

Telecenters as Training Centers of e-learning for the Marginalized Community: The Malaysian Experience.

NOR FARIZA MOHD NOR
NORIZAN ABDUL RAZAK
JALALUDDIN ABDUL MALEK

E-Community Research Center, Faculty of Social Sciences and Humanities,
Universiti Kebangsaan Malaysia,
Bangi, Selangor,
MALAYSIA
norfarizamn@yahoo.com

Abstract: - Telecenters in Malaysia was established to assist the government in bridging the digital divide between the urban and the rural communities. There are currently more than 2000 telecenters in Malaysia. These centers are equipped with computers and access to the Internet with the aim of providing the community with access to technology in order that they become aware of the importance of technology as a tool to search for information and how it can add positive values and change their lives. This study is based on a research developed to understand, investigate and evaluate the role of telecenters as agents of transformation in assisting the government to achieve its aim to become a k-economy and a k-society country. This paper reports on the use of telecenters for e-activities purposes and concluded with suggestions on how telecenters can become a catalyst for e-learning training centers.

Key-Words: - e-learning; e-activities; telecenters; Malaysia; digital divide

1 Introduction

The Malaysian government has been making innovative and rapid progress in achieving its 2020 missions by embracing Information and Communication Technologies (ICTs) as keyenablers for national development. The provision of access to ICTs in the country shows that ICTs are targeted as one of the main tools for reducing socio-economic disparities of previously under-served sections of society, thereby bridging the digital divide. [1]. This is evident in the government's initiative in providing the necessary environment to empower the people in ICT through various innovations in computer and technology. Malaysia's commitment to providing access to ICTs to the people is evidence of how ICTs are utilized as a strategic driver to support and contribute directly to the growth of the economy as well as to enhance the quality of life for the population, thereby demonstrating the government's belief that ICT will be fundamental in reaching the country's goal of achieving a developed country status by 2020. The National Innovation and Technology Center (NITC), which is the apex ICT body in Malaysia, has been established to assist the government's effort in formulating and achieving its ICT agenda. As such, The NITC Strategic Agenda formulated focuses on five key thrust areas to enable the country to "migrate to the e-World of the new millennium". The five key thrust areas include E-

Community, E-Public Services, E-Learning, E-Economy, and E-Sovereignty.

It has been acknowledged in various literature on ICTs that different ICTs have different potential to contribute to educational development and effective learning, such as expanding access to technology, increasing efficiency of teaching and learning, enhancing quality of teaching and learning, and improving policy and management. Where e-learning is concerned, Asirvatham, Kaur, & Abas [2] state that, the development of e-learning in Malaysia started during the pre e-learning era when the Educational Technology Division was set up by the Ministry of Education in 1972. E-learning was formally introduced to the Malaysian higher institutions in 1998. The Malaysian government has not only invested substantially in ICT infrastructures in higher learning institutions across the nation, but has also drawn up national policies for e-learning in order to emphasize the government's commitment in emphasizing its utilization. Rohana [3] points out that the focus is on envisioning ICT cultures throughout educational institutions. This implies that the usage of computers for accessing information, communication and as a productivity tool is highly encouraged.

As evidence, in the second phase of Vision 2020, which is under the 9th Malaysia Plan (2006-2010), one of the main agenda is to build world-class human capital [4]. This no doubt indicates the Malaysian

government's commitment and emphasis on education. The increase in demand for higher education has propelled the growth of e-learning in Malaysia which are being undertaken mainly by universities, colleges and business enterprises. Furthermore, the use of ICT will be a competitive advantage for universities in Malaysia. The infrastructure for e-learning has become one of the attractions used by higher educational institutions to compete in attracting students to enroll in their programs [5]. For instance, 48 Multimedia Super Corridor (MSC-status) institutions of higher education has produced more than 31,000 ICT graduates during the Malaysia's Eighth Plan Period [1].

Both formal and informal education programs are being offered using the e-learning mode. The main players comprised private and public institutions of higher education as well as local and multinational corporations. For instance, Open University Malaysia (OUM), which is Malaysia's first open university is the main academic institution that leverages on e-learning to deliver its programmes. Other institutions that embraces e-learning in total after OUM includes Multimedia University (MMU), University Tun Abdul Razak (UNITAR) and Universiti Pendidikan Sultan Idris (UPSI). In addition, the rapid growth of web-based technologies and the high usage of the Internet have made teaching and learning via the Internet, or e-learning, more viable in recent years. In fact, the increase in the demand for higher education has encouraged many institutions in Malaysia to plan for the incorporation of e-learning in their institutions [5]. The initiatives are progressing rapidly and is guided by the Ministry of Education's strategies to enhance the use of ICT in e-learning [5;6]. The concept of e-learning, as seen by the Ministry of Education includes systems that enable information gathering, management, access and communication in various forms [6].

Currently, many universities and educationally driven-based industries have set up portals and some form of e-learning platform to offer e-learning either as teaching aids to support conventional teaching approach or as a teaching medium for long-distance or off-campus programs [7].

With e-learning opportunities, it can be concluded that some kind of platform has been opened up for adults in particular, to pursue education anytime and anywhere they want at their convenience. In addition, geographical or physical constraints are no longer an issue since access to learning via the Internet has made it possible for adult learners to enroll in any courses at any universities where there is availability of e-learning opportunities. Moreover, Dewan & Riggins [8] states that the ubiquitous and pervasive nature of ICTs can support global community interaction,

commerce and learning, resulting in higher standards of living and improved social welfare.

