

# **Studies on the Extensive Use of Multimedia Elements and User Preferences for Islamic Knowledge Dissemination**

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## **Abstract**

**Multimedia is known as able to improve users' retention and understanding. The Islamic history content whether on website or mobile application will be more understandable, attractive and informative if delivered using the multimedia elements. Two studies were conducted to assess the use of multimedia elements in delivering the Islamic historical content on the web and on the mobile platform using content analysis and survey method. The content analysis on website showed that most of the contents were text-based and less than 5% of the studied websites actually utilized the multimedia elements in their presentation. While the survey showed that user were mostly interested in the application with multimedia capabilities. It is believed that an improved approach for delivering the Islamic historical content is required as the existing literature already shows that multimedia elements are able to increase user retention and understanding as well as their user experience.**

**Keywords:** *Islamic knowledge, mobile content, multimedia, historical content, mobile multimedia*

## **1 Introduction**

Revolutionizes in Islamic knowledge dissemination are vastly growing from just books, radio frequency and preaching to the age of ICT. The improvement of ICT by using mobile platform for conveying information like PDA and mobile phone

also make differences to the knowledge dissemination. The dissemination also keeps abreast with the technology transforms especially in the networking area where user can obtain to a great extent of knowledge from different sources through websites. The content analysis on several websites tries to discover the approach of Islamic history content was currently being delivered. The focus is on the extensive used of multimedia elements like combination of text, audio, video, graphics and animation to grasp user's attention. The study also examined the platform used to distribute the content.

The effort of Islamic knowledge dissemination through website analysis has been carried out in assorted content such as fiqh and fatwa [1], dakwah method [2] and hadith [3] but the website analysis on Islamic historical content especially for Seerah Rasulallah (history of Prophet Muhammad pbuh) is hardly initiated.

Seerah Rasullah is crucial for all Muslims because from the history, Muslim would obtain the direction and guidance for various aspects of life. As understood comprehensively the meaning of the Surah Yusof verse 111 which means:

“There is, in their stories, instruction for men endued with understanding. It is not a tale invented, but a confirmation of what went before it, a detailed exposition of all things, and a Guide and a Mercy to any such as believe” [4].

With the expansion of ICT especially the internet and mobile technology, the Islamic knowledge dissemination should also keep abreast with the technology. In addition, the existence of multimedia elements usage on the website has seen information dissemination in diverse modalities to ascertain the users' attentions. However the Islamic historical content even can be found in the internet, still lack of the multimedia elements and just using the conventional media like text and graphic only [2]. This gap gives motivation to conduct the content analysis on website to determine the extensive use of multimedia elements in the Islamic historical content especially in Seerah Rasulallah.

Furthermore, Islamic content on mobile platform has emerged along with the development of mobile technology to bringing the portability, anywhere and anytime access. Even the mobile Islamic content application can be found in the market but the study about users' awareness and usage of the content is hardly found. The study about users' awareness and usage is important to determine the users' preferences of mobile Islamic content that is applicable in the market and figure out the users' interest. From the study, the gap of differences between the popular Islamic apps and the unseen Islamic apps can be known. Therefore, unseen Islamic apps can be improved and put some added value for users.

## **2 Related Work**

### **2.1 Seerah Rasulallah**

Seerah Rasulallah is the life story of the Prophet Muhammad SAW. Prophet Muhammad is the role model figure in Islamic beliefs and teaching. In Malaysia, the history of the Prophet Muhammad was taught as part of the syllabus in the primary and secondary school curriculum. This is done in order to create the awareness of the world's most influential person [5] to the Muslims in the young age.

Following statement has proved that Prophet Muhammad has been selected as number one leader throughout history by the non-Muslim international journalist. "My choice of Muhammad to lead the list of the world's most influential persons may surprise some readers and may be questioned by others, but he was the only man in history who was supremely successful on both the religious and secular level" [5, p.3]. Seerah contain all aspect of human life such as economic, social and Islamic politics implementation [6]. The history of prophet survival to promote Islam would reinforce the courage and perseverance of Muslim in defending and spreading the religion. Knowing the life history Prophet Muhammad well will nourish the love towards the Prophet Muhammad which will eventually guide the believers into making a paradigm shift in their life. The shifting of paradigm can give a huge impact to us, family, country and religion [7]. Furthermore, Prophet Muhammad's life and mission is an essential part of the content in Islamic Da'wah [8]. Hence, Seerah Rasulallah is one of the important content in Islamic teachings and must be put into consideration when designing Islamic content tandem with the development of ICT.

