Issues in Internet Adoption and Rural Empowerment in Sri Lanka

G.T. Madhubhashini Galagedarage, Department of Social Studies,
The Open University of Sri Lanka

ABSTRACT

Internet adoption is a key factor for public sector development such as rural empowerment and other government based socioeconomic services. The government has to increase internet adoption to empower rural people since the majority of the people in developing countries belong to rural communities (Zhao 2008). In Sri Lanka, internet adoption has remained at a mere 21.9% in 2013 according to the World Bank Report. As such, Sri Lankan rural communities lag behind in internet adoption. The purpose of this study is to identify the issues hindering internet adoption among rural communities in Sri Lanka. The objectives are to determine the relationship between internet adoption and infrastructural facilities, the adopter characteristics of rural communities, the characteristics of technology and affordability. Based on the Five Stages of Innovation- Decision model designed by Everett M. Rogers (2003), this study identifies the issues of Internet adoption among rural communities in Sri Lanka. The survey research method was used to obtain data from 350 respondents in Bibile, Monaragala district. The results of the study show that there is a strong significant positive relationship between internet adoption and infrastructural facilities, affordability, adopter characteristics and technology characteristics. Some issues in internet adoption among rural communities in Bibile are a lack of infrastructural facilities, problems of affordability and low computer and English language skills, negative attitudes, relevancy, needs towards internet adoption, and a lack of knowledge about benefits and usage of the internet. The public organizations such as government and non-governmental bodies must introduce public policies for ICT development, develop infrastructural facilities in rural areas, improve the socioeconomic condition and computer and English language skills of the rural communities. It should also introduce island wide projects to change the attitudes, behaviour and knowledge of rural communities in order to increase internet adoption among rural communities in Sri Lanka. Therefore, this study recommends that efforts must be made to address the issues hampering internet adoption by providing proper internet facilities in order to empower the public sector which includes rural communities.

KEYWORDS:

1. INTRODUCTION

Information and Communication Technology (ICT) plays an important role in public sector development. A new medium such as the internet has the potential to address the concerns of community empowerment. There is a digital divide between the developed and developing countries as well as between the urban and rural areas in terms of ICT including internet adoption. The internet serves as an agent of change in rural areas; it has positive effects on the livelihood and education of the rural people (Zhao, 2008: 1). Igboaka (2010) claims that there are two arguments about the role of Information and Communication Technology (ICT) in general and the internet in particular in promoting public sector development. Some researchers argue that internet has been viewed as participating to bridge the digital divide among urban and rural communities. The other argument is that the internet does not always bring socioeconomic development and does not really serves as a change agent in rural areas.

The highest internet usage was reported from the United States of America, where 84.2% of the populations have accessed the internet for their public and private sector development in 2012 (World Bank Report, 2013). However, quite a number of the developing countries are lagging behind in internet usage. Internet adoption in Sri Lanka is very low when compared to some other countries. The internet adoption in Sri Lanka remain at 21.9% in 2013, while South Korea, Singapore and Malaysia reported 84.8%, 73% and 67% respectively (World Bank Report, 2013). Wattegama (2005) claims that internet usage remains low in Sri Lanka and has identified some issues in internet adoption among rural communities in Sri Lanka. They are affordability issues, attitude problems, the low level of computer and English literacy of the rural communities and the lack of developed infrastructural facilities in the rural and semi urban areas. The rural people (81.8%) (Annual report of the Department of Census and Statistics, 2012) in Sri Lanka remain separated from the new communication facilities and the internet is still an innovation in Sri Lanka. It is ironic that Sri Lanka is trying to develop public ICT sector amidst such a critical situation.

The purpose of this paper is to identify the issues hindering rural internet adoption in Sri Lanka since internet adoption is a key factor for public sector development in Sri Lanka. The objectives are to determine the relationship between internet adoption and infrastructural facilities, the adopter

characteristics (needs, relevance, attitudes, computer skills and English language skills), the technology characteristics (ease of use, perceived benefits) and affordability. The hypotheses are formulated to test the relationship between internet adoption and the above mentioned variables. Based mainly on the Five Stages of Innovation- Decision model designed by Everett M. Rogers (2003), study identifies the issues of internet adoption among rural communities in Sri Lanka.

2. LITERATURE REVIEW

2.1. Internet adoption among rural communities: International experiences

There is a digital divide among developing and developed countries in the world. Rogers (2005) contends that the digital divide is a socioeconomic divide, teledensity increases with an increase in wealth. Hasim, Razak & Salman (2008) note that the internet can be used to reduce the digital divide. The sustainability of internet adoption helps in bridging the digital divide among urban and rural communities.