One of the places for adult learners, especially for those in the rural area to access the Internet is at the community centers known as telecenters. The next section provides an overview and literature review of programs conducted at telecenters worldwide, before discussion on telecenters in Malaysia.

2 Telecenters

The telecentre movement's origins can be traced to Europe's telecottage and Electronic Village Halls (originally in Denmark) and Community Technology Centers (CTCs) in the United States, both of which emerged in the 1980s as a result of advances in computing. Proenza et al. [9] categorized telecentres into six types; commercial, franchise, Non-Government Organisation (NGO), educational related, municipal, and multipurpose. The categorization of telecenters is made based on two main aspects: one is the way in which their management is organised (i.e. private, NGO, school or university, municipality, and administrative board); and the other one is the services offered in addition to a computer connected to the Internet. This classification is also used based on telecenters' critical significance and sustainability [9].

Despite the various names, types, variation in the clientele being served, services provided and the type of business and organizational model, telecenters remain as public ICT access centers. In light of the rapidly evolving technologies that support telecenters and in light of the increased penetration of mobile technologies (i.e., cell phones), the telecentre model needs to continuously evolve in order to remain relevant and to continue to address the changing needs of the communities they serve. Numerous components have been identified for the sustainable implementation and operation of telecenters. Two of the components which are of interest in this study are the training component and information support component [10]. The former component includes information literacy training to transfer computer knowledge to its users in order that they may obtain greater use of the center and its services [1], while the latter relates to assistance that the center can offer to the clients. This includes assistance given in terms of advice on where to search for information they need. It might also include engaging with known information providers to make content available [1].

The aim for many telecenters' initiative in providing access to new information and ICTs such as the Internet to the rural community is to reduce the digital divide. Most definitions of the term 'Digital Divide' refer to access to ICTs. Yet, if ICTs are

provided to those who cannot access them, and this fails to result in an improvement in people's lives, then the digital divide will continue to exist. Therefore, the digital divide becomes an issue of access to ICTs to improve the social and economic well being of underserved sections of the community.

As such, another essential role of telecenters is to equip the community with the tools, skills and information they need in order to help them compete on an economic level with others in their own country and throughout the world. Based on a study on the role of telecenters in Australia, Young et al.'s [11] concluded that "telecenters can be used in a transitional phase where small business proprietors can gain exposure and training in the application of ICTs which can later be used to their economic benefit" (p.3). They also noted that those who are utilizing e-commerce applications actually began as social internet users. The awareness and realization that ICTs can be used for more than just social networking led the users to develop their IT skills to something more practical to meet their needs. This indicates that the provision of opportunities for people to access information via ICT "may prove beneficial in promoting the economic well-being of small and isolated communities" [11:14].

Joseph's study [12] study on E-marketers in India is evidenced of how training on the Internet and teleworking to uneducated unemployed youths opened up the opportunity for these youths to find a permanent income and livelihood. The impact of e-learning and e-government initiatives on rural communities in Australia showed that the initiatives managed to enhance human capital. Access to ICTs to relevant education programs open the path for better job opportunities, acquisition of new skills, increased self-confidence and better health and well-being. The outcomes of these initiatives develop social, human, physical and financial capital among the rural communities in Australia [13]. The studies cited shows that access to the Internet and acquisition of skills in ICTs are essential element for reducing not only the digital divide, but also social and economic divide.

3 Telecenters in Malaysia

Apart from bridging the digital divide in the country, the Malaysian strategic framework also aims to provide the best possible ICT infrastructure to all Malaysians and to encourage its citizen to adopt the use of ICTs as their way of life. As discussed in section 2, studies on the role and impact of telecenters have shown that access to and acquisition of ICT skills can led to improved economic status and eventually higher achievement of academic value. In realizing these efforts, various e-community projects have been planned and implemented in order to

assist Malaysians to access and to use ICTs. Accordingly, Harris [1] points out that Malaysia's approach to this problem is characterized by three phases: first is to deliver access to the ICT info-structure to everybody, second is to promote regular and widespread use of ICTs in everybody's daily life and the final one is the inclusion value, which is to ensure that the socio-economic value of ICTs is achieved by all underserved Malaysians.

Telecenters are the focal point to the Internet access for the marginalized community in Malaysia. Telecenters in Malaysia are administered by the government and several government appointed agencies and organizations in order to help the government achieve its aim in bridging the digital divide in Malaysia, such as Medan Info Desa Project which is implemented by the Ministry of Rural and Regional Development, Pusat Internet Desa which is sponsored by The Ministry of Energy, Water and Communication and Multimedia Communication [14]. There are currently more than 2000 telecenters in Malaysia, as shown in table 1 [15].

Table 1: Telecenters, lead agencies, target groups.

