Theories of Change and Evaluation of Malaysian Rural Internet Centers

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Abstract— The paper describes the findings from the early phase of a research conducted to evaluate the impact of utilization of Malaysian Rural Internet Centers (RICs) on user's sense of social connectedness and empowerment. It employs a theory of change approach to study the outcomes brought about by the RICs. Initial findings however, suggest that the RICs have evolved individually and are unique from each other, thus requiring a revised evaluation framework based on each RIC's role and functions. Interviews, observations and document analysis conducted at six RICs imply three main models: (1) The Cyber-café model, (2) The community service center model and (3) The entrepreneurial center model. Three theories of change are subsequently proposed to address each model and further aid the evaluation of the RICs in each category.

Index Terms—ICT development, Evaluation, Rural Internet Centers, Theory of Change.

I. INTRODUCTION

Malaysia is a developing country with a population of 28.0 million spread over thirteen states. The ICT agenda was spurred by the formation of the National Information Technology Council and the Multimedia Super Corridor in 1995. In 2008, there were more than 15 million internet users and 25 million mobile subscribers in Malaysia[1]. The 9th Malaysia Plan (2006-2010) targeted the setting up of 70 district internet centers and 100 sub-district centers. The services offered at those already established are cyber café like (e-mail and internet access); word processing; desktop publishing; access to e-government services, education and training, printing and scanning. Projects such as *Pusat Internet Desa* or Rural Internet Centre (RIC) are carried out by the Malaysian government to provide ready access to ICT. As of 2010, forty one Rural Internet Centers (RICs) each with its own website and network of members are in full operation in Malaysia. The telecentre project initiated in April 2000 stands as one of the government's initiatives to bridge the rural-urban digital divide through free community-shared ICT facilities and internet access. Rural communities need to stay abreast not only of technological advances but of the country's development and the government plans. However, a study done by [2] to look at the level of preparedness, the suitability as well as the ICT needs of the people in the rural areas found a clear gap between the urban areas and the rural areas.

II. RESEARCH CONCERNS

ICT paves the way for the efficient transfer of information, e-services, social networking and knowledge sharing. In addition, communication through ICT can create a sense of connectedness [3] through exchanges that allow people to be aware of each other and to maintain social relationships. This is further emphasized by [4] who state that people not only socialize online, but they also incorporate the internet into seeking information, exchanging advice, and making decisions.

E-government initiatives have also moved from impersonal, one way information dissemination and limited accessible data to Government 2.0 initiatives that include integration of tools such as wikis, social networking sites and the use of blogs to exchange information and connect with the people [5], [6] including those in the rural areas. The question is whether the available RICs and access to the internet are actually impacting these communities. Connectivity is not an issue but connectedness may be a concern. Do rural users utilize the RICs to connect with family, friends and acquaintances? Do they connect with those external to their social circle? Do they connect with the government? Do they perceive a heightened sense of connectedness?

Another related aspect of ICT usage is that of empowerment, defined by [7] as a multi-dimensional social process that helps people gain control over their own lives. It gives people the capacity to implement and act at different levels including personal, interpersonal, group and citizenship level [8]. In Malaysia, e-government initiatives include provision of Internet access to rural folks. Does this measure give them the information, knowledge, technical action and opportunities including the capacity to conduct citizen-government transactions without leaving their village? Does ICT access through RIC empower the rural people?

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The utilization of ICT made available at the Malaysian RICs is earlier anticipated to enhance the ICT skills and to foster capacity building of rural folks. Ten years after the RICs come into being, a revised theory of change and further evaluation of the RIC is due. The researcher employs a theory of change approach to propose a framework of evaluation of existing Rural Internet Centers (RICs) in Malaysia. The actual evaluation of the RICs will not be within the scope of the paper.

This paper reports a research in progress. It describes the early findings of a research on RIC utilization and proposes a theory of change that is anticipated through public access to ICT. It combines ICT skill enhancement, capacity building and networking into two constructs which are (1) sense of social connectedness and (2) empowerment. It starts with profiling the users and exploring the views of RIC managers in several states in Malaysia. The selection of RICs is done by scrutinizing each RIC's reported activities, available on each RIC website. RIC users on randomly selected days are the informants of this phase of the study.

