Indonesian Journal of Electrical Engineering and Computer Science
Vol. 15, No. 3, September 2019, pp. 1138~1143
ISSN: 2502-4752, DOI: 10.11591/ijeecs.v15.i3.pp1138-1143

An exploratory study of users' experiences with e-participation: a case study of Malaysia

Nasrah Hassan Basri[1], Wan Adilah Wan Adnan[2], Hanif Baharin[3]
[1]Department of Multimedia, Kolej Poly-Tech MARA Ipoh, Malaysia
[2]Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA Shah Alam, Malaysia
[3]Institute of Visual Informatics, Universiti Kebangsaan Malaysia Bangi, Malaysia

Article Info

Article history:

Received Mar 1, 2019
Revised Jun 10, 2019
Accepted Jul 22, 2019

Keywords:

e-participation
Evaluation
Public participation
Think aloud

ABSTRACT

The need to encourage citizens' adoption of e-participation services has prompted an expanding enthusiasm for the evaluation of e-participation websites. The achievement of e-participation websites depends intensely on how well it is perceived by the users. E-participation is a relatively new approach, so it is important to evaluate it deliberately, in order to comprehend it better, obtain more knowledge about it and distinguish the preferences and advantages it offers, and not to overlook its disadvantages so that we can improve it. Concerning evaluation, many researchers have concentrated on infrastructure and technical issues without giving more attention to user experience as one of the core elements impacting the success or failure of e-participation websites. This paper evaluated e-participation module that located in Malaysia e-government website by utilizing think-aloud method. Think-aloud was being utilized to gauge the perceptions of citizens in their use of e-participation.

Corresponding Author:

Nasrah Hassan Basri,
Department of Multimedia, Kolej Poly-Tech MARA Ipoh,
No. 154295, Wisma SSI, Jalan Sultan Abdul Jalil,
Greentown, 30450 Ipoh Perak, Malaysia.
Email: nasrah@gapps.kptm.edu.my

1. INTRODUCTION

Over the years, the rapid developments in information and communication technologies (ICTs) have essentially influenced almost all aspects of human's daily life. The overwhelming advancements of ICTs have created the so called "electronic" dimension, resulting in paradigm shifts related to business, governance and education. This digital means of communication also impacted on how government delivers information and services to the citizens by having e-government. One of the components in e-government is e-participation that allows active participation between citizens and the government. Several studies had been conducted to evaluate the accessibility and usability of e-government in general [1-4] but not the e-participation.

In [5], defines citizen participation as "the process through which stakeholder influence and share control over priority setting, policymaking, resource allocations and access to public goods and services". As indicated by [6], e-participation refers to the use of ICTs to support information provision and "top-down" engagement or "ground-up" efforts to empower citizens, civil society organizations and other democratically constituted groups to gain the support of their elected representatives. In [7], states that with the assistance of latest technology developments, e-participation aims to support active citizenship, increasing access to and availability of participation in order to promote fair and efficient society and government.

E-participation is thought to be a fundamental component making a good e-democracy by helping people getting involved in politics and policy-making [8]. These citizen-government interactions likewise

empower new forms of collaboration where governments outline aggregate activity around particular issues and citizens will then initiate their own actions towards those issues [9, 10].

Despite the initiatives of many countries in adopting e-participation, there do not pay corresponding action in evaluating these efforts [11]. Similarly, [12] argue that the evaluation of both offline and online participation is still new and needs significantly further research. In [13], presumes that from their extensive literature on e-participation, there is a lack on both evaluation studies and established evaluation methodologies. In [14], likewise concur that the citizen online participation is the less evaluated concept of e-government websites. In [15] also agreed that evaluation is required to determine whether and to what extent an e-participation does contribute to enhancing democracy.

This study discusses about the interaction experience of Malaysia e-participation module resides in e-government website. This paper commences with the application of the data collection method and concludes with a discussion on findings, limitations and further research.

2. RESEARCH METHOD

In this study, a concurrent think-aloud method was used in order to gain insights of users' thought during the interaction with the e-participation website. Concurrent think-aloud method is one of the most common think-aloud protocols used in identifying usability problems [16]. Both [17, 18] applaud thinking aloud method as the most valuable usability evaluation method. This method permits the end user to thinking out loud while using system [19]. By verbalizing their thoughts, it enables the researchers to capture and understand how users view and interpret the system [20, 21]. A study conducted by [22] also proves that by thinking aloud, the participants can directly and efficiently verbalize any problems encountered from the interface design itself.

