

TELECENTRES: ONE-STOP LEARNING HUBS IN RURAL BANGLADESH

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Abstract

In rural areas in Bangladesh, local ICT resource centres, usually called telecentres, have the potential of bringing the benefits of new communication technologies to rural people who do not otherwise have access to technology in their homes, through their work place or at an educational institution. The potential learning impact of telecentres relates to providing information in domains related to the daily life of citizens, such as agriculture, health, e-governance, employment, etc., and furthermore to the role of access to both information and ICT as a means of empowerment. Among other things, ICT offers an opportunity to promote the informal and non-formal learning processes which are connected to empowerment and rural development, and to build social networks among people.

Through a case study conducted in rural areas in Bangladesh, this paper reports on the learning processes related to people's use of a telecentre. Based on interviews and observation data, the paper describes and discusses the motivation of local users, the learning strategies they apply, and the importance of free access to both technology and information. These observations are discussed within the conceptual framework of communities of practice (Wenger 1998). Based on the findings, factors of importance in relation to the learning potential of community telecentres are discussed in the light of an information chain-model (Heeks 2005).

Introduction

Information and Communication Technologies (ICT) can be an extremely potential enabler in bringing positive and sustainable development to developing countries. ICT is considered a powerful tool for socio-economic development, and especially education has become a primary focus for the community of Information and Communication Technology for Development (ICT4D) (Gutterman et al. 2009; Islam 2009). Bangladesh is one of the world's most densely

populated developing countries, with around 75% of the population living in rural areas (Bangladesh Bureau of Statistics 2008). Furthermore, it is an enormous challenge to enhance the basic education, literacy and livelihood of rural people. It is also recognized that learning needs of rural people are many and diverse, and cannot be met by one mode of education alone (Islam 2009). Both formal, informal or non-formal strategies for learning and education are needed. In rural areas in Bangladesh, local ICT resource centres (telecentres), have the potential of bringing the benefits of new communication technologies to rural people who do not otherwise have access to technology in their homes, through their work place or at an educational institution.

The research questions addressed in this article are as follows:

- In what way can telecentres become part of rural life and life-long learning processes?
- What is the potential of ICT in empowering local users in their daily life?

To answer these questions, a study was carried out to provide knowledge and understanding of the potential of telecentres in rural areas of Bangladesh. From September to November 2010, a field study was carried out at the Youth Community Multimedia Centre (YCMC) in Chittagong, Bangladesh, and the findings from this study are presented in the paper below.

Recently, the sustainability of communitybased telecentres has become an emergent topic in research and development discourses (see e.g. Heeks 2003; Sein et al. 2008; Maitrayee 2008). A recent study of Sein et al. (2008) mentions that access to ICT is in itself not enough to ensure that the potential users have the necessary skills and competences. Functional and technical training programs might not be enough for the majority of marginalized low literate people in rural areas. ICT requires a certain level of literacy skills. Disadvantaged people in developing countries often lack these skills and therefore they are not able to take full benefit from ICT. A way to approach this problem is to determine how the technology and especially the software

and the learning processes can be designed for this particular user group. At the rural level, ICT is for communities, not just for individuals. This paper looks closer at the learning processes and factors of importance for ICT development in rural areas in a developing country.

ICT in Bangladesh

Bangladesh is one of the most densely populated countries in the world. Its' economy is mainly based on agriculture, and hence 74% of the population live in rural areas. In rural areas people live in poverty and suffer from both illiteracy, ill health, unemployment, and lack of access to government or agencies services. However, the United Nations, the International Telecommunication Union and the World Bank all emphasise that ICT intervention is a way to develop third world countries. Academics and development agencies define poverty not only by economical and social deprivation indicators, it is also defined in terms of lack of information and access to information (Heeks 2003; Sein et al. 2008; United Nation Development Programme Bangladesh, 2010).

