

## Examining the Impact of Demographic Factors on the Attitude of Rural Communities in Malaysia towards Village WiFi Services

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### Abstract

This study aims to examine the impact of demographic factors on the attitude of rural communities towards the village WiFi services. Data for the study were collected via a questionnaire, and based on multi-stage cluster sampling, a total of 400 villagers from four areas in Malaysia were selected as the respondents. The analysis performed confirms that there is a significant difference between males and females in terms of attitude towards village WiFi services, and that age and time spent using village WiFi services have a significant relationship with attitude towards village WiFi services. It is expected that this study will assist those concerned with formulating strategies to narrow the digital gap between rural community and technology.

**Keywords:** rural community, ICT usage, community development, rural development

### 1. Introduction

#### *1.1 Background of the Study*

ICT as a tool for rural development has long been emphasized by the Malaysian government (Shaffril et al., 2010; Badsar et al., 2011; Samah et al., 2011), which is important due to the fact that rural communities are lagging behind urban communities when it comes to using information and communication technology (ICT). Research conducted by the Malaysian Communications and Multimedia Commission (MCMC, 2008) demonstrates that the level of Internet usage in urban communities is at 85 percent, while in rural communities it is much lower at only 15%. Furthermore, a survey conducted in 2002 among excellence villages (rated as well developed villages) (Noor Sharifah, 2003) demonstrates that the possession of ICT tools among Malaysia's rural population is generally low – out of a total of 1,652 households surveyed, only 18 percent own home computers, and only 6.7% have an Internet connection, which leads to the assumption that there is also a low level of ICT usage among the country's rural population. Shaffril, Hassan and Samah (2009) also reveal that the level of internet usage in rural communities is very low, while Samah et al. (2011) found that among rural leaders which also known as Jawatankuasa Ketua Kampung (JKKK), the level of ICT usage is not on par which means moderate as depicted by 4.47 mean summated score. Variations in the level of ICT usage among different communities creates both class and digital divides – a digital divide being the difference between those who understand and are able to use ICT (which includes telecommunications, the Internet, software and multimedia tools) and those who do not, or in other words, those who are information rich and those who are information poor. Issues arising from the digital divide can be examined from various demographic factors such as geographical location, ethnicity, gender and economic status, etc. Among the criteria that are often used to measure digital divides are Internet access, computer ownership, the availability of telecommunication lines, and the level of computer knowledge or literacy (Noor Sharifah, 2006). Musa (2008) reveals that due to refusal to use the Internet in rural ICT centers on a daily basis, while Shaffril and Samah (2009) add that low utilization of the facilities available causes a low level of Internet usage among rural communities. There are several possible reasons as to why rural communities refuse to use the ICT centers provided, which will be discussed in the present study.

### *1.2 Village WiFi Services*

Village WiFi services also known as Kampung Tanpa Wayar (KTW) is a program that has been implemented by the MCMC under the National Broadband Initiative (NBI), and is funded through the Universal Service Provision (USP) fund, which is implemented by the selected telecommunication service provider since 2007. The objective of this program is to provide opportunities for rural communities to enjoy the benefit of having access to a broadband Internet service, increase usage penetration and bridge the digital gap between urban and rural areas. This allows people in rural areas to take advantage of the same ICT facilities as their urban counterparts, thus catalyzing the improvement of their quality of life and creating economic value. In this study, the researchers believed ICT skills can help local residents explore and enhance their skills (Samah, 2011), thus benefitting the development of their community by generating economic growth and development of the fields of science and education. Broadband service provision is the most appropriate solution for improving Internet penetration throughout any country. Different from Pusat Internet Desa (PID), Medan Info Desa (MID) and the Centre National Broadband, all of which provide buildings and ICT equipment, KTW installs a WiFi antenna in selected villages. The cost to install an antenna is RM32,000 and by the third quarter of 2011, there were 1,407 KTW villages in Malaysia.

A study conducted by Sahharon et al. (2014) reveals that KTW is positively received in rural communities, which is in line with the Government's plans to develop the country. The principal aim of the current study is to identify the potential benefits to rural communities in Malaysia of the KTW program, thus filling the gap in the research around Internet usage among people using KTW, as highlighted by Sahharon et al. (2014), who add that the positive attitude of those surveyed for their study towards village WiFi services could be attributed to the availability and accessibility of the WiFi service in their rural area.