Lead Agencies	Target Groups	Telecenters	No.
Ministry of Rural and Regional Development	Rural, Indigenous Small	Medan Info Desa	237
	Medium entrepreneurs	PKUD Giat mara	30
Ministry of Housing and Local Govt.	Urban poor	Bridging Digital Divide Center	6
Ministry of Youth and Sport	Youth	Rakan Muda Cyber Center	57
Ministry of Women, Family and Community Development	Elderly Women, Disabled	PDKNet	17
State Governments	All	Telecenters	274
Ministry of Information, Communication And Culture	All	Pusat Internet Desa (PID)	42
		Universal Service Providers (USP)	1169
		Pusat Maklumat	138

		Rakyat (PMR)	
Malaysia Communication And Multimedia Commision (MCMC)	All	Community Broadband Center (CBC) Community Broadband Library (CBL)	70 105

Telecenters is also the focal point to help the government achieve its aim in transforming the country into a k-economy and a k-society country. Telecenters are equipped with facilities such as computers, access to the Internet, scanner, printer and other basic technological facilities to provide the community with access to technology in order that they become aware of the importance of technology as a tool to search for information and how it can add positive values (socially, politically and culturally) and change their lives.

Many programme can be conducted at telecenters especially for the disabled, senior citizens, micro business owners, single mothers, youth and the poor using technology. Telecenters also function as centers to coordinate, supervise, plan and administer activities which have been planned by the government and appointed government agencies, not only in relation to ICTs activities but also other activities aimed to improve the lives of the community. One of the activities focuses on building human capital.

Case studies on telecenters reveal that opportunities are available to the underserved sections of society for making good use of ICTs towards e-inclusion [1]. Pilot projects conducted in Malaysia managed to show how such project operation have been instrumental in generating the benefits that have emerged [1]. Some of the characteristics of the pilot projects that can inform future implementations are: partnerships with local institutions, community participation and ownership, flexibility and responsiveness to local needs and volunteerism. Malaysia has set up many successful pilot projects, such as JENii (an affordable device for marginalized community), training and certification by Microsoft, promoting rural online small medium enterprises products, paperless homework project, e-learning project, SchoolNet, Online learning portal, Ulibrary, Telecenter Mapping System and Portal Kommuniti Kita. These pilot projects were carried out with collaboration from the private sectors and higher educational institutions.

A picture of telecenter building



Figure 1

Users at the telecenter



Figure 2

A case study on the impact of the “*Multipurpose Community Telecentre*” (MCT) project in Malaysia in order to facilitate the underserved communities’ use of ICT to enhance their general well-being by Ibrahim and Ainin [16] revealed positive results. The study looked at a telecenter program, known as KedaiKom. The researchers examined the usage and impact of the program on community building. The findings revealed that most of the KedaiKom users are core users who use telecentres positively and affectively with continuous and comprehensive usage. The usage focuses on information seeking, communication and origination or production of digital content, which indicates that KedaiKom programme brought a positive change in people’s everyday lives. The positive changes are brought about by creating a combination of a new form of online communication, enhancing the existing offline relationships, and creating a new medium of acquiring information among local community members. The researchers also concluded that this new form of multichannels of communication and distribution of information does create and sustain community social capital, particularly social cohesion or solidarity.

The marginalized communities in another study on telecenters also showed interests and are supportive of the ICTs access provided [14]. Similar to Ibrahim and Ainin's study [16] the telecenters' users use ICT to search for information (for school project, e-business opportunities and read newspapers), to communicate and to use e-government applications. They also attend ICT training conducted by telecenters' supervisors.

4 IT Courses and Training at Telecenters

The literature reviews on the function of telecenters revealed that IT training can benefit and assist the community concern in upgrading their socio economics status and livelihood. Most telecenters in Malaysia provide IT training at various levels, depending on the management of the telecenters. Although telecenters conduct some IT courses and training, there are setbacks and limitations. Firstly, these courses and training are on ad hoc basis because they are conducted only when there is 'demand' or request, availability of trainers and the number of participants. Secondly, only basic IT courses and training are conducted such as MS Word, MS Office (Power Point), basic Excel and other basic courses. Since the telecenters function only as centers to conduct and coordinate activities which are centrally planned, the telecenters supervisors do not have the authority to give certificates to participants who attend the courses and training. Finally, in some telecenters the number of participants who signed up for the courses are small, hence, the participants are paid to encourage them to attend the IT courses or training. These limitations and set back certainly hindered the process of transforming telecenters into the catalyst for e-learning training centers and as agents to help develop and build human capital.

5 The Study

A study was conducted with the main aim of developing a roadmap in order to help telecenters become agents of transformation in assisting the government in achieving its aim to become a k-economy and a k-society country. The objectives of the study are to:

1. understand the telecenters role as relevant agents to the community's needs in line with the government's transformation process.
2. suggests plans to transform the assisting telecenters into sustainable and relevant telecenters.

3. provide guidelines to assist telecenters in transforming telecenters into relevant and sustainable telecenters.

52 telecenters were visited and out of the 52, 30 telecenters were chosen as samples for this study. These samples were chosen from the various types of telecenters as shown in table 1. Telecenters which are categorized as successful, less successful and the least successful were visited and evaluated. Three research instruments were used; questionnaire, observation and interview. 800 questionnaires were distributed to the users and supervisors of telecenters throughout the country. 767 questionnaires were returned. The questionnaire consisted of eight sections which are designed to gather information on respondents' background, information about telecenters, computer ownership and computer usage, perception towards the Internet, perception towards the benefits of telecenters, perception towards services at telecenters, sustainability of telecenters and a section on suggestions such as on how to improve services at telecenters, facilities at telecenters and others. Observations were conducted and interviews with the supervisors and the users were also carried out during the visits. As this paper focuses only on how to develop and transform telecenters into e-learning training centers for the community, the paper will report on the related findings only.

