

Recognizing culture based religious icons from muslim culture user interface design (MCUID) prototype

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ABSTRACT

The phenomena nowadays, numbers of metaphor worlds and their participants that growing rapidly, primarily is a Western Culture dominated environment. Attention paid to other cultures is still very little. There is an assumption that if metaphor worlds are to become a truly global platform for users then it will be essential to "encode" the flexibility for social interactions to take place in a way that is sensitive to other cultures and most important matters that could give values to the target users. It is understood by muslims that Allah has used metaphor to send His messages to mankind through Al Quran. Inspired from it, the key concern is to shift the focus of development from standard interface design to Islamic interface design. A framework has been developed adapted from Culture Centered Design. Important factors have been added to the framework especially on Islamic values as a way of life and a journey towards Allah. Further more, an interface prototype known as Muslim Centered User Interface Design (MCUID) prototype is created. This paper focused on the empirical investigation through interface recognition test using closed card sorting technique towards the prototype. The analysis tabulated the patterns of Muslim users' perceptions using Atlas.ti 7 both in qualitative and quantitative measurements.

Keywords : Islamic Values, Icons, Human Computer Interaction (HCI), Interface Design, Metaphor, Culture Centered Design(CCD), Card Sort Evaluation.

1. Introduction

The innovation in spiritual design was hoped to engage user experience in visualizing the culture based religious icons. The design consisted implicit meaning and it was integrated with the concept of Human Computer Interaction, metaphor and Al Quran (Nasruddin, Hussin, 2011).

This study investigates the patterns of Muslims users' perceptions towards the spiritual design which was Muslim Centered User Interface Design (MCUID) prototype. Closed card sorting was used for interface recognition test. Card sorting technique is not to test the abilities of the participants, but instead to produce a "coherent design" that is specific to the information space under question (Nielsen and Sano, 1995: 182). It is assumed that the targeted end users are the most authoritative experts on their own conceptual thinking.

2. Proposed prototype

Past researches have been reported on the development of metaphors and iconic design based on Chinese culture (Shen, 2006) and African culture (Heukelman, 2006), none has explored for the Islamic culture. It was crucial to consider criteria on metaphor selection when designing an interface. Table 1 lists those criteria.

Table 1 Metaphor selection criteria (Shen, 2006)

Richness	A metaphor needs to provide a rich source of symbolism, language, meaning, values, morphology and historic and cultural references.
Suitability	A metaphor needs to translate effectively and to address every functionality and accommodate possible future expansion.
Fun and interesting	A metaphor should be comprehensible and pleasurable. A metaphor should not distract or annoy users, but rather be fun, entertaining and interesting.
Originality	A metaphor may lead to an entirely novel way in which technology is applied and represented and influence user behaviour and interaction.
Adaptability and transferability	A metaphor should be flexible enough to be adapted and applied in various situation and circumstances.

A survey was conducted on 26 participants from two institutions, Darul Quran and UiTM. The criteria of metaphor selection on Table 1 was used. The survey was to examine on participants views towards the choice of mosque to be theme for desktop interface.

Table 2 Result from the survey

Characteristic mosque	Richness	Suitability	Fun and interesting	Originality	Adaptability and transferability
Percentage Agree	88%	77%	73%	77%	77%

Table 2 shown the percentage of participants agreed that the image of mosque to be desktop interface.

The concepts and the framework became the fundamental on the development of interface prototype.

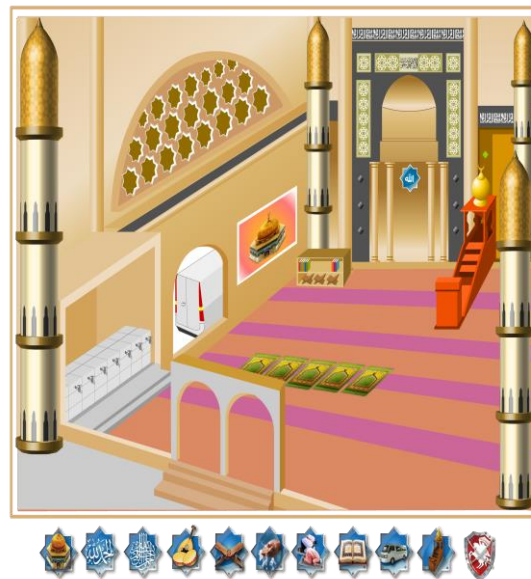


Figure 1: MCUID prototype

Figure 1 shows a Muslim Centered User Interface Design (MCUID) prototype. The design was incorporated with Islamic-based metaphor analogy representing Muslims' practices. (Nasruddin, Hussin ,2013). Below the image of the mosque there are 11 culture based religious icons. The icons were created based on items found in the mosque and items that have some history related to the mosque.