A concurrent think-aloud method adapted from [19] was used in this study as it keep the interactions between researcher and participants to a minimum as not to interfere their feedback during the session. The only intervention occurred during the session was the phrase "keep-talking" when researcher noticed that participant was kept silenced for quite some time. The think-aloud protocol used in the study was piloted with two undergraduate college students who had no experience with this method before.

The concurrent think-aloud session was carried out individually in a laboratory setting at Kolej Poly-Tech MARA Ipoh. Ten participants were selected on a voluntary basis among academic and non-academic staffs and a remuneration tokens were given to them after they finished their session. To begin with, each participant read the information sheet given to them and gave their written consent in participating in the study. They also completed a brief questionnaire on their demographics details. Following this, the think-aloud instructions were read out loud by the researcher in order to confirm their understanding. After that, a brief demonstration on the think-aloud method was presented to them by the researcher. This was done as a warm-up exercise so that the participant will be more comfortable especially in the presence of others [23]. Once done, the participant started to browse freely the Malaysia e-government portal (https://www.malaysia.gov.my). No particular tasks were given to the participant but they need to also browse the e-participation module contains in the website. The session lasted for about 15 minutes for every individual and each verbal utterance were recorded in by using audio recording device. Figure 1 underneath illustrated the basic think-aloud protocol that were used in the study.

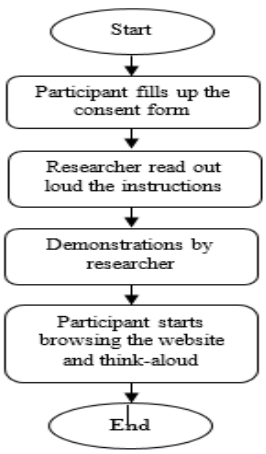

Figure 1. Flow chart of the think-aloud protocol conducted in the study

3. RESULTS AND ANALYSIS

3.1. Demography

Demographics data were collected to provide a general description of the participants while questionnaire on Internet-use behavior was used to gain insight on their Internet use, knowledge and habits. A summary of the demographics data is presented in Table 1.

Table 1 depicts the demographics profiles of the participants involved in this study. Altogether ten people participated in the think-aloud session (5 male and 5 female) with an average age of 33 years old (*STDEV* = 4.85). As stated by [24] it is possible to find about 75% of the usability problems by running only with small number of participants. Half of the participants held a master degree (50%) while one participant was a bachelor's degree holder.

Table 1. Demographics Profiles of the Participants

Age	Mean	Minimum	Maximum	STDEV	Total
	33	27	40	4.85	10
Gender	Male 5 (50%)			Female 5 (50%)	
Highest Level of Education			Total		
Diploma			4 (40%)		
Bachelor			1 (10%)		
Master			5 (50%)		

3.2. Internet-use Behavior

The following Table 2 shows the descriptive statistics of Internet-use behavior of the participants involved in this study.

Table 2. Descriptive Statistics of Internet-use Behavior

Years of Internet use	More than 5 years (100%)	
Internet connection at home	Yes 9 (90%)	No 1 (10%)
*Access to Internet**	Total	
Home	9 (90%)	
Work	10 (100%)	
Library	7 (70%)	
Café	6 (60%)	
Other	2 (20%)	
*Devices used**	Total	
Desktop	8 (80%)	
Laptop	7 (70%)	
PDA	-	
Mobile phone	10 (100%)	
Other	1 (10%)	
Internet use frequency	Total	
Weekly	-	
2 – 3 times a week	-	
4 -6 times a week	-	
Daily	5 (50%)	
2 – 3 times a day	-	
More than 3 times a day	5 (50%)	
Internet use duration	Total	
Less than 5 minutes	-	
6 -15 minutes	1 (10%)	
About 30 minutes	2 (20%)	
About 1 hour	2 (20%)	
Several hours	5 (50%)	
*Purpose of using Internet**	Total	
Email	10 (100%)	
Reading news	8 (80%)	
Online shopping	9 (90%)	
Social networking	10 (100%)	
Searching for study-related or work-related information	9 (90%)	
Surfing the web	9 (90%)	
Downloading or file sharing	9 (90%)	

* Participants were allowed to choose more than one option

From the Table 2, all of the participants (100%) have been using the Internet for more than five years and nine of them (90%) do actually have Internet connection at home. As all of them are working, their access to the Internet is 100% at work and all agreed that mobile phone is their chosen device to access the Internet. It is worth mentioning that in some of the questions, the participants had the liberty to choose more than one option as stated in the questionnaire.

