

CHAPTER 5

DATA ANALYSIS AND FINDINGS

5.1 Introduction

This chapter presents the findings of the evaluation of the Semiotic Icon Design Application for Motivating Youth in Reciting Quran (SIDAQ). It presents the data analysis deemed as summative evaluation in ADDIE stages as described in the previous chapter. The result of this phase for the experimental procedure is presented to answer the sixth, seventh, and eight research questions of this study. The findings of the evaluation were discussed thoroughly to give an insight into the aspect of icon design, usability, motivation, and acceptance of SIDAQ. Each aspect will be discussed by presenting findings from questionnaire and interviews with youth and experts. Subsequently, chapter 6 concludes the evaluation to answer and achieve the objectives of this research. The chapter closes with the chapter summary.

5.2 The evaluation of Semiotic Icon Design Application (SIDAQ)

This section discusses the findings and data analysis on the evaluation of Semiotic Icon Design Application for Motivating Youth in Reciting Quran (SIDAQ). Following the formative evaluation in the implementation stage, the summative evaluation was conducted during the evaluation phase. The goal of summative evaluation is to measure

the learning outcomes after the teaching and learning process (Almomen et al., 2016; Koneru, 2010). A summative evaluation is performed on icon design and application design to improve the quality of the icon and application that is appropriate to the youth's level and needs. The assessment is also expected to be a guide to designers to develop a mobile application (Samsudin, 2018). This section presents the quantitative results to answer the sixth, seventh, and eight research questions, respectively, on what the responses on icon design, usability, motivation, and acceptance of semiotic icon design application for motivating youth in reciting Quran, does semiotic icon design elements influence youth's motivation in reciting Quran, and does the acceptance of SIDAQ influence youth's motivation in reciting Quran.

The evaluation of the SIDAQ was conducted through the experimental post method with the youth who performed the four evaluation aspects on the application. The evaluation was carried out with a sample of seventy-four (74) youth as the user of the application. The number of samples in line with the Roscoe (1975) recommended sample for experimental studies with a minimum of thirty (30) or more (30-500) is sufficient (Muslimin, 2015). A post-test questionnaire evaluation form (Google form) was administered to capture the user's perception of the SIDAQ application during the test session. A semi-structured interview was performed with three (3) youth randomly to support the study by getting the responses upon the experimental process. The SIDAQ application also was evaluated by the three (3) experts from the Information Technology and one (1) expert from the Quranic field through a questionnaire evaluation form and a semi-structured interview. This is in line with Nielsen (1993) that recommended the application evaluation by three to five evaluators will identify up to 66 to 75 percent of problems on the application interface that can be identified for better improvement.

The findings of the evaluation of SIDAQ are divided into four main aspects: icon design, usability, motivation, and acceptance. Each aspect will be discussed by presenting findings from the questionnaire and interviews with selected students and experts. After the questionnaire have been answered, the resulting quantitative data were tabulated and entered spreadsheet in the SPSS version 26.0 program. The data were analysed using a descriptive statistic to describe the demographics and responses on the icon design, usability, motivation, and acceptance. As for the qualitative data, the interview data are classified accordingly based on the evaluation aspects and analysed through Thematic analysis using Atlas.ti 8.0 program. The detail for data analysis and findings discussed detail in the next section.

5.2.1 Preliminary Analysis

a. Analysis of missing data

Data screening was done using IBM SPSS Statistic 26.0 software. The frequency command was applied. The result of the screening indicated that there is no missing variable as shown in Table 5.1. After passing the data screening process, the data underwent the next step of data analysis.

Table 5.1: Analysis of Missing Data

Variable	N	N		Mean	SD
		Valid	Missing		
Recognizable	74	100%	0.0%	4.38	0.753
Simple	74	100%	0.0%	4.22	0.707
Semantic	74	100%	0.0%	4.19	0.805
Familiarity	74	100%	0.0%	4.05	0.992
Consistency	74	100%	0.0%	4.18	0.783
Satisfaction	74	100%	0.0%	4.51	0.687
Effectiveness	74	100%	0.0%	4.27	0.880
Attention	74	100%	0.0%	4.26	0.741
Relevant	74	100%	0.0%	4.30	0.697
Confidence	74	100%	0.0%	4.41	0.720
Satisfaction	74	100%	0.0%	4.32	0.704
Perceived Ease of use	74	100%	0.0%	4.04	0.867
Perceived Usefulness	74	100%	0.0%	4.38	0.735
Actual Use	74	100%	0.0%	4.23	0.900

5.2.2 Semiotic Icon Design Application (SIDAQ) Element

This study used the semiotic icon design approach, usability of application, motivation, and acceptance of evaluation approaches. According to Keller (2000), the element of evaluation based on motivational design can also be adapted based on suitability of application development. For this study, the researcher has developed evaluation elements that can evaluate the icon design, usability of application, motivation, and acceptance as shown in Table 5.2.