3. Research method – Card sorting



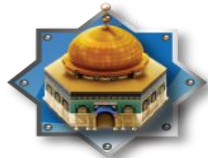







The terms of icons used in this test were two types. One was culture based religious icon and its code was labelled with letter C, the other icon called window icon and its code was labelled with letter E. All together, there were 26 icons. The icons were classified into two categories which were non alphabetic and alphabetic icons. A non alphabetic icon was an icon that the combination of an abstract object (a symbol) and concrete object (an object that exists in the real world). Alphabetic icons were icons that are shown in textual or characters forms.

At the back of the cards were labelled code C1-C11 and E1-E11. Tullis and Wood (2004) indicated that a sample size of 15-30 participants in card sorting method explains 90-95% of the true information space structure. Therefore, the sample size of 26 participants age ranged 18-24 year falls within this range of adequate explanatory power and efficient use of experimental resources. The scope of sample is from undergraduate students because it is believed that they would generate useful feedback about the interface recognition test because they are among the popular and important users who commonly use the computer, as they are more likely to have knowledge to give their perception to match cards that contain icons sets.

4. Research analysis and findings

There were 11 icons of culture icons to be matched with the 11 window icons using closed card sorting technique. Table 3 shows the correct matching icons and the scores.

Table 3 Result from closed card sorting

Culture icon	Window icon	No. of participant with correct answer		
1.C1 Al quran 	E10 - Internet explorer 	12		
2.C2 Al-Aqsa 	E6-My computer 	14		
3.C3 Bismillah 	E3 start 	17		
4.C4 shield 	E7 Antivirus 	C4 19	C6 5	
5.C6 Ablution 				
10.C5Music Instrument 	E9 Music folder 	25		











Culture icon	Window icon	No. of participant with correct answer		
6.C7 Book rest 	E5 Ms Word 	11		
7.C8 Alhamdulillah 	E1 Icon off  E4 SHUT DOWN	E1 9	E4 11	E1,E4 2
8.C9 Congregation prayer 	E2 Network 	13		
9.C10 Pulpit 	E8 Powerpoint 	13		
11.C11 Van Funeral 	E11 Recycle 	11		

Table 3 shows the number of participants managed to match the correct card. Since culture based religious icons (culture icons) were new to the users, certain culture icons were easy to be recognized and some were not. For instance, code C5 (Music instrument), the score was 25 and it was to assume that the icon was easy for users to recognize, however for code C11 (Van funeral) and C7 (Book rest) were rather difficult and the score was 11. Another aspect, participants more recognized textual pattern than image icon. For instance, through code C8 (Alhamdulillah), the score was 11 with code E4 (textual- Shut down) but only 9 participants recognized code E1 (image- icon off). Some users were confused with code E1 (icon OFF). As a result, the score for the combination code E4 & E1 was lower because of misinterpretation. Furthermore, when to analyze on which culture based religious icon was more preferable, code C4 (Shield) and C6 (Ablution) that share same function as window icon (Antivirus) were tested. The result shows that code C4 (Shield) was more preferable with the score of 19 participants whereas code C6 (Ablution), the score was only 5 participants.

4.1 Perception Code C1(Al Quran) with other code window icons- quantitative

Below were the quatitative detail summary for one sample code culture icon. The sample code C1 (Al Quran) was selected randomly.

Table 4 Quantitative summary for code C1 (Al Quran) among window icons

Culture based religious icon (culture icon)	Window icons	Number of participants
C1 (Al Quran)	E10 (Internet explorer)	12
	E1 (Icon off)	1
	E3 (Start)	2
	E6 (My computer)	4
	E5 (MsWord) & E8 (Powerpoint)	7

Table 4 shows different match between culture icon and window icon. The proposed answer was code C1 matched with code E10. 12 participants matched the code correctly. Others were matching with other codes.