### **2.2 ICT as Seerah Dissemination Tool**

Information Communication Technology (ICT) refers to the concept of hardware, software, network infrastructure and media elements that enable the acquiring, processing, output, storage and sharing of information and communication between human and computers. ICT has become a worldwide tool used by the individuals, organizations, governments and private sector for personal or official used [9]. The application that use ICT as a medium ranging from commerce and business transactions, medicine and health sector, engineering, computer aided design and manufacturing, education, library service ,weather forecasting, agriculture, dissemination of religious practices and experiences [10] including Islamic knowledge and Islamic history.

Eventhough, that many regions in the Muslim worlds still do not have the opportunities for accessing, the internet has become leading tool of Islamic religious idiom and a considerable place for surveillance of shifting trends and values associated with conceptual understandings of Islam [11]. Islam always

supports research and detailed observations to explore for new findings in the areas of technology to be used in our daily life [12]. Using such technology like internet in Islam is permitted as long as the fundamentals of Islam remain integral for instance the internet cannot replace the obligation of performing Hajj but it can facilitate Muslims to listen to the do'a or recitation of Qur'an.

A renowned Islamic scholar, Sheikh Dr.Yusof Al-Qardawi once said that internet is a very important tool to disseminate the Islamic teaching and can be a platform to unite Muslim community [1]. Sheikh Dr.Yusof Al-Qardawi himself has a regular presence on the satellite channel al-Jazeera and found the successful Islamic web portal Islam online in 1997 in addition to having his own well visited personal website [13].However, attractive content is also a factor into luring readers or viewers to visit the websites.

With the advent of the ICT and mobile communication, the way seerah was disseminated has changed. Many Islamic sites were found on the Internet to provide Islamic knowledge to people at large. The embark of mobile technology in recent life, the portability of the platform like mobile phone, PDA and smart phone with web enabled have given the opportunity for the developer to disseminate the knowledge through the mobile platforms.

Beginning with the most inspiring Muslim electronic devices is the Iikone i800 that introduced in 2004; described as "the first fully Islamic Mobile Phone" [10].The Iikone i800 provided the prayer times, converts dates to and from the Hajri(Islamic) Calendar , searchable text of the Qur'an and providing Azan. Starting from there, the Islamic apps like Quran Reader Pro with translations in several languages and different versions of the English translation and Al-Mus'haf as a reproduction of the text of the Qur'an in Arabic was produced. Pacing with the time and technology, the Islamic apps offering the Qibla direction (prayer direction towards Mecca), selection of supplications (du'a or prayers), iHadith that provide a complete database of collected hadith, the du'a for minor pilgrimage(umrah) and 'Halal Food Guide for Mobile Phones' and Islamic Hotline [11]. In addition there is a research conducted regarding the mobile dictionary application for Hajj pilgrimage in order to assist the pilgrim performs their Hajj easily by providing sufficient information supported with the images and illustration [14].

Though, the chronology of Islamic apps on mobile platform comprises of many Islamic teachings but the Seerah remains overlooked [25]. Thus, Seerah should not be neglected as Islamic apps on mobile and ought to bring forwards as one of the Islamic teaching that can be accessed by users.

### 2.3 Multimedia as Web Content

There are many definitions of multimedia. Among the famous definition is from [15]. He defined multimedia as a combination of digitally manipulated text, photographs, graphic art, sound, animation and video elements. It becomes interactive multimedia when end users have controls over the elements. The interactivity evaluated in this research is based on the end users that have the ability to control the content and flow of the information [15].

Multimedia has been proven able to give benefits to the audience in terms of stimulating the learning process and retaining the information delivered to the user, increase retention, improve comprehension and bring an audience into agreement [16]. It is also proven that human is more receptive to new information and construct easier cognitive models if the information is presented in different modalities [17]. Multimedia also show to give highest rate of information retention and make the learning time shorter [18]. In addition multimedia can raise interest level, enhance understanding and increase memory ability to the audience [19]. For example in the process of delivering knowledge to the audience and receiving and churning knowledge by the audience, multimedia can help presenter to present information in multiple media, interactive manner and in a multi sensory environment.

Began in 1989, the web was not invented with multimedia in mind but just simple method for delivering text document formatted in HTML [15]. However by 1995, web was occupied information highway with pictures and words. The vehicle for a global information highway is content and the web content is the motivation of the users to use the web. Content is the most significant component of a web. If the content does not offer the information needed by users, the web is not worth it no matter how easy to use the site.

