

THE DIGITAL DIVIDE PHENOMENON AMONG DISABLED PEOPLE: A PILOT STUDY

Nur Ajrun Bt. Khalid¹, Rohana Yusof²

¹ College of Law, Government and International Studies 06010, Sintok, Kedah,

²Associate Professor, Northern Corridor Research Center, Universiti Utara, Sintok, Kedah,
MALAYSIA.

¹nurajrun@uum.edu.my, ²rohana@uum.edu.my

ABSTRACT

This paper aims to determine the phenomenon of digital divide in Malaysia among the disabled people. Researcher is conducting a Pilot Study for small sample of disabled people in Malaysia. The questionnaires of this study are taken from previous research and have been modified to align with this study. The instrument validity and reliability were examined by an expert panel and analyzing the small sample with the assistance of SPSS software version 21. The result shows the instrument is reliable towards the digital divide of those disabled people, which were left behind at the information age.

Keywords: Digital divide, disabled people, government initiative, assistive technology, pilot study, Malaysia

INTRODUCTION

In the information age, people are engaging with Information Communication Technology (ICT) in their daily life. Nowadays people are not working at the office anymore, they can work everywhere by using the technology and internet. Because of this changing environment, organization is emphasizing about Information Communication Technology. However, there is another group were left behind which is the disabled people, because of their disabilities have limited their accessibility of ICT. This situation is normally known as the digital divide. According to Rashid Hussain et all (2011) indicates, the digital divide can be defined as the gap in between of those who got accessibility to ICT or it can be simply say depending on the situation either have the accessibility or have not. These phenomena of digital divide may exist between developed countries and underdeveloped countries, between in places such as urban and rural populations, or rich and poor, andbetween people either normal people or disabled people (Russell and Huang, 2009).

The disabled people are a vulnerable people in the community. According to World Health Organization (2006)disabilities refer to the activity limitation or impairment between the body and directly caused body malfunction which make difficulty encountered by an individual. According to Sylvia (2011) cited in Watson (2002) emphasizing, disabled people are like ordinary people, which as the feeling of friendship, recognition and want to participate in society. At the same time the disabled people also want to use ICT, unfortunately they were encountering a problem because of their disabilities. In particular, the number of disabled people in Malaysia is increasing from year, as stated by Social Welfare Department, the number of disabled people in Malaysia by 2012 is, 85,803 and until June 2013 the number of registered disabled people is 464,967. It is shown the number of disabled people is increasing. Meanwhile, as stated by the United Nation disabled people in Malaysia are about 2.8 million, which means equal to 10% of the Malaysian population which is 28 million.

On the other hand, ICT is a platform and good strategy which enabled the disabled person's inclusion into community nowadays. ICT can play roles as a signal for them to contribute in social and economic activities. ICT is a significant tool for bridging the divide in between of disabled and non-disabled people; it is because with ICT it will break the barriers of communication that might cause by disabilities or life long illness. Moreover, ICT will increase the confidence level of disabled people to survive in their daily life and directly led them to be independence. By the innovation of ICT is setting-out opportunities to make disabled person's life easier, each disabled individual will be an advantage via ICT, they can communicate and learn how to use ICT tools to benefit themselves.

In particular assistive technology is one of the tools to bridge the digital divide for disabled people. Assistive technology is a tool to help those disabled people to access ICT. The development of assistive technology such as computers, hardware and software is to help disabled people. Among the tools of assistive technology such as, head wands, eye trackers, screen trackers, screen readers, sip-and puff switches, speech synthesizers, experimental though controlled devices and voice recognition technology (VRT). Indeed, qualified disabled people with the assistance of assistive technology will make them able to compete with non-disabled people. Priority, in the field of communication, education and learning, ICT can play a positive role in order to create a solution to develop knowledge and skills of technology among disabled people, and it is shown a positive sign of ICT services will give advantages to the disabled people (Prabha 2007 p. 90).