III. Brief review of literature

The impact of public access to ICT has not been definitive [9]. There is also a huge gap in the area of measurement of the magnitude of impact with most research in this area being case-based and qualitative. It is the aim of the research to provide both quantitative and qualitative evaluation of the impact of public access to ICT by going beyond studying government ICT provision in enhancing the people's access to information and knowledge. It will also look into a social psychological aspect of ICT, namely its capability to enhance the people's sense of social connectedness and empowerment

A. Sense of Connectedness and Social Connectedness

Of late, researchers have deliberated on the capability of technology to provide a sense of connectedness which is a sense of belonging, sharing and a feeling of being touch [10], [3], [11]. IJsselsteijn et al [12] further express connectedness as keeping up-to-date with other people's lives. Social connectedness basically refers to the relationship people have with others. It illustrates the connection between people, both within their immediate social groups and within the wider community. Access to the internet thus provides higher level of social connectedness as people are able to access information resulting in opportunities to participate in society. A study by [13] indicates two types of ties that are fostered through community technology centers. These are bonding ties within communities that are horizontal (peer to peer) and bridging ties to individuals who are not aligned in social status or geographic location. The first tie thus enhances supportive relationships and opportunities to belong while the second tie provides the chance to connect to a world different from one's own. Boase et al [4] in turn describe the ties as core ties and significant ties.

Hemmingway Measure of Adolescent Connectedness as suggested by [14] postulates three separate elements to a sense of connectedness namely participation and support,

sense of belonging and sense of relatedness. In this study, these elements are considered alongside those derived from the work of the researchers mentioned to develop a framework for sense of social connectedness. The elements as shown in Figure 1, are access and participation informal networks and a sense of relatedness that emerges of out it.
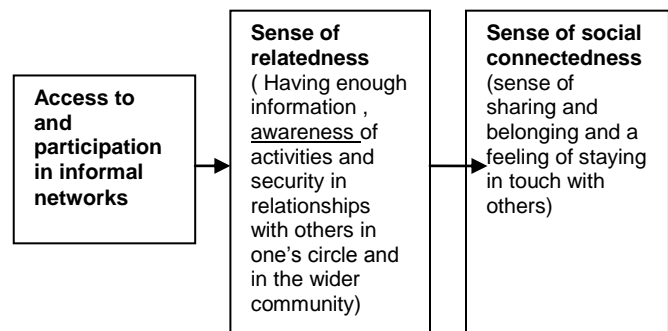

Fig. 1. . A framework of sense of social connectedness

B. Empowerment

Empowerment is about power and the capacity to do things. This study investigates empowerment as an impact of access to ICT via public sites that supports "an opportunity structure that allows people to make new choices through raised consciousness, better information, and expanded entitlements" [15]. As a social process, Page and Szuba's [7] definition of empowerment (see page 1) implies that the individual and community are fundamentally connected. This is supported by [16] who states that the foundation of community empowerment is based on the individual empowerment. She further suggests that the empowerment of the individual's begins with the belief that what he or she is trying to accomplish is possible.

Empowerment through ICT which is the mainstay of this study is studied by various researchers including [17] and [18]. Amichai-Hamburger et al [8] proposes a four-level model to explain E-empowerment ranging from (a) the personal, (b) the interpersonal, (c) group and (d) citizenship empowerment. In this study, empowerment is limited to increase skills and citizen accessibility to information and services. All other aspects of empowerment via ICT will not be investigated due to constraint of time and resources. In short, the research will study how public access sites, in this case the Malaysian Rural Internet Centers impact the sense of social connectedness and empowerment of its users through their internet usage. It will also look at these two aspects through constructs such as those listed below.

Sense of social connectedness
  a) Relatedness
  b) Access to informal direct networks
  c) Participation in informal direct networks
  d) Access to informal wider community networks
  e) Participation in informal wider community networks
Sense of empowerment
  a) Increased personal ICT-related skills
  b) Access to government information and tools
  c) Ability to conduct citizen-government transactions

Malaysian Rural Internet Centers (RICs) have however, evolved and carved a niche of their own. It is crucial to allocate the early stage of the research to investigate each RIC and how the two constructs can be achieved and measured.