6 Findings

The findings reported in this section begins with a report on respondents' personal and background information., before presentation of findings on related areas, which are ownership of computers at home, willingness to spend on training, IT usage at telecenters and IT applications.

Figure 3 showed that majority of respondents are between 13 and 18 years old, which is at 50.1%, followed by respondents aged between 19 and 39 years old, at 30.2%. There are also respondents who are considered as senior citizens, whose age is above 57 years old. The remaining are children, aged below 12 years old, at 7.8%. The data revealed that youth is the most frequent and most active users of telecenters in the communities that were visited.

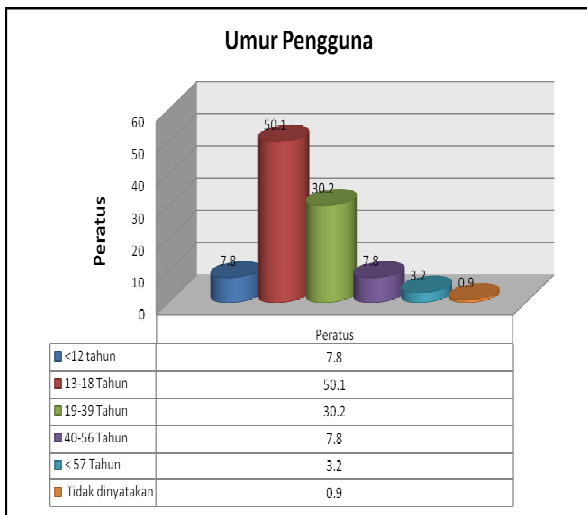


Figure 3

Where gender is concerned, the findings obtained as shown in figure 4 revealed that majority of telecenters' users are female, although the difference between male and female users is only 6.2%. The conclusion drawn is that there is increasing interests to enhance knowledge in ICT among female respondents. They are more aware that acquisition of ICT skills can open up the opportunity to improve and enhance their academic skills. Furthermore, the findings showed that more female respondents are interested to learn about ICT and and acquire ICT skills.

Respondents' gender

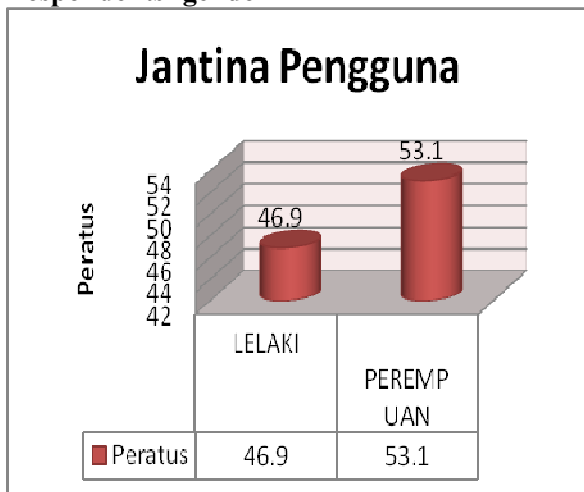


Figure 4

Findings on respondents' status and occupation are displayed in figure 5. More than half of telecenters users, which is at 54.3% are students. It was also found that 6.8% of telecenters users are self-employed and 5.3% are working as professionals, administrators and management officers. The next group of telecenters users work in the support and service sectors, which is

at 4.2%. Housewives also used the facilities at telecenters and they contributed to 3.2% of the respondents' population. Finally respondents who are involved in agriculture such as rubber tappers are also users of telecenters at 1.4%.

The variation of users who used the facilities at telecenters shows that the marginalized groups are aware that access to ICTs and skills in ICTs can have effect on enhancing human capital. They realized that ICT knowledge can help them increase their knowledge in areas relevant to them in order that they can benefit from ICT and improve their lives.

Respondents' status and occupation.

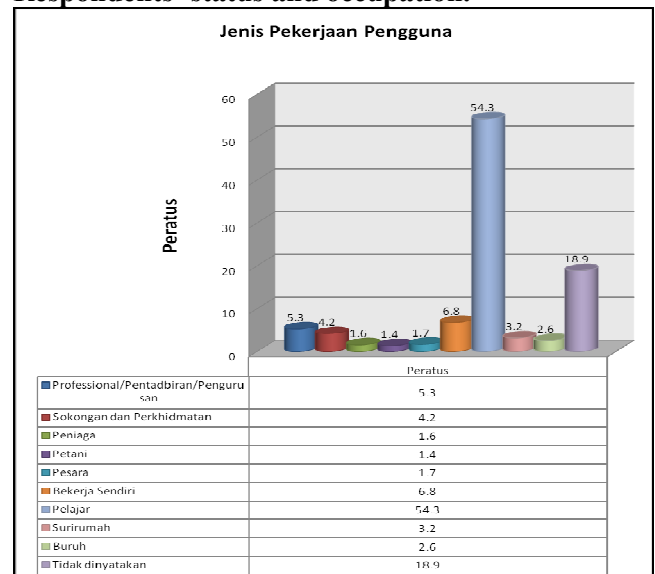


Figure 5

Since majority of respondents are students, 74.7% of the respondents have no income as displayed in figure 6. Respondents who are frequent users of telecenters, which is at 12.2%, earn below RM1000 a month. The second highest percentage of respondents which is at 8.8% are those whose income is between RM1000 and RM2000 a month. As access to the Internet at telecenters are free, except minimum charges for printing and attending ICT courses, the respondents can afford to use the facilities provided at telecenters. The respondents stated that such provision will help the government's aim to bridge the digital divide and to improve the lives of the community through access to ICTs. Provision of ICTs will also help fulfill the Malaysian government's strategic framework aim, which is to provide the best possible ICT infrastructure to all Malaysians and to encourage its citizen to adopt the use of ICTs as their way of life.

