Rural Community Digital Technology Connectedness: Does ICT in Rural Area Contributes to Rural Development in Malaysia?

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Abstract: This research emphasises on telecentres community digital technology connectedness in rural Malaysia to tackle the issue on digital divide. The telecentre program main objective was to increase rural communities ICT knowledge and skills as well as to enhance rural access to Information and Communications Technologies (ICTs). Thus, this research has revised various studies on community informatics and previous studies of social capital in regard to, "Does ICT in rural area contributes to rural development in Malaysia?" From the assessment of the telecentre program, this research has provided the theoretical lens on community informatics and social capital theories. The research gap is to investigate if there is an improvement in human and social capital as an outcome of the telecentre. Therefore improvement in digital knowledge and skills in rural Malaysia and perceived effectiveness of the telecentre program were the contribution of this research. While the telecentre program in Malaysia is improving, the use of ICT for rural development is also improving, hence, the outcome is improve on quality of rural life. As a result, this study makes a contribution to rural development with reference to local rural communities in Malaysia with proposed model to develop.

Key words: ICT, rural development, telecentre, community informatics theory, social capital and quality of rural, life, digital

INTRODUCTION

The overall rural development is to improve the communitie's quality of rural life. Robert Chambers claimed "as a strategy that enable a specific group of community to benefit for themselves more of what they want and need" (Annonymous, 2011). In this context, rural development refers to improvement on individual and local community quality of life. This is by providing better quality of rural life with the government initiative to introduce and implement telecentres to the rural community. As an outcome, the individual community will not only develop themselves but develop their community as well.

To define rural development, Chambers (1983) claims that it is "a strategy to enable a specific group of people, poor rural women and men to gain for themselves and their children more of what they want and need. It involves helping the poorest among those who seek a livelihood in the rural areas to demand and control more of the benefits of rural development". In addition, rural development is "a process leading to sustainable improvement in quality of life of rural people, especially the poor" (Chambers, 1983). Supported by policies that benefits from human capital enhancement, employment opportunities, knowledge of economic opportunities and engagement worldwide could provide the people to initiate and sustain improvements in the quality of rural life.

MATERIALS AND METHODS

Malaysia rural development policy: During the Ninth Plan period, Malaysian governments have addressed development through a series of national plans with the recognised difficulties of providing basic infrastructure (Anonymous, 2004). Rural Malaysians (36%) access to basic infrastructure including ICT infrastructure was viewed as necessary for improving the quality of rural life in 2009 (EPU, 2010a). Rural development in Malaysia refers to these five key objectives (EPU, 2009): "To intensify development in rural areas and narrow the economic gap between urban and rural areas to increase market access of the rural community to generate better income through various cottage and craft industries; to provide better access by the rural community to ICT and new technologies and improve farming practice; to expand and increase credit facilities for agriculture related trade and services and to further improve the quality of life of the rural population through increasing physical and social infrastructure as well as to improve rural health and education facility". To date, this research applies on key objectives 1, 3 and 5. Thus the potential for telecentres to provide basic ICT infrastructure to rural communities in order to improve the quality of life through better physical and social infrastructure, towards improvements in human, social and economic capital.

Rural telecentre: A telecentre is a public connectivity with the purpose to benefit the community and where people can access a variety of communication services. (Kumar and Best, 2007). The history of telecentres commenced in the 1980's with the introduction of a telecottage in Scandinavia prior to the internet and the idea of a community sharing computers (Kumar and Best, 2007). In the mid-1990's, a new breed of telecottages appeared in Hungary built around social and economic development, computers and the internet. Then later in the 20th century the diffusion and adoption of ICTs and telecentres supported by various international organisations (Kumar and Best, 2007).

All telecentres are working hard to sustain and secure their inputs (technology and equipment) as a consequence of digital divide and technology obsolescence (Attwood *et al.*, 2010). For example, a few of telecentres in South Africa are experiencing disconnections from the internet (sometimes for months), slow internet connections and a lack of functioning computers (Attwood *et al.*, 2010). The ITU (2011a) reports that for the purpose of accessing internet activities, the quality of internet access speed is a relevant factor. The barriers to achieve outcomes are poor reliability and speed as shown in some studies (Attwood *et al.*, 2010).

In parts of Africa, a public library is commonly used as telecentres (ITU., 2011b). The telecentres in Africa experienced less users due to un-strategic locations and discomfort. Some telecentre's location affected accessibility and the use of facilities. Normally the telecentre space was too small or the problem of inadequate physical facilities such as toilets (Etta and Parvyn-Wamahiu, 2003). Equivalent to Harris (2007) telecentres in Malaysia lacked toilets available for users, had unreliable power were prone to flooding and had insufficient space.