The Information and Communication Technology sector is currently the fastest growing sector in Bangladesh. Among other things, the government has declared a national ICT policy in 2008 with the aim of creating 'Digital Bangladesh' (Ministry of Science and Information & Communication Technology, 2010). One of the big challenges for Digital Bangladesh is ICT development in the rural areas. In a recent report from United Nations organisation ESCAP, a number of challenges are described to reach the goals of the World Summits on the Information Society (United Nations, ESCAP 2010). These issues are also vital for the ICT development in the rural areas. Among them are:

1. Economic issues. There is insufficient investment aimed at expanding ICT to rural areas
2. Technological issues. Governments need to undertake suitable measures to foster regional cooperation for the adoption of new technologies, particularly for rural connectivity,

3. Social and cultural challenges in implementing ICT. Ensuring the availability of ICT services in the local language for all demographic levels of society.

Most people in rural parts of developing countries are unlikely to ever own a personal computer or a handheld device. International aid agencies, NGOs and governments already have taken initiatives to promote community telecentres for rural development. These centres could play a role in encouraging the younger generations to stay in the rural area, and furthermore they have great potential for becoming potential learning centres and hereby help generate rural development. The telecentres in Bangladesh such as GrameenPhone's Community Information Centres (GPCIC), D.NET, YPSA's Youth Community Multimedia Centre, and GrameenBank's Digital centres all contribute to bringing the benefits of new technologies to people in rural areas. They provide updated information of different domains, such as health, education, agriculture, environment, jobs, etc., and they also offer access to email, word processing and printing services, which are all important elements in providing the benefits of information technology to isolated regions.

Several initiatives have been taken in support of a telecentre strategy in Bangladesh, one of them being the Bangladesh Telecentre Network (BTN) which is a coalition of organisations for fostering telecentre movement in Bangladesh. This organisation specially promotes the idea of building sustainable information and knowledge systems, and the organisation has a shared vision called 'Mission 2011'. The goal of Mission 2011 is to promote initiatives taken by both the private sector, NGOs, research institutions and other stakeholders for building various models of telecentres in Bangladesh to ensure the access to telecentres and ICT services for improving rural disadvantaged livelihoods and quality of life (BTN website). Furthermore, some of the recognized NGOs in Bangladesh such as Bangladesh Rural Advancement Committee (BRAC 2009) and Dhaka Ahsania Mission (DAM 2008) have already started organizing community libraries in the rural areas with equipment of ICT. Most of the community libraries

have computers, printers, scanners and some also have internet connection. They community libraries have a potential role to play to support the lifelong learning processes related to community development (Gutterman et al. 2009; Islam, M. 2009).

ICT and Sustainability in Rural Development

Information and knowledge are considered key resources in rural development. An information- and knowledge-based society depends on constant transfer of communication and information. British professor of development informatics, Richard Heeks, states that ICT-enhanced communication can significantly support rural development process by enabling the flow of information and knowledge between rural communities and more developed regions of a developing country (Heeks & Bhatnagar 1999). In the more recent article, Heeks points out the need for a different approach to ICT in the rural areas:

“Why invest in digital technologies rather than, say, a tubewell to allow access to water? The standard response is "we need to invest in both", arguing that development requires water and information and/or that ICTs can improve the planning and management of tubewell projects”.

(Heeks 2009)

With this in mind, developing countries have been trying to implement ICT projects in rural areas through the direct-indirect help of donor or local agencies. The main focus of projects has been the implementation of ICT in the rural area rather than understanding their impacts at the community level. It is true that the direct transfer of “first world” technology has not been successful because of the mismatch between the intended environment the technology was designed for and the reality ground where those were deployed (Development Gateway 2003). Brewer et al (2005) describe this very clearly:

“Although it is clear that there are large differences in assumptions related to the cost, power, and usage, there has been little work on how technology needs in developing

regions differ from those of industrialized nations. We argue that Western market forces will continue to meet the needs of developing regions accidentally at best.”

(Brewer et al. 2005).

The so-called digital divide is considered a major gap in the penetration of the information society in developing countries. It is claimed that the gap is increasing between people who have access to the information society and those who are deprived of such access, due to cultural bias in the applications and contents, gaps in education, personal handicaps, poor digital infrastructure, or lack of appropriate computer equipment (James 2005; 2004).

Theoretical concepts

In this section, we briefly introduce the main theoretical frameworks and concepts used in analysing data from the case study.