3.3. E-government-website-use Behavior

The e-government-website use behavior of participants was also accessed in order to gain insight to their habits when it comes to interaction with e-government website. A summary of the analysis is presented in Table 3.

Table 3. Descriptive Statistics of E-government-website use Behavior

Ever visited e-government website before?	Yes 9 (90%)	No 1 (10%)
E-government website visits frequency	Total	
Weekly	9 (90%)	
2 – 3 times a week	-	
4 -6 times a week	-	
Daily	-	
2 – 3 times a day	-	
More than 3 times a day	-	
E-government website use duration	Total	
Less than 5 minutes	2 (20%)	
6 -15 minutes	6 (60%)	
About 30 minutes	1 (10%)	
About 1 hour	-	
Several hours	-	
Participation in any forum/poll/policy making in the e-government web site	Yes 1 (10%)	No 9 (90%)

Nine participants (90%) have visited e-government website before but only one (10%) participated in any forum/poll/policy making in the website. Nine participants (90%) reported of browsing the e-government website on weekly basis and majority of them (60%) spend about 6 to 15 minutes on e-government website.

3.4. Analysis of the Think-aloud Data

The think-aloud data were analyzed thematically to look for units of thought. This was done manually in an iterative manner to look for consistency of the code. As a result, 61 units of thought were identified and classified into main themes and sub themes. There are three main themes; content, design and information architecture and summarized as in Table 4.

Table 4. Categories of Main Themes and Sub Themes

#	Main theme	Sub themes
1.	Content	Information content Language Relevancy Updated information
2.	Design	Layout Selection of font, images Background/Foreground
3.	Information Architecture	Navigation Scheme Link button/text

Out of the three main themes, 59% (36 units) were referred to content while 16.4% (10 units) referred to information architecture. These findings are in line with the previous study conducted by [25] which saw that information or content is one of the crucial factor in designing e-government website.

4. CONCLUSION

This study provides insights into users' experiences with Malaysia e-government generally and e-participation module in particular. Due to the planning of not setting initial tasks to the participants, they figured out how to browse the website freely and reported genuinely verbal comments.

Demographic results showed that all participants were experienced users of the Internet and thus having no problem in participating in this study. Think-aloud method proved to be one of the powerful tools to gain insights into users' experience in interaction with a website. Findings of this study suggest that the content of a website plays an important role in engaging the user especially when it comes to e-participation as the content should be regularly updated. The number of problems encountered in this small scale study also show that people are still experiencing problems when using website.

A limitation of this study is that it the sample size used in this study was sufficient for the purposes of this study and allowed reasonable conclusions to be drawn but it cannot be considered representative of all e-participation users in Malaysia. More representative samples within Malaysia can be considered for the next study to strengthen the current findings. Future research may also extend into other agencies that offer e-participation to cover a wider evaluation.

ACKNOWLEDGEMENTS

The authors would like to record our sincere thanks to Universiti Teknologi MARA for the financial support. The authors are also thankful to Kolej Poly-Tech MARA Ipoh for providing at no charge the laboratory facilities that were used in this research.