Every telecentre service availability, skills match and user's needs are the factors that determine the uptake of internet activities in each country (ITU., 2011a). The US, Australia and Canada (developed countries) they had focused more on advanced services (such as, e.g., video conferencing) rather than basic communication services as such developing countries telecentres provide basic services and facilities such as facsimile, photocopying and other value-added services such as internet access (Dogara, 2011).

Roman (2000) claimed that it is a must to have computer skills for a telecentre to be functioned (a survey on telecentre managers in Africa, Asia, Latin America, Europe and North America). In Scandinavian and North America, the rural community of the government-funded telecentres have improved their ICT skills (Murray *et al.*,

2001). Improving telecentre user's ICT skills demonstrate that this has achieved sustainable economic development and lifelong learning which this has been recognised the value by the UK government. In 1998, a Community Technology Center's Network (CTCNet) survey evidenced that telecentres had overcome the user's fears of computers and increased their self-confidence and skills. Most of them reported the majority of telecentre users also found jobs (in the US).

Besides, business opportunities are also an avenue at telecentres (Annonymous, 2010, 2011, 2012). Hence, business opportunities are such as that provide business community to plan arrangements and to interact with partners and clients from far away (Jensen and Esterhuysen, 2001). Telecentres could not solve the digital divide problem, due to most of the communities are not interested in accessing ICTs and they are excluded from the socio-economic benefits. Thus, telecentres is a means of community development and poverty reduction of the delivery of socio-economic benefits (Harris, 2007). Telecentres are viewed as a new solution to development problems in terms of ICT accessibility and bridging the digital divide in developing countries such as Africa, Latin America and Asia (Gnaniah *et al.*, 2005).

ICTs have the potential to provide easy access to information, goods and services and improve individual's quality of life (Huggins and Izushi, 2002; ITU, 2011b). The delivery of socio-economic services which can be enhanced by offering low-income people ways on how to improve income and through participation empowerment in decision-making processes could also improve their QoRL. ICTs can contribute significantly to socio-economic development (ILO., 2001).

ESCAP have studied ICT initiatives in India, Malaysia and Thailand (UNESCAP., 2006). Their research has found that governments have an important role to play in creating an enabling environment for ICT development in rural areas and the key element is government leadership in making ICT work for the rural poor. ICT promotion success in rural areas depends on two criteria which are partnership between Public and Private sectors (PPPs) and government leadership (Anonymous, 1999). A national ICT policy is a must to reduce the digital divide and poverty alleviation in ICT development (World Bank, 1999). While the research concern is the RIC services that are the inputs extending the information and communication services as communication pathways (UNESCAP., 2006).

The key to development could be knowledge (World Bank, 1999). ICT for development enhanced knowledge to have better access and obstacles to knowledge because

"while education develops cognitive skills, information gives content to knowledge" (UNDP, 2001). Thus, the role of knowledge in development is the use of ICT through policy planning and to facilitate greater access. Currently changes in ICT as tools for human growth and it requires changes in public policy to develop. The issue of ICT transformation emphasized that "no individual, organisation, business or government can ignore these changes and its impact on development (UNDP, 2001). The challenges are how to reduce the digital divide and create opportunities by providing rural communities with affordable, equitable and quality access to ICT faced by various stakeholders. Many studies have shown that in developing countries the digital divide has led to an increasing wealth gap between rural and urban areas (Fong, 2009; Black and Atkinson, 2007; Furuholt and Kristiansen, 2007) and even a developed country such as the UK has a similar divide (Anonymous, 1999). In rural Malaysian communities, the income tends to be low and the cost of computers and other ICT facilities are too costly. The low level of computer usage in these communities is associated with low ICT literacy and the inability to realise the ICT benefits in improving their quality of life (Nair *aet al.*, 2010).

Hence, knowledge on ICT should be wider and continuously develop (BMI., 2011). Some suggest that the internet and ICT can help trans form society as a whole and create other benefits thus, bridging the gap when internet and ICT access is ubiquitous. Some of the arguments for closing the digital divide, as related to this study include promoting social mobility which is important especially for school children in their learning and later careers and an education that includes the use of computers and the internet (IWS., 2010). Without this support by government, the digital divide will be wider for children in rural areas (IWS., 2010).

Therefore, resolving or minimising the digital divide requires the involvement of four main players (Zaitun and Crump, 2005), namely institutions of higher education industry; government and rural communities. This research focuses on rural communities and one role of government. Despite in developing countries research on telecentres has been increased, it is limited and unclear understanding of the factors that lead to their successful and sustainable operation (Bailey and Ngwenyama, 2009).