Table 5.2: Icon Design Elements, Usability, Motivation and Acceptance

No	Element	Description
1	Recognizable	The icons are easy to be recognized. The images used on the icons are common. The icons grab my attention. The icons can express the idea of Surah.
2	Color	When I see the icons, I understand what they mean. The icons maintain matching color combination. The icon's color combination is harmonious. The icon's color attracts my attention. The icons use suitable color contrast. The icon's color is suitable for the app content.
3	Simple	The icon's design is simple. The icons use simple graphic style. The icons use simple background. The icons are easy to be comprehended. The icons are quick to be found.
4	Semantic	I can understand the meaning of the icons. The icons assist me to understand the idea of Surah. The icons have a close connection to the Surah. The icons can represent the genre of Surah. The icons represent their purpose/function.
5	Familiarity	The icons use familiar images. The icons are easy to be found in the app. The icons are easy to be comprehended. I can relate the icons to their meaning. Familiarity with the icons ease my understanding.
6	Consistent	The icons have a consistent style. The icons maintain consistent design. The icons have a consistent shape. The icons maintain consistent size. Consistency of icons ease my understanding.
7	Effectiveness	It is simple to use the app. I like to spend more time reciting the Quran. The app increases my curiosity to understand the Quran verses. The app increases my understanding on the idea of Surah. The app makes reciting Quran more effective.
8	Satisfaction	The content of the app is useful to me. The app assists me to understand the overall idea of Surah. I will use the app to motivate me in reciting the Quran.

No	Element	Description
9	Attention	I will recommend the app to others. Overall, I am satisfied with the app. The app's icons are unique. The app's icons have gained my attention. The app's icons have stimulated my curiosity. The app's content manages to keep my attention.
10	Relevant	The app's content is surprising. The app's content is relevant to my interests. The app's content relates to my way of life. The app's content is useful to me. The app's content is worth knowing.
11	Confidence	The app is significant to me. My first impression was the app looked easy. As user worked on the app, user is confident that they could understand the content. I feel confident to use the app. The organization of content assists me to understand the app.
12	Satisfaction	The app increases my confidence to understand idea of Surah in Quran. I am satisfied with the content of the app. I feel good when successfully browsing the app. I will use the app to understand the genre/theme of Surah. I would recommend the app to others.
13	Perceived Ease of use	I feel delighted when using the app. The app's loading time is short. The app uses simple language. Learning how to use the app is easy. I am happy to recite the Quran with the app.
14	Perceived Usefulness	Overall, I find the app is easy to be used. I have a better understanding of the idea of Surah when reciting using the Quran app. The app makes my Quran recitation more interesting. The app motivates me to recite Quran more frequently. The content of the app is useful to me.
15	Actual Use	Overall, the app can benefit me. Suitable for visualizing the genre of Surah in Quran. Help to understand the overall idea of Quran verse. It makes the Quran recitation more interesting. Increase motivation in reciting the Quran. This app can be used as a supportive tool.

Table 5.2 summarized the elements developed for application evaluation of this study, namely recognizable, color, simple, semantic, familiarity, consistent, satisfaction, effectiveness, attention, relevant, confidence, satisfaction, perceived ease of use, perceived usefulness, and acceptance. The table also shows examples of basic descriptions which describe each of the elements used. Two sets of instruments were developed based on this evaluation method, namely a set of questionnaires for expert and youth. The questionnaire was adapted from Catalina Vaquero and Morales López

(2016), Guo (2016), Kamarulzaman et al. (2020), Qiang and Fei (2016), Yang (2015), Yew (2015), as well as Zender and Mejia (2013). The following describes the implications for evaluating the survey questionnaire for youth and experts based on the proposed element in Table 5.2.

5.2.3 Implication of Usability Elements to Expert Evaluation Forms

The expert questionnaire form focused on four keys aspects, namely design form of icon design, usability, motivation, and acceptance of application. They adapted all four aspects to the study's evaluation elements. The questionnaire form items for the experts were constructed, in line with the elements formulated.