Information and its' role in development

According to Richard Heeks, information is a crucial factor in development, and so is the process of transforming information into knowledge upon which individuals and communities can make decisions; act; and contribute to development. Heeks' information chain model (see figure 1 below) illustrates how raw data needs to be *accessed*, *assessed* and *applied* by the users, before *actions* can take place.

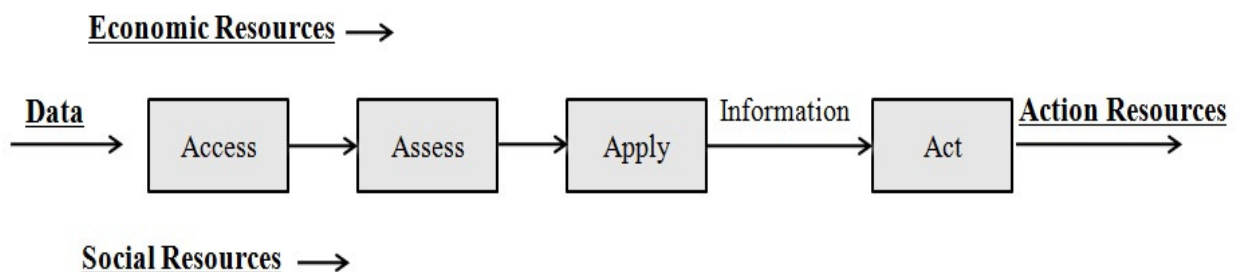


Figure 1: The Information Chain Model (Heeks 2005)

Furthermore, the development process is dependent on what Heeks describes as four sets of *resources*:

- Data resources: There has to be relevant data available
- Economic resources: Economic, technological and skills-related resources are needed to access the data
- Social resources: Motivation to learn, confidence, and knowledge to access, assess and apply the data
- Actions resources: There has to be the resources to act on the decisions based on the available data and information

The information chain identifies important factors in development via ICT, and for the purpose of this study we will use the model to look at the resources offered through the YCMC, and to discuss the potential of the centre as an arena for informal learning.

A Social Theory of Learning

ICT learning in informal settings like telecentres is an integrated part of everyday practices. To describe and understand this type of learning activity and its underlying logics and strategies, a different set of theoretical concepts have been useful, namely ones that focus on communities of practice (Lave & Wenger, 1991). The concept of communities of practice has proven itself to be a concept of great versatility in relation to learning in informal, non-institutionalized settings. Most importantly, to conceptualize informal education or learning it is necessary to move beyond theories of curricular teaching and learning. In this study we focus on how learning takes place in an informal setting, and inspired by Wenger, we understand this kind of learning process as closely related to the dynamics of social interaction; of participation in communities; and of identity building.

The concept of Community of Practice (CoP) was first presented in 1991 (Lave & Wenger, 1991). Here it was used to describe a group of people who share an interest, a craft, and/or a profession. Etienne Wenger later develops the concept further as part of his social learning theory. In his seminal book from 1998, Wenger uses the concept to describe and analyse what connects a group of people through collaborative activity within specific domains of practice. This social learning theory seems a very useful way to understand what goes on in rural telecentres where practitioners/learners share experiences and knowledge within an area of joint interest and practice. Figure 2 below illustrates the four main components in Wenger's understanding of learning, which we have adopted for this study.