C. A Theory of Change for Malaysian Rural Internet Centers (RICs)

A theory of change as espoused by [19] refers to "how practitioners believe individual, inter-group and social/systemic change happens and how, specifically, their actions will produce positive results". With regard to the ICT related outcomes brought about by the availability of Rural Internet Centers, a proposed theory of change simply aids the identification of the impact of RICs. Though normally developed at the onset of the program or at the inception of RIC, a theory of change is also pertinent in the continuous process of developing a RIC's direction. This is even more essential after individual and community characteristics have been duly studied and recognized. This is the main objective of this paper – to propose a theory of change that will aid in deducing outcomes based on the current RIC roles and functions. Figure 2 explicates the general framework of change proposed at the beginning of the study
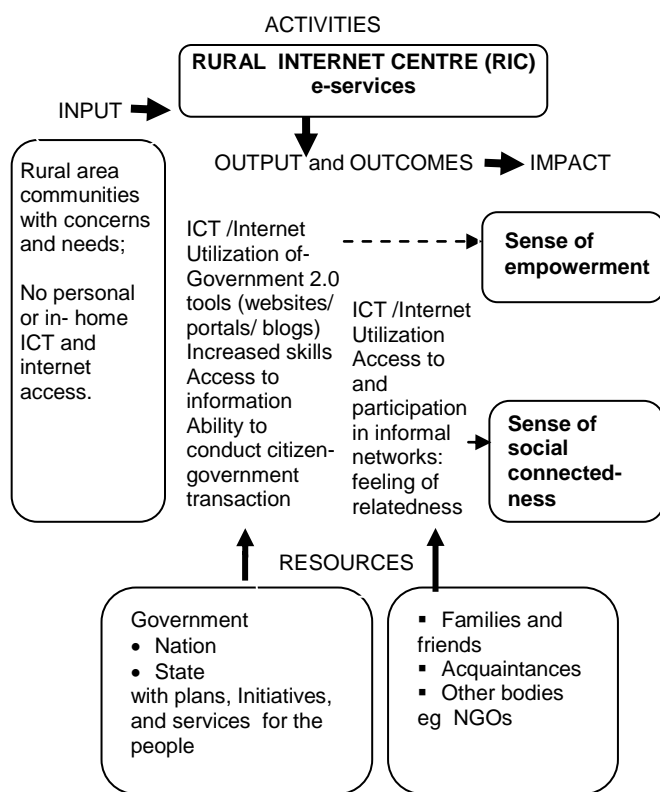

Fig. 2. The general framework of change

Though there are differences in a theory of change and a logic model [20], this report blends the two approaches to program evaluation, hence, a theory of change logic model is developed. It is however, pertinent to evaluate existing practices and the usefulness of the abovementioned theory. Assumptions made may be imprecise and postulations need to be validated. Hence, the early stage of the research focuses on theories of change that bring about the RIC outcomes.

IV. METHODOLOGY

Visits were made to six rural internet centers (RICs) in three different Malaysian states during the early stage of the study. Data were collected through observations, document analysis and structured interviews using an 8-section venue survey. The researchers were given access to logbooks and reports on the RIC yearly activities and achievements. The managers of each RIC and several users were requested to answer questions on RIC infrastructure, staff, services, user access and utilization, changes and their perceived impact of the RIC on the community. The RIC managers were very cooperative and provided useful information to the researchers They enthusiastically described unique cases of empowerment and social connectedness that stemmed from the users frequenting the RIC. Observations were also made to gauge the interaction between the users and the manager.

V. FINDINGS

All the RICs visited were found to offer basic ICT services such as computer use, internet use, printing, typing services, scanning, photocopying, faxing and phone services. Certain RICs provide laminating services, e-ticket travel services and preparation of documents such as resume and accounting report. Some prohibit downloading and chatting. The RICs also provide ICT training to the rural users.