According to Nielsen (1993), the method of usability evaluation is one that involves experts in the field. It is best to keep the questionnaire items short to maximize the response rate. Then use of simple and short items are sufficient to achieve the purpose of assessment. In this study, the researcher used simple items as in the usability evaluation element to save respondents' time.

Figure 5.1 shows the construction of seventy-five items in the expert questionnaire form. Thirty items in the icon design element consisted of evaluation element of recognizable, color, simple, semantic, familiarity and consistency. Ten items in the usability elements consist of two evaluation elements of satisfaction and effectiveness, and twenty items were used for motivation elements consisting of evaluation element of attention, relevance, confidence and satisfaction. Fifteen items in acceptance include perceived ease of use, perceived usefulness and actual use for evaluation element of acceptance.

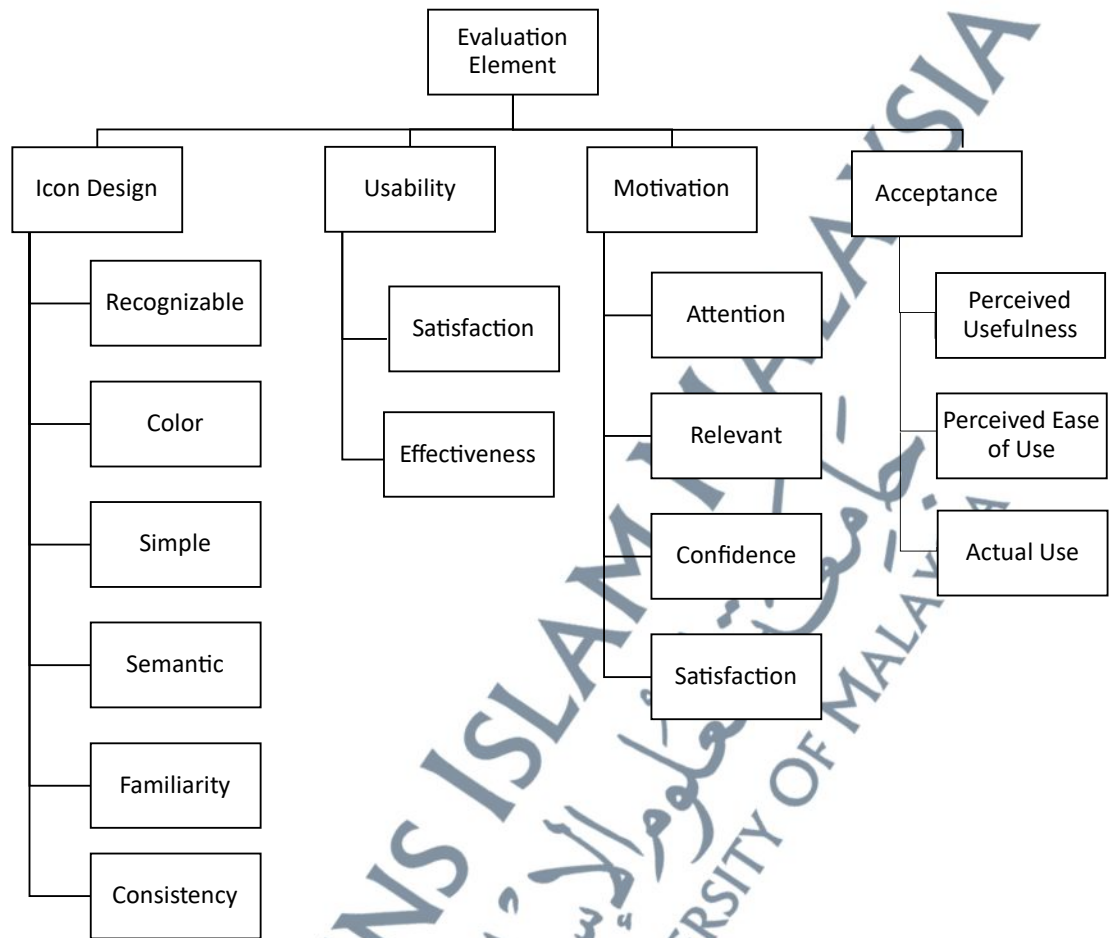


Figure 5.1: Expert evaluation framework for item development

5.2.4 Implication of Elements for Youth Evaluation Form

The student questionnaire form is focused on four main aspects namely icon design, usability of application, motivation, and acceptance. These elements have been categorized based on the research needs and the research questions. Based on these elements, assessment items are constructed and adapted to the evaluation elements of studies which suggest that adjustments can be made based on needs. Constructed items are also consistent with the respondents' level of understanding.