### *1.3 Attitude towards Information and Communications Technology (ICT)*

The literature body reviewed for this current study focuses on the attitude towards ICT in relation to several variables such as age, gender, ethnicity, length of time having lived in the village, distance of KTW from home and time spent using KTW. According to Binder & Niederle (2007), attitudes can be learnt and may change with experience of stimuli. Research indicates that attitude is a result of someone's evaluation, which is described both internally and externally in several dimensions, such as good-bad, likeable-dislikeable, harmful-beneficial, pleasant-unpleasant (Ajzen & Fishbein, 1980). Ajzen's (1988) implies that attitudes possess cognitive (beliefs, knowledge, and expectations), affective (motivational and emotional), and performance (behavior and actions) components. Smith, Caputi, and Rawstone (2000), define attitudes toward ICT usage as a person's general evaluation or feeling towards ICT (specifically computer and Internet-related activities); attitude toward ICT measures a person's capability to use ICT.

Garland and Noyes (2005) examine the ability of factors such as educational context and confidence to develop positive attitudes toward computers and the Internet, which has an impact on learning. Having a positive attitude can lead to other positive behavior dimensions, such as computer confidence, behavioral intention and perceived usefulness. Based on the extended technology acceptance model (ETAM) by Hu, Clark and Ma (2003), factors of 'behavioral intention', consist of six factors: 1) perceived ease of use; 2) perceived usefulness; 3) subjective norm; 4) job relevance; 5) compatibility; and 6) ICT self-efficacy. According to ETAM, perceived ease of use and perceived usefulness of ICT has a high impact on the use of ICT, and it strengthens the consumption when involves ICT experiences. ETAM also highlights that ICT self-efficacy is also important in fostering high levels of ICT usage, and proves that there is relationship between ICT usage and job relevance (i.e. ICT use in a job role being the main purpose for a person using ICT). ICT is important that almost every routine in the workplace used it, no exception for those who living in rural areas. Online banking, school assignments, agricultural marketing and financial records are all examples of purposes for ICT usage among rural residents.

Subjective norm can also have an impact on the use of ICT in rural communities. According to ETAM, those who live in a community that uses ICT will be influenced and encouraged to participate; furthermore, a person's environment can also be influenced by 1) the number of ICT centers in the area; 2) the number of ICT shops nearby; 3) the use of ICT by family members and 4) support from relevant agencies. Compatibility is also examined by ETAM. Rural residents who are familiar with ICT will reflect a higher level of ICT usage than those who are not. Some of the statements in the questionnaire were produced in order to meet the criteria set out by ETAM with respect to attitude dimensions such as comfort, confidence, feeling left out, enjoyment, prefer to use the Internet than others, encouraged by family, promoting use of the Internet, loving to teach others, feeling productive, and being interested in concerned training courses. These statements are believed to influence behavioral intention in shaping a person's attitude. In line with Omar et al.'s (2008) findings, the three statements

used (enjoyment, comfort and confidence) prove that there is a positive attitude among the respondents towards village WiFi services. In addition, each of these demographic characteristics will also change depending on gender, age, race, education level, employment status, household income, duration of living in village, distance from home to the nearest KTW, and hours spent using KTW is likely whether there is a significant difference between each other or not.

Hassan's study (2008) – also known as K-Masyarakat (K-Society) – focuses on the use of ICT at rural ICT centers nationwide operated by the Malaysian Government, and, on rural ICT projects such as the Pusat Internet Desa (PID) and Medan Info Desa (MID). This quantitative study employs a survey method to collect data from 1,149 users and 60 ICT center supervisors. One of the aspects Hassan examines is user profile, and results show that the majority of users in rural ICT centers are women, graduated SPM/SPMV, had an average income of RM1,081 monthly and are still studying. The findings also reveal that funding, the involvement of skilled supervisors, engagement and support from the rural community, and a low level of dependence on the government are critical success factors of a government ICT project. Hassan (2008) added that ICT projects alone are not enough to promote the use of ICT in rural communities, and they must be supported by several other elements such as equipment, support, programs, and promotion. Hassan's study also concluded that rural communities need knowledge, support, skills and development of ICT infrastructure, and that it is crucial for ICT development in rural communities remain a priority in order for the digital divide to be reduced. In addition, Hassan (2008) did mention a continuously courses that is ICT related could encourage the ICT usage on a daily basis and it can be as added aspects for ICT knowledge and skills enhancement among rural residents.

