.mssrf.org/. 12. Ninth Five Year Plan: Vol II. Planning Commission, Government of India, New Delhi, 2002.

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