Web in the early time just seen the web content comprises of text but by the time pass by the usage of multimedia elements to represent the message and information on web increased. As users notice, plain text and graphic no longer enough for the web content nowadays. By 2008, W3C established a strategy that video should become more prominent on the web and the emerging of the 3D graphics which is already supported on the web [20]. In 2011, there was an initiative to enriching videos on the web with sensory effect like light, vibration and wind [20]. However the usage of multimedia elements for Islamic content in website is rarely found where only small numbers of website provide multimedia programs for Islamic content like prayer and pilgrimage method [2]. Based on [2], most of the website still stick to the traditional method of conveying information like text and images.

### 3 Research Methodology

There are two methods used in order to obtain the extensive use of the multimedia elements and user preferences usage in Islamic knowledge dissemination of multimedia elements usage in Islamic knowledge dissemination. The first study was conducted using the content analysis approach on the selected website and the second study was the survey on random samples towards the expected Islamic content on mobile platform. The second study is the continuous study based on the result found from the content analysis study to seek further findings especially in the users' preferences on mobile Islamic content. The detail discussion on each approach is discussed in the following section. Table 1 summarizes the method.

Table 1: Summarization of the method

Item	Explanation	
<b>Method</b>	Content Analysis	Survey
<b>Purpose</b>	Figure out multimedia usage for Islamic knowledge on web based	Figure out pattern of mobile usage in Islamic knowledge on mobile
<b>Sample</b>	50 websites regarding History of Prophet Muhammad	Muslim Follower around Klang Valley in Education, Media and Engineering sector; 77 user.
<b>Data Collection</b>	Tabulated Separate Dichotomous Variable	Questionnaire
<b>Analysis Method</b>	Microsoft Excel	Rasch Measurement Model
<b>Platform</b>	Desktop	Mobile
<b>Result</b>	<ul style="list-style-type: none"> <li>• Most (79%) using text solely</li> <li>• Only 6% provided mobile interface through web based access</li> </ul>	<ul style="list-style-type: none"> <li>• mostly user interested with entertainment and communication purposes that related with multimedia elements</li> <li>• Percentage of usage for Mobile Seerah (History of Prophet Muhammad) was very low.</li> </ul>
<b>Recommendation</b>	<ul style="list-style-type: none"> <li>• Using multimedia elements on the domain- Islamic content</li> <li>• Study the suitable design of small screen display for domain- Islamic content</li> </ul>	<ul style="list-style-type: none"> <li>• Using multimedia elements on the domain- Islamic content</li> <li>• Further analysis on the layout of the interface to find factors that might influence usage of Mobile Seerah.</li> </ul>

### 3.1 Content Analysis

This first exploratory study used the content analysis method for data collection. A content analysis is a detailed and organized assessment of the contents of a particular matter for the intention of discovering patterns, themes or biases. Content analysis are usually performed on forms of human communication, including books, newspapers, films, and television, art, and music, videotapes of human interactions, bulletin board entries and internet blog [21]. In this research, the website content was analyzed to determine the extensive use of multimedia elements in Islamic content.

Table 2: List of few examples of sample website

Index	URL of website
1	<a href="http://www.pbs.org/muhammad/timeline_flash.shtm">http://www.pbs.org/muhammad/timeline_flash.shtm</a>
3	<a href="http://www.muhammad.net/">http://www.muhammad.net/</a>
4	<a href="http://www.cyberistan.org/islamic/muhammad.html">http://www.cyberistan.org/islamic/muhammad.html</a>
5	<a href="http://www.religionfacts.com/islam/history/prophet.htm">http://www.religionfacts.com/islam/history/prophet.htm</a>
6	<a href="http://www.rasoulallah.net/v2/document.aspx?lang=en&amp;doc=228">http://www.rasoulallah.net/v2/document.aspx?lang=en&amp;doc=228</a>
11	<a href="http://www.islamway.com/mohammad/?lang=eng">http://www.islamway.com/mohammad/?lang=eng</a>
15	<a href="http://www.islam-guide.com/frm-ch1-6.htm">http://www.islam-guide.com/frm-ch1-6.htm</a>
20	<a href="http://ipaki.com/content/html/26/383.html">http://ipaki.com/content/html/26/383.html</a>
..	.....

The selection of websites to be analyzed is on random basis. Using Google search engine, the keyword: History of Prophet Muhammad pbuh has produced 1,790,000 output of related websites. The first 500 output is chosen and taken 10% randomly. The 50 websites selected have been further verified that the content is reliable, that is the true lifetime story of the Prophet Muhammad. Table 2 shows a list of few examples of website chosen.