Nonetheless, ICT policies vary depending on the level of the country either the country is developed or developing country. Malaysia government has launched an ICT policy which known as National IT Agenda (NITA). NITA create a strategic framework to combat issues of accessibility and to create equity value of the people in Malaysia. In particular, Malaysians have Person with Disability Act 2008. This is a Law in Malaysia provided to protect disabled people rights. In this Act under Part Four it has stated clearly about the accessibility of disabled people towards ICT. Hereby, the Malaysian government has created one responsible department known as The Social and Welfare Department, which concern about the wellbeing of disabled people. This department will provide financial assistance for the disabled people in order to help them able to live independently. Hence, this paper is about to measure the reliability and validity among the factor of government initiative which is (policy, law and regulation, infrastructure, training and skills, and support organization) and assistive technology factor such as (experience, cost, training, knowledge, awareness) towards the factor that might create the digital divide (infrastructure, socioeconomic, expensive, awareness, amenities, and language).

In the research field, researchers will conduct a pilot study to the small scale of respondent which shared the same characteristic of real respondent or big scale of respondent (Gay, Mills & Airasian 2006). In this study researcher had conducted a pilot study to meet the objectives of reliability and validity of the instrument and to get a view into the real situation of the actual study. Thus, the researcher will able to make adjustments regarding the problems of the full research. A pilot study is very crucial because it will able to detect the weakness of the research design. In order to have the goodness of the data, a pilot study is the useful instrument testing and the result is established for the next data analysis in this study (Glenn, Anne, Lorne, & Sonya, 2003). At the end of this paper presents the result of pilot study regarding the factors which have caused the phenomenon of the digital divide among disabled people in Malaysia.

METHODOLOGY

This article is emphasizing on pilot study and in the progress of research about disabled people in Malaysia. The respondent of this study was randomly selected in the area of Kedah States. This is in line with the recommendation by Malhotra (2008) that the sample size for pre-test is normally small, ranging from 15-30 respondents. Meanwhile, according to Donald and Pamela (2003) appropriate sample size for conducting a pilot study may range from 25 to 100 respondents. Hence, the total of 40 copies of the questionnaire was personally distributed and only 30 were returned. The internal consistency of this reliability is measured using Cronbach's Alpha. Highly recommended according to Sekaran and Bougie (2010) Cronbach's alpha coefficient is a popular test of inter-item consistency reliability. In particular, the statistic provides an indication of the average correlation among all of the items that make up the scale. Values range from 0 to 1 with higher values indicating greater reliability. Reliabilities less than 0.50 are considered to be underprivileged, those in the 0.60 and 0.70 ranges are considered as conventional, and those over 0.80 are considered good questionnaires and reliable data. The data in this study were analyzed via SPSS version 21 for windows. Before the questionnaires for pilot study have to be distributed, the draft was submitted and discussed with the expert panel (professor and lecturer) during defence proposal session for content and face validity, meanwhile the questions have been shown to the typical respondent which are disabled people at the University Utara Malaysia to check the clarity of the questions. The questionnaires are covered by the consent letter of collection data from postgraduate school of UUM. The whole process took within the period of 4 months March till July 2014.

Instrumentation and Measurement of Variables

A close ended which is structured questionnaire of Likert scale 1 until 5 were distributed in the study. Most item of the questionnaire is targeted to measuring the digital divide phenomenon from the perspective of respondents. Likert-type scale are more appropriate and reliable (Alreck and Settle, 1995; Miller, 1991). The length scale is an important measurement of reliability the data and longer scale, such as 11 scales are not necessarily reliable for the data because it may cause confusing to the participants, indeed the scales of 5 lengths are more reliable (Darbyshire and McDonnalld, 2004). Even though, the respondent had their freedom to answer the question by sticking their answer at midpoint which is at scales number 3. According to Krosnick and Fabrigar (1997) and Schuman and Presser (1981) a midpoint scale will give respondent feel comfortable to express their feelings to answer the questions because the target respondent might not be educated and it is believed the midpoint scale will reduce the stress of respondent. Meanwhile, by giving the respondents midpoint chooses to answer it will help to reduced researcher bias and directly the quality of the data will increase.