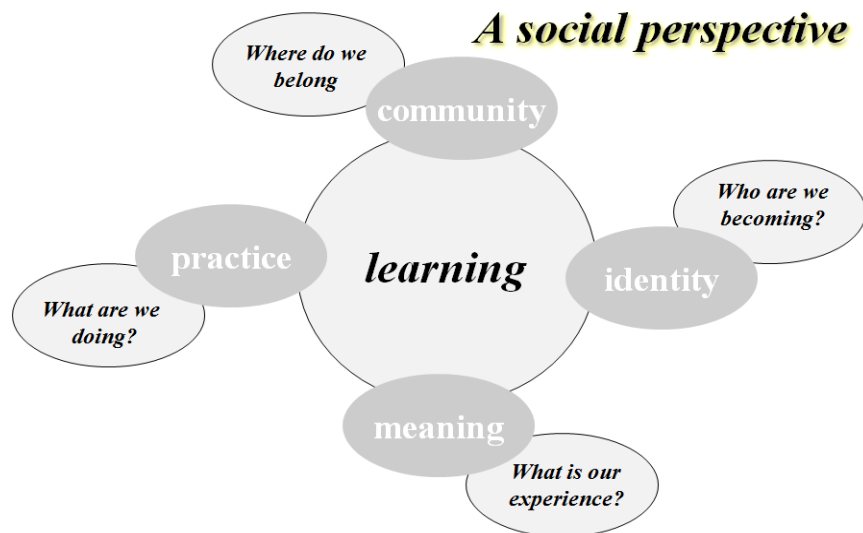


Figure 2: A social perspective on learning (Wenger 1998)

The concept of community of practice has been summarised by Wenger like below:

Communities of practice are formed by people who engage in a process of collective learning in a shared domain of human endeavour (...) In a nutshell: Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly.

(Wenger1998)

A Case Study: YPSA and the Youth Community Multimedia Centre (YCMC)

YPSA (Young Power in Social Action) is a non-profit, social development organisation in Bangladesh. Since 1985, YPSA has been active in greater Chittagong District, Bangladesh. The organisation focuses on poverty eradication and the establishment of civil rights, and describes its ways of working in terms of three different roles:

- As the role of a **facilitator** in the process of poverty eradication and establishment of rights
- An **active implementing role** based on the actual needs but facilitation at different levels will remain a key to the process
- As the role of an **advocate** to influence public policy, attitude and practices in favour of poor, marginalized and vulnerable men, women, boys and girls.

In general, the organisation positions itself “on the basis of in-depth observation, participation and sustainability” (<http://www.ypsa.org/>). In particular, YPSA has worked within the field of ICT for development, and have used information technology both to communicate the causes they support (e.g. the working conditions in the local ship breaking industry in Chittagong); to give access to information for disabled persons; and in general to provide rural people with access to information and communication via the internet. In general, YPSA’s contributions to ICT adoption and ICT enhanced education are widely recognized in Bangladesh. In 2004, the Youth Community Multimedia Centre (YCMC) in Sitakunda developed out of a UNESCO supported project on ICT Innovations for Poverty Reduction (<http://www.ypsa.org/ict4d.php>). Youth Community Multimedia Centre (YCMC) was established with a combination of traditional technology like radio, TV and newspapers, new technologies such as computers, internet, photocopiers and digital devices like video camera, scanner and printers.

The concept of multimedia telecentres is to improve the capacity building of local people along with providing information accessibility to people and groups who are unfamiliar with ICT. YCMC has taken a comprehensive approach to include diffusion, which involves a systematic program of activities designed to spread the ICT message in rural areas. As explained by the program officer of YCMC in interviews, this ICT diffusion has been both time-consuming and resource-intensive, as most of the diffusion programs focus on local needs and priorities, with difficulties with equipment availability as one consequence. The current situation of YCMC has changed in the sense that the centre is running independently and is financially based on self-generated income. In 2010, the YCMC was awarded a community radio broadcasting licence, and will soon start using community radio broadcasting as part of their information dissemination strategy. An important objective of this strategy is to promote ‘the voice of the voiceless’.

Among the many pilot ICT initiatives and activities taken by the centre in the last few years are:

- Volunteer groups have been trained in developing audio and video contents on various social development issues.
- Information has been disseminated through local cable operators to reach the civil society. The participants have developed need-based contents on various issues such as human rights specially focused on women and child rights issues, public health and hygiene, AIDS, drugs, and environmental issues.
- Prepared content packages aimed at even completely illiterate people. This provides information to grassroots in an attractive form, and might thus also promote the general interest in ICT.
- Local newspapers were produced and distributed locally

(Rahman 2009)

Research Setting and Methodology

An empirical study was carried out at the site of the Youth Community Multimedia Centre (YCMC) in Sitakunda sub-district of Chittagong, Bangladesh. Field studies were carried out from September to November 2010, and a combination of methods was applied in the study.