Figure 5.2 shows the evaluation element of seventy-five items in the youth questionnaire according to four evaluation components. For icon design components,

there are thirty items consisting of evaluation element of recognizable, color, simple, semantic, familiarity and consistency. The usability of application component has 10 items consisting of two evaluation elements of satisfaction and effectiveness. The third component of motivation has twenty items consisting of evaluation element of attention, relevance, confidence, and satisfaction. The acceptance component has fifteen items including perceived ease of use, perceived usefulness, and actual use.

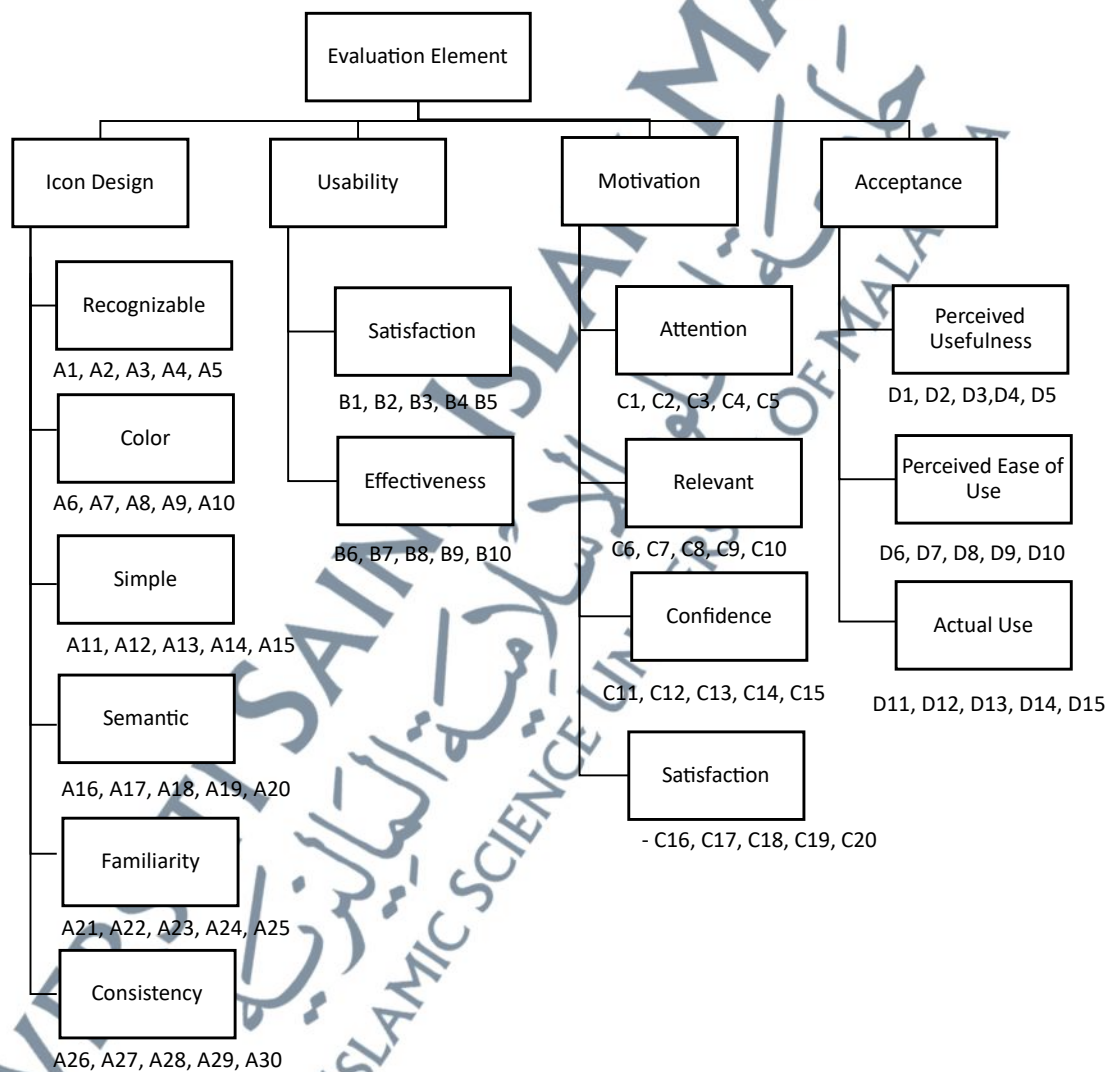


Figure 5.2: Youth evaluation framework for item development

5.3 Research Respondent Profile

The semiotic icon design application evaluation was carried out on 74 youth with Islamic and non-Islamic studies background in three different age groups of 15 to 17, 18 to 22 and 23 to 30 years. All youth respondents are target users of the system generated in this study. This profile of respondents is a component first part of the questionnaire form distributed. Insights from profile of respondents include gender, age, secondary education, and higher education institution.

Table 5.3 shows the frequency and percentage of survey respondents in four sections. Gender finding indicated that 81.1 percent of female respondents (n = 60) outnumbered 18.9 percent male respondents (n = 14). All the students in the study were from three age groups. The stage ranges between 15 to 17 years, between 18 to 22 years, and between 23 to 30 years. From the 74 respondents, 24.3 percent (18) were between 15 and 17 years; 55.4 percent (41) were between 18 and 22 years; 20.3 percent (15) were between 23 and 30.

Table 5.3: Research Respondent Profile

Item		Frequency	Percent (%)
Gender	Female	60	81.1
	Male	14	18.9
Age	15-17	18	24.3
	18-22	41	55.4
	23-30	15	20.3
Previous School	Arabic School (SAR / SMA/ SAM)	22	29.7
	Boarding School (SBP / MRSM)	2	2.7
	National Islamic Secondary School (SMKA)	1	1.4
	National Secondary School (SMK)	28	37.8
	Others	21	28.4
Highest Education	Bachelor	6	8.1
	Diploma	34	45.9
	Postgraduate	2	2.7
	SPM / SPMV	23	31.1
	STPM / STAM	9	12.2