The internet penetration rate in different geographic regions is as follows: North America (78.6%), Oceania/Australia (67.5%), Europe (61.3%), Latin America (39.5%), Middle East (35.6%), Asia (26.2%) and Africa (13.5%) (The Report of Internet World States, 2013). Latin America, Africa and Asia have lack of public sector development including low internet usage when compared to other regions. The developing countries in Asia have a high level of poverty, a large rural population and a lack of socioeconomic conditions. Agriculture is the main source of livelihood of these rural communities (Pawar 2010). Issues surround the question of whether or not the ICT will empower the public sector in developing countries with illiberal governments as socioeconomic development is mainly based on good governance (Consalvo & Ess 2011). The issues and opportunities of internet adoption, digital divide, and public sector IT policies, innovations and programmes in some developing countries are discussed as follows.

The internet was introduced to China in 1990s, where internet penetration remains 45.8% (World Bank Report, 2013). Inadequate English Language skill is the main barrier for the Chinese people. Jinqiu, Xiaoming & Banerjee (2012) find that internet diffusion is questionable in rural areas where socioeconomic

and infrastructural development is not capable of sustaining new technology according to internet adoption experiments in two rural areas in western China. China has some successful ICT policies and programmes in order to empower the public sector. There are some grassroots level community empowerment systems and public organizations in urban and rural areas in China. The 'Sheque' (community) is a government system which is for urban grassroots populations, 'Villagers' Communities' (VCs) have been established through a democratic process for rural communities. These programmes provide ICT facilities, including the internet, computers and other wireless media for communities. Rural communities can thus access multimedia centers for their day to day needs such as education, health, agriculture, careers, government services, entertainment and more (Pawar 2010). Similar public ICT initiatives could help to empower rural communities in Sri Lanka too.

Malaysian internet user percentage was 67% (World Bank report, 2013). RangKom (Rangkaian Komputer Malaysia) introduced the internet to Malaysia in 1987. Malaysia has introduced some public ICT innovations to decrease the digital divide. The Ministry of Rural Development has established a public computer literacy programme, aimed to improve the quality of life among rural adults in Selangor state. The rural communities have achieved higher ICT adoption as a result of this programme (Ahmad, Abiddin, Badusah & Wai 2009). This Malaysian model can be a good example to increase public sector ICT innovations in Sri Lanka.

India was officially connected to the internet in 1990s. Rao (2009) claims that there is a need to focus on rural people in India to empower them to use new communication technology, thereby reducing poverty, by deploying ICTs. There are some issues in internet adoption in India such as lack of socioeconomic conditions, attitude problems, lack of English language and computer skills and financial problems among rural communities. There are some public ICT programmes which have introduced new technological innovations in order to bridge the digital divide in India. Rao (2009) notes that India has different kinds of public ICT projects in order to empower rural communities. There is a mobile ICT service which is known as 'Infothela' in Bengal villages. It creates employment opportunities, where people work in self-employed projects. It resembles a common cycle rickshaw but with a wireless laptop. Again, a similar public ICT innovation could be introduced among rural communities in Sri Lanka based on the Indian model.

Rao (2009) further claims that the 'Wired Villages project' was established by

the Prime Minister's Office Information Technology (IT) Division in 1998. This project targets sugar producers and sugarcane growers in Warana district of Maharashtra state in order to increase productivity of the sugar cane industry. The ICT kiosks give them access to agricultural market prices, payment information, and connection with dealers and suppliers. People in Warana use these facilities for their education, health, e-government applications and more. Public organizations such as government or non-governmental organizations can introduce an innovation like this model in order to establish a successful ICT innovation in the rural agricultural sector in Sri Lanka. 'Simputer' is a simple computer which helps to empower rural communities in India. It is an affordable, faster, user friendly and modern medium which is in several Indian languages. People use 'Simputer' for their agriculture and job related work, education, and health questions, government applications, and so on. This ICT innovation can be used in order to empower rural communities in Sri Lanka.

Bangladeshi ICT usage began in 1990; internet usage was a mere 6.5% (World Bank Report, 2013). Yunus (2010) finds that lack of infrastructure, attitude problems, lack of English language and computer skills and affordability issues are major issues in internet usage among rural communities in Bangladesh. Apart from India, Bangladesh is also trying to reduce the digital gap in order to empower the public sector. Muhammad Yunus, a professor of economics, introduced the 'Grameen' project as a public sector development programme in order to connect rural poor to ICT services and create employment opportunities in the public sector. The Grameen Bank provides loan facilities to rural women to become the 'Telephone Lady' for the village (Yunus 2010). These ICT innovations can be used as role models to overcome the issues in internet adoption among rural communities in developing countries such as Sri Lanka.

2.2 Internet adoption among rural communities in Sri Lanka

As we discussed in the literature, Sri Lankan internet user percentage remains low. There are some public ICT projects which help to increase internet usage among rural communities. These ICT projects have been conducted by some responsible public organizations. The main funders of 'E-Sri Lanka' programme are the World Bank, the government of Sri Lanka and the Information and Communication Technology Agency (ICTA). The Horizon School in Mahawilachchiya conducts the 'Horizon Lanka project' and the 'Virtual Village

project' is being conducted by the Sarvodaya organization. The Sri Lanka Broadcasting Corporation (SLBC), the Information and Communication Technology Agency and other non-governmental organizations conduct the Kotmale Community Radio project. ICT facilities including the internet, scanning, photocopying, printing and other public services are available in these ICT centres.