REFERENCES

[1] Isa, W. A. R. W. M., Suhami, M. R., & Safie, N. I. (2010). Evaluating the Accessibility of Malaysia E-Government Website.
[2] Isa, W. A. R. W. M., Suhami, M. R., Safie, N. I., & Semsudin, S. S. (2011). Assessing the Usability and Accessibility of Malaysia E-Government Website. *American Journal of Economics and Business Administration*, *3*(1), 40–46.
[3] Latif, M. H. A., & Mohamad Noorman Masrek. (2010). Accessibility Evaluation on Malaysian E-Government Websites. *Journal of E-Government Studies and Best Practices*, *2010*.
[4] Huang, Z., & Benyoucef, M. (2014). Usability and credibility of e-government websites. *Government Information Quarterly*.
[5] World Bank, (2001). Poverty Reduction Source Book, Vol. 1, World Bank.
[6] Macintosh, A., & Whyte, A. (2008). Towards an evaluation framework for eParticipation. *Transforming Government: People, Process & Policy*, *2 (1)*, 16–30.
[7] Sæbø, Ø., Rose, J., & Skiftenes, L. (2008). The shape of eParticipation : Characterizing an emerging research area. *Government Information Quarterly*, *25*, 400–428.
[8] Vrabie, C. I., & Tirziu, A.-M. (2016). E-participation - a Key Factor in Developing Smart Cities.
[9] Panagiotopoulos, P., Ziaee, A., & Sams, S. (2014). Citizen – government collaboration on social media : The case of Twitter in the 2011 riots in England. *Government Information Quarterly*, *31*(3), 349–357.
[10] Warren, A. M., Sulaiman, A., & Jaafar, N. I. (2014). Social media effects on fostering online civic engagement and building citizen trust and trust in institutions. *Government Information Quarterly*.
[11] E.Loukis, & Charalabidis, Y. (2010). An evaluation framework for e-participation in parliaments. *International Journal of Electronic Governance·*.
[12] Macintosh, A., & Whyte, A. (2006). Evaluating how eParticipation changes local democracy.
[13] Rose, J., & Sanford, C. (2007). Mapping eParticipation Research : Four Central Challenges. *Communications of the Association for Information Systems*, *20*(Article 55).
[14] Panopoulou, E., Tambouris, E., & Tarabanis, K. (2008). A framework for evaluating web sites of public authorities. *Aslib Proceedings*.
[15] Aichholzer, G., & Westholm, H. (2009). Evaluating eParticipation Projects : Practical Examples and Outline of an Evaluation Framework. *European Journal of EPractice*.
[16] Olmsted-Hawala, E. L., Murphy, E. D., Hawala, S., & Ashenfelter, K. T. (2010). Think-Aloud Protocols : A Comparison of Three Think-Aloud Protocols for use in Testing Data-Dissemination Web Sites for Usability.
[17] Hvannberg, E. T., Law, E. L., & Larusdottir, M. K. (2007). Heuristic evaluation : Comparing ways of finding and reporting usability problems. *Interacting with Computers*, *19*, 225–240.
[18] Nielsen, J., Clemmensen, T., & Yssing, C. (2002). Getting access to what goes on in people's heads? Reflections on the think-aloud technique.
[19] Ericsson, K. A., & Simon, H. A. (1980). Verbal reports as data. *Psychological Review*, *87*(3), 215–251.
[20] Someren, M. W. van, Barnard, Y. F., & Sandberg, J. A. C. (1994). *THE THINK ALOUD METHOD A practical guide to modelling cognitive processes*.
[21] Haak, M. van den, Jong, M. De, & Schellens, P. J. (2003). Retrospective vs. concurrent think-aloud protocols : Testing the usability of an online library catalogue. *Behaviour & Information Technology*, *22*(5), 339–351.

[22] Majid, R. A., Hashim, M., & Jaabar, N. A. A. (2014). An evaluation on the Usability of E-Commerce Website using think aloud method.
[23] David W. Eccles & Güler Arsal (2017). The think aloud method: what is it and how do I use it? Qualitative Research in Sport, Exercise and Health, 9:4, 514-531.
[24] Nielsen, J. (1994). Estimating the number of subjects needed for a thinking aloud test. *International Journal of Human-Computer Studies*, *41*, 385–397.
[25] Basri, N. H., Adnan, W. A. W., & Baharin, H. (2018). A Comparative Study on E-Government Website Design between Malaysia and United Kingdom.

BIOGRAPHIES OF AUTHORS

Nasrah Hassan Basri. Senior lecturer at Department of Multimedia, Kolej Poly-Tech MARA Ipoh, Malaysia. Currently, a PhD candidate at Universiti Teknologi MARA, Shah Alam, Malaysia.

Assoc Prof. Dr. Wan Adilah Wan Adnan. Senior lecturer at Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA, Shah Alam, Malaysia. Her research interest is Human Computer Interaction related research with particular interest in information visualization and personalization. The focus is on the user-centered design and evaluation of artifacts that concerns with users' perceptual and cognitive abilities and limitations.

Dr. Hanif Baharin. Research fellow at the Institute of Visual Informatics, Universiti Kebangsaan Malaysia (UKM) (also known as National University of Malaysia). His research interest lies in Internet of Things (IoT) and the exploration of digital technology in art.