Factors that affect the use of Malaysian e-learning websites by visually impaired users in the transfer of Islamic knowledge

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Abstract

Aim: The study's overarching goal is to learn what factors influence VIUs' adoption of e-Learning platforms and how those platforms are used to impart knowledge. However, the focus of this paper is on the use of e-Learning websites in Malaysia to transfer Islamic knowledge to

Method: This research utilized a qualitative strategy based on in-depth interviews. The survey received responses from 14 very important users (VIUs), 14 knowledge providers (KPs), and 13 service providers (SPs) at 15 different Malaysian institutions and organizations. Results from the survey were analyzed using a thematic approach with an inductive methodology.

Findings: Based on the interviews, VIUs came up with four factors that influence how visually impaired people in Malaysia use e-Learning websites to learn about Islam. Social media, user experience, information and communication technology (ICT) infrastructure, government, and non-profit aid play a role.

Implications/Novel Contribution: The research presented in this paper can be used to improve Islamic education on e-Learning platforms currently available in Malaysia.

Key Words: Visually Impaired Users, Islamic Knowledge, e-Learning Websites

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INTRODUCTION

E-learning, or "online learning," is a form of education conducted and disseminated entirely through computers and other forms of networked technology (Bell and Federman, 2013; Munezero et al. 2016). E-Learning has grown in popularity as information and communication technologies (ICT) have become the norm in modern life (Xanthidis, Wali, and Nikolaidis, 2013). This is because every user's circumstances surrounding their disability are unique, and e-Learning websites must account for the constraints posed by these individual differences. Yet, the VIUs are the primary focus of our paper. Learners with VIUs are legally blind because they have a better-eye visual acuity of 6/60 or less and/or a visual field of fewer than 10 degrees (Retina Australia 2012). As a result, it is important to determine what factors influence the dissemination of Islamic education via online platforms. This paper aims to present the results of a case study on the factors that influence VIUs, SPs, and KPs in Malaysia's use of e-Learning websites for Islamic KT. This is followed by a brief literature review, which includes creating a list of potential factors for EIKT to VIUs via e-learning websites; a discussion of the methodology; the results; and a conclusion. The paper ends with a conclusion. This paper aims to present the results of a case study on the factors that affect Islamic knowledge transfer via e-learning websites in Malaysia to VIUs based on the perspectives of VIUs, SPs, and KPs. A brief literature review follows, covering topics like developing a list of potential factors for Effective Islamic KT (EiKT) to VIUs via e-Learning websites; the discussion of methodology is next; the results and discussion follow; and finally, conclusions are drawn. At last, a summary of the paper's findings is provided.

Islamic Knowledge Transfer

Knowledge in this paper is defined and scoped to include the Islamic knowledge resources which are made available for VIUs via the e-Learning medium which can be made use of and applied by the e-Learning website

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users. While much has been written about the use of e-Learning as a tool in teaching the impaired people, there have been limited researches which are explicitly focused on Islamic knowledge (courseware content development process) for VIUs (Zheng et al. 2012). Knowledge Transfer (KT) is the sharing of knowledge with the receivers in order to fulfil the receivers knowledge needs (Hasnain, Jasimuddin, and Fuller-Love 2016).

The importance of KT is to multiply knowledge quickly in order for knowledge to reach a large group of people on time (Lindkvist 2005; Choi, Lee, and Yoo 2010). As a result, KT is based on the absorptive capacity of an individual and his motivation to share knowledge. Islamic KT as defined for this paper is the process through which the sources of Islamic knowledge are exchanged between providers and receivers through the knowledge management (KM) medium (e-Learning). Even though, e-Learning is being used as a medium of learning for people with impairments, Zheng et al. (2012) stated that there are limited researches specifically focused on the development of Islamic knowledge courseware for the VIUs. However, Abdullah et al. (2011) mentioned that the effectiveness of Islamic KT model can be realized if the purpose for which the website was developed is fully achieved.

