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Determination of Persuasive Components for Web Based Learning in Islamic Education Environment: Delphi Approach

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Abstract: Web Based Learning (WBL) is a part of e-Learning and its forms have been introduced for many years at all levels and types of education. Besides, there are a few challenges with WBL that needs to be considered in designing the system. The aim of this study is to determine the persuasive components of a WBL that can be used in designing WBL for an Islamic education environment. Islamic education is concerned about the teaching's methodologies for the system to be more acceptable by people. Failure in complying to this condition may lead to the failure towards the WBL approach in this environment. The Delphi technique has been used in this research to identify the necessary persuasive components and it involves 5 experts. This identification then transforms these components and supporting elements into a persuasive model of a WBL system design for the Islamic education environment. The design is anticipated to be able to achieve the maximum acceptance of WBL approach among the people who seek an alternative in the teaching and learning on Islamic knowledge. This research will discuss the results for one of the persuasive dimensions which is Dimension 1 (D1) using the Delphi approach.

Key words: Delphi technique, Islamic education environment, persuasive, web based learning, system

INTRODUCTION

The electronic services provided by the new Information and Communication Technologies (ICT's), have been established as the main tool in the efforts of disseminating the virtual learning in the modern education. The new technologies have entered our lives dynamically and the online services are the lift for a sustainable regional development. Web Based Learning (WBL) nowadays is becoming one of the popular resources as a reference to acquire the knowledge and also be an important source in the teaching and learning environment. WBL is a part of the e-Learning which has become one of the most important technologies of the modern era. WBL has many advantages and usage has increased with time (Daud *et al*., 2013, 2015). Using WBL as a tool for e-Learning can contribute to the creation and the maintenance of an electronic course. However, it is not only for use and scalable but also must have feedback or changes from the usage of the WBL such as attitude, intention to use or behavior of the users (Freire *et al*., 2012; Kukkone and Harjumaa, 2008; Daud *et al*., 2013). e-Learning is a learning process which aims to create an interactive learning environment based on the use of computers and the internet (Mosa *et al*., 2016). It should be easy to specify the structure and the content depending on the object of the course and the cognitive level of the learners. e-Learning is becoming more popular day by day and organizations tend to emphasize on its benefits. Almost all organizations have been transformed from the conventional learning to e-Learning.

There are challenges in the e-Learning systems which refer to the ethical challenges, comparing the conventional learning challenges and the technological and the course design challenges (Basamh *et al*., 2013). Website is a representation of the e-Learning platform and it is a popular resource as a reference to acquire knowledge. This study presents the foundation for the possibility of persuading the users to use a website as an alternative approach to the conventional learning. In order to influence people to believe to a certain approach, we have to think about the design features which can triggers and affect the user's impression towards the approach. In order to influence the users, the design of the website would need to have persuasive features

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(Kukkonen and Harjumaa, 2008; Daud *et al*., 2013, 2015). At present, the most persuasive technologies existing are the websites. The websites such as amazon.com, Iwon.com and Classmate.com has been developed with persuasive design to persuade users to engage with certain attitude or behavior. Previous researches have shown that n ot many are looking into the method on how to solve the website design to overcome the course design challenges in e-Learning (Ibrahim *et al*., 2014). In the past research, most of the studies focused at the effect of the web design towards the usability and the user's motivation. Therefore, there is a need to look into persuasive features in the web design in WBL as what was applied in other domains.

This research proposes a persuasive model design to overcome the course design challenges for e-Learning and Islamic content uses as a background. In Islamic education, it is a must to ensure that the Islamic online content is more trustworthy, reliable and validated. Due to this, the e-Learning design should consider some aspects of elements in influencing people to use or refer website content with confidence similar to the face to face approach (Cob *et al*., 2015). Persuasive design is an information system designed to reinforce, change or shape attitudes or behaviors or both without using coercion or deception (Kukkonen and Harjumaa, 2008). Persuasive features have been applied in many designs related to the health and the environment domain but in other domain such as commerce, learning, leisure and security are still lacking (Wiafe and Nakata, 2012). Previous researches have revealed the successful impacts towards the application of the persuasive design in several of the system designs development (Kukkonen and Harjumaa 2008). In e-Learning this technique still needs more researches as well as the e-Learning for Islamic education.