From the aspect of secondary education background, the findings show that 29.7 percent of students are pursuing secondary education in Arabic School (SAR/SMA/SAM), 2.7 percent in Boarding School (SBP/MRSM), 1.4 percent in National Islamic Secondary School (SMKA), 37.8 percent in National Secondary School (SMK) and 28.4 percent were from other secondary education institutions. While in highest education the findings show that 8.1 percent of respondents were studying at bachelor's degree level, 45.9 percent in diploma, 2.7 percent in Postgraduate, 31.1 percent in SPM/SPMV and 12.2 percent in STPM/STAM. The highest percentage of respondents were studying at Diploma level, followed by SPM/SPMV, STPM/STAM, Bachelor and Postgraduate.

5.4 Evaluation of Semiotic Icon Design Application (Youth)

This evaluation of semiotic icon design application is an important aspect of the application usability assessment. The evaluation discussion in this chapter deals with four components of application design, namely icon design, usability, motivation and acceptance. This study uses icon design elements as a measurement element. All aspects in the evaluation are obtained from questionnaires and interviews. The following is a result of the finding of application design of Semiotic Icon Design Application for reciting Quran (SIDAQ).

5.4.1 Icon Design

The design of the icon is the main aspect of evaluation of application study. Icon design of the semiotic icon design application for Quran is based on the design of the application developed in the application design phase. Among the aspects of the design

are recognizable, color, simple, semantic, familiarity and consistency. In the instrument provided there are thirty (30) items constructed in part II to obtain information from the respondents of the study related to the icon design used in the application.

Table 5.4 shows the frequency distribution, percentage, mean, standard deviation (SD) and the mean interpretation of each item for icon design for SIDQ. Thirty items in the aspect of icon design indicate the mean of each item is at a high mean level of interpretation (4.01-5.00) based on mean score interpretation (Nunnally, 1978) (see Table 4.4). However, the total mean for icon design is mean = 4.21 (standard deviation .76) is at a high level. Only one to nine respondents disagree or strongly disagree with some of the icon design items.