Badsar et al. (2011) focus on the factors that may affect the use of computers and the Internet in government-run ICT centers, specifically on Pusat Internet Desa (PID) and Medan Info Desa (MID). Data were collected from 360 computer and Internet users in the ICT centers (11 PID and 12 MID) in Peninsular Malaysia using a cluster sampling technique. It is found that factors such as characteristics of individuals, characteristics of ICT the center, the characteristics of the information provided in the ICT center and competence of ICT center administrators have a significant correlation with the use of computers and Internet services in the ICT centers. However, further analysis carried out demonstrates that the characteristics of the information provided in the ICT center are also a major contributor to the use of ICT center services. Badsar et al. (2011) subsequently proved that centrality of location, quality of service and level of competence among ICT center administrators are the key factors in the success of an ICT project. An ICT center that employs highly competent administrators is able to achieve the objectives of the center to meet the needs of local community, strengthening that community's ICT skills and diversifying the economic resources of the center. Badsar et al. (2011) stress the importance of ICT center administrators being trained in order to enhance their competence, that there is a need to teach users to create, search and access information, and that both private and non-governmental organizations (NGOs) should donate funds for use in the establishment and development of rural ICT centers.

Numerous studies attempt to discover the benefits of using Internet services in rural ICT centers. Bashir et al. (2011) highlighted that Internet facilities provided in ICT centers enable in two-way communication among rural communities. Email and online and mobile applications such as Facebook, Twitter, Skype, and WhatsApp allow villagers to communicate with anyone, at anytime, anywhere. According to Balakrishnan (2002), if ICT services are applied well by rural communities, it can enhance knowledge, skills, employability, income and social network. Grimes (2000) also emphasizes that use of the Internet in an ICT center gives people an opportunity to learn new things, thus producing knowledgeable rural communities ('k-society'). Rao (2004) demonstrates that rural ICT programs that promote Internet usage can enhance the level of knowledge among a rural community. However, to provide maximum benefit to a rural community, programs should be based on their specific using the local language. ICT centers such as PID and MID in rural areas can provide continuous exposure to the Internet and thus reduce the digital divide (Hassan, 2008). In this study, it is believed that Internet services provision also can strengthen the socio-economic level of rural residents.

Studies conducted by Cecchini and Raina (2002) and Rao (2004) and Abdul Razaq et al. (2009) show that the Internet can promote gender equality, improve skills and provide job opportunities to those who qualify, and that the Internet enables farmers in rural areas to aware of market prices, profits, and how to establish an effective administrative system. Abdul Razaq et al. (2009), also stress that the Internet empowers communities by creating opportunities to learn, thus changing the way rural residents think, learn and communicate, a process known as 'digital transfer'.

To identify the demographic factors that are often associated with the attitude towards ICT, several studies, such as that by Abedalaziz, Jamaludin and Leng (2013), examine Malaysian university students attitudes towards ICT; they conclude that Malaysian university students perceive ICT useful, and that age influences attitude towards

ICT, while gender, field of study and ethnicity are not influential. Hargittai and Hinnant (2008) stress there are demographic differences in how people use the Internet, and there are also disparities in use according to people's experience of using the Internet. In line with the Hargittai and Hinnant (2008) previous study, the current study examines demographic factors such as gender, age, race, duration of living in village, distance of KTW from home and time spent using KTW. According to Cecchini and Raina (2002) and Abedalaziz, Jamaludin and Leng (2013), the Internet can promote gender equality, and there are no significant differences between attitude towards ICT and gender. However, Jokisuu, Kankaanranta and Neittaanmäki (2007) posit that gender has a significant impact on computer usage among people residing in rural areas.