Respondents' income

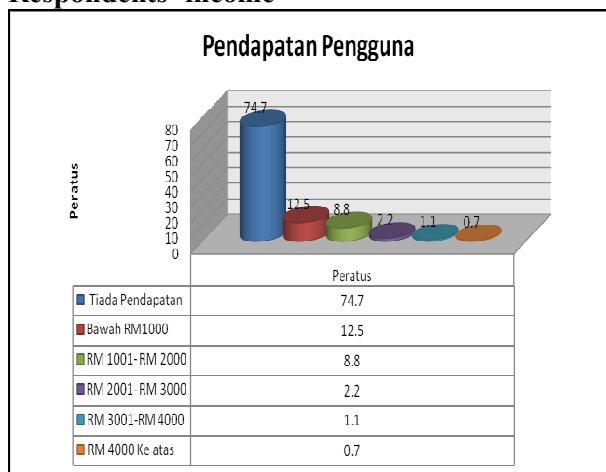


Figure 6

Majority of telecenters users as shown in figure 7, which is at 60% are youth, aged between 12 and 18 years old. Primary school children aged below 12 years old are also frequent users of telecenters, but they have to be accompanied by their siblings or parents in order to use the facilities at telecenters. 15.9% of the respondents have diploma, Sijil Pelajaran Malaysia (SPM) and Matriculation qualification. Only 5.3% have a Bachelor's degree. This implies that education, even if it is only at school level, plays an essential role to help raise the rural and marginalized groups' awareness in ICTs.

Respondents' educational level

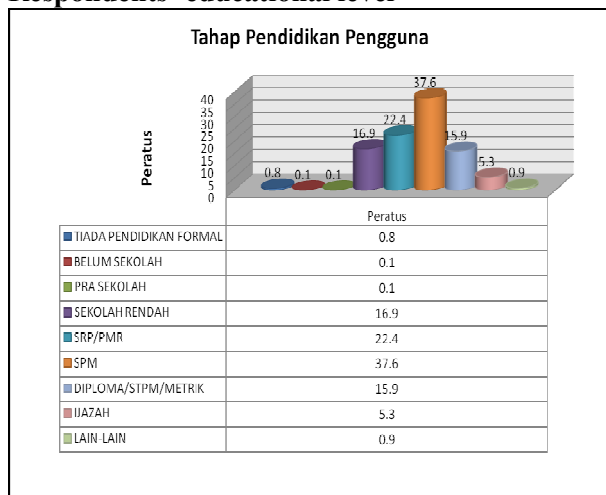


Figure 7

The findings now turn to the report on ownership of computers at home, willingness to spend on training, IT usage at telecenters and IT applications.

The findings on computer ownership in figure 8, showed that more than half of the telecenter users (42.8%) own computers. The main reason for visiting telecenters is to surf the Internet, to search for particular

information or to check emails. Another reason given by majority of respondents, who are students, is that their parents limit their use of the Internet at home and their younger siblings need to use the computers. Since the number of telecenters users are high, this means that despite having computers at home, telecenters continue to play an important role in ICT because the centers are still relevant in providing access to ICT to the community.

Ownership of computers at home

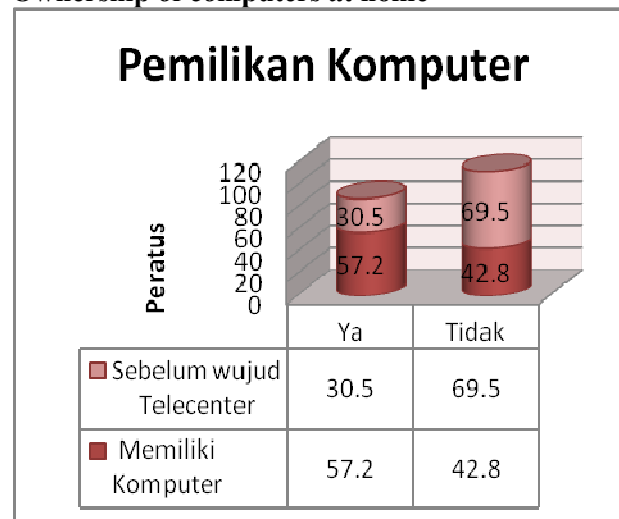


Figure 8

Figure 9 showed that majority of telecenters users, which is at 73.3% are interested to increase their ICT skills and to use computer. The respondents are below 18 years old and surprisingly, this particular group is less exposed to ICTs because of their location. They are of the opinion that such knowledge is essential to prepare them for workplace and if they further their studies. They are interested to acquire basic ICT skills and to learn how to handle virus attack, to repair computers and to even develop software. 14.4% of respondents fall in the category of those who do not have much interest in learning about ICT and only used ICT when necessary and when needed. There are also respondents who are not interested at all to learn about ICTs, but the percentage is only at 12.3%. This particular group is the senior citizens who feel that there is no need for them to learn about ICTs.