Liyanage (2007) notes that some public organizations such as NGOs do not help to empower people in rural areas. The management of these ICT programmes have a limited understanding of the information need of the public sector including rural communities. Most of the ICT projects are only based in specific areas. There are some financial, technical, management and ownership issues which affect the sustainability of ICT projects. Pringle & David (2002) claim that the key issues of the Kothmale model are the lack of rural participation, financial issues and technical problems. Jayaweera (2002) emphasises that there are some issues in Kotmale model such as a lack of a cooperative administrative plan and a lack of an audience centered radio schedule. Access is the most difficult problem among rural communities; it is complicated by socioeconomic issues, the geographic location, and the lack of English Language and computer ability (Consalvo & Ess 2011).

Galpaya (2011) notes that people who are attached to low socioeconomic states seem to lag behind in ICT adoption including internet usage. Internet is severely limited in rural areas when compared with urban areas. Considerable efforts must be made to increase internet usage in rural and semi urban areas. Gunasekera (2008) finds that lack of infrastructure, attitude problems, English language and computer literacy, and affordability issues are major factors in internet usage among Sri Lankan rural communities.

Wattegama, Gunawardene & Wickremasinghe (2005) claim that Sri Lankan internet adoption lingers low due to affordability issues, lack of infrastructure and weak public policies for ICT development. Traditional channels such as television, newspapers and radio are more popular than new ICTs among Sri Lankans. Therefore the public sector, the private sector and civil society must address the issues hampering internet adoption in order to empower rural communities.

3.   RESEARCH METHOD

Bibile in the Monaragala district, Sri Lanka was selected for this study. Bibile

is rural in a geographical sense, and less developed socially and economically compared to the main areas in other districts in Sri Lanka. Viraj (2011) notes that Bibile has poor infrastructural facilities and a large number of rural communities with 72% of its labor force involved in agriculture. Bibile is the poorest area in the Monaragala district (poverty headcount index 35.2%). Satharasinghe (2004) claims that the lowest rate of computer literacy, computer awareness, availability of computers in households and the lowest internet facility are seen in the Monaragala District in the Uva province.

This study used a quantitative approach to obtain data where 390 questionnaires were distributed among the respondents in Bibile in the last week of February 2013. The purposive random sampling was used for this study since the questionnaires were distributed among the people who are not internet users in order to identify the issues in internet adoption among rural communities. A total of 381 answered questionnaires were collected, three weeks later, out of which 350 questionnaires were usable; the return rate was 91.8%.

Section A of the questionnaire was concerned with the demographic characteristics of respondents (gender, age, working status, academic qualifications, and monthly household income). Section B dealt with the issues and problems of Internet adoption among rural communities where five variables were used with several items. In other words, this section measures the variables that affect Internet adoption. There were four variables: (B1 to B4). B1 (infrastructural facilities), B2 (adopter characteristics), B3 (technology characteristics) and B4 (affordability) are the variables that likely effect problems of internet usage among rural communities. There were four to seven items per variable.

Statistical Package for Social Sciences (SPSS version 20.0) was used to analyse the data and both descriptive and inferential statistical analysis were used. For the inferential statistics, reliability test and correlation analysis were used. The dependent variable (DV) is internet adoption and infrastructural facilities, adopter characteristics (needs, relevance, attitudes, computer skills and English Language skills), technology characteristics (ease of use, perceived benefits) and affordability are independent variables (IVs).

The DV and IVs selected for this study are based on the previous literature on issues in internet adoption. The variables used in the study were operationalised in order to describe their meanings as employed in this study. They are as

follows:

Adoption: Adoption here is taken to mean a decision to take up an innovation (in this case a form of ICT).

Internet: In this study, the internet is defined as a multi-functional tool for rural development in developing countries.

Adopter characteristics: This refers to the needs, relevancy, attitudes, computer and English Language literacy of the rural communities discussed in this study. Each of these characteristics affects their level of internet adoption.

Needs: Needs reflects the human, social, economic, cultural, moral and political condition of individuals in society. Internet usage is considered one of the basic needs in today's information society.

Attitudes: The way a person views, or tends to behave towards, the internet and internet adoption.

Relevance: This refers to the relevance of the internet in addressing the social, economic and human needs of rural communities.

English Language literacy: This refers to the ability to manage the English language. Most of the new ICT media are in the English Language. Lack of English language skills among the rural poor in developing countries has an affect on internet adoption.

Computer skills: This refers to the ability to use computers and related technologies. As seen in this study, computer skills and knowledge play a main role in the internet adoption process.