The websites were later analyzed based on two major categories: (i) the delivery platform and (ii) the extensive use of multimedia elements. For the platform, the study seeks to identify which platform is currently being used to disseminate information about the life of the Prophet Muhammad PBUH. While for multimedia elements, what is being analyzed is whether the multimedia elements

are being present in their content. The multimedia elements are the text, graphics, animation, audio, video and interactivity. Figure 1 and Figure 2 show an example of website.

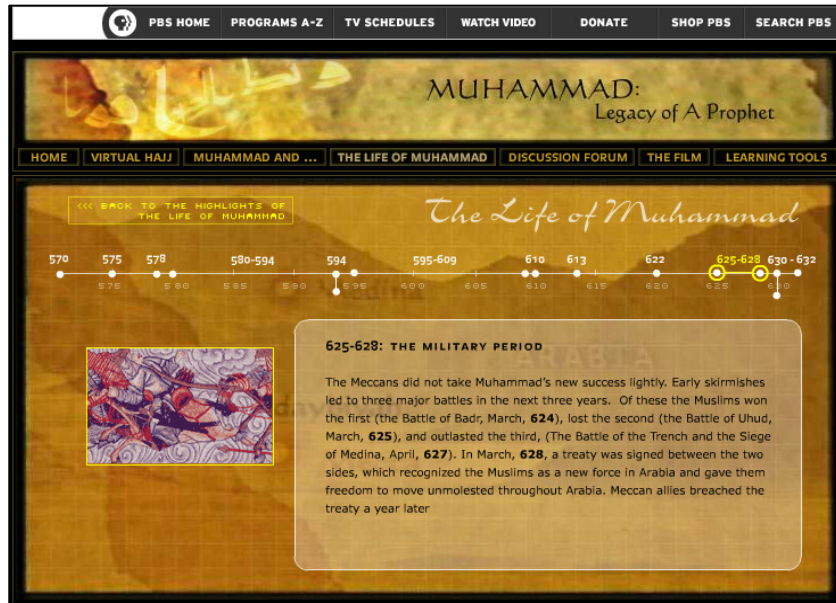


Fig. 1: Example of website with animation and interactivity

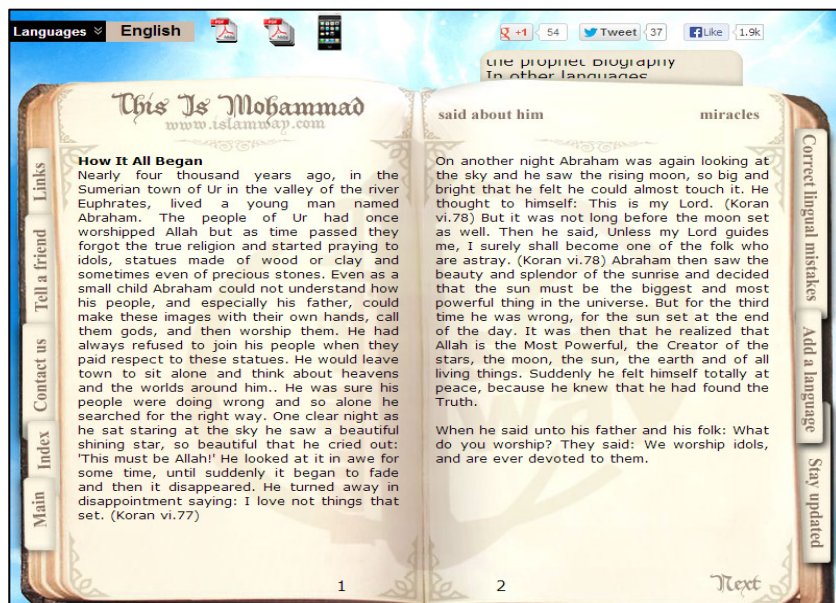


Fig. 2: Example of website with text and mobile ability



All of the multimedia elements and delivery platform features appearing in every website were listed in a table. Then, with each website being a case, for each features a separate dichotomous variable was created to indicate if the specific features appeared in the website or not (0=no, 1=yes). Figure 3 shows the example of process in determining the selection of features appeared in the selected website.

r e s	Collection of Website Keyword : History of Prophet Muhammad saw																																																															
	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	5												
Te	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1										
Gr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
An im ati on	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Au di o	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Vi de o	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Int er ac tiv ity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Pl at f o r m	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Fig. 3: Using the separate dichotomous variable to indicate features existing

### 3.2 Survey

This survey is conducted to determine the users’ preferences on mobile Islamic content among the Muslim user who used mobile phone.