Sitakunda sub-district is surrounded by the hill to the east and the Bay of Bengal to the west. In 2001, around 300.000 people lived in the administrative unit. With only very low employment degree in the industry, a large number of the local people work in agriculture, and as many as 25.000 semi-skilled and un-skilled workers find employment in the largest ship breaking industry in Asia, which is situated in Sitakunda. Only very few of the indigenous people own their own land, and the area has limited facilities in areas like communication, primary education and health.

The overall objective of the empirical study was to develop a better understanding of ICT-enabled human capability building, and the individual and communal learning processes involved in this. A field study was conducted with a focus on social learning actions in order to understand the learning patterns and the challenges connected with use of ICT centres in rural areas. In the study, a qualitative research approach was chosen to address the research questions, and qualitative data were collected and analysed using interpretative methods. A qualitative approach was chosen to support an ethnographic approach, aiming at establishing a better understanding of the motivation of the users of the centre, and the learning trajectories of the individuals in the community.

Data collection has been done through on site-observation, interviews with users and key-informants, document analysis, and informal conversations with users of the centre. A total of

nine interviews were carried out with user and/or trainees in the centre, supported by an interview guide. The informants were questioned what had inspired and hindered them in their learning from the telecentre. Two extensive key-informant-interviews provided deep background knowledge about the centre, its history and activities. The key informants were the program officer of YCMC, and the telecentre operator. The operator of the centre also helped to identify potential users or trainees to participate in the study. Interview and group discussion data was mainly collected from users and villagers who directly or indirectly connected with this particular centre. During the field trip, data collection was carried out which did not focus on the direct impact of ICT training or ICT intervention; rather it was seeking out the indirect impacts of the ICT intervention program. Analysis of documents such as YCMC's records and annual reports has provided insight into the wide range of activities undertaken at the centre. Observations were conducted for the purposes of gaining additional data and to provide enough background knowledge to engage in both formal interviews and informal conversation with local users of the facilities. Among other things, observations have served as the background for understanding the in-depth case histories of some of the informants.

Data Analysis and Findings

Complex social learning processes have been the focus of the empirical study in order to understand the ICT-enhanced learning process and the potential of ICT intervention in rural areas. During the course of and following the field trip, an iterative thematic analysis of field notes and interview transcripts was carried out with the following aspects as the main interest:

- the general activities of the community telecentre, as we are interested in the range of participation patterns of the users;
- the motivation of the users, as we are interested in learning more about what promotes and prevents people from using the facilities at the centre; and

- the strategies for getting access and learning from the activities, as we are interested in exploring the way informal and non-formal learning activities play a role in the human capacity building of the local community.

In the following we present a number of emerging themes from the data set, identified on the basis of our research interest and subsequent reading of the data. Other themes are present in the material; however, for the purpose of this presentation we focus mainly on issues related to *learning, learning trajectories* and *learning strategies* of the users of the centre. The five themes are dealt with in separate subsections below.

Learning Impact in an unstable Organisation

In a group discussion with participation of both users and coordinator, the local YCMC operator expresses a very optimistic opinion towards the telecentre, based on some of the previous experiences with training. The coordinator finds the centre to be a potential ICT access point for marginalised villagers. He himself is an example of what the centre can contribute in terms of capacity building. He took computer training and video editing training during 2004 and 2005 in a program which was subsidized by UNESCO. Around 180 village adolescents were given the opportunity for free basic computer training with some of the most popular programs in 2004 and 2005. After this training, 30 of the participants received further training and were engaged in content development. They started to develop audio, video and multimedia programmes on local community concerns or needs, all fully in the local language. This was done in a way so that the content could be understood also by illiterate members of the community. The video content was prepared with the participation of local people and with consideration for the local cultural context. 18 participants then agreed to form a volunteer team. They produced various video materials on social needs and issues, and furthermore they participated in preparing interactive but traditional activities such as forum theatre and folk music. The YCMC disseminates the

media content and theatre in different remote areas and hill track areas in Sitakunda, using the TV cable casting through the local cable operator, VCD player and TV. Community peoples were very much interested to follow this type of programs. As a result, both the producers of the material and the viewers of it contributed to capacity building through the resources of the telecentre. Local people started to change their behaviour, and at the same time YPSA became increasingly popular due to the activities in this period of time. Thus, a platform for future interventions by this organisation had been established.