Conceptual Model of EiKT for VIUs in E-Learning

However, many users with physical disabilities, especially those with a vision impairment problem, find e-Learning a significant barrier because most e-Learning sources are designed for sighted users and rely heavily on complex visual images and interactive features (Permvattana, Armstrong, and Murray 2013). This study aims to develop an EiKT model for VIUs by adapting the effective KT in the e-Learning model proposed by Abdullah et al. (2011) to better understand the factors that influence Islamic KT for VIUs when using e-Learning websites (Saowapakpongchai and Prougestaporn, 2012). This model was selected because of its potential for use in e-Learning and its ability to pinpoint the factors that impact online education platforms. To determine which variables impact the knowledge receiver, the knowledge to be transferred, and the medium of KT, the researcher has expanded the application of Abdullah et al. (2011) .'s model. The suggested conceptual model is shown in Figure 1.
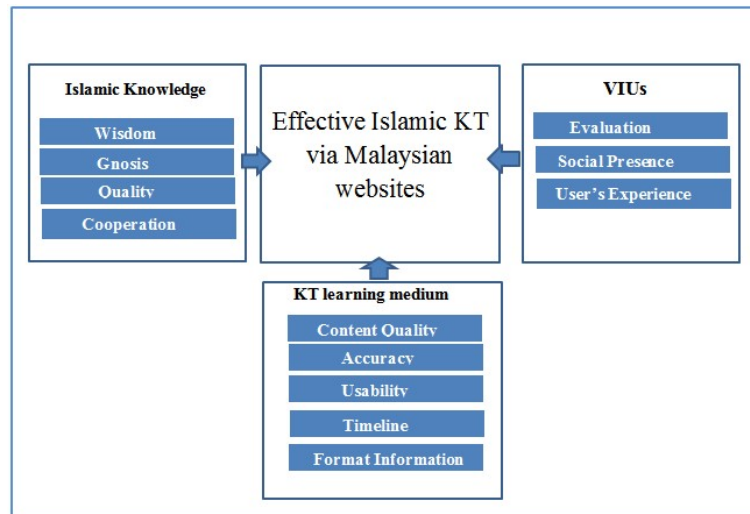

Figure 1. The proposed conceptual model of the study, EiKT for VIUs in e-Learning

This theoretical framework was developed by drawing on a wide range of related literature that explores the issues and ideas that have been brought up. The factors, descriptions, and connections to the existing literature are presented in Table 1.

Table 1: Potential factors for Islamic KT to VIUs through e-learning websites

Groupings and Factors	Description	Associated Concepts & Authors
Mobile learning development	A mixture of online learning and learning using materials previously downloaded onto handheld devices helps to reduce costs and the inconvenience of signal disruption.	(Attewell 2005; Butean et al. 2015)
Format Information (Nganji 2012; Rebaque-Riva, Gil-RodrIguez, and Manresa-Mallol 2013)	Ability to change the face, font type and size of interface and have control over the e-Learning website.	
ICT Skills	A person's belief in his capability to effectively use technology to improve learning or teaching.	(Luskin and Hirsen 2010; Permvattana et al. 2013)
E-learning Quality	Transfer of credible knowledge effectively and efficiently in a specific time according to the official standards required.	(Hammoudeh 2016; Simonson et al. 2012)
ICT Infrastructure	The e-Learning websites should have appropriate supporting ICT infrastructures.	(Hussain 2004; Al-Sobhi, Weerakkody, and Al-Busaidy 2010; Karunasena, Deng, and Zhang 2012)
Usability	Usability is the ease of use of an e-Learning website for the VIUs. Adaptive, rehabilitative and assistive devices and processes for locating, selecting and helping in providing support for people with different disabilities through allowing them in accomplishing different tasks. Audio, textual and audio-visual content that users experience when using websites and they include videos, sounds, images, text and animations.	(Bocconi et al. 2007; Schulze and Kromker 2010; Saowapakpongchai and Prougestaporn 2012)
Accuracy	Islamic knowledge content provided on e-Learning websites should meet the VIUs needs and expectations.	(Wang and Strong 1996; Ordonez 2014)
Timeliness	The extent to which Islamic knowledge is being regularly updated.	(Reimann 2009; Luskin and Hirsen 2010; Ordonez 2014)
Accuracy	Islamic knowledge content provided on e-Learning websites should meet the VIUs' needs and expectations.	(Wang and Strong 1996; Ordonez 2014)
Gnosis	Knowledge from experience especially experience of divinity or that which is beyond the five senses.	(Hassan et al. 2014)
Content Quality	The way content is exhibited and presented which will help in achieving easy reading and understanding.	(Abdullah et al. (2011); Simonson et al. 2012; Saowapakpongchai and Prougestaporn 2012)
Wisdom	Selecting the right way to transfer Islamic knowledge to VIUs depending on a suitable way according to their needs and ability, and total insight and having sound judgment concerning a matter or situation through understanding cause and effect phenomena	(Walker and Christenson 2005; Burhan 2012; El Garah et al. 2012)
Co-operation	Implementation of Islamic teachings on e-Learning websites should be carried out with love and affection. Islamic preaching on love and affection should be encouraged and impacted in the daily lives of users.	(Buzzi, Mori, and Buzzi 2012)