Interest in enhancing computer skills

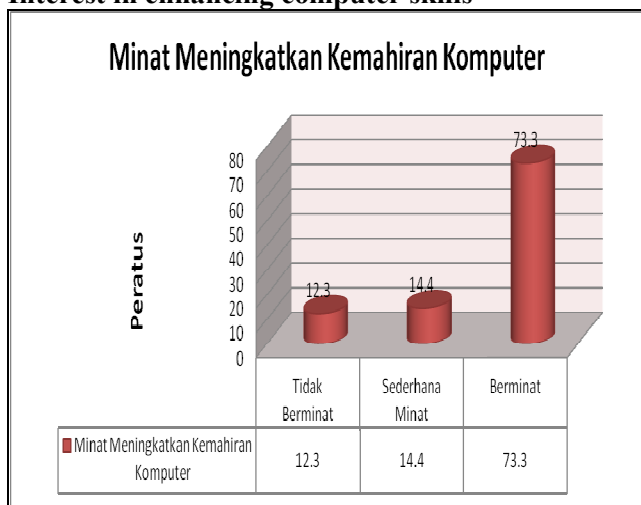


Figure 9

Another related finding is the respondents' willingness to spend money on IT usage as shown in figure 10. The findings revealed that 67.5% are unwilling to spend money for training, maybe because they feel it is not necessary to learn about ICTs. Only 32.5% are willing to spend money on IT training. Another 14.7% are willing to spend, but not more than RM30. Finally 11.4% are willing to spend between RM100 and RM300 for IT training. Those willing to spend between RM100 and RM300 are willing to spend such amount of money in order that they become more marketable in the job market. Those who are unwilling to spend are those who earn low income and they do not have extra income to spend on things which they feel are unnecessary.

Willingness to spend on training

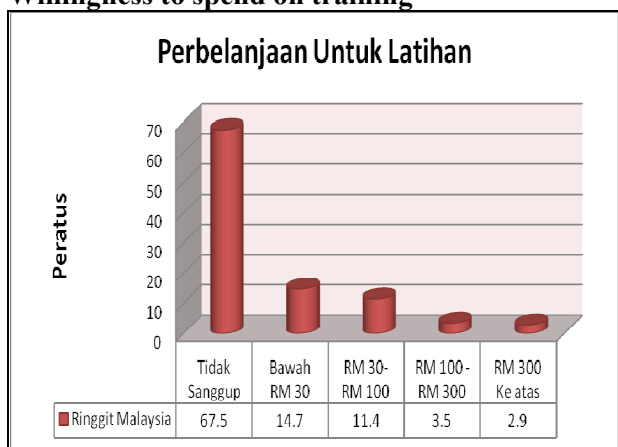


Figure 10

Figure 11 displayed the findings on IT usage at telecenters. The highest percentage for visiting telecenters is to do schoolwork, which is at 50.5%, followed by to search for specific information at 50.1%. Other purposes include to search for information, mainly

for entertainment purpose (46.4%), to attend basic IT training (45%), for social networking purposes, such as to communicate online (44.1%), to play online game (40.6%), to do business transactions (15.6%), to do office work (16.3%) and others (26.5%). Based on the 'File' history available online, we concluded that others include searching for information on jobs, to fill in application forms to higher learning institutions, to access e-government portals and other applications.

IT usage at telecenters

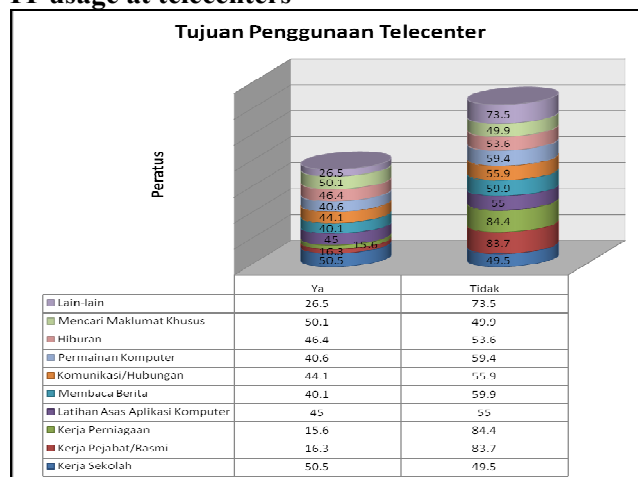


Figure 11

In order to find out what type of ICT courses and training can be conducted, respondents were asked about the type of IT applications that they used. Figure 10 showed that the applications which are frequently used by telecenters users are computer games (55.2%), online services (23.5%), to download software (40.5%), to use blogs (43.6%), to communicate via chat groups (36.7%), to download graphic applications (59.2%), to use emails (58.5%) and to surf the Internet (70.5%). This clearly shows that the users have IT knowledge and are exposed to the various types of IT applications.