Among the independent variables need to be examined in this study are: government initiative which is about (policies, law and regulations, infrastructure, training and skills and support organization) and other independent variables is assistive technology which is about (experience, cost, training provided, knowledge and awareness) and other independent variables is the demographic factor of respondent. Meanwhile, those are the variables to examine the dependent variables of the digital divide. Accordingly the questionnaire of this study is made up in four sections. In the first section consists the question of demographic factors, in section two consists 20 questions to measure government initiative. Meanwhile, in section three have 30 questions to measure the assistive technology. Next, in section four to measure the digital divide have 25 questions.

RESULTS OF VALIDITY AND RELIABILITY TESTS

Content, Face and Exploratory Factor Analysis Validity

The study needs, validity analysis to examine the data gather is valid for further analysis, and to publish the result. Meanwhile, according to Patton (2002) the validity or reliability is important either in qualitative or quantitative research. Through validity examination researcher can determine either the study is truly measured the objective and the question of their studies by the right measurement or not (Joppe, 2000, Hair, Black, Babin & Anderson, 2010). Similarly, the concept of validity in research or any studies have been discussed more than 60 years ago. Validity can be defined as to what extent the instrument measured what is supposed to measure and to the degree of the theory support the test scores (Validity, n.d.). In this study, researchers conducting face validity and content validity where the content have been checking through colloquium session, which attended by the professor, associate professor, doctorate and postgraduate student, and the instrument for this study have gone pilot study with the same characteristic in the real populations. According to Sekaran and Bougie (2010), indicated, the content and face validity should involve consultation with the expert panel in order to pass the suitability of the selected items to measure. Meanwhile, in this study, Exploratory Factor Analysis (EFA) validity have been analyzed to measuring the new theoretical framework of this study and factor analysis is used to clarify the dimensionality to interpret the data and reduced the underlying variables (Rietveld and Van Hout, 1993 p254). The EFA analysis has been conducted before the data have checked for cronbach alpha. It is shown; in table 3 the result of EFA while some of the overlapping factors have been deleted. Similarly, according to Darlington (2004) factor analysis is useful to organize and modified the questionnaire and the priority to the questionnaire are used include a lot of questions or variables.

Reliability Test

Reliability refers to whether an instrument is consistent, stable and free from error and it is crucial to determine consistency and stability of the data. The result of the study can be reproduced in the same methodology and will represent the population then it is considered the studies are reliable (Joppe (2000) in Nahid Golafshani (2003) p. 2). Moreover, the reliability is the concept of testing the quality of the result (Nahid Golafshani, 2003, p. 5). According to Sekaran and Bougie (2010), in general, reliabilities less than 0.50 are considered to be underprivileged, those in the 0.60 and 0.70 range are considered as conventional, and those over 0.80 are considered good questionnaires and reliable data. In other words, the closer Cronbach's alpha is to 1, the higher internal consistency reliability of the questionnaires. Similarly, according to Hair, Money, Samouel, and Page (2007) detect, generally researcher found out that the value of 0.70 as a minimum, however, lower coefficients of 0.50 are acceptable. After conducting reliability test data using SPSS version 21, researcher found that all variables possess a high reliability starting from 0.6 to 0.9. Table 1 shows the summary of the reliability results.

Moreover, in table 2 showed majority respondent is male than female. Given that this study is conducted in the states of Kedah. With regard to this study, respondent is unrestricted to the educational level and types of disabilities. This is in line with the majority the respondents are at the university and some of the respondents are at the secondary level and the rest is just primary school level. Meanwhile the respondent has mostly had an experience of using Information Communication Technology. This means that majority of the respondent have relevant experience to comment and answer the questions.