In Islamic education, the use of WBL or e-Learning or other technologies related to the education are now accepted and have been used by Muslim educators (Tamuri *et al*., 2008). Providing a phenomenon where people need to get used with the e-Learning environment is a challenging task especially in the Islamic environment because certain topics in the Islamic education are still taught in conventional way which is lecturing. Research also found that the conventional method is preferred more by people especially Muslims in seeking related knowledge. Seeking knowledge is a duty upon every Muslim and this duty should be carried on for the rest of one's life as required in Islam (Yaakub, 2011). Therefore, islamic education environment has to provide an alternative way for people to seek the knowledge relating to Islam in their life. The world has been changing in ways that are not always easy to predict and we must prepare people for these changes and needs. Besides the conventional method, a new educational approach is required to educate people for the complex and challenging future. This implies essential changes in the conduct of teaching, learning, managing and leading in education (Koutsopoulos and Sotiriou, 2014).

Muslim's common ways to seek knowledge are by attending Islamic events (for example; Islamic lectures, forums and seminars), reading Islamic materials such as books, magazine and CDs and listening to Islamic programs on the radio and television (Tamuri *et al*., 2008). WBL contents have created another problem to the society that gives many effects on the content credibility and the trust regarding the Islamic content in the online environment. The authenticity of the knowledge shared becomes questionable as the knowledge is not verified and validated. Thus, persuasive design for the Islamic education through e-Learning should be more particular on these issues related to the Islamic education in order to ensure the success and acceptance of the e-Learning as an alternative approach in their journey of acquiring knowledge.

Besides, the persuasive approach in WBL is seems to be a suitable factor to be induced because there are no forcing, coercion and deception in the design. People can make their own decision based on the persuasive design whether they want to use the system or not. This persuasion design is appropriate for Islamic WBL because people will use the system after they feel assured with the system as it gives them more confidence and trust. This will lead to the acceptance of the system. Previous research also has shown that the application of this persuasive approach has been proven can change the human's perception towards the system (Wiafe and Nakata, 2012).

The selection and the confirmation of the components and features for the e-Learning design in the Islamic environment have used the Delphi method. The Delphi method has proved to be the popular tool in the research of information systems to identify and prioritize issues to assist in the decision making. It's a team approach used to investigate and collect the view and the opinion of the experts, on a particular topic, creating communication procedures between them to eventually work as a whole in the face of complex problems. This method combined expert's opinion on a specific topic. It is based on the structural surveys and makes use of the information from the experience and knowledge of the participants who are mainly experts.

MATERIALS AND METHODS

This research is using Technique Delphi (TD). Five experts from the domain of education, Multimedia and

instructional design were selected. The selections of experts are based on their year's of experience in their respective fields. The condition is that they must have at least at least 5 year of experience in the particular area and they can participate in all rounds of the Delphi process. Each of expert panel was asked to identify, clarify, purify and finally reach a consensus on the specific issues through a series of rounds of questionnaires and also can be a discussion with the moderator. In this technique, the expert panel does not necessarily need to meet face to face at the early of discussion. Therefore, an expert can express his views without being influenced by the other experts (Custer *et al*., 1999) which have been kept from the knowledge of other experts. This is the best technique to obtain the approval of the experts in determining the matters to be included in the development of the model because to finalize the consensus it should have many rounds of discussion.

In this research, 2 rounds of DT were involved which are Delphi Technique 1 (DT1) and Delphi Technique 2 (DT2). In DT1 involves only one round of process and DT2, there are two round of process, Delphi Technique Round 1 (DT2-R1) and Delphi Technique Round 2 (DT2-R2). Experts were given a questionnaire and they have to decide the level of acceptance for the dimension, persuasive components and the application elements which will represent the application of the components in the online environment. The cycles of process which are referred as the 10 steps are discussed in the previous research (Linstone and Turoff, 1975).

RESULTS AND DISCUSSION

This part discusses the finding of the persuasive components for WBL in the Islamic education environment. With the reference to the initial persuasive model the Delphi method has been used to confirm the components and the features. The components in the initial persuasive model have gone through two phases of Delphi technique with 2 round of process, DT1 and DT2. The first process of Delphi Technique (DT1) has come up with Output 1 (OT1) and the second round of technique Delphi (DT2) has come out with Output 2 (OT2). DT2 involves two rounds of discussion which are DT2_R1 and DT2_R2. As a summary, the output from DT1 was OT1 (DT1_OT1). DT2 comprises two rounds of discussion (DT2_R1 and DT2_R2) and the output from DT2 was OT2 (DT2 DT2_R1 and DT2_R2_OT2) (Daud *et al*., 2013). A result from the Delphi Technique output has been finalized as following:

- Dimension 1 (D1): Primary task support {tailoring; tunneling; reduction; usability; liking}
- Dimension 2 (D2): Credibility support {informativeness; trustworthiness; surface credibility; expertise; verifiability}
- Dimension 3 (D3) : Learning support {customization; self-monitoring; real world feel; suggestion; rewards; recognition; social comparison; social facilitation}

For the purpose of this study, the analysis of the persuasive components and the application elements for D1 is explained. The focus in this study is discussed on the results from the Delphi technique process. D1 is accepted as one of the appropriate dimension to be used in the persuasive model WBL-IE environment. Experts have been given a questionnaire and they have to decide the level of acceptance for the dimension, persuasive components and the application elements. Data for DT1 and DT2 has been analyzed using the descriptive statistics median and the Inter Quartile Range (IQR). This analyzing method has been used in previous research (Yaakub and Ismail,, 2013). IQR calculation is used to determine the relationship of each item with each expert, to enable the interpretation of the consensus for each item done (Yaakub and Ismail, 2013). Consensus level is determined based on the IQR score as stated below (Gravetter and Wallnau, 2013):

- High consensus = IQR 0.00-1.00
- Medium consensus = IQR 1.01-1.99
- No consensus = IQR 2.00 and above

A set of questionnaires were given to the experts to determine the acceptance level for the 3 dimensions that will be used in the persuasive model. This consensus was achieved in DT2-P1 discussion. The determination of dimension is important because all the identified persuasive components will be grouped according to these dimensions.

Components of persuasive model for Web Based Learning (WBL) in Islamic Education (WBL-IE) can be divided into (3) dimensions, Primary Task Support (D1), Credibility Support (D2) and Learning Support (D3). The dimension is the name of the group for the persuasive components and each component has been represented with the element in the website application. This has been discussed detail on how to come out with the persuasive model for WBL-IE in the previous study (Daud *et al*., 2013, 2015). Using the Delphi Technique with (2) cycles of discussion as explained above, the final result from the discussion is shown in Table 1. Results from the analysis

Table 1: Results for dimension

Dimension	M	Q1	Q3	IQR	QD	M:QD
Primary task support (D1)	5	5.0	5	0.0	0.00	1:1
Credibility support (D2)	5	5.0	5	0.0	0.00	1:1
Learning support (D3)	5	4.5	5	0.5	0.25	1:1

Thus, the formula for QD is as stated below: QD = Q3-Q1/2

have shown that experts have agreed with the high consensus and the high relevant for all the (3) dimensions to be used as the dimensions for the persuasive model WBL-IE where Primary Task Support (D1) have M = 5; QD = 0, Credibility Support (D2) have M = 5; QD = 0 and the Learning Support (D3) have M = 5; QD = 0.25. M is equivalent with Median.

As we said this research discusses the determination acceptance of the persuasive components and elements for the primary task support (D1) and based on the previous research that been used Delphi technique as a guide (Yaakub and Ismail, 2013; Giannarou and Zervas, 2014). In D1 determination of the acceptance, after final discussion and consideration of the components redundancy there are four components of D1 which are tailoring (C1), reduction (C2), usability (C3) and liking (C4). Tunneling even has accepted as one of the persuasive components in D1 at the earlier discussion, it was being agreed not to be included as a component of D1 in the last round of discussion since its supporting elements seems redundant with reduction in application. Determination of the application elements was also discussed.

In getting the Quartile Deviation (QD), it is based on the lower Quartile (Q1) and the upper Quartile (Q3). The difference between Q3-Q1 is called the Inter Quartile Range (IQR). The difference between Q3-Q1 divided by 2 is called semi-interquartile range or the QD. In this research, we have analyzed the consensus acceptance for each dimension, component and application elements using QD. Previously, the researcher also used IQR in some of their researches in determining the consensus between the group experts. For this research, QD has been used because its value is smaller and it will achieve and give the highest consensus (Gravetter and Wallnau, 2002; Giannarou and Zervas, 2014). The classification of the items based on QD and M score (Gravetter and Wallnau, 2002; Giannarou and Zervas, 2014) is illustrated as.

Classification 1: High consensus; high relevant quartile deviation ≤0.5; median value 4.0 and above (Achieve high consensus, high relevant and relevant).

Classification 2: Medium consensus; high relevant quartile deviation >0.5 or equal to 1.0; median value 4.0 and above (Achieve medium consensus, high relevant and relevant).