Age is one demographic factor that is often associated with attitude toward technology. Hasim and Salman (2010) reveal that there is sustainability in using the Internet among Malay youth in Kota Bharu (a rural town in Kelantan, the north-eastern region of Peninsular Malaysia). The study surveyed 225 young Malay Internet users in Kota Bharu, and shows that the factors that have significant positive effects on the sustainability of Internet usage by Malay youth are interpersonal, social network, perceived and realized benefits. The results also demonstrate that issues relating to security and interruptions while using the Internet have a significant negative effect on the sustainability of Internet usage by Malay youth. Moreover, the respondents also use the Internet to search information regarding leisure time activities more than other age group (Howard, Rainie, & Jones, 2001). According to the Current Population Survey's Computer and Internet Use Supplement (NTIA, 2004), in 2003, those aged between 18 and 24 are the most connected Internet users, with 86.7% online.

Hargittai and Hinnant (2008) also state that young people 40 years and below are highly attached to Internet compared older people which 50 years and above, because the Internet is able to fulfill their communication and entertainment needs (Fox & Madden, 2005; Madden, 2003). Hargittai and Hinnant (2008) also conclude that 'capital-enhancing' activities such as online business seem to be the main purpose of those who are in higher education and who have more resources/more experience of using ICT. Furthermore, environment and social influence also can have an impact on rural communities using ICT.

With the facilities provided, all ethnic backgrounds have equal opportunities to access to the Internet. Rathore (2008) indicates that there is no significant difference between ethnicity and attitude towards village WiFi services. Furthermore, Rathore (2008) found that the correlation between the amount of students' study hours and the number of hours spent on a computer was positive, not only when it came to young people, but also older demographics. Another approach to refined differences of online behavior studies have led to the creation of the Internet Connectedness Index (Jung et al., 2001), which measures the long-term inequalities between Internet users, and posits that Internet use increases people's chance of upward mobility, and increases certain types of capital. For example, if the Internet is used for gaming rather than as an educational or career tool, while it may not directly enhance the user's career prospects (Jung et al., 2001), but it may enhance other skills such as solution and decision making. However, some have argued that recreational use of the Internet can yield other beneficial outcomes such as increase business networking and friends (Sandvig, 2001).

Respondents in this study use their village WiFi services around the clock through their smartphones. ICT applications are used by villagers throughout their daily lives for various purposes, such as communicating socially or for business, solving problems, completing tasks and searching for information. Hargittai and Hinnant (2008), who measure by both number of years online and amount of time spent using the Web on a daily basis, conclude that by spending more time online, there is a greater opportunity for people to familiarize themselves with the medium. Furthermore, age and time spent using village WiFi services are significantly and positively related to the attitude towards village WiFi services (Hargittai & Hinnant, 2008).

Duration of living in village and distance of the KTW from home appear not to significantly affect the attitude of villagers towards village WiFi services. However, there is one study that has found a correlation between distance from home to the nearest KTW and attitudes of villagers towards village WiFi services. Examining the Americans location from their nearest Internet access point, Hassani (2006) reveals that those who have more locations at which they can access the Internet tend to engage in activities from which they may benefit more than those with fewer access points do. Like Hassani (2006), DiMaggio and Hargittai (2002) focus on 'capital-enhancing' which refers to how Internet usage impacts people's lives by enhancing their career advancement opportunities, enables them to be informed about and participate in politics, or being able to search information about financial and health services. From the researchers' of this study observation, it is likely that the respondents would like WiFi coverage to be greater in their area, or the number of KTW in their area to be increased. Logically, users who live closer to a KTW will have better Internet access and coverage compared to those who live further away, and better coverage will result in higher consumption; those users who live further away and have lower access will be less keen to use the Internet, thus fostering a negative attitude towards KTW.

Livingstone and Helsper (2007) conclude that access to the Internet at home can greatly influence usage of ICT among younger users. Badsar et al. (2011) also posit that characteristics such as an ICT center's location and quality of service are key to the success of an ICT project.

During the literature review, no studies were found regarding the relationship between duration of living in village and attitude towards village WiFi services, therefore this current study aims to discover whether or not there is any relationship, and if there is one, how strong it is. Duration of stay in village in this study is strongly related to seniority and those who pioneer living in the village.