Affordability: Affordability is to be able to do something, without incurring financial difficulties. Financial security is one of the key factors for internet adoption in this study.

Technology characteristics: This refers to the qualities possessed by the specific technology under discussion. Such qualities include the perceived benefit and

ease of use in internet adoption.

Ease of use: This refers to how easy the internet is to use (or is perceived to be), which has a major impact on the adoption process.

Perceived benefit: This refers to the perceived benefit of internet adoption for the individual or community.

Infrastructural facilities: Infrastructural facilities are essential factors for internet adoption. This includes telephone and satellite networks, internet cable and electricity, transport and so on. It may however also refer to social and ICT infrastructure.

4.   RESULTS

This section explains the results of the demography of the respondents, reliability index of the variables and correlation analysis between internet adoption and the independent variables.

4.1.   Demography of the respondents

Out of a total of 350 respondents analysed, 171 (48.8 %) were males and 179 (51.2%) were females. In terms of age, 32 (9.1%) of these rural communities belong to the 15-30 age group, 88 (25.2%) in 31- 40 age group, 98 (28%) in 41-50 age group, and 132 (37.7%) in 51-60 age group. The Majority of the non-users are from 51-60 age group. A majority of non-internet inhabitants, 52% (182) are employed, 35.1% (123) are unemployed and 12.9% (45) of the respondents are students.

In terms of educational qualifications, 61.7% (216) have Advanced Level qualifications and 16.9% (59) have ordinary Level qualifications, 14.8 % (52) have Diploma qualifications, 6% (21) have Bachelor qualifications and 0.6% (2) have Master Qualifications.

In terms of monthly income, a majority of people, 34.5% (121) earn between Rs.20000-29999 monthly, 14.8 % (52) respondents earn between Rs.10000-19999, 43 % (12.2) earn less than RS. 10000, 2.3% (8) earn between Rs.30000 to 39999, 2.2% (7) earn above Rs.40000 but less than 49999. Some 34% (119) of the respondents make up no income group. The results show that a majority of the respondents in Bibile are not well educated and belong to the low and middle income classes.

The results show that television is the main source of information (99.4% - 348). This is followed by newspapers, 98.5% (345), radio (97.4 %- 341), books (94.5% - 331) and magazines (94.3% -330). This is an interesting discovery as still, television, newspapers, radio, books and magazines are main sources of information among these communities even though they are not internet users at present.

4.2 Reliability statistics of the independent and dependent variables

There are different kinds of reliability coefficients. Cronbach's Alpha is one of the most commonly used reliability coefficients, which is based on the average correlation of items within a test if the items are standardized. There is no generally agreed cut off point for reliability and usually 0.7 and above are acceptable (Coakes, Steed & Ong 2009).

In this study, the Cronbach's Alpha for the variables is high. It means all variables have a high reliability as all the variables tested revealed an alpha of more than 0.7. Table 1 shows the reliability index of the variables.

Table 1 Reliability Index of the Variables (N=350)

Variables	Alpha	No. of Items	Level
Internet adoption (Dependent variable)	864	14	Very satisfactory
Infrastructural facilities	.759	6	Satisfactory
Needs	.806	4	Very satisfactory
Relevancy	.803	6	Very satisfactory
Attitudes	.783	4	Satisfactory
Computer skills	.943	4	Very Satisfactory
English language skills	.958	4	Very Satisfactory
Ease of use	.877	5	Very satisfactory
Perceived benefits	.781	7	Satisfactory
Affordability	.859	5	Very satisfactory

4.3 Correlation analysis between internet adoption and the independent variables and Hypothesis testing

Taking into consideration the objectives of this study, several hypotheses are postulated. The hypotheses are formulated to test the relationship between internet adoption and infrastructural facilities, the adopter characteristics (needs, relevance, attitudes, computer skills and English language skills), the technology characteristics (ease of use, perceived benefits) and affordability. The objectives and hypothesis of this study are as follows.

Objective 1-	To determine the relationship between internet adoption and infrastructural facilities
Hypotheses 1-	There is a significant relationship between internet adoption and infrastructural facilities.
Objective 2-	To determine the relationship between internet adoption and adopter characteristics of rural communities (needs, relevance, attitudes, computer skills and English language skills)
Hypotheses 2-	There is a significant relationship between internet adoption and adopter characteristics.
Hypotheses 2 a:	There is a significant relationship between internet adoption and needs of the rural communities .
Hypotheses 2 b:	There is a significant relationship between internet adoption and relevancy.
Hypotheses 2 c:	There is a significant relationship between internet adoption and the attitudes of rural communities.
Hypotheses 2 d:	There is a significant relationship between internet adoption and English Language skills of rural communities.
Hypotheses 2 e:	There is a significant relationship between internet adoption and computer skills of rural communities.
Objective 3-	To determine the relationship between internet adoption and technology characteristics (ease of use and perceived benefits)
Hypotheses 3-	There is a significant relationship between internet adoption and technology characteristics.
Hypotheses 3 a:	There is a significant relationship between internet adoption and ease of use.