IT applications

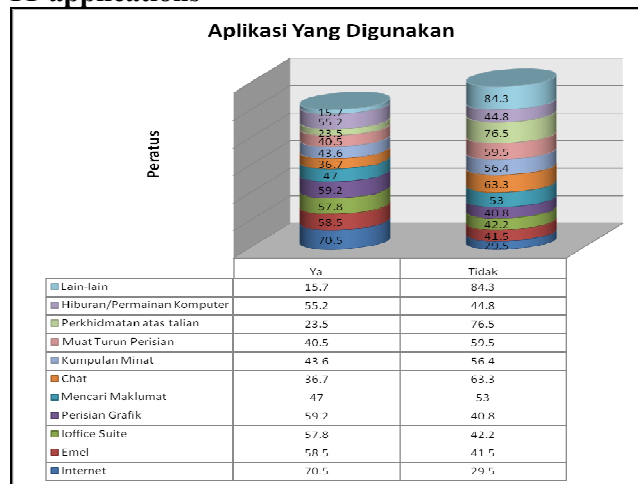


Figure 12

7 Conclusion

The findings revealed that telecenters are used mainly for the purpose of accessing the Internet in order to search for information related to the individual needs of the users. If the trend continues, the aim to develop and transform telecenters as e-learning training centers for the community will not be achieved. Telecenters users and the community must be made aware of the telecenters' roles as agents to help develop and build human capital.

Therefore, the study proposes that telecenters establish collaborations with both the public and the private higher learning institutions (universities, and colleges), schools, educationally driven based industries, technical colleges or institutions and even telecentre.org whereby telecenters can be used as the place to conduct various types of training and courses through online mode or face-to-face mode (figure 12).

Collaboration of telecenters with educational institutions

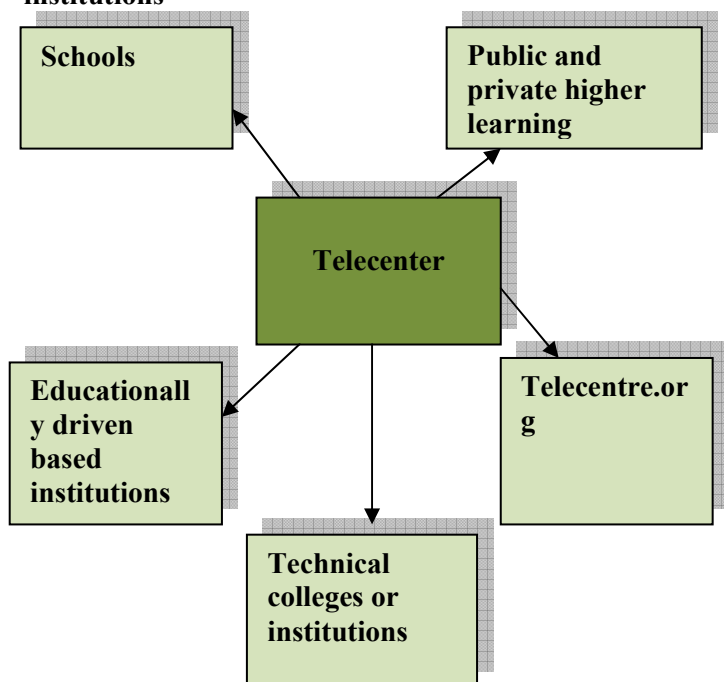


Figure 12

Since majority of telecenters users are youth, the program developed should aim to expose the youth to various levels of ICT knowledge. As the findings revealed, the youth express a keen interest in enhancing their ICT knowledge. Programs such as usage of microcontroller and core-chart which will help develop creativity and innovation among the youths in the community. In fact, innovation is one of the government's agenda in developing human capital. Other programs such as developing creative multimedia

software and program and other digital planning program can also be developed. School children in rural areas can benefit from having access to online educational materials. Pilot projects at telecenters such as paperless homework project, e-learning project, SchoolNet and Online learning portal have shown positive impact [15]. In addition, online tuition for subjects taught in schools (Maths, Science, English, Bahasa Melayu and others) can be offered to school children.

The pilot project on developing and promoting rural online small medium enterprises products have also proven to be beneficial [15]. Therefore, small business owners can be exposed and be trained on how to market their businesses online in the most effective way. This can be made possible through collaboration with educationally driven based industries and telecentre.org. The result of Young et al study [11] proved that access to information via ICT is beneficial in promoting the well-being of small and isolated communities economically. The study on KedaiKom telecenter program is another example of how collaboration with organizations outside the community can help improve economic and social well-being of a community [16].

In addition, academicians in both public and private higher learning institutions can offer their academic expertise online (tuition, academic counseling and others) to the community as part of their social responsibility and to share their academic expertise. The technical colleges or technical institutions can offer technical and practical training programs. The developed programs must ensure that the courses and training offered would achieve the aim of providing technical and ICT knowledge for studying and work related purposes to the community. The types of training programs developed should also take into consideration the participants' existing knowledge. Table 2 outlined some of the programs which can be offered.

Table 2: Training and programme

No	Types	Level
1	Introduction	Basic
2	Computer parts	basic
3	Office automation software	Basic, advanced
4	Internet	Basic, advanced
5	System development	Basic, advanced

A study, for instance, on planning and implementation of educational programs in rural areas in Malaysia revealed that the effort made by the telecenters to organize program such as Customers' Day and ICT Day in promoting ECommunity Centers and program at the E-Community Centers proved fruitful because the

telecenters managed to record increasing number of customers [17]. Subsequently, there is an increase in demand and needs to upgrade the service quality and the image of the telecenters in the respective rural areas.