## 2. Method

This study is quantitative in nature, whereby a questionnaire was used as the main data collection tool. Multi-stage cluster sampling was used to randomly select four areas for data collection, namely Kuala Selangor (Selangor), Marang (Terengganu), Jelebu (Negeri Sembilan) and Kundasang (Sabah). Each of the areas is represented by 100 respondents (100 respondents x 4 areas = 400 respondents). The sample size was determined based on the prerequisite for the statistical analyses. At least 300 cases were needed in order to run the factor analysis (Tabachnick & Fidell, 1996). The data collection took five months to complete (from February 2014 to June 2014). The data collection process was carried out by trained and experienced enumerators and monitored by the research team. The data collected were analyzed using SPSS, whereby descriptive analyses such as frequency, percentage and mean score were performed in order to describe the general findings of the study. Further analysis using an independent t-test and Pearson product-moment correlation in order to find any differences or relationships that might occur.

## 3. Findings and Discussion

This section presents and discusses the results of the study and is organized into five sections, namely demographic of the respondents, the level of attitude towards village WiFi services, the level of attitude while using village WiFi services, the differences in attitude towards village WiFi services between gender and race, and relationship between demographic factors on the rural community attitude towards village WiFi services.

### 3.1 Demographic Factors

The results displayed in Table 1 (below) show that 56 percent of respondents were male and 44 percent were female, and that the majority of the respondents were those in the 15–17 age group (35.5%), followed by those aged above 31 years (24%), and then those aged 18–20 (16.5%). With regards to ethnicity, a total of 303 Malay (75.8%) and 97 Dusun (24.2%) participated in this study. Looking at education level, 39.5% of the respondents had achieved SPM/SPMV, 33 percent had achieved PMR/SRP, 12 percent had obtained a till skill certificate/STPM and 8 percent had achieved a diploma.

The average mean household income is RM1,761.50 monthly. Specifically, 61 percent are unemployed and 39 percent are employed. More than a quarter of the respondents (27.5%) had a household income of between RM751 to RM1000 monthly, followed by more than RM2001 (22.8%), RM1001 to RM1500 (18.8%), less than RM750 (16.8%), and then RM 1501 to RM 2000 monthly (14.3%). In terms of duration of living in village, 30 percent of the respondents had lived in the village for more than 21 years, 27 percent 16 to 20 years, 18 percent 11 to 15 years, 14 percent less than 5 years, and 13 percent 6 to 10 years. With regards to the distance from home to the nearest KTW, 123 (30.8%) live 101 to 500 meters away, 120 (30%) live 500 to 1000 meters away, and 89 (22.3%) live less than 100 meters from the nearest KTW. Regarding hours spent using the village WiFi service, the mean score recorded was 112.8 minutes per day, which indicates that the village WiFi service was used a lot by the rural communities studied.

Table 1. Demographic data of the respondents

| Factors       | Frequency | Percentage | Mean |
|---------------|-----------|------------|------|
| <b>Gender</b> |           |            |      |
| Male          | 224       | 56.0       |      |
| Female        | 176       | 44.0       |      |
| <b>Age</b>    |           |            | 23.6 |
| 15-17         | 142       | 35.5       |      |
| 18-20         | 66        | 16.5       |      |
| 21-24         | 57        | 14.3       |      |
| 25-30         | 39        | 9.8        |      |
| ≥31           | 96        | 24.0       |      |

| Factors  | Frequency | Percentage | Mean       |
|--|-----------|------------|------------|
| <b>Race</b>  |           |            |            |
| Malay  | 303       | 75.8       |            |
| Dusun  | 97        | 24.2       |            |
| <b>Education level</b>   |           |            |            |
| Never been to school   | 8         | 2.0        |            |
| Primary school   | 10        | 2.5        |            |
| PMR/SRP*   | 132       | 33.0       |            |
| SPM/SPMV**   | 158       | 39.5       |            |
| Skill certificate/STPM***  | 46        | 11.5       |            |
| Diploma  | 33        | 8.3        |            |
| Degree/Masters/PhD   | 13        | 3.3        |            |
| <b>Employment status</b>   |           |            |            |
| Employed   | 157       | 39.3       |            |
| Unemployed   | 243       | 60.8       |            |
| <b>Household income (monthly)</b>  |           |            | RM1,761.50 |
| <RM750   | 67        | 16.8       |            |
| RM751-RM1000   | 110       | 27.5       |            |
| RM1001-RM1500  | 75        | 18.8       |            |
| RM1501-RM2000  | 57        | 14.3       |            |
| >RM2001  | 91        | 22.8       |            |
| <b>Duration of living in village (years)</b>                                     |           |            | 17.3       |
| <5   | 54        | 13.5       |            |
| 6-10   | 52        | 13.0       |            |
| 11-15  | 70        | 17.5       |            |
| 16-20  | 106       | 26.5       |            |
| >21  | 118       | 29.5       |            |
| <b>Distance from home to the nearest KTW (meter)</b>                             |           |            | 1020       |
| <100m  | 89        | 22.3       |            |
| 101-500m   | 123       | 30.8       |            |
| 500-1000m  | 120       | 30.0       |            |
| <b>Hours spent for using village WiFi services (minutes) (n = 378) (per day)</b> |           |            | 112.8      |
| 60 and less  | 173       | 45.8       |            |
| Between 61 and 120   | 135       | 35.7       |            |
| 121 or more  | 70        | 18.5       |            |