Table 1: (Continue) Potential factors for Islamic KT to VIUs through e-learning websites

Groupings and Factors	Description	Associated Concepts & Authors
Social Presence	VIUs' perception of being in and belonging in an online course. An instance of a higher degree communication medium is the video while that of a lower degree communication medium is the audio. People with the same interests coming together to share knowledge regularly.	(Russo and Benson 2005; Lowenthal 2009)
User experience	User experience is the level of positive or negative feelings which a specific user is experiencing in a particular setting during and after a product use which will propel a user for further usage.	(Betts et al. 2015; Beauregard et al. 2007; Hassenzah 2008; Johnson, Gueutal, and Falbe 2009; Schulze and Krumker 2010; Chu and Chu 2010; Ordonez 2014)
Awareness Creation	The e-Learning websites should have appropriate supporting ICT infrastructures.	(Al-Sobhi et al. 2010; Karunasena et al. 2012)
Government and voluntary Support	Provision of support in terms of development of ICT infrastructures and funding by government and voluntary organizations.	(Schwester 2009; Al-Rashidi 2013)
Evaluation	Tasks should comply with guidelines and standards and provide feedback on all sections of the e-Learning environment.	(Luskin and Hirsen 2010; Permvattana et al. 2013)
E-learning Experience	Providers of knowledge must be experienced and vast to impact effective knowledge through e-Learning.	(Cooper, Lichtenstein, and Smith 2006)
Motivation	Giving motivation and incentive to users so that they will be able to make use of the website by providing ICT infrastructures and assistive technologies that can be bought at a reduced price for the VIU.	(Faghih et al. 2013; Junus et al. 2015)
Perceived Enjoyment	Perceived enjoyment is related to perceived satisfaction as the enjoyment of any particular task will lead to satisfaction. Perceived enjoyment is influenced by perceived usefulness and self-efficacy.	(Liaw, Huang, and Shen 2007; Junus et al. 2015).

METHODOLOGY

A semi-structured interview was conducted individually with 41 participants that consisted of 14 VIUs, 13 SPs and 14 KPs. Respondents that partook in this study were from Malaysian organizations which are: Malaysian Association for Blind (MAB), Society of the Blind in Malaysia (SBM), Persatuan Orang Cacat Penglihatan Islam Malaysia (PERTIS), Setapak Blindness Special Education Secondary School (SMPK), Ministry of Education (MOE), Jabatan Kemajuan Islam Malaysia (JAKIM), Universiti Kebangsaan Malaysia (UKM), International Islamic University Malaysia (IIUM), Universiti of Malaya and Teachers Training Institute for the Blind.