Findings from this stage suggest varying practices among each RIC, contrary to the researcher's preliminary beliefs. It was found that

1. Malaysian RICs tend to evolve differently depending on its location, users and the management. Hence, it is not quite right to generalize the findings in one RIC to all the Malaysian RICs . Each RIC is thus, treated as a unique case. However, similar characteristics persist among certain RICs, thus making it possible to categorize them accordingly.
2. Local context, culture, politics and community support are strong determinants of RIC activities and outcomes.
3. Location influences the functionality of the RIC. Those situated in locales with other public access centers such as cyber cafes and broadband centers tend to cater to mature users and older adults who are less comfortable with the younger group who frequent the other mentioned centers.
4. Most RIC managers respond to the local clientele, thus providing services and developing activities that fit the needs and characteristics of the users.
5. Community users influence RIC manager's personal development
   a. Managers who hail from the same community tend to be socially connected to the community of users
   b. Managers develop their skills and ICT expertise according to the local needs.

The initial findings suggest that Malaysian RICs may be categorized into three main models:

1. The Cyber-café model
2. The community service center model
3. The entrepreneurial hub model

The above points also provide the basis for the development of three models or theories of change that underlie each category of Malaysian RICs. Adapting a theory of change logic model template developed by the Kellog Foundation [21], the change in three categories of Malaysian RIC is illustrated in Figs. 3, 4 and 5.
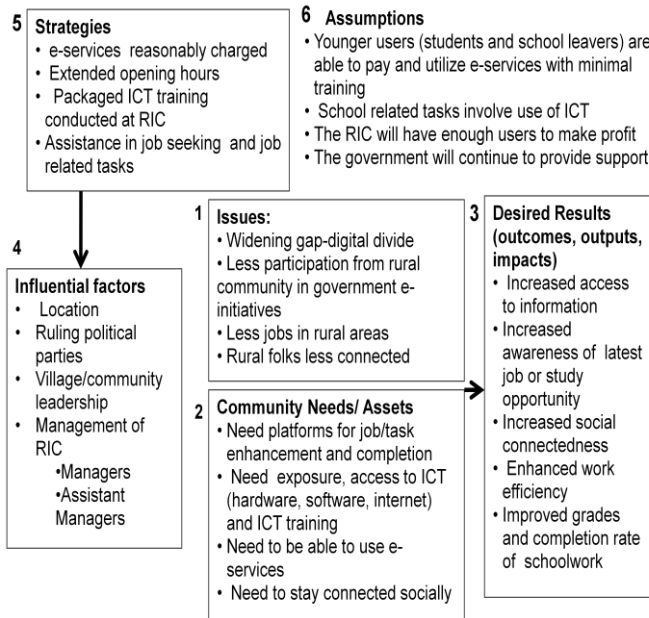

Fig. 3. The theory of change logic model for Cyber Café Model

The first RIC model is akin to a cyber café where younger users come in to utilize IT tools and the internet. Students, school leavers and job seekers form the target group of such RIC. They use the facility for communication, school work and job related activities. The manager is less socially involved with the members of the community and runs the center as a business entity. RIC utilization is anticipated to impact the user's sense of empowerment in terms of increased ICT skills that aid their schoolwork and job related tasks. Users are also expected to be more connected to friends

The second type of RIC as depicted in Fig. 4 functions as a community center where folks come in to meet others. The manager normally hails from the community and is very much involved with the people. The users are basically retired government servants, senior citizens and home makers who utilize the RIC to stay connected with family members and conduct simple home business tasks. The RICs are normally situated in locations where there are other public access centers such as cyber café' and broadband centers.
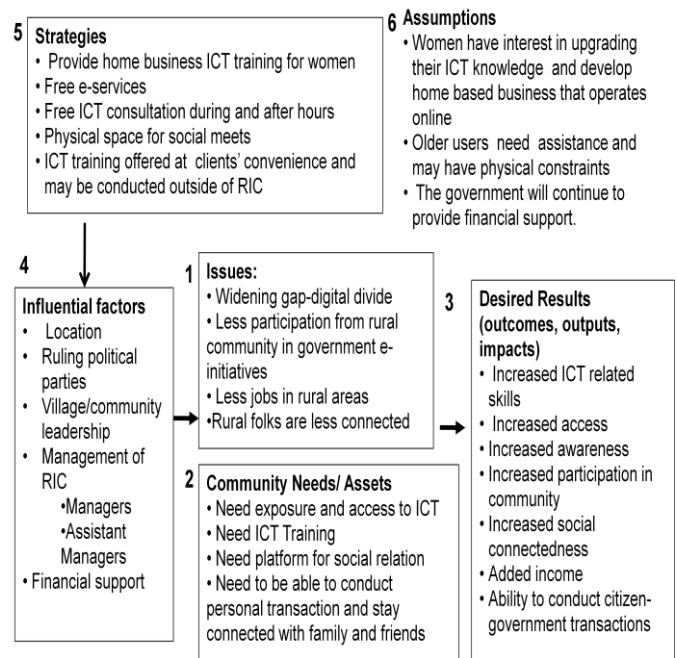