Social capital in rural communities: Social networks see a community as the relationships between people. The community are concerned with the resources shared and support each other they may be ties of kinship, friendship, acquaintanceship, shared workplace; they may be weak or strong (Granovetter, 1986). Different characteristics of rural communities have a diversity of networks (Flora *et al.*, 1997). They have a diversity of demography factors and thick in social capital (C2BE., 2000) and all these factors can be examined in the target communities for the telecentre program. Thus community's acceptance to informatics initiatives and the technology is a critical factor as a result, probably the community informatics initiative succeeding and being sustained (Mannion, 1996).

The social capital concept in this stuyd is understood as a result of accessibility, communication and involvement links through the telecentre. The initial point is the telecentre as a social network when individual users come and visit the telecentre they had established and built valuable relationships and networks within the rural communities and beyond. Consequently, the growth of social capital, rural community members exchange and share information, build increased social and business contacts and extend their existing networks and/or create new relationships or networks.

Bullen and Onyx (1998) claim that social capital cannot occur in isolation by individuals but is generated in a group or community forming new associations and networks or expanding existing ones. Hence, in view of the perspective that greater social capital due to participation in community activities that extends social networks and social capital plays a role in community informatics initiatives and community development. On the other hand, the uniqueness of community informatics relies on its interactive technology and informal communication as the technology makes possible the strong ties, networks and diversity that can emerge from increased communication and participation in the rural community as in the case of a telecentre. Thus, through community informatics initiatives, social capital can contribute to and result from community development processes.

Community informatics in rural communities: A technology strategy which network efforts on economic and social development at the community level with emerging opportunities in areas such as telecentres. Community development is about building human capital and capacity to improve skill and knowledge for individuals and the community as a whole (Gilchrist, 2004). As discussed, community informatics is not just a technical issue which focussed on instrumental approach of technology, it is more than that it is a deeper and broader understanding of socio-technical issues (Bradley, 2006). Gurstein's understanding of CI multi-dimensions include community development, policy studies and public administration, ICTs for development is consistent with the others (Gurstein, 2008). Gurstein recently proposed a wider concept of the CI:

"A commitment to universality of technology enabled opportunity recognition that the 'lived physical community is at a very centre of individual and family well-being economic a belief that this can be enhanced through judicious use of ICT user-focused understanding of IT; entrepreneurship and creativity" (Gurstein, 2008, Heeks, 2002)

Community informatics is the technology application to improve user's quality of life, thus enhance and support social structures (Mason, 2001). At the community level, community informatics is a community based approach to create new patterns of usage and focus on quality of life. With the use of ICT, the challenge of achieving economic and social development can be addressed as shown in community informatics studies. Digital divides solution for internal and external communities is community informatics (Gurstein, 2000). This is within the different segments of society which encompasses access to the internet and also ICT (IWS., 2010).

Community informatics look into the benefit of the community. While ICT is develop, thus the relationship between communities and information technology is used (Roux, 2010). Community informatics advancements, ICT is use as a tool for assessing and retrieving information for socio-economic development. In the process of becoming more mainstream socio economic development, ICT accessibility and usage in rural and urban areas is a challenge as it remains extremely inequitable (Roman and Colle, 2002).

The bounded geographical location or common interest is the factor for having social network by the local community (Talbot and Verrinder, 2005). The physical, social and economic improvement in a community are the outcome of community development (Phillips and Pittman, 2008). Samah and Aref (2009) adapted the community development approach from Phillips and Pittman (2008) and claimed that the local communities benefits from capacity building and economic development thus this is the community development contribution.

Ministry of Rural Development under the Malaysian government plays an active role in rural community development. Community Development Division of the Ministry of Rural Development (KEMAS) and the Federal Land Development Authority (FELDA) are the agencies involved (Padmini and Be, 2001). Community development in rural Malaysia is based on two levels: policy level, agencies developed programs and improving communitie's quality of life thus contributes to community development and implementation level, to achieve the program's objectives and to encourage a community's participation in those programs (Shamsul, 1986).