VIUs refer to the people who are legally blind or have vision impairment and as a result make use of assistive technologies to make use of the computer, internet or e-Learning websites. The SPs refer to the organizations or companies that provide and manage the e-Learning websites through which Islamic knowledge (such as Hadith, Tawhid, Islamic economy and finance) is learned and transferred to users (VIUs). The KPs include the lecturers and teachers who teach users and impact knowledge to them.

The author asked each group of respondents direct questions regarding the factors that affect the use of e-Learning websites as a medium of KT for VIUs. Data obtained from interview were classified according to the three groups of respondents. As the sample size used was small, the data analysis was done manually and the shared factors from all groups of respondents were stated. The interview transcripts were then analyzed, using inductive thematic techniques (Boyatzis 1998; Braun and Clarke 2006; Azizan 2011). The potential factors were available to seed this analysis, supplemented with the outcomes of the thematic analysis which allowed the researchers to code category names that emerged from the data.

JARSSH

RESULTS AND DISCUSSION

This section shows the response of participants on the factors that affect the use of e-Learning for obtaining Islamic knowledge by VIUs. The factors stated are presented below according to the group of respondents.

Visually Impaired Users (VIUs)

Drawing upon analysis of the interviews, VIUs have identified four factors that affect the visually impaired user's usage of Malaysian e-Learning websites for obtaining Islamic knowledge. The factors include social presence, user experience, ICT infrastructure, government and voluntary support.

VIUs - Social Presence

E-learning websites should allow users to be able to communicate, share knowledge and form online communities for all users to interact with one to another. Online communities should be developed through which the users of an e-Learning website can communicate, provide assistance, share and transfer knowledge and share a sense of belonging from one to another. It is a critical influence on VIUs' online social interaction in an e-Learning website via computer-mediated communication systems. "Create a community that includes intimate social relationships to assist us to communicate, understand, belong, respect and share knowledge is important" (VIU_1: Chairman of Youth Development Committee).

VIUs - User Experience

Knowledge and information should be easy to access even through the use of screen readers in order to increase user experience of the VIUs. It is defined as the level of negative or positive feelings that a user experiences during the usage of an e-Learning website which can increase his motivation to continue making use of the website. User experience is important during the design of e-Learning websites for VIUs. It consists of a number of criteria such as components of users' interaction with websites and their reactions to websites by which a website should be evaluated. "Like I mentioned before, through the screen reader, we can test information in real time, so we can get information easily. Compare to books which are very thick. In order for us to read books, we need to scan. It is more difficult, but from website, we can access the knowledge in the real time" (VIU_1: Chairman of Youth Development Committee).

VIUs - ICT Infrastructure

Basic ICT infrastructure such as fast internet access, development of software and assistive technologies should be made available to e-Learning website users. It should function properly and respond quickly to assist users to be able to access knowledge easily and make use of the knowledge resources available on the e-Learning websites. "We have JAWS and other voice synthesizer. We are talking about technology. We started using JAWS and DUXBURY. DUXBURY is used to transfer normal printing to braille printing. That's Duxbury software. Also there is a machine that duplicates and converts diagram" (VIU_8: Lecturer).

VIUs - Government and Voluntary Support

This refers to an individual, group or organization that provides services to VIUs for no financial gain. Volunteering is also renowned for skill development, and is often intended to promote goodness or to improve human quality of life. Volunteering may have positive benefits for the volunteer as well as for the person or community served. "And most of us in rural areas do not have the facilities. So that is our problem; facilities. Government support for our group is very important" (VIU_11: Chairman of Planning and Monitoring).

Service Providers (SPs)

Six factors have been identified by SPs as factors that affect the use of e-learning website for Islamic knowledge by VIUs in Malaysia. These factors are user experience, social presence, e-learning experience, awareness creation, government, voluntary support, funding and evaluation

SPs - User Experience

The process of getting skills by using e-Learning website from doing, seeing and feeling to acquire Islamic knowledge. "We make use of all the media, meaning they can't see, they can't read from the screen, so you have to add the software, the interface for them to focus on voice, to produce the sound for them to hear. That's the basic; at least, you can do to have that kind of software. So when browsing the internet, they can hear what the internet is talking about" (SP_4: Director of ICT).