Hypotheses 3 b:	There is a significant relationship between internet adoption and perceived benefit.
Objective 4 -	To determine the relationship between internet adoption and affordability
Hypotheses 4-	There is a significant relationship between internet adoption and Affordability

Figure 1 shows the Pearson correlation analysis between internet adoption and infrastructural facilities, adopter characteristics, technology characteristics and affordability (IVs).
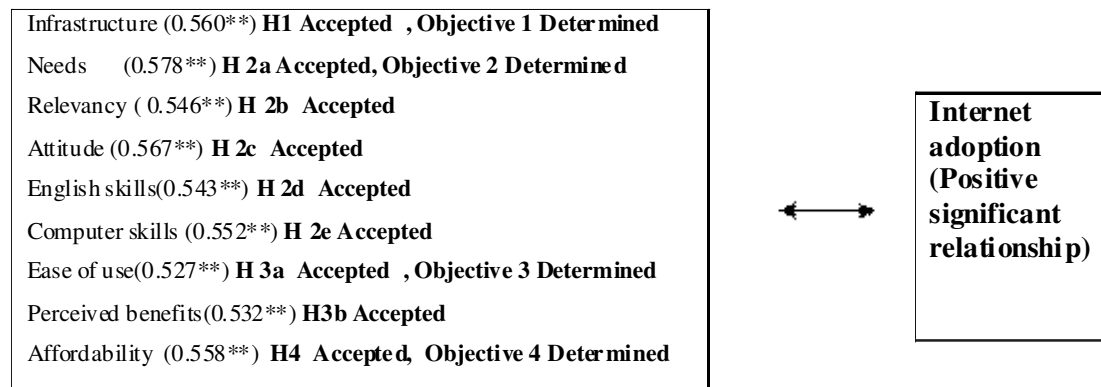
Infrastructure (0.560**) **H1 Accepted , Objective 1 Determined**

Needs   (0.578**) **H 2a Accepted, Objective 2 Determined**

Relevancy (0.546**) **H 2b Accepted**

Attitude (0.567**) **H 2c Accepted**

English skills(0.543**) **H 2d Accepted**

Computer skills (0.552**) **H 2e Accepted**

Ease of use(0.527**) **H 3a Accepted , Objective 3 Determined**

Perceived benefits(0.532**) **H3b Accepted**

Affordability (0.558**) **H4 Accepted, Objective 4 Determined**

Internet adoption (Positive significant relationship)

Figure 1: Pearson Correlation Analysis between Internet Adoption and Independent Variables
N = 350
Correlation is significant at the 0.01 level (2-tailed)

From the correlation analysis, all nine variables had a positive significant relationship with internet adoption since all the variables are significant at the 0.01 level. Hypothesis testing was carried out to understand the relationship between internet adoption and independent variables. As a result, hypotheses 1, 2, 3 and 4 were accepted and objectives were determined.

5   DISCUSSION

The main purpose and objectives of the study have been achieved by determining the variables which have a relationship to internet adoption and the hypotheses are determined. There are significant positive relationships between internet adoption and nine ID variables. Some issues in internet

adoption among rural communities in Bibile are a lack of infrastructural facilities, problems of affordability and low computer and English skills, negative attitudes, relevancy, needs towards internet adoption, and a lack of knowledge about benefits and usage of the internet since all the variables are significant at the 0.01. This means that these highlighted variables are significant factors for internet adoption. Having achieved these objectives, the Diffusion and Innovation theory which provides the theoretical framework for this study, has become automatically achievable.

The theory of Diffusion of Innovation is the main theoretical framework for this study. It aims to explore the reasons that may influence an individual to adopt an innovation or a new technology. The result of the diffusion process guides individuals to accept or reject the new innovation (Rogers 2003).

Rogers's model shows five main stages in the innovation decision process: knowledge, persuasion, decision, implementation and confirmation. There are some prior conditions before the adoption in Rogers's model. Previous practices, needs, problems, innovativeness, and norms of the social system have an effect on the adoption of an innovation. Socioeconomic characteristics, personality variables and communication behavior also play a main role in the decision-making process. Adoption, rejection or discontinuance also depend on the previous practices, needs, problems, innovativeness, norms of the social system, socioeconomic characteristics, personality variables and communication behaviors. A need is a state of dissatisfaction or frustration that appears when an individual's desires outweigh the individual's actual circumstances. An individual may improve a need when he or she acquires that an innovation exists (Rogers 2003). This is evident in the results of this study where internet adoption has been shown to depend on the adopter's characteristics, technology characteristics and affordability.