\*: PMR/SRP-Malaysia lower education certificate; \*\*: SPM/SPMV-Malaysia higher education certificate/Malaysia Vocational Higher Education Certificate; \*\*\*: STPM-Malaysia higher level education certificate

### 3.2 Attitude towards the Village WiFi Services

An analysis of attitude towards the village WiFi services was conducted; the level of attitude was ascertained based on a calculation of the range of score, as follows: maximum value of mean score (5.00) – minimum value of mean score (1.00)/number of categories (3). This calculation resulted in three levels of mean scores, namely low (mean score between 1.00 and 2.33), moderate (mean score between 2.34 and 3.67) and high (mean score between 3.68 and 5.00).

Generally, the mean score of 3.78 showed a high level of attitude towards village WiFi services among the respondents (Table 2). Specifically, the analysis performed confirmed that 62.8% possessed a high level of attitude, 34.5% showed a moderate level of attitude, and only 2.8% showed a low level of attitude.

Table 2. Level of respondents' attitude towards village WiFi services

| Variable/ Level      | Frequency | Percentage | Mean |
|----------------------|-----------|------------|------|
| Attitude             |           |            | 3.78 |
| Low (1.00-2.33)      | 11        | 2.8        |      |
| Moderate (2.34-3.67) | 138       | 34.5       |      |
| High (3.68 – 5.00)   | 251       | 62.8       |      |

### 3.3 Respondent Evaluation towards Village WiFi Services in Rural Areas

A total of ten statements have been used to measure the respondents' attitude towards village WiFi services. The mean score ranged from 3.52 to 4.01. The statement 'I enjoy using the Internet for daily tasks' recorded the highest mean score of 4.01, followed by the statement of 'I feel comfortable using the Internet because it is user friendly' ( $M = 3.87$ ). The third highest mean score was recorded for 'Using the Internet gives me confidence in handling my daily routine' ( $M = 3.85$ ). The results show that these three statements support a positive attitude towards village WiFi services. In line with Omar et al. (2008), it was found that rural community attitudes towards the use of technology have a positive attitude. The use of computers has benefitted them, especially in terms of searching for information and also enhancing career opportunities. However, the statement 'I like to promote the use of the Internet to others' recorded the lowest mean score ( $M = 3.52$ ). This result indicates that rural people lack confidence in sharing and promoting the use of the Internet to others, which may be caused by the lack of extensional knowledge or updated information.

Table 3. Statements used in measuring attitude towards village WiFi services

| Statements  | Mean |
|---|------|
| I feel comfortable using the Internet because it is user friendly                           | 3.87 |
| Using the Internet gives me confidence in handling my daily routine                         | 3.85 |
| I feel left out if not using the Internet   | 3.81 |
| I enjoy using the Internet for daily tasks  | 4.01 |
| I prefer to use the Internet than other equipment   | 3.84 |
| I encourage other villagers and my family to use the Internet                               | 3.84 |
| I like to promote the use of the Internet to others   | 3.52 |
| I love to teach others about the use of the Internet  | 3.55 |
| I feel that I am more productive when I use the Internet                                    | 3.76 |
| I am interested in Internet training courses to enhance my knowledge and my Internet skills | 3.80 |

An independent t-test analysis has been conducted between two categories, namely gender and ethnicity, to analyse the differences in attitude towards village WiFi services. As shown in Table 4 (below),  $t(400) = 3.664$ ,  $p = 0.001$ , indicating that there is a significant difference between both genders studied. Furthermore, regarding ethnicity, the analysis performed gave a result of  $t(400) = 1.407$ ,  $p = .160$ , which indicates that there is no significant difference in attitudes between Malay and Dusun towards village WiFi services.