However, at present the situation of the centre has changed, most importantly due to a shortage of stable income/funds to support this kind of activity. This results in difficulties in doing the local digital content preparation and maintaining the social learning programs with forum theatre. The YCMC has been operating independently for two years now without any external funding. This gives rise to both a feeling of pride about the overall achievement, but also concern in relation to the future. At the moment, the centre needs to finance all activity with income generated from an internal computer training program and the provision of internet access for users for a small fee. Also data entry-tasks undertaken for the local authorities some times provide a source of income for both the centre and the users who are hired to do the job. Although the centre has a fairly poorly equipped computer lab with old configuration computers, around 200 people in total have been given basic computer training in the centre. The lab needs supporting tools such as UPS and an oil generator in case of power failure in the area, something which is very common. It was also mentioned that it is only possible to survive on self-generated income if fees are not subsidised for the poor and marginalised students or rural users. This puts the operator and program officer in a severe dilemma, as the centre wishes to support members of the local community with the greatest needs.

Imposed Learning for Citizens in a Developing Country

The current government strongly believes that the success of Digital Bangladesh lies in mainstreaming the marginalised population into the development goals and set of actions with ICT as the enabling tool. This vision of the government is the driving force behind establishment of Union Information and Service Centre (UISCs) in 4501 Union Parishads to serve the citizens (United Nation Development Programme (Bangladesh) 2010).

“Digital Bangladesh is going ahead we have to go with this digital age accordingly, but I don’t know what should I learn and what will be better for my future, that’s why I have come to take some suggestion from this centre. This YPSA multimedia centre is a very popular centre in Sitakunda so this program coordinator can give suggestions regarding the computer training session.”

This was said by one of the interviewees at the YCMC. This man holds a very lowranking job in a land survey office near Sitakunda. He has much confidence in the YCMC. When he first got this current job there was no requirement for computer knowledge, but he has now realised that if he has no computer skills, he might loose some opportunities. He found it more convenient for him to visit the Sitakunda YCMC rather than the training centre in the city. He also said:

”I didn’t know anything about computer programmes, but our government has taken a big initiative in building union based information centres and we will be getting all information through computers, so we have to learn computer if we want take advantage from it”.

The study from Sitakunda indicates that such imposition has an undesirable effect when a faster learning pace is imposed on people without the proper learning environment. However, motivation is an important factor, as well as the support and guidance of more capable peers in the learning process.

Youth Learning for Social Development

Youth can learn fast and implement the learning motivation and benefit into their life whenever they can get opportunity. One previous volunteer of the YCMC, a 23 years old woman has studied up to 12th grade and completed the computer foundation courses from YPSA in 2007. After completing the training and gathering experience from practical work in YCMC, she was recruited as a facilitator by an YPSA programme called Strengthening Adolescent Reproductive Health (SARH). She now works with the empowerment of rural adolescents through audio-visual programmes on their local problems using different multimedia tools and program. She connects the adolescents to the YCMC to use the online facility which is available at a quality website organised by the Network for Ensuring Adolescent Reproductive Rights and Services. Thus the adolescents and the SARH program field facilitators get access from a safe location to culturally sensitive ARH information and health care services related to the adolescent's rights towards reproductive health issues.

Community Learning in a Digital Age: Communities of Practice

“If I need to buy a multitasking mobile or computer then I need money. But I don't have enough money to buy an individual computer. Now I can access the internet through YCMC. I can visit here to for search a job and to prepare my bio-data with the help of the telecentre operator or trainer. Here I can come anytime to learn basic computer programmes because previously I have finished the computer foundation course from this centre with fifty percent reduction of the costs.”