From the study, adopter characteristics such as needs, attitudes, computer skills and English Language skills (personality variables and needs from Rogers's model) have a significant relationship with internet adoption. This study has identified relevancy as an adopter characteristic for internet adoption. Additionally, this study has identified that infrastructure and technology characteristics are important factors in internet adoption. The proposed model for this study goes beyond the Five Stages of Innovation- Decision model to look at other variables related to issues and problems of internet adoption. These theoretical implications which contribute to knowledge are infrastructural facilities, relevancy, and technology characteristics for internet adoption. Figure 2 shows the proposed model for this study.
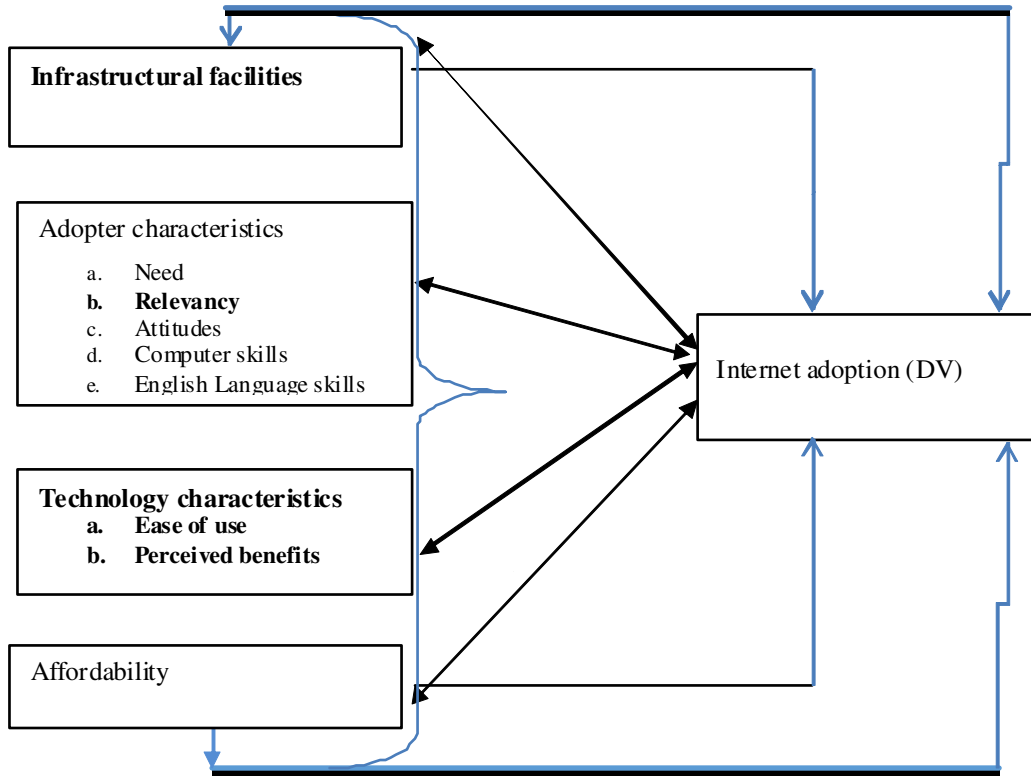
Figure 2 The proposed model for the study

Apart from theoretical implications, there are some practical implications which can be suggested to the policy makers in order to overcome such issues. Internet was introduced for Sri Lankan public sector development in 1990. However the Internet still remains an innovation in Sri Lanka. Therefore, the survey has been conducted among rural communities in Bibile to identify the issues hindering rural internet adoption in Sri Lanka.

The issues in internet adoption in Sri Lanka are lack of infrastructural facilities, problem of affordability and low computer and English language skills, negative attitudes, relevancy, needs towards internet adoption, and a lack of knowledge about benefits and usage of the internet. The government or some other responsible organizations should increase the internet adoption among these communities in order to overcome these issues since there is a positive relationship between internet adoption and nine ID variables.

The responsible public authorities must develop infrastructural facilities in rural and semi urban areas, and more effort must be put in to utilizing computer skills of these rural communities. Rural communities must be also empowered with financial opportunities and benefits. In other words, public authorities should create employment opportunities for rural communities in order to strengthen their economy, introduce public policies and ICT education to empower rural poor and improve infrastructural faculties in order to develop rural and semi urban areas. In line with the findings of this study, Kapadia (2005) found that the public sector should develop the social and ICT infrastructure, fund large-scale formal and informal English and IT education, create rural employment opportunities, political empowerment and peace building in order to empower rural communities with ICTs including internet.

The public sector should empower rural communities with a powerful socioeconomic, political and educational background. In this context there are three important players who can contribute towards making the 'e-Sri Lanka' dream a reality. They are the public sector, private sector and civil society. These three parties can act on their own, but this is the best time for collaboration. If the objectives are correctly identified and there is a workable action plan, there would not be any unconquerable barriers on the way to making an information rich and developed society in Sri Lanka in the near future (Wattegama, Gunawardene & Wickremasinghe, 2005:130-131). Pringle & David (2002) note that the public sector organizations support to bridge the digital divide among urban and rural communities in the regional or even global level. The international, regional and national public policies should empower rural men and women, girls and boys to use ICTs in a positive way.