Table 2: Results of component and application elements

Components	M	Q1	Q3	IQR	QD	C
C1:Tailoring	5	4.0	5.0	1.0	0.50	1
Personalized information	5	4.0	5.0	1.0	0.50	1
Knowledge customization	5	4.0	5.0	1.0	0.50	1
Freedom	4	3.5	5.0	2.5	1.25	3
C2:Reduction	5	4.0	5.0	1.0	0.50	1
Topic of learning	5	3.0	5.0	2.0	1.00	2
Clear sequence	4	3.0	5.0	2.0	1.00	2
Detailed explanation	5	4.0	5.0	1.0	0.50	1
C3:Usability	5	3.5	4.5	1.0	0.50	1
Content representation	5	3.5	5.0	1.5	0.75	2
Navigation	5	4.0	5.0	1.0	0.50	1
Fast download	5	5.0	5.0	1.0	0.50	1
C4:Liking	4	3.5	5.0	1.5	0.75	2
Related image	4	4.0	5.0	1.0	0.50	1
Positive response	4	4.0	4.5	0.5	0.25	1
Invitation from expert	5	4.5	5.0	0.5	0.25	1

Classification 3: No consensus; high relevant-quartile deviation >1.0; median value 3.5 and above (no consensus but high relevant and relevant).

Classification 4: High consensus; medium relevant Quartile deviation ≤0.5; median value below 3.5 (Achieve high consensus, medium relevant or not relevant)

Classification 5: Medium consensus; medium relevant Quartile deviation >0.5 or equal to 1.0; median value below 3.5 (Achieve medium consensus, medium relevant and not relevant)

Classification 6: No consensus; low relevant-quartile deviation >1.0; median value below 3.5 (No consensus, medium relevant or not relevant).

Table 2 has shown the analysis for the persuasive components and the application elements for D1. Based on the median and QD shown, all the components are in high relevant with median value >4. QD value has shown only the 'freedom' element is in the non-consensus level with QD = 3 with high relevant level. The liking component, topic of learning, clear sequence and content representation are clearly in the medium consensus level with high relevant whereas the other components and elements are in the high relevant level and high consensus level.

As a conclusion for this analysis, all the components and the elements are accepted to be put in the persuasive model WBL-IE. Even though it is no consensus between experts with 'Freedom' element, it can still be accepted since the relevant level is high. Referring to the result, 'freedom' can still be considered as one of the elements in the model because this system's focus group is adult learner. According to the andragogy theory, adult learners prefer freedom in their learning process. As per suggested

by one of the experts, 'freedom must come with other elements in order to ensure learners still have some guides in the learning process such as tailored information and learning guide'.

CONCLUSION

WBL is a series of interactions between the instructor, learner and the learning material with the objective to transfer knowledge and skills via the internet. In the case of an Islamic education, Delphi technique seems as a good method in determining process because this method usually involved several rounds of discussion. Many rounds of discussion will lead a good and accurate result, thus the decision not comes from only one expert and the experts can have many chances in giving opinion.

This study only discusses on the components and the application elements for DI. For the determination of the acceptance level for the components and the application elements D2 and D3, the method is still the same. The evaluations done using the DT on the survey instrument can ensure the development tool to be comprehensive and complete. The results have shown that the experts generally agreed with all the persuasive features including the dimensions, components and the application elements. Based on the comments and the recommendations from the experts, the pool of persuasive features was refined and restructured. Details about the DT process in developing the persuasive model WBL-IE can be referred in the previous research and the proposed model comprises of 18 accepted persuasive components to be used in the persuasive model WBL-IE[2]. In further discussion with experts after taking into consideration the redundancy of the components and the supporting elements, the final consensus between the experts have been achieved with only 12 components that will be applied in persuasive model WBL-IE. Due to some constraints, this study has only discussed the analysis of 4 components and the supporting elements for Dimension 1 (D1).

The verification process used in this study has proven that the proposed persuasive model for WBL-IE is acceptable and valuable to be used. The selection of experts with expertise in their domains and with significant working experience also can be considered as the major strength because their ideas have increased the richness of the developed model.

Next process involves all the components being applied and matched in the WBL for IE. Hajj content will be used as a background of the prototype development. The prototype for the model development will go through an evaluation process. This evaluation will be conducted with a group of users in order to finalize and validate the persuasive model. They will be given a questionnaire and working website prototype as a reference to see the effectiveness of the persuasive elements being implemented.

Most of the persuasive models provide a useful overview of significant components and persuasive features but they do not completely provide a model of persuasion that is specifically for WBL in general and Islamic education as a focus of study. We believe that the findings of the present study can facilitate the development of a comprehensive platform for users to explore and experience WBL while having the similar feelings as to the conventional approaches.

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