SPs - Social Presence

VIUs should have the feeling of social presence as this is a critical influence on VIUs' online social interaction in an e-Learning website via computer-mediated communication systems. "A community should be created that includes intimate social relationships to assist VIUs to communicate, understand, belong, respect and share knowledge and information or news" (SP_2: IT Instructor).

SPs E-Learning Experience

This refers to how VIUs feel about using e-Learning websites. Providers of knowledge must be experienced and vast to impact effective knowledge through e-Learning. Experience is needed to transfer Islamic knowledge to VIUs especially through an online medium. "We must get the people who do these sorts of things. Say e-Learning, I mean some have done that. Experience is very important. You can learn from them from the experience. So we can avoid the mistakes that they have made in order to develop these sorts of websites" (SP_4: Director of ICT).

SPs - Awareness Creation

The ability to perceive, to feel, or to be conscious of events, objects, thoughts, emotions, or sensory patterns. "If I buy a piece of equipment, I go to the website and download a menu and read. Because the standard printing is something I cannot access, I can access electronic data so this is what I do when I go on internet. Then, I download the menu and read from there because we have gadgets that can read electronic data" (SP_9: Administrator).

SPs - Government, Voluntary Support and Funding

Providing government or voluntary funding from organizations for VIUs can been supportive and productive. All necessary support in terms of financial, social, physical and moral should be given to the VIUs. Government should provide money and support for the development of software to help VIUs to make use of e-Learning websites. The government should also invest more funds to get experts who can help in the development of the needed software. "The government must work hand in hand to support each other. The ideas keep coming in to improve and such. The environment that encourages you to do what you want to do. You want to come up with the software for the blind so if your boss doesn't like it. The people call you, this is wastage. Something like that. You won't get the will to do it. Then of course, the next one will be the political will. You understand politics. We must first of all have more funds. More money must be invested to get this expertise, the resource of the powerful, machine competence to develop the software" (SP_4: Director of ICT).

SPs - Evaluation

The determination of the importance, effectiveness, worth, assessment of performance of an e-learning website is important for the VIUs to be able to carry out in order to facilitate the use of the websites for Islamic knowledge transfer. It addresses the issue of feedback to the website. "The e-learning websites should match the VIUs' expectations and needs" (SP_9: Secretary, Administrative and Management Section). "The methods being used to transfer knowledge via this website should adopt a wise and intelligent way based on Islamic values and principles; for instance, they should let us know about courses available in our country; make known for us, the available opportunities for learning, sponsors program for learning Islamic knowledge and things like that should be made available. Also, as we are facing so many problems and we have so many questions, we need someone that can answer our questions as soon as possible on these e-learning websites"(SP_7: Community Head).

Knowledge Providers (KPs)

KPs have identified two factors based on factors that affect the VIUs' usage of e-Learning websites for Islamic knowledge in Malaysia. The factors identified are user experience and social presence.

KPs - User Experience

The use of software such as voice recognition software by VIUs to communicate with the e-Leaning websites. That is designed to help them to be able to make use of e-Learning websites. The incorporation of voice recognition or voice commands into the websites helps VIUs in using the websites for searching for topics or information. "Through my experiences, I mean working with visually impaired students, the main challenges regarding the websites are their accessibilities, effective navigations, and their match with visually impaired screen readers software. According to visually impaired, their screen readers such as JAWS cannot work in some websites which indicate the website has not followed the W3C and is not disabled friendly" (KP_9: Research Assistant) (W3C 2006).