6   CONCLUSION

The internet adoption is a significant factor for public sector development in any country. There are two schools of thought regarding internet towards rural empowerment, one view is that internet can be used to bridge the digital divide between urban and rural communities. The other view is that the internet does not serve as a change agent in rural areas. There is a gap between the developed and developing countries in terms of ICT including internet adoption. A number of developing countries in Asia, Africa and Latin America are lagging behind in internet usage. The literature on the issues and opportunities of internet adoption, digital divide, and public sector ICT innovations and programmes in some developing countries have been identified in the discussion. Most of the developing countries face issues in internet adoption such as a lack of infrastructure, attitude problems, a lack of English and

computer skills and affordability issues. Public bodies such as government and NGOs have introduced IT policies, programmes and innovations in order to empower rural communities with new technology.

A majority of rural communities are lagging behind in internet facilities in Sri Lanka. The old media such as television, radio and print media still play an important role in public sector development. The new media such as internet and other wireless media have potential to bridge the digital divide among urban and rural communities. Public bodies have introduced some ICT innovations and programmes, but the problem is that the internet is still an innovation in Sri Lanka. Therefore, public sector organizations must address the issues hampering internet adoption among the rural communities in Sri Lanka.

The results of this study have proven that there are strong positive relationships between internet adoption and infrastructural facilities, the adopter characteristics (needs, relevance, attitudes, computer skills and English language skills), the technology characteristics (ease of use, perceived benefits) and affordability. Therefore appropriate solutions must be taken by responsible public bodies to overcome the above discussed issues in order to empower rural communities. The responsible public organizations should develop the infrastructural facilities in rural areas, introduce ICT innovations, policies and programmes, create rural employment opportunities, improve socioeconomic conditions and fund large-scale ICT education in order to empower the public sector with high internet adoption.

Apart from the practical implications, this study has proposed a model which goes beyond the Five Stages of Innovation- Decision model, and has identified some issues in internet adoption among rural communities. It has recognized new factors such as infrastructural facilities, relevancy, and technology characteristics for Internet adoption. Having determined the objectives and accepted the hypothesis, this study has contributed above mentioned theoretical implications to the knowledge as well as has suggested the practical implications to the responsible authorities.

REFERENCE

Ahmad, A. R., Abiddin,N. Z., Badusah, J.& Wai, P.S. (2009). Computer Usage and Achievement among Adults in Rural Area Malaysia. Journal of Social Sciences, 5(1): 1-8.

Amarasingha, S. & Govinda , S. (2005). The Internet usage in Sri Lanka. Author publish.

Annual report of Department of Census and Statistics. (2012). Sri Lanka. Retrieved March 20, 2012, from http://www.statistics.gov.lk/

Annual report of Department of Census and Statistics. (2013). Sri Lanka. Retrieved April 21, 2014, from http://www.statistics.gov.lk/

Brownlee, K., Graham, J. R., Doucette, E, Hotson, N., & Halverson, G. (2010). Have Communication Technologies Influenced Rural Social Work Practice?. British Journal of Social Work, 40: 622–63.

Central Bank Annual Report. (2011). Retrieved January 10, 2012, from http://www.cbsl.gov.lk/pics_n_docs/10_pub/_docs/efr/annual_report/AR2011/English/content.html.

Coakes, S. J., Steed, L., & Ong, C. (2009). SPSS: analysis without anguish: version

16 for Windows. UK: Wiley.

Computer literacy survey. (2009) . Department of census and statistics. Retrieved February 23, 2014, from http://www.statistics.gov.lk/CLS/BuletinComputerLiteracy_2009.pdf

Consalvo, M. & Ess C.,(2011). The Handbook of Internet Studies. United Kingdom, A John Wiley & Sons, Ltd.

Galpaya, H. (2011). Broadband in Sri Lanka: Glass Half Full or Half Empty?.

Washington, D.C: infoDev / World Bank. Retrieved June 28, 2012, from http://www.broadband- toolkit.org/

Gunasekara ,J. (2008). Enhancing the livelihoods of the rural poor through ICT: A Knowledge Map, Sri Lanka country study. Working paper No.12. Retrieved May 12, 2012, from http://documents.worldbank.org/curated/en/2008/06/10054767/enhancing-livelihoods-rural-poor-through-ict-knowledge-map-sri-lanka-country-study

Gunawardana, N. (2005). When worlds collide. Media Asia, 31(3): 123-128.

Hasim, M. S. Razak N. A. & Salman, A.(2008). Sustainability of Internet Usage and Digital Divide., Journal of Development Communication 20 (1): 63-84.