CONCLUSION

As noted earlier, this paper is aimed to measuring the reliability and validity of the instrument on an ongoing research towards large sample size. In particular, both validity and reliability were conducted which actually improved the questions in fact, the question is not in close ended after the meeting with panel and expert and input during meeting with the respondent for the pilot test. On the other hand, after collecting the data for the pilot test, researcher was conducted exploratory factor analysis and some of the factors were deleted through EFA analysis and the Cronbach Alpha is well known above 0.6.

REFERENCES

- [1]. Alreck, P.L., & Settle, R.B. (1995). *The survey research handbook*. Second edition, Boston: Irwin
- [2]. Derbyshire, P., & McDonald, H. (2004). Choosing response scale labels and length: Guidance for researchers and clients. *Australasian Journal of Market Research*, 12 (2), 17-26 Retrieved May 20, 2014 from <http://dro.deakin.edu.au>
- [3]. Darlington., R., B. (2004). Factor analysis. Retrieved December 6, 2014, from <http://comp9.psych.cornell.edu/Darlington/factor.htm>
- [4]. Department of Social Welfare (2005). Services for People with Disabilities, Kuala Lumpur: Legal and Advocacy Division.
- [5]. Department of Social Welfare (2006). Rehabilitation Centre for the Orthopaedically Handicapped. Center, Kuala Lumpur: Legal and Advocacy Division.
- [6]. Donald, R. C., & Pamela, S. S. (2003). *Business research method*. Singapore: Mc Graw Hill
- [7]. Gaye, L. R., Mills, G. E., & Airasian, P. (2006). *Educational research: Competencies for analysis and applications* (8th Ed.). Upper Saddle River, New Jersey: Pearson Educational International Inc
- [8]. Glenn, G., Anne, G., Lorna, M., & Sonya, O. (2003). *Reconceptualising the objectives of a pilot study for clinical research*. Retrieved January 12, 2015 from <http://www.journalofnursingstudies.com>.
- [9]. Golafshani., N. (2003). Understanding reliability and validity in qualitative research. *The Qualitative Report*. 8(4), 597-607. Retrieved September 20, 2014, from <http://www.nova.edu/ssss/QR/QR8-4/golafshani.pdf>
- [10]. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective*. London: Pearson.
- [11]. Hair, Jr., J. F., Money, A. H., Samouel, P. & Page, M. (2007). *Research methods for business*. Chichester: John Wiley & Sons Ltd.
- [12]. Joppe, M. (2000). *The Research Process*. Retrieved August 14, 2014, from <http://www.htm.uoguelph.ca/MJResearch/ResearchProcess/Validity.htm>
- [13]. Krosnick, J.A., & Fabrigar, L.R. (1997). Designing rating scales for effective measurement in surveys. In L. Lyberg, P. Biemer, M. Collins, E. De Leeuw, C. Dippo, N. Schwarz and D.Trewin (Eds.), *Survey measurement and process quality*. New York: John Wiley & Sons, Inc