Table 5.4: Frequency, Percentage, SD and Mean - Icon Design (Youth)

Item	Icon Design	SD F %	D F %	M F %	A F %	SA F %	Mean Interpretation	SD
A1	The icons are easy to be recognized.	1 1.4	1 1.4	3 4.1	33 44.6	36 48.6	4.38 (High)	.75
A2	The image used on the icons are common.	0 0	3 4.1	8 10.8	40 54.1	23 31.13	4.12 (High)	.76
A3	The icons grab my attention.	0 0	3 4.1	7 9.5	38 51.4	26 35.1	4.18 (High)	.77
A4	The icons can express the idea of Surah.	1 2.7	0 0	7 9.5	38 51.4	27 36.5	4.19 (High)	.82
A5	When I see the icons, I understand what they mean	0 0	2 2.7	11 14.9	30 40.5	31 41.9	4.22 (High)	.80
A6	The icons maintain matching color combination	0 0	1 1.4	10 13.5	37 50.0	36 35.1	4.19 (High)	.72
A7	The icon's color combination is harmonious.	0 0	1 1.4	5 6.8	37 50.0	31 41.9	4.32 (High)	.66
A8	The icon's color attract my attention.	1 1.4	1 1.4	6 8.1	37 50.0	29 39.2	4.24 (High)	.77
A9	The icons use suitable color contrast.	0 0	2 2.7	6 8.1	37 50.0	27 39.2	4.26 (High)	.72
A10	The icon's color is suitable for the app content.	0 0	1 1.4	6 8.1	34 45.9	33 44.6	4.34 (High)	.69
A11	The icon's design is simple.	1 1.4	1 1.4	15 20.3	29 39.2	28 39.2	4.11 (High)	.87

Item	Icon Design	SD F %	D F %	M F %	A F %	SA F %	Mean Interpretation	SD
A12	The icons use simple graphic style.	0 0	1 1.4	15 20.3	29 39.2	29 39.2	4.16 (High)	.79
A13	The icons use simple background.	1 1.4	2 2.7	7 9.5	39 52.7	25 33.8	4.22 (High)	.75
A14	The icons are easy to be comprehended.	0 0	1 1.4	10 13.5	33 44.6	30 40.5	4.24 (High)	.74
A15	The icons are quick to be found.	0 0	1 1.4	9 12.2	37 50.0	27 36.5	4.22 (High)	.71
A16	I can understand the meaning of the icons.	0 0	2 2.7	12 16.2	30 40.5	30 40.5	4.19 (High)	.81
A17	The icons assist me to understand the idea of Surah.	0 0	2 2.7	9 12.2	35 47.3	28 37.8	4.20 (High)	.76
A18	The icons have a close connection to the Surah.	1 1.4	1 1.4	9 12.2	36 48.6	27 36.5	4.18 (High)	.80
A19	The icons can represent the genre of Surah.	0 0	2 2.7	5 6.8	39 52.7	28 37.8	4.26 (High)	.70
A20	The icons represent their purpose/function.	0 0	2 2.7	9 12.2	38 51.4	25 33.8	4.16 (High)	.74
A21	The icons used familiar images.	1 1.4	8 10.8	4 5.4	34 45.9	27 36.5	4.05 (High)	.99
A22	The icons are easy to be found in the app.	0 0	3 4.1	9 12.2	35 47.3	27 36.5	4.16 (High)	.79
A23	The icons are easy to be comprehended.	0 0	2 2.7	7 9.5	39 52.7	26 35.1	4.20 (High)	.72
A24	I can relate the icons to their meaning.	0 0	2 2.7	6 8.1	37 50.0	29 39.2	4.26 (High)	.72
A25	Familiarity with the icons ease my understanding.	0 0	2 2.7	6 8.1	38 51.4	28 37.8	4.24 (High)	.72
A26	The icons have a consistent style.	0 0	2 2.7	11 14.9	33 44.6	28 37.8	4.18 (High)	.78
A27	The icons maintain consistent design.	0 0	2 2.7	7 9.5	38 51.4	27 36.5	4.22 (High)	.73
A28	The icons have a consistent shape.	0 0	2 2.7	9 12.2	34 45.9	29 39.2	4.22 (High)	.76
A29	The icons maintain consistent size.	0 0	2 2.7	8 10.8	40 54.1	24 32.4	4.16 (High)	.72
A30	Consistency of icons ease my understanding.	0 0	2 2.7	6 8.1	35 47.3	31 41.9	4.28 (High)	.73
Total Mean							4.21 (High)	.76