#### 3.2.1 Sample and Data Collection

The instrument based on the construction model of MIC was created to collect data by hand, e-mail and face to face using questionnaire. The sample was taken from Muslim follower around Klang Valley area consisting of education, media and engineering sector who own mobile phone .There are 77 respondent give feedbacks. The instrument used three types of scale such as combination of dichotomous (Yes or No), multiple choices and Likert style from 1 - 5 (strongly agree - strongly disagree). Data gathered from the instruments were analyzed using Rasch analysis with the help of Winsteps software [26].

### 3.2.2 Validity and Instrument Construct

A test which measures what is intended to measure [27] is a valid test. Content, criterion-related and construct validity is crucial in getting the sufficient result of the study [27]. For the users' awareness and usage, model is constructed based on the several instrument related [28, 29, 30, 31, 32] and being adapted suitable with the study of mobile Islamic content.

An ordinal data which is qualitative can be transform into ratio data using Rasch model which represents accurate contextual result for achieving sufficient result. However, before using Rasch analysis, a content validity is done by two lecturers in higher institution and two psychometric experts to validate the instrument.

### 3.2.3 Rasch Measurement Model

Rasch model is used to analyze the data in this research by using the Winstep software [26]. This approach has been used by other researcher in analyzing the data [33, 34, 35]. The probabilistic mathematical model was constructed by Danish mathematician and statistician; George Rasch for the transformation of ordinal observations into linear measures. Rasch analysis apply the regression approach and demonstrates the best fit line that fit with the points as best as possible. After that, it can be used to create the required predictions by interpolation or extrapolation [33].

The model concentrates on building up the reliable measurement instrument rather than forcing data to fit to the measurement model [36]. The Rasch model calculated person and item measurement with *logit* values as unit of measurement thus resulting in a linear construct and can be plotted on one scale ruler.

## 4 Findings

### 4.1 Findings on Content Analysis

Based on the data collected, it is shown that there are many websites featuring Seerah Rasulallah. From the 50 websites analyzed, 98% (n=48) of the websites were on the desktop as platform and only 6% (n=3) provided mobile interface through web based access. Table 3 shows the delivery platform and multimedia elements presence in the web application.

From Table 3 and Figure 4 below, it is shown that most websites are textual based and on desktop platform. Very few of the websites incorporate the multimedia elements as the content. Using text is not bad for presentation or display of the information however existing literature revealed that reading too many texts on a computer screen is slower and tougher than reading the same text provided in hard copy [15]. Text can be used but should be balanced between other media. This can

be explained from Islamic perspective in which Islam forbids the followers from portray the Prophet Muhammad through drawings [22]. So, the safest path is to use text alone to convey message. However, the usage of various media can be used to represent the Islamic content as long as it authorized by the fatwa.

Table 3: Analysis of platform and multimedia elements used

Features Analyzed		N=50	100%
Multi media	Text	46	92
	Graphic	6	12
	Animation	4	8
	Audio	12	24
	Video	4	8
	Interactivity	1	2
Platform	Desktop	49	98
	Mobile	3	6

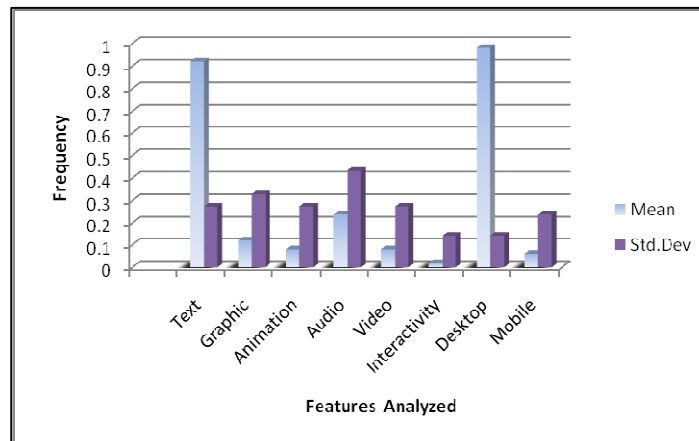


Fig. 4: Mean and standard deviation

In addition, 8% (n=4) of the website provided the life history of Prophet Muhammad PBUH using animation and video, however it is restricted to only play and watch with no interactivity provided. It is just like watching documentary on television. Meanwhile, only 2% (n=1) of the website have interactivity while the others are sequential media presentation even though the content were presented in variety of elements.