(Said by one of the telecentre users)

Some of the trainees or users commented that they have heard about this YCMC from their friends or family members. They expressed their appreciation for the flexible timeframe of the centre, which allows e.g. two or more users to share a timeslot which only one person has paid for, or to use idle computers in breaks between classes at no extra cost, etc. This is different from

the commercial computer training centres in the city which have less flexibility. It is easier to acquire the sought-after skills in an open time frame since most of them have no opportunity to learn at home or in the work place. They learn from discussing and from peering at the screens of other users at the community ICT centre. During the course of the empirical study it was noticed that many users or trainees did not come to the centre alone, rather they come in the company of family members or friends. They were seen learning together and getting great benefits from helping each other. Sometimes one trainee would come together with friends who are not able to pay the admission fee for the time being, and the trainee will help her friends learn the basic computer knowledge whenever she is confident about her own learning.

Another prominent issue in the interviews was the reasons users gave when asked about how they got the inspiration for taking fundamental computer training. The main reasons given was friends or family members who were financially capable of keeping a computer at home with supporting electricity backup and internet connection. Most users were highly influenced by other members of the local community. As a supplement to the computers of friends or family members, they would use the YCMC to access the technology. From the group discussions with users it also became clear that a great deal of their learning took place when working with others and thus learning in a community of practice.

The users and trainees did not mention any tools of particular importance to them; however many did mention how formal certification on computer courses from a recognised organisation was important for job seeking purposes. Some had experienced to be deprived of a job if they had no formal certification for their *learning skills*, even though they were confident that they could perform the job efficiently. This is one very important difference between formal and

informal training which means that the very low price paid at the YCMC might in a different perspective be too high a price.

Women's participation in ICT learning

During the field study it became clear that YCMC in Sitakunda is very progressive regarding gender issues, e.g. indicated by the fact that the majority of our interviewees were female. The telecentre operator stated that there is no significant difference between the number of female and male trainees and users of this centres. Most of the young women are motivated to learn basic computer use to secure better employment opportunities for themselves in the future. Also communication purposes and a wish to qualify for further formal education are among the most quoted reasons for the female users. Access to the internet is seen as a significant opportunity to communicate with family and friends. One user explains:

”Previously I sent photographs and letters by post, and I was feeling very unsecure as well as I had to spend a lot of money and time to send them from the post office. I had heard about the benefits of the internet from one of my relatives, and now I realise that it is a truly significant change in communications with our family.”

Main Findings from Data Analysis

Based on ethnographic data alone, no general conclusions are possible. The main findings of this analysis relate to the unique stories and characteristics of the learning activities of the users and the trajectories these become part of. To summarise, the activities of users are mainly collective, and much is learned through the awareness of what others are doing and from using the facilities of the centre when there is a chance in between scheduled classes and formalised training. Many users also point to people in the local network as their main sources of inspiration for taking an interest in learning ICT, as well as the demands from both the digitalisation of government and job-related skills requirements. We found users to be highly motivated and saw that they find

support for their learning endeavours from other users at the centre as well as from the operator's flexible and generous management style of the centre's resources.

It is clear that the centre plays an important role in providing valuable vertical and horizontal communication and information dissemination to people in the rural communities with few other opportunities for this. However, a number of challenges have great influence on the use of ICT and subsequently also for the development process in the area. These are:

- Unstability in the power supply
- Internet connection expenses and instability in the internet connection
- Expenses for development of local programs with local context
- Large investment of time in the translation of English manuals
- Dropout of volunteers for e.g. family reasons

Our findings point to the fact that the ICT programmes offered by the YCMC are accepted by the villagers and especially by the young people, who are very positive towards the ICT based knowledge/learning outcome. Using Heeks' terms, we find that the telecentre plays a role in giving the users both access to data, support in the process of assessing data (e.g. through projects like SAHR), and subsequently users are empowered towards applying and acting on basis of the information which is available to them. However, applying the learning and knowledge to make changes in their lives is in many instances hampered by issues such as lack of infrastructure, economic poverty and poor traditional practice and beliefs. Also the unemployment factor seems to be holding some people back from carrying out intended personal changes. With these obstacles and problems in mind, we find that the YCMC telecentre supports and initiates local community development with the following important contributions:

- It provides information resources for the local community
- It is a place for career development

- It promotes information literacy
- NGO field personnel can get access to information which is important for their local work
- Basic computer training makes users more confident in general ICT usage
- The centre provides technology support for people in the community
- Digital content is produced and promoted within the local language and adapted to the local context
- With consistent and extremely simplistic training they can operate computer
- The centre serves as a hive for small groups of practitioners, who learn from the centre operator and from each other
- The centre offers an opportunity to build up social networks among users

Discussion

Two main questions will be discussed in this section, aiming at combining the individually oriented focus on personal learning with the societal development found at the community level.