4.2 Perception Code C1(Al Quran) with other code window icons- qualitative

Through qualitative analysis, theme from participants's perceptions were identified as shown in Table 5.

Table 5 Details of users' perceptions and themes on Code C1 (Al Quran)

Institution	Participant number	Perceptions	Themes
DQ	P3	(C1)Al quran matches with (E10) Internet explorer because Al quran is comprehensive and suitable to refer in order to seek knowledge.	Comprehensive, search
DQ	P4	(C1) Al quran matches (E10) Internet explorer -as source of knowledge.	Comprehensive
UiTM	P10	(C1)Al quran matches with (E10)internet explorer because inside Al quran, there are everything, same goes to internet explorer.	Comprehensive
UiTM	P11	(C1)Al quran matches with (E10)internet explorer because you can get any information through Al-Quran as in internet.	Comprehensive
UiTM	P14	(C1)Al quran matches with (E10)internet explorer because in Al quran, there are a lot of things and all that happened in this world has written in Al quran. Internet is a medium to get information which has similar concept with Al quran	Comprehensive, source
UiTM	P15	(C1)Al quran matches with (E10)internet explorer because in Al quran has all knowledge that we can learn some goes to the internet. In internet, we can found all knowledge in all aspect.	Comprehensive, source
DQ	P16	(C1)Al quran matches with (E10) internet explorer because Al-Quran can be significant as internet explorer because we can search anything at Internet Explorer. Al-Quran also has same rate as IE. We can search any ayat in the quran which we can make as references.	Search knowledge
UiTM	P17	(C1)Al quran matches with (E10) internet explorer because we read Al-Quran, it's kind of similar with Microsoft Words in Al-Quran, there is a lot information. By using internet explorer, we can search information.	Comprehensive, search
UiTM	P18	(C1)Al quran matches with (E10) internet explorer because in internet explorer we can find many information that we want. So, its suitable with Al-Quran.	comprehensive
UiTM	P19	(C1)Al quran matches with (E10) internet explorer because the Al-Quran represent all the information same as the internet	comprehensive
DQ	P20	(C1)Al quran matches with (E10) internet	Search, comprehensive

		explorer because we can search and find everything or anything in the internet explorer same goes to Al-Quran which has everything in.	
DQ	P25	(C1)Al Quran matches with (E10) Internet Explorer because Al Quran is the main source of information.	Source of knowledge

The patterns of themes shown on Table 5 from two different institution was similar which was Al Quran as metaphor analogy. The theme were as comprehensive and symbol to search knowledge besides code C1 was matched with other code of window icons.

Table 6 Summarization of code C1(Al Quran) with other window icons

Institution	No. of participants	Themes
DQ	2	Ms word, Power point
	3	Ms word
	3	Start
UiTM	2	Ms word
	2	My computer
	1	Start

Table 6 tabulated the frequency of participants and themes. Majority of the participants chose Ms Word icon to be matched with Al Quran because the perception through Ms Word was for writing and reading.

4.3 General perceptions between institution Darul Quran (DQ) and UiTM

Below are general perceptions from two categories of participants towards the MCUID prototype.

Table 7 General perceptions from UiTM

UiTM	The prototype potrays Islamic culture. Some of the icons were easy to be recognized, but some were confusing. It was hard at the beginning but through practise it would be okay.
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Table 8 General perceptions from Darul Quran

DQ	The prototype shows ways to understand Islamic concepts. It was a unique great effort in design. The design could encourage users to remember and be close to Allah through the interaction with it. It took time to understand and to be familiar with new icons.
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From the above Table 7 and 8 there were similar patterns of perceptions such as the prototype could portray Islamic values and remember Allah. Besides, it required time to understand and to become familiar with the new design.

5. Conclusion

The recognition test tabulates patterns of the participant's perceptions through visualizing icons using closed card sorting. Based on the analysis, the perceptions were some similar and some were different among the participants. Due to individual differences participants have their own perceptions. As a Muslim designer, being as khalifah of Allah, the niyyah to inovate the metaphorical concept that consists of Islamic value in the interface design should be appreciated. Overall, participants feel that MCUID prototype are unique and have significants. They really hope that the prototype will be adopted as the desktop interface in the future and believe it could be as faith reminder for muslim users to Allah and it could be in the long run prosperous better ummah through technology. For future research, more features in Islamic interface should be explored and developed.

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