Based on Table 5.4, items that convey the icon are easy to be recognized (mean = 4.38, sd = .75), the icon's color is suitable for the app content (mean = 4.38, sd = .69), the icon's color combination is harmonious (mean = 4.32, sd = .66), when I see the icons, I understand what they mean (mean = 4.22, sd = .80), consistency of icons eases my understanding (mean = 4.28, sd = .73), familiarity with the icons ease my

understanding (mean = 4.24, sd = .72), the icons use suitable color contrast (mean = 4.26, sd = .72), item can relate the icons to their meaning (mean = 4.26, sd = .72), item the icons can represent the genre of Surah (mean = 4.26, sd = .70), item the icons use simple background (mean = 4.22, sd = .75) and item the icons use suitable color contrast (mean = 4.26, sd = .72).

Based on the viewable table, item with the highest mean was the icons are easy to be recognized with average of 4.38 and 75.0 percent of the respondents agree and strongly agree. However, only the icons used familiar images has a mean average of 4.05 and a standard deviation of 0.99. It was also the lowest mean and highest standard deviation with the high percentage of respondents agreeing with 82.4 percent.

This finding shows that the overall design of the icon used in the application is good and can meet user needs. The simple icon design enables the information to be presented clearly to users. The choice of color used for displaying backgrounds and data representations in the display can help make the application easier to use and more convenient for users. The use of simple graphics icon is great and it can be done on a consistent basis. This has made respondents respond that the design of the icon is easy to understand and user-friendly.

5.4.2 Usability

The second component in the semiotic icon design application evaluation is usability. Insights into this component were derived from the questionnaire and discussed in the interview session. Among the aspects of usability of application that are meant in this study include the use of the advantages of appropriate application usability in the process of obtaining information and meeting user needs and has simple application control features.

Ten (10) items have been constructed to obtain relevant data with the semiotic icon design usability of application. It gives an explanation on usability of application techniques used in development. Table 5.5 shows frequency distribution, percentage, mean, standard deviation and mean interpretation for each item. All 10 items are in terms of usability of application show the high mean interpretation level (4.01-5.00). No items elicited a medium or low mean. The overall mean of entire items is mean = 4.42 and standard deviation 0.70 was also high. So, this finding indicates that only one to three respondents only who disagree or strongly disagree with each item of usability of application.

Items that have high mean are items overall, the app can benefit me (mean = 4.47, sd = .71), I like to spend more time reciting the Quran (mean = 4.47, sd = .69), the app makes the reciting Quran more effective (mean = 4.47, sd = .69), the app increases my curiosity to understand the Quran verses (mean = 4.51, sd = .71), overall, I am satisfied with the app (mean = 4.51, sd = .69), the content of the app is useful to me (mean = 4.51, sd = .65) which is also the highest mean item with lowest standard deviation with 94.6 percent of the respondents agree and strongly agree and only one of the respondents disagree.

This finding shows that the mean of the overall usability of application was 4.42 with a standard deviation of .70. This finding is interpreted as high. This shows that this application has excellent usability and can meet user needs by providing the usability that application users need.

Table 5.5: Frequency, Percentage, SD, and Mean - Usability (Youth)

Item	Usability	SD F %	D F %	M F %	A F %	SA F %	Mean Interpretation	SD
B1	The content of the app is useful to me.	0 0	1 1.4	3 4.1	27 36.5	43 58.1	4.51 (High)	.65
B2	The app assists me to understand the overall idea of Surah.	1 1.4	0 0	3 4.1	32 43.2	38 51.4	4.43 (High)	.70
B3	I will use the app to motivate me in reciting the Quran.	0 0	1 1.4	3 4.1	31 41.9	39 52.7	4.46 (High)	.65
B4	I will recommend the app to others.	1 1.4	1 1.4	3 4.1	29 39.2	40 54.1	4.43 (High)	.76
B5	Overall, I'm satisfied with the app.	0 0	2 2.7	2 2.7	26 35.1	44 59.5	4.51 (High)	.69
B6	It is simple to use the app.	2 2.7	1 1.4	6 8.1	31 41.9	34 45.9	4.27 (High)	.88
B7	I like to spend more time reciting the Quran.	1 1.4	0 0	2 2.7	31 41.9	40 54.1	4.47 (High)	.69
B8	The app increases my curiosity to understand the Quran verses.	0 0	1 1.4	6 8.1	24 32.4	43 58.1	4.47 (High)	.71
B9	The app increases my understanding on the idea of Surah.	0 0	1 1.4	7 9.5	24 32.4	42 56.8	4.45 (High)	.72
B10	The app makes reciting Quran more effective.	1 1.4	0 0	2 2.7	31 41.9	39 54.1	4.47 (High)	.69
Total Mean							4.42 (High)	.70

5.4.3 Motivation

The third component in the semiotic icon design application evaluation is motivational aspect for this application. The findings of the components are derived from the questionnaire and interviews conducted. Among the aspects of the motivational design are attention, relevance, confidence, and satisfaction.