Other than the study on the presence of multimedia elements in the web content, this study also analyzed the combination of the elements, Table 4 below

summarizes the percentage for different combination of multimedia elements found on the websites. From the data, 79% were using text only, 9% were using audio only and none were using graphics, animation or video only. Presenting content in multi modality is better as it will result in a better retention period of the knowledge [15]. Based on the data, most websites combined text, audio and graphics/ animation and only a total of 6% of the websites uses animation in combination with other multimedia elements. It is obvious that animation is scarcely found on the website as web content. Animation is able to induce the metacognitive in the viewers [23]. Viewers require less effort in perceiving and understanding the content when animation is used. This is true in perceiving and understanding history which is something of the past and requires more cognitive ability to recognize and remember the content. Therefore, it is suggested that more animation content should be develop in order to deliver historical information. Evidence has proven that animation is the most lacking element in the existing website that features life history of the Prophet.

Table 4 shows that most of the multimedia elements combination in highlighted row has the text elements. This shows that too much text is not highly recommended however text can still be used to enhance certain point in the content display.

Table 4: Multimedia elements used and its' combination

Combination of features analyzed	Total of website analyzed	Percentage
Text only	36	79
Audio only	3	9
Animation only	0	0
Video only	0	0
Graphic only	0	0
Text, audio and video	1	2
Graphic and audio	1	2
Text,graphic,audio and video	2	4
Text,graphic,audio,video and animation	1	2
Text, animation and audio	2	4
Text, graphic and audio	1	2
Text and audio	1	2
Desktop platform	47	94
Mobile platform	1	2
Desktop and mobile platform	2	4

The study had also proven that text is the most widely used media in delivering content. Text has been agreeable as the best media to be used in delivering content [15]. However, the high percentage of text only in the website proves that most websites are using only text to deliver information when animation is the better choice for historical content. The bandwidth limitation could be among the reason why multimedia content is rarely utilized. However, further research is needed to find ways to deliver the multimedia content efficiently over the internet while disregarding the bandwidth limitation.

## 4.2 Findings on Survey

This survey [25] using the Rasch measurement model for data analysis. The Rasch measurement model using Winstep software can generate many important output tables such as summary statistics, unidimensionality and person item measure to be used for explanations of result.

### 4.2.1 Summary Statistics

In the summary statistics, there were 5759 data points that exist from 77 respondents on 79 items (eliminate 2 item from 81 for maximum and minimum extreme score). The data points were analyzed and produce the Chi-Square value of 4430.01 with 5626 degree of freedom. The raw score test Cronbach- $\alpha$  yield a high reliability of 0.93(93%) which allows further analysis of the instrument in measuring users' awareness and usage for mobile Islamic content.

	TOTAL	COUNT	MEASURE	MODEL	INFIT		OUTFIT	
	SCORE				ERROR	MNSQ	ZSTD	MNSQ
MEAN	65.3	77.1	-1.27	.31	.75	-.7	.87	.0
S.D.	36.9	3.8	1.25	.13	.28	1.0	.66	1.1
MAX	157.0	79.0	1.11	.65	1.55	1.9	2.94	3.4
MIN	34.0	54.0	-4.31	.12	.33	-3.8	.14	-1.6
REAL RMSE .34 TRUE SD 1.21 SEPARATION 3.58 Person RELIABILITY .93 MODEL RMSE .33 TRUE SD 1.21 SEPARATION 3.66 Person RELIABILITY .93 S.E. OF Person MEAN = .14								

Fig. 5: Summary of Measured 77 Person

The instrument has quite a small measurement model error of +/-0.32 logit and capable of producing a good person separation of 3.58 as shown in Figure 5. It shows that the item is quite good where it is able to separate person (respondent) into about 4 groups of mobile phone users. However the Infit MNSQ SD=0.28 logit of measured person is little bit low when values less than 1.0 indicate that the scrutiny of the questionnaire are expected where they might be some redundancy of the questionnaire and data overfit the model [23] and z-std SD=1.0 logit shows data in this questionnaire have reasonable predictability [37]. Both items and person Infit MNSQ and z-std values is approaching to the ideal 1 and 0

correspondingly giving sign that the instrument is fit in measuring the users' awareness and usage in the theory of validity.