- [14]. Malhotra., N. K. (2010). Marketing research: An applied orientation 6thEd. New Jersey: Pearson Prentice Hall.
- [15]. Miller., J., M. (n.d). *Reliability and validity*.Retrieved September 29, 2014, from http://www.michaeljmillerphd.com/res500_lecturenotes/reliability_and_validity.pdf
- [16]. Patton, M. Q. (2002). Qualitative evaluation and research methods (3rd Ed.). Thousand Oaks, CA: Sage Publications, Inc.
- [17]. Prabha. R. (2007). *Critical factors influencing employment of disabled persons in Malaysia*. PhD Thesis. University of South Australia. Retrieved January 18, 2014, from <http://ura.unisa.edu.au>.
- [18]. Rashid H., Syed. W.,A.,S., Sheeraz., A. & M., A.,S. (2011). Policy guidelines to bridging the digital divide for people with disabilities. *Journal of Basic and Applied Scientific Research*. 1(12), 2711-2716
- [19]. Rietveld, T. & Van, H., R. (1993). Statistical techniques for the study of language and language behavior. Berlin, New York: Mounton de Gruyter.
- [20]. Russell., & Huang., (2009). Libraries role in equalizing access to information. *Library Management*. 30 (1/2). pp 69-76
- [21]. Schuman, H., & Presser, S. (1981). Questions and answers in attitude surveys. New York: Academic Press.
- [22]. Sekaran, U., & Bougie, R. (2010). *Research methods for business: A skill building approach*. New York: John Wiley & Sons
- [23]. Sylvia., S. (2011). Staying safe while on the move: Exploring differences in disabled and non-disabled young people's perceptions of the mobile phone's significance in daily life. 19(1), 91-109. Retrieved October 21, 2014, from www.sagepub.com.eserv.uum.edu.my
- [24]. Validity. (n.d) Retrieved April 20, 2014, from <http://www1.appstate.edu>.
- [25]. WHO-ICF 2006, World Health Organization: International of Functioning, Disability and Health (ICF), United Nations, retrieved February 12 2014, from <http://www.who.int/classifications/icf/en>

APPENDIX

Table 1: The Summary of Reliability Analysis

<i>Variables</i>	<i>Factor</i>	<i>Number of items</i>	<i>Cronbach's Alpha</i>
Government initiative	Policy	4	0.926
	Law and regulation	4	0.899
	Infrastructure	4	0.661
	Training and skills	4	0.791
	Support organization	5	0.741
Assistive technology	Experience	8	0.865
	Cost	6	0.716
	Training	4	0.709
	Knowledge	6	0.909
	Awareness	6	0.885
Digital divide	Infrastructure	5	0.702
	Socioeconomic	4	0.882
	Expensive	3	0.838
	Awareness	4	0.705
	Amenities	4	0.677
	Language	3	0.845

Table 2(Part-I): Respondent Demographic Profile.

Demographic Variables		Frequency (N=30)	Percentage (%)
Gender	Male	16	53.3
	Female	14	46.7
Marital Status	Single	19	63.3
	Married	11	36.7
Race	Malay	26	86.7
	Chinese	3	10.0
	Indians	1	3.3
Religion	Islam	25	83.3
	Buddhism	3	10.0
	Christianity	1	3.3
	Hinduism	1	3.3
Occupation	Government	4	13.3
	Private	8	26.7
Age	Unemployed	18	60.0
	Under 21 years old	0	-
	21-30 years old	23	76.67
	31-40 years old	4	13.33
Education Level	41-50 years old	2	6.67
	51 years old and above	1	3.33
	Primary School	3	10.0
Education Level	Secondary School	12	40.0
	University or College	15	50.0

Table 2(Part-II): Respondent Demographic Profile

Demographic Variables		Frequency (N=30)	Percentage (%)
Location	Urban	16	53.3
	Rural	14	46.7
Types of disabilities	Blind	5	16.7
	Deaf and Dumb	5	16.7
	Physical	20	66.7
Information Communication Technology Tools	Computer, Smart Phone, Hand phone, Hearing aid, Jaws		
	Computer Software	18	
	None	12	

Table 3: List of the factor before and after EFA

Variables	Factors	Original Number of Questions	Retained Number of Questions
Government initiative	Policy	5	4
	Law and regulation	5	4
	Infrastructure	10	4
	Training and skills	6	4
	Support organization	6	5
Assistive technology	Experience	9	8
	Cost	7	8
	Training	5	4
	Knowledge	6	6
	Awareness	7	6
Digital divide	Infrastructure	6	5
	Socioeconomic	6	4
	Expensive	4	3
	Awareness	6	4
	Amenities	6	4
	Language	4	3