Table 4. Differences in attitude towards village WiFi services using independent t-test

| Factors       | Mean score | t     | p      |
|---------------|------------|-------|--------|
| <b>Gender</b> |            | 3.664 | .0001* |
| Male          | 3.66       |       |        |
| Female        | 3.93       |       |        |
| <b>Race</b>   |            | 1.407 | .160   |
| Malay         | 3.75       |       |        |
| Dusun         | 3.87       |       |        |

The relationship between several demographic factors and attitudes towards the village WiFi services were investigated using the Pearson product-moment correlation coefficient. Table 5 shows that both age ( $r = .121$ ,  $p < .05$ ) and time spent using village WiFi services ( $r = .105$ ,  $p < .05$ ) were positively and significantly related to attitude towards village WiFi services. The strength of the correlation between these two variables with attitude towards village WiFi services was small, based on Cohen's (1988) guidelines.

Furthermore, a similar analysis shows that age and time spent using village WiFi services are significantly and positively related with the attitude towards village WiFi services. This result could be related to the fact that a large number of KTW users are students, and most of them were exposed to the digital world early in their education life (Abedalaziz et al., 2013; Hargittai and Hinnant, 2008). In addition to this, according to Hargittai and Hinnant (2008), more time spent using ICT will familiarize the users with whatever application they are using. Furthermore, it can be said that users who spend more time using ICT are more informed and up to date. Supporting the statements by Rathore (2008), in terms of time spent on computers there was a significant difference between those who had computer access at home and those who did not.

When it comes to duration of living in village seems not to be main problems or affects the attitude towards village WiFi services. Even if someone claims to be a senior member of or pioneer in the village (earlier people lives in the village), it will not affect their attitude towards the village WiFi service. The attitude towards the village WiFi servicedepends on awareness (Cecchini & Raina, 2002), self-development (Rao, 2004; Abdul Razaq et al., 2009) and experience in using the Internet (Hargittai & Hinnant, 2008). Results also show that there is no significant relationship between the distance of KTW from home and attitude towards village WiFi services. However, some of the respondents do appreciate wide coverage or an increase in the number of village WiFi services. Badsar et al. (2011) have acknowledged that characteristics such as the ICT center location, quality of service and level of competency of ICT center administrators are key to the success of an ICT project.

Table 5. Relationship between selected demographic factors and attitude towards village WiFi services

| Variables                                       | <i>r</i> | <i>P</i> |
|---|----------|----------|
| Age   | .121     | .015*    |
| Duration of living in village                   | .053     | .286     |
| Distance of the village WiFi services from home | .072     | .148     |
| Time spent using village WiFi services          | .105     | .044*    |

#### 4. Conclusion and Recommendations

The aim of this study is to examine the impact of demographic factors on the attitude of rural communities towards the village WiFi services. From the analysis results, it is clear that, in terms of attitude towards village WiFi services, there is a significant difference between males and females, age and time spent at the KTW.

Since age has a significant relationship with attitude towards KTW, younger users appear to have a more positive attitude towards KTW than older users. While results show that more users spend time at KTW, more positive attitudes towards ICT will benefit them in several ways, such as self-development and reduction in the gap between the rural and the urban community. The more time spent at KTW, the more informed and up to date they will be.

However, this positive attitude towards village WiFi services should be increased and sustained for the sake of the development of the Rural Transformation Program. These efforts must be aligned with heavy funding and management in order to sustain an adequate service to rural communities. Badsar et al. (2011) also stress the need for NGOs to provide adequate funding for rural ICT centers. The responsible bodies should also be involved with strengthening security and the creation of policies. Village WiFi services are positively accepted by the rural communities and it can be said that this government project is successful in bridging the digital gap between urban and rural areas. The government aims for Malaysia to become a developed country – a vision that can be realized if rural communities achieve socio-economic balance. Furthermore, broadband service providers should promote their services more effectively to the rural communities by offering special price packages in order to increase Internet usage. It is expected that this study will assist and support new theory constructs regarding relationships between demographic factors as intervening or independent variables.

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