	TOTAL SCORE	COUNT	MEASURE	MODEL ERROR	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	64.3	75.1	.00	.32	.88	-.3	.85	.2
S.D.	56.2	4.0	1.73	.18	.40	1.9	.70	1.3
MAX	217.0	77.0	3.80	1.02	2.29	5.5	3.60	4.9
MIN	1.0	55.0	-6.27	0.15	.21	-4.2	.08	-1.1
REAL RMSE	.38	TRUE SD	1.69	SEPARATION	4.47	Item	RELIABILITY	.95
MODEL RMSE	.37	TRUE SD	1.70	SEPARATION	4.63	Item	RELIABILITY	.96
S.E. OF Item MEAN = .20								

Fig. 6: Summary of Measured 79 Items

Figure 6 shows a high item reliability of 0.95(95%) showing sufficiency of item range. It indicates that there are enough items in this questionnaire to measure the users' awareness and usage on mobile Islamic content. However, the Person Mean;  $\mu = -1.27$  logit seems like users lack of awareness in mobile Islamic content and the further research has to be proceed and carried out. The maximum Item measure is  $+3.80$ logit (SE: 1.02) as compared to maximum Person ability stands at low  $+1.11$ logit (SE: 0.65). The difference of 2.69 logit between Item and Person maximum ( $3.80 - 1.11$ ) shows that this questionnaire has insufficient difficult items. Nevertheless, there are sufficient items for the easy task where minimum Item measure is at  $-6.27$ logit against the min mobile phone user is at  $-4.31$  logit.

#### 4.2.2 Unidimensionality

Unidimensionality is a fundamental theory in systematic measurement that one attributes of an object (eg.temperature, width, length) be calculated at a time [36]. Rasch analysis applies the Principle Component Analysis (PCA) of the residuals; i.e. how much variance is the instrument in measuring what is supposedly to be measured. The raw variance explained by measured is 80.9% quite matched the expected 71.9%. Besides it meets unidimensionality requirement minimum of 20 % [38], minimum cut off Rasch 40% [39] is highly achieved. Thus, the unexplained variance in the 1<sup>st</sup> contrast of good 3.1% is obtained as shown in Figure 7. It shows that in 80.9% item in the questionnaire, only 3.1% of the item that distorted the measurements; means there are some items exist like questions for Communication (SMS and Calls) in the questionnaire that did not measure the objectives but with minimal effect.

		-- Empirical --	Modeled
Total raw variance in observations	=	403.9	100.0%
Raw variance explained by measures	=	326.9	80.9%
Raw variance explained by persons	=	245.4	60.8%
Raw Variance explained by items	=	81.5	20.2%
Raw unexplained variance (total)	=	77.0	19.1%
Unexplained variance in 1st contrast	=	12.6	3.1%

Fig. 7. Standardized Residual Variance (in Eigenvalue units)

### 4.2.3 Person Item Map for Usage

Person Item Map will display the pattern of persons and items measured where the value for item represent difficulty level and the value of person represent capability. Figure 8 shows Person Item Map for Usage and domain for this pilot study. From the figure it is clearly stated that most of the user prefer the communication, multimedia and entertainment attribute with yellow, red and light blue in colour.