KPs - Social Presence

Knowledge sharing should be encouraged especially outside an online setting to improve social presence of website users. Seminars and community for knowledge sharing should be developed. This will assist in increasing the social presence for the VIUs. Training sessions for VIUs to interact, learn and share experiences are important towards EiKT. "I think video for the VIU will have a big impact rather than images because in the movies even though you close your eyes, you can imagine what is happening with some sound. So I think even though, they cannot see but I think they can imagine. We should capitalize on video because video allows them to use other senses to imagine rather than audio alone which could be monotonous and tiring sometimes" (KP_8: Director for Teaching and Learning Technology). Table 2 shows the factors that affect the use of e-Learning websites by VIUs according to VIUs, SPs and KPs

Table 2: Factors that affect the use of e-learning websites by VIUs according to VIUs, SPs and KPs

VIUs	SPs	KPs
VIU_F1 - Social Presence	SP_F1 User's Experience	KP_F1 User's Experience
VIU_F2 - User Experience	SP_F2 Social Presence	KP_F2 Perceived Enjoyment
VIU_F3 - ICT Infrastructure	SP_F3 Experience	KP_F3 Social Presence
VIU_F4 - Government and voluntary support	SP_F4 Awareness Creation	
	SP_F5 Government, voluntary support and funding	
	SP_F6 Evaluation	

Discussion

There are two shared factors identified from VIUs, SPs and KPs which are social presence and user experience. One factor was identified by VIUs and SPs only as the factor that affects the use of e-Learning website by VIUs which is government and voluntary support. Other factors identified by respondents include ICT infrastructure, perceived enjoyment, experience, awareness creation and evaluation. User experience can be a positive experience if the users can navigate the website easily, easily accessible, high quality of Islamic knowledge content, understanding the needs of the users and good presentation of contents (Petrie and Bevan 2009).

Liaw and Huang (2013) from their findings identified that perceived user's satisfaction may be affected by the kind of interactive learning environment being used, the interactive learning environments, perceived self-efficacy, and perceived anxiety. They also found that perceived enjoyment is related to perceived satisfaction due to the fact that the enjoyment of any particular task leads to satisfaction.

Extant literatures identified the importance of availability of ICT infrastructure capability, user's ICT literacy to the achievement of KT (Cooper et al. 2006; Azizan 2011). Awareness should be created on the availability of e-Learning facilities for VIUs' accessibility and development of technologies that can be used with e-Learning

websites. Bowers and Kumar (2015) finding likewise revealed that learners perceive stronger teacher and social presences in an online environment. As a result, social presence should be encouraged via e-Learning websites for VIUs to be able to make use of e-Learning websites for learning Islamic knowledge.

Kear (2010) discussed that an important attribute of any medium of communication that can influence the leaner's interaction and method of communication is social presence. Users on an e-Learning website should be able to share knowledge with other users of the website, interact and discuss.

As image content is still an issue for the VIUs to access an e-Learning website, technological advancement is required to explain imagery to VIUs. E-learning websites should be compatible with voice synthesizer software for VIUs to have access to e-Learning materials.

A study carried out by The Institute for Higher Education Policy, 2000 discovered evaluation, course development, course structure, assessment, student support, learning process and so on as the factors of e-Learning. Additional support such as education and training should be provided to users to assist them in retrieving and applying knowledge.

Support management can be provided via face-to-face sessions, telephone, e-mail or other channels. Instruction manuals can also be provided on the website. This factor is consistent with the findings of Cooper et al. (2006), who stressed the criticality of educating and assisting users in order to achieve KT via WSS in B2B environments.

CONCLUSION, RECOMMENDATIONS AND IMPLICATIONS

This paper has reported the factors that affect the usage of e-Learning websites for Islamic KT for VIUs through e-Learning websites. The analysis draws upon interviews from VIUs, KPs and SPs. The results included the identification of these factors which are social presence, evaluation, perceived enjoyment, government and voluntary support among others. These factors are enjoined to be standardized, reviewed and improved upon by the VIUs, SPs and KPs in Malaysia.

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