Quality of Rural life (QoRL): In developing countries ICT for development research is now aimed on utilizing ICT benefits on the local communities QoRL. However, studies are limited on perceptions of ICT social benefits, ICT utilization and use toward improving QoRL (Kivunike *et al.*, 2011). Kivunike *et al.* (2011) stress out that in developing countries, efforts have emphasized maximising ICT benefits that leads to improved QoRL. A study in Uganda proven perceived social benefits and increased ICT usage leading to improvements of QoRL. The study also suggested that there was limited awareness of the potential and role of ICT leads to QoRL improvement (Kivunike *et al.*, 2011). The elements of QoRL are economic benefits and social capital contributions that bring benefits to a rural community (Cummins,1995). This evidence supports the research of ICT role on quality of life perceived by Ugandan rural communities which found that indicators of better/good life (QoRL) were identified in regard to three dimensions: economic opportunities, social facilities and political freedom (Kivunike *et al.*, 2011). As noted earlier, the research aims on the economic benefits and social capital, since considering and measuring perceptions of political freedom would be beyond the scope of this research. Moreover, International Telecommunication Union (ITU., 2011b) initiatives in promoting ICT to rural communities also contribute to improved QoRL.

In conjunction with the World Telecommunication and Information Society Day 2011, ITU made worldwide initiatives promoting ICTs to rural communities for a better life (ITU., 2011b). It called upon all stakeholders to promote a better quality of rural life and contribution of ICTs in rural areas with the adoption of policies and strategies. Indeed, the aim of the Malaysian Quality of Life (MQoL) is to measure the impact of development projects and programs on people's wellbeing. Currently, as in the past, it continues to give consideration and place emphasis on the national development plans including the Tenth Malaysian Plan (EPU, 2010b).

RESULTS AND DISCUSSION

The findings show a positive attitude towards using the computer. The rural community who use the telecentre are happy with their level of computer skills and non-users or ex-users are not prevented from doing so by lack of skills. Despite that, those who found jobs through telecentres perceived that the employment opportunities lead to increase their income, knowledge and skills.

Different age groups of people had different perceptions on employment opportunities; due to their need their level of education and their age factor. Thus, the youth group is the majority users that use telecentre regularly to seek for jobs. Indeed, this was the result of reducing the digital divide at the telecentre. The rural communities used the telecentre in both a physical and virtual sense. This kind of space benefited the telecentre users in many different ways such as providing avenues to the telecentre users not only to access the computer and the internet but also to access the services and get assistance from the telecentre managers. This was also true for improving digital skills. These local rural communities were increasing their human capital due to the increase in their ICT knowledge and skill.

For instance, business opportunities at telecentres built upon Social Entrepreneur Club (SEC). This SEC member perceived the benefit of SEC more on social relationships within members and other local communities. Even though some members perceived SEC brings more benefits to them, however, there are some members who did not see the benefits. As explained, the people perceived social capital built around the social contacts, social and business relationships exist at telecentres and SECs. At SECs, the people not only gained the benefits of business opportunities but the social benefits as well. The people also perceived that economic benefits also contribute to telecentre benefit.

In relation to the issue of bridging the digital divide, people with higher education were perceived to be reducing the divide. As a consequence of being telecentre users, people tended to have better education with improvement in their ICT knowledge and skills, hence, gained better employment and increased their income. They believed that the telecentre improved their ICT awareness and skills. This shows to some extent that the telecentre program is working reasonably well and meets its main objectives. The people had improved their digital skills and uplifting their quality of rural life. Their outcomes were more on social benefits rather than economic benefits and the people do not seems to notice that. Those people with higher income, better education and employment and also higher level of social capital considered as having higher telecentre benefits. The findings suggest that, overall; telecentre users believed that they had gained economic benefits as well as social capital benefits. In addition, the people also perceived that improvement in QoRL leads to contribute to rural development (Fig. 1).
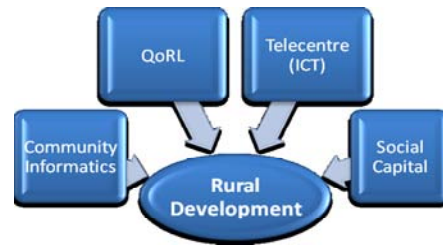

Fig. 1: Proposed model

CONCLUSION

The idea of this study was to figure out the outcome of telecentre program on quality of rural life. Empirically, this study has proven that the telecentre improved the individual community quality of rural life with the use of ICT applications. Based on the telecentre key findings conducted earlier and related literature on previous studies, the majority studies on telecentres emphasised the impact of ICT in developing countries. While this research evaluated telecentre focused on community informatics and quality of rural life. This research proves that the community informatics contribute to the improvement in social capital and economic benefits. In fact, results from these key findings are similar to other studies on the association of social capital with economic benefits. Despite that, this research further proves that the perceptions of an increased in perceived benefits improved the quality of individual rural life. This suggests that ICT in rural areas does contribute to rural development in Malaysia.

In summary, this proposed model summarise the idea of overall framework of this research. As it describes the flow and logic behind this study. The findings supported the discussion and strengthen the model proposed in this research.

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