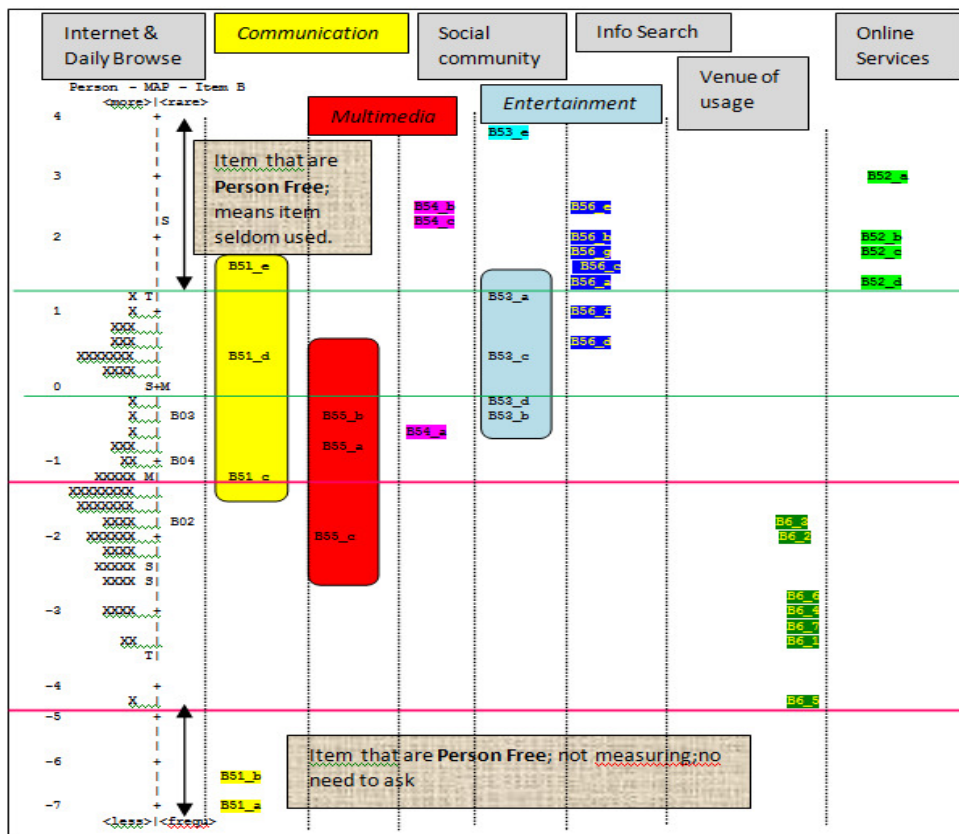


Fig. 8: Person Item Map – User Preferences

#### **4.2.4 Discussion**

Eventhough, this was only a pilot study but the result had shown tremendous output where the reliability for Items and Person is 0.95 and 0.93 respectively, when the minimum cut off is 0.7 for Cronbach-  $\alpha$ . In addition, the raw variance explained by measured is 80.9% highly achieved, and meets unidimensionality requirement when minimum cut off Rasch is only 40% [39]. The raw score test Cronbach- $\alpha$  yield a high reliability which allows further analysis of the instrument in measuring users' awareness and usage for mobile Islamic content. The finding showed that there was a big gap exists among Mobile Quran and Mobile Seerah usage for Muslims user. The big gap can be a significant issue to proceed with the Mobile Seerah research in the future. Other findings showed that user were interested mostly towards entertainment and communication purposes that related mostly with multimedia elements. Thus items like Islamic content that was seldom used by the respondents should implement the approach of using multimedia elements to attract the user to browse the Islamic content as entertainment application.

### **4.3 Conclusion**

Referring on the studies carried out, multimedia elements is value added that will put Islamic knowledge dissemination more attractive to the public either newbie or professional. From the content analysis method, the study found gap on the extensive used of certain multimedia elements on the sample website while the survey had come out with user preferences on the multimedia elements usage especially related with entertainment and communication purposes. However, only a small number of Islamic content manipulated the multimedia elements in the delivery eventhough through the survey has proven that users preferred the multimedia elements on mobile for the Islamic application.

## **5 Recommendation for Future Works**

One of the greatest impacts of advancement in ICT is the usage of mobile platform in various areas including the dissemination of knowledge and information. However, the dissemination of information on Islam especially the historical content is hardly found. Unlike other Islamic contents which are widely available in the markets such as Mobile Quran and Mobile Athan, mobile content on Seerah Rasulullah is not widely developed for mobile use. This fact is supported the claim made by [24]. This study suggested that if the mobile technology can be used for teaching and learning; and playing games, this



technology can also successfully be used to deliver the life history of the Prophet. However, a suitable yet careful design is required especially when designing for small screen devices.

In practice, text has been used and dominated most of the information presented on the interface design despite the highlighted benefits of multimedia use in the literature [19]. This study opens up an opportunity for future research to consider benefits of text and other multimedia elements to be included in the Islamic historical content on the websites and mobile application.

## **6 Conclusions**

Based on the content analysis conducted, there are many existing website that discusses about the life history of Prophet Muhammad. However, most of the websites deliver the content as a text based website. This needs to be enhanced as multimedia content has proven to be a better option to deliver information due to its potential to enhance the retention rate. In order to deliver the multimedia content over the internet, issues such as the bandwidth needs to be resolve. For delivering multimedia content through mobile platform, additional issues is on the optimizing the small screen capability of the device. Research is required to study on the suitable design of the small screen interface to deliver multimedia animated content. Furthermore the users' preferences of mobile phone usage have showed that Muslims' user interested towards entertainment application that related mostly with multimedia elements. Further analysis of mobile Islamic content and layout of the interface shall take place in the future to find the factors that might influence the usage of the mobile Islamic content. Future work will implement the multimedia elements on mobile Islamic content for attracting user to use the mobile Islamic content application.

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