Igboaka, C. P. (2010) . "Internet Technology Use and Economic Development: A Case Study of the Rural Population of Ihiala Village in Southeastern Nigeria". PhD diss. Bowling Green State University, USA.

Internet World Stats. (2013). "Internet users in the world." Retrieved July 19 2014, from

http://www.internetworldststs.com/stats.html

Internet Usage and Broadband Usage Report. 2011. United States of America. Retrieved December 22, 2012, from http://www.internetworldstats.com/am/us.html

Jayaweera,W. (2002). Kothmale Community Radio/Internet Project: Expanding the Knowledge Base. Author published.

Jinqiu, Z.. Xiaoming, H. & Banerjee, I. (2012). The Diffusion of the Internet and Rural Development. The International Journal of Research into New Media Technologies, 12(3): 293-305.

Kapadia, K. (2005). Developing information technology, informing technology for

development: A study of ICT and rural development in Sri Lanka. Retrieved November 15, 2011, from http://www.unapcict.org/ecohub/resources/a-study-of-ict-and-rural-development-in-sri-lanka

Liyanage, H. (2007). "NGO & Community Participation in Setting up the Nanasala for targeting the poor and vulnerable and improving government accountability in Sri Lanka." Paper presented at the UNDP/APDIP/ UNCRD regional workshop on capacity building of Asia pacific e- Government initiatives, Bangkok, Thailand, July 26-28.

Pawar, S. M. (2010). Community Development in Asia and the pacific. Newyork, Routledge.

Pringle, L., & David, M.J.R. (2002). Rural community ICT applications: The Kotmale model. Electronic journal on information system in developing countries 8(4): 1-14. Retrieved January 18, 2011, from file:///C:/Users/hp/Downloads/43-43-1-PB%20(1).pdf.

Rao, S. S. (2009). Role of ICTs in India rural communities. The journal of Community

Informatics, 5(1): 1-13. Retrieved May 20, 2014, from http://www.ci-journal.net/index.php/ciej/article/view/313/429

Rogers, E. M. (1976). New product adoption and diffusion. Journal of consumer

Research, 2: 290-301.

Rogers, E. M. (2003). Diffusion of innovations (5th ed). New York: Free press.

Rogers, Robert. 2005. "The digital divide: an inhibitor of growth" paper presented at

Global Public Policy Conference, Kuala Lumpur, Malaysia, September 13-15.

Satharasinghe, A. (2004). Computer Literacy of Sri Lanka. Sri Lanka: Information Unit, Department of Census and Statistics. Retrieved May 21, 2013, from http://www.statistics.gov.lk/CLS/

The Global Information Technology Report 2010 – 2011: Transformation 2.0 report.

World economic forum. Retrieved April 22, 2012, from http://www3.weforum.org/docs/ WEF_GITR_Report_2011.pdf

UNESCO Annual Report. (2010). Paris: UNESCO. Retrieved September 21, 2011, from http:// unesdoc.unesco.org/images/0019/001918/191870e.pdf

Viraj, H. R. (2011). Field work experience in Sri Lanka (Uva Province – Monaragala District). Unpublished. Accessed May 12, 2013, from https://www.ryukoku.ac.jp/aa/images/fieldreport/report003.pdf

Wattegama, C.(2005). Development of Information Technology for Human Enhancement. Retrieved July 21, 2012, from http://www.horizonlanka.org/media/cssl/chanuka1/CSSL_2005.pdf

Wattegama, C., Gunawardene, N., & Wickremasinghe, H. (2005). Promoting ICT for Human Development in Sri Lanka: Realizing the Millennium Development Goals, Sri Lanka: ICTA. Retrieved January 21, 2013, from http://asiapacifichdr.aprc.undp.org/sites/default/files/files/ Promoting%20ICT%20for%20Human%20Development%20in%20Asia_Full%20Report.pdf

Wiberg, M. (2007) .The Interaction Society: Practice, Theories and supportive

Technologies. New York: Routledge.

World Bank Report. (2012) . Washington: World Bank. Retrieved May 30, 2013 , from http:// web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/EXTANNREP/EXTANNREP2012/ 0,,menuPK:8784414~pagePK:64168427~piPK:64168435~theSitePK:8784409,00.html

World Bank Report. (2013). Washington: World Bank. Retrieved January 12, 2014 from http:// siteresources.worldbank.org/EXTANNREP2013/Resources/9304887137720121 2378/9305896-1377544753431/1_AnnualReport2013_EN.pdf

Yunus, M. (2010). Founder of the Grameen Bank. Bangladesh. Bangladesh, Member of the Advisory Board of the Holcim Foundation.

Zhao, J.(2008). ICT4D: Internet Adoption and Usage among Rural Users in China. Know, 21: 9–18. Retrieved May 28, 2014 , from http://link.springer.com/article/10.1007%2Fs12130-008-9041-0#page-1