The questions are:

1. What are the characteristics of this learning community? What do we find in this empirical study which leads us to understand the telecentre (YCMC) as a learning hub in the local community?
2. What is the role of telecentres in the vision of the Digital Bangladesh? And what can be learned from the field study of relevance to this vision and the strategy proposed by the Bangladeshi government?

One of the greatest strengths of the YCMC in Sitakunda is its focus on training. Early on the telecentre became a significant capacity building force in the sub-district. The transformation of data into information and knowledge requires capability. Rural telecenters like YCMC is

building capacity of its' users to help them learn and develop. Availability, understanding, adoption and usability are key characteristics of the work going on in both the formal training and informal knowledge sharing between users of the centre. Based on our empirical study, we find that this telecentre is functioning as a learning hub in the rural community, and is fostering formal and non-formal learning, leading to improved employability, personal development, and an increased awareness about the possibilities in learning about ICT. Furthermore, users become confident in pursuing further training and they serve as role models and inspiration for others.

With respect to resources, Heeks points to the importance of four sets of resources, and to understand the sustainability of the telecentre, we have looked briefly at the four below (also see figure 1 earlier in this paper).

Data resources are digital contents on various issues such as health; reproductive rights; human rights focused on women and child rights issues; government forms and information; instructions/manuals for computer programmes; job announcements; etc.

The *Economic* resources are the facilities of the centre (computers, printer, scanner, etc.); the funding to allow subsidisation of cost for the poor; the knowledge and skills of the centre operator and instructors.

Social resources are mainly found among the users of the centre in the form of motivation, confidence and knowledge, and also in the fact that the centre staff and volunteers have managed to gain credibility and trust among members of the local community. The presence of peers in the centre also serves as a pivotal social resource for the users/learners.

Action resources are a little harder to identify in the study. Some examples include the improved employment opportunities for users who have undertaken the formal training; and the enrolment as volunteer into the centre or other NGO's.

YCMC is not financially sustainable without funding from YPSA and from time to time projects funded by other organisations, and as such the centre is in a vulnerable situation. On the other hand, the YCMC is providing access ICT to disadvantaged groups by subsidising the fees and allowing for flexible and generous use of the facilities. This seems to be a key point in the way this centre has been successful in providing ICT access for all in this area. The development approach of this centre has a potential impact on poverty reduction, human skills building, education and empowering of women. To summarise in key points, the direct outcome of the ICT intervention in this rural area is:

- Information dissemination
- Employment
- Education and Informal learning
- Women empowerment
- Social equity

The activities of the telecentre can be seen as links between non-formal and formal learning and education/training, and furthermore as linking into the learning resources that exist in the local community, e.g. the skills and values of the members of the community.

Conclusion

In a country like Bangladesh, it is impossible economically to give full ICT access to individual households, especially in rural areas. The hard work of many development organisations to disseminate information also suffers from this. By addressing these challenges, Youth Community Multimedia Centre has been actively working to overcome some of the challenges of the digital divide in village areas of Sitakunda.

Through this empirical study we found strong indications that ICT can contribute to significantly to development in rural and disadvantaged areas, when there is an *appropriate developmental*

agenda, a strategic plan and a continuous support from other development organisational.

Furthermore, if the organisational and management model of a telecentre supports informal social learning activities and makes resources and information available to members of the local community, the development capacity in the community is strengthened substantially. Further studies within this complex area should explore the connections between activities in telecentres and the surrounding community in further details. Also the problem of directly or indirectly supporting and developing resources for change as part of the learning process is of vital importance for the further development of the role of telecentres as learning centres in rural communities.

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