The development and transformation of telecenters as e-learning training centers should be in tandem with the government's aim in developing a k-economy and k-society country. This means that telecenters must have good and well established collaboration with the appointed educational institutions and agencies (figure 12) in order that telecenters' roles can be maximized in providing and extending educational opportunities to the community.

References

- [1] Harris, R. W. (2005): Explaining the success of rural Asian telecentres. Information systems in developing countries: theory and practice, Hong Kong, City University of Hong Kong Press, pp. 83-100, retrieved 10 March, 2008. Retrieved from <http://unpan1.un.org/intradoc/groups/public/documents/APCITY/UNPAN006304.pdf>.
- [2] Asirvatham, D., Kaur, A., & Abas, Z. W. *Country reports: Malaysia*. Paper presented at the Asia E-learning Network Conference. 2005.
- [3] Rohana Abd. Rahman. E-learning Initiatives in Malaysian Schools. The Educational Technology Division, Ministry of Education, Malaysia. Paper retrieved from http://gauge.u-gakugei.ac.jp/apeid/apeid04/country_papers/malaysia.pdf
- [4] Ministry of Finance. (2006). *The 2007 budget speech by YAB Dato' Seri Abdullah B. Ahmad Badawi In the Dewan Rakyat*. Ministry of Finance.
- [5] Raja Maznah Raja Hussain. eLearning in Higher Education Institutions in Malaysia. *e-mentor*, Vol.5, No. 7, 2004.
- [6] Hassan, S. *Government and eLearning: Harnessing eLearning in the education sector*. Paper presented at the National Conference On eLearning 2002, Putra World Trade Center, Kuala Lumpur, Malaysia. 2002.
- [7] Khalid, M., Yusof, R., Heng, C. T., & Yunus, M. R.M. *Virtual laboratory as an effective e-learning tool*. Paper presented at the B3 - E-Learning, Euro Southeast Asia 2006, Singapore, Thailand. 2006.
- [8] Dewan, S., & Riggins, F. J. The Digital Divide: Current and Future Research Directions. *Journal of Association for Information Systems*, Vol. 6, No.12, pp. 298-337. 2005.
- [9] Proenza, F., Bastidas-Buch, R., & Montero, G. Telecenters for Socioeconomic and Rural Development in Latin America and the Caribbean. Inter-American Development Bank. 17. 2002. Retrieved from <http://www.iadb.org/sds/itdev/telecenters/exsum.pdf>
- [10] McDonnel, S. Telecenters Around the World: Issues to be considered and lessons learned. ICT Development Group for CIDA- Canada-Thai Telecentre Project. 2001. Retrieved from http://portal.unesco.org/ci/en/file_download.php/053c2bb713f94903fc72a2a910a4e495Telecentres+around+the+world.pdf
- [11] Young, Judy, Gail Ridley and Jeff Ridley. A Preliminary Evaluation of Online AccessCentres: Promoting Micro E-business Activity in small, Isolated Communities, in *The Electronic Journal on Information Systems in Developing Countries*, Volume 4. 2001. Published on the world wide web and available at <http://www.is.cityu.edu.hk/ejisdc/vol4.htm>
- [12] Joseph, Loyola. Telecentre Evaluation: A Telecommunity Perspective, in *Telecentre Evaluation: A Global Perspective*. 1999. Paper published on the world wide web and available at <http://www.idrc.ca/telecentre/evaluation/html/main.html>
- [13] Mohini Singh, Alemayehu Molla, Stan Karanasios, Jason Sargent. Exploring the Impact of Government ICT Initiatives on the Livelihood of Australian RuralCommunities. Paper presented at 21st Bled e-conference e-collaboration: Overcoming Boundaries Through Multi-channel Interactions. Bled, Slovenia. 2008. Retrieved from [https://domino.fov.uni-mb.si/proceedings.nsf/0/7c931f245d5da35ec12574820033ebfd/\\$FILE/35Singh.pdf](https://domino.fov.uni-mb.si/proceedings.nsf/0/7c931f245d5da35ec12574820033ebfd/$FILE/35Singh.pdf)
- [14] Norizan Abdul Razak & Jalaluddin Abdul Malek. Bridging Digital Divide in Malaysia: Cyber learning for the Marginalized Community, pp. 235-239. Paper presented at Distance Learning and the Internet Conference. Waseda University. 2008. Paper retrieved from <http://www.waseda.jp/DLI2008/program/proceedings/pdf/session9-1.pdf>
- [15] Sumali Amat. Telecenter Development Program in Malaysia. Economic Planning Unit. The Prime Minister's Department. Malaysia. Powerpoint slides. Retrieved from www.unescap.org/idd/events/2009_RW...hubs/.../Malaysia.pdf
- [16] Ibrahim, Z. and Ainin, S. The Influence of Malaysian Telecenters on Community Building. *Electronic Journal of e- Government*. Volume 7, Issue 1, pp. 77-86. 2009. available online at www.ejeg.com
- [17] Supyan Hussin, Norizan Abdul Razak, Nor Fariza Mohd Nor. Planning And Implementation Of Educational Programs At E-Community Centers In A Rural Area In Malaysia. Paper presented at WSEAS Recent Advances In E-Activities, Information Security And Privacy Conference. 2009. pp. 248-251.