Fig. 4. The theory of change logic model for Community Service Center Model

The Entrepreneurial center model (Fig. 5) is gaining its ground in many Malaysian states. RICs are seen as training and service centers for small and medium business owners. The manager has the tasks of organizing sessions with relevant government such as Companies Commission of Malaysia/SSM for matters on company registration and tendering.

VI. DISCUSSION

The three abovementioned theory of change logic models are developed following the interviews and observations with RIC managers and users. Due to the varying context and needs of each community, the researchers contend that a generalization of the research findings is not possible. . Each RIC has to be treated as a case on its own due to the differences in the way they operate, the profile of users and the support they receive from the community. The prevailing political party in the prospective areas also plays a role in assuring the smooth operation of the RIC and success of its activities.

The three models also suggest varying measure of empowerment and social connectedness which is due to the dominant age group, services provided at the RIC and the manager's initiatives. A rural internet center may not have many users who are empowered in terms of their schoolwork and academic tasks; instead it may harbor senior citizens who can now get a letter typed or email their grandchildren who live far away. Preliminary data shows that connectedness to the government is not apparent in the first two models but it is slightly evident in the third model. How the two constructs prevails in each RIC model will be further investigated in the second part of the research.
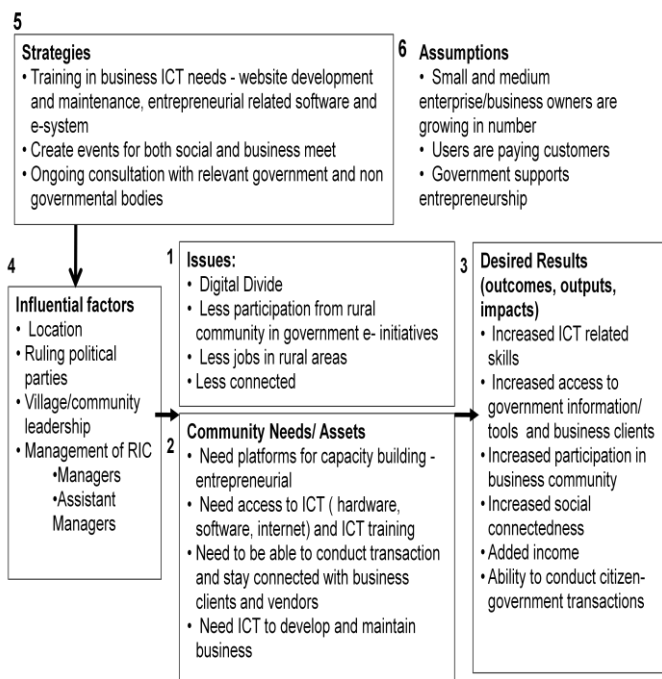
Fig. 5. The theory of change logic model for Entrepreneurial Center Model

VII. CONCLUSION

The early stage of the research generates three different theories of change for three categories of Rural Internet Centers (RICs) in Malaysia. The cyber café model, the community service center model and the entrepreneurial center models come into being via years of local community needs and influence. The uniqueness of each model will be further studied and the theory of change assigned to it will aid the researcher to evaluate the outcomes of RICs in the category. It is imperative that connectedness and empowerment are redefined according to each theory of change.

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