In the instrument provided twenty (20) items were constructed to obtain data related to the motivation aspect in the semiotic icon design application. This section provides an overview of appropriate and effective motivation aspects. Table 5.6 shows the frequency distribution, percentage, mean, standard deviation (SD) and mean interpretation of each item of motivation in the application. All twenty items in the aspects of motivation show the mean of the mean level of interpretation (4.01-5.00). No

items have a medium or low mean. The total mean of the motivation was mean = 4.30 and the standard deviation of .73 was also high. Similarly, this finding shows that only one to two respondents disagree or strongly disagree with each item of motivation on application.

From Table 5.6, items that have high means are the application content is useful to me (mean = 4.35, sd = .73), I feel confident to use the app (mean = 4.35, sd = .69), the app increases my confidence to understand idea of Surah in Quran (mean = 4.34, sd = .71), the app content manages to keep my attention (mean = 4.34, sd = .69) and app is significant to me (mean = 4.34, sd = .76) and my first impression was the app looked easy (mean = 4.41, sd = .72) which was also the highest rated item with the highest percentage of respondents agreeing of 93.3 percent.

Table 5.6: Frequency, Percentage, SD, and Mean for Motivation (Youth)

Item	Motivation	SD		D		M		A		SA		Mean Interpretation	SD
		F	%	F	%	F	%	F	%	F	%		
C1	The app's icons are unique.	1	0	9	32	32	4.26	.85					
		1.4	0	12.2	43.2	43.2	(High)						
C2	The app's icons have gained my attention.	0	1	10	32	31	4.26	.74					
		0	1.4	13.5	43.2	41.9	(High)						
C3	The app's icons have stimulated my curiosity.	1	0	9	32	32	4.27	.78					
		1.4	0	12.2	43.2	43.8	(High)						
C4	The app's content manages to keep my attention.	0	1	6	34	33	4.34	.69					
		0	1.4	8.1	45.9	44.6	(High)						
C5	The app's content is surprising.	1	0	7	32	24	4.18	.78					
		1.4	0	14.9	47.3	36.5	(High)						
C6	The app's content is relevant to my interests.	0	2	4	31	2	4.30	.70					
		0	2.7	5.4	51.4	40.5	(High)						
C7	The app's content relates to my way of life.	1	1	3	39	30	4.30	.74					
		1.4	1.4	4.1	52.7	40.5	(High)						
C8	The app's content is useful to me.	0	2	5	32	35	4.35	.73					
		0	2.7	6.8	43.2	47.3	(High)						
C9	The app's content is worth knowing.	1	1	5	37	30	4.27	.76					
		1.4	1.4	6.8	50.0	40.5	(High)						
C10	The app is significant to me.	1	1	4	34	34	4.34	.76					
		1.4	1.4	5.4	45.9	45.9	(High)						
C11	My first impression was the app looked easy.	1	0	4	32	37	4.41	.72					
		1.4	0	5.4	43.3	50.0	(High)						
C12	As I worked on the app, I am confident that I could understand the content.	0	1	6	35	32	4.32	.69					
		0	1.4	8.1	47.3	43.2	(High)						

Item	Motivation	SD F %	D F %	M F %	A F %	SA F %	Mean Interpretation	SD
C13	I feel confident to use the app.	0 0	1 1.4	6 8.1	33 44.6	34 45.9	4.35 (High)	.69
C14	The organization of content assists me to understand the app.	0 0	1 1.4	7 9.5	32 43.2	34 45.9	4.34 (High)	.71
C15	The app increases my confidence to understand idea of Surah in Quran.	1 1.4	0 0	4 5.4	37 50.0	32 43.2	4.34 (High)	.71
C16	I satisfied with the content of the app.	1 0	0 0	7 9.5	33 44.6	33 44.6	4.32 (High)	.70
C17	I feel good when successfully browsing the app.	0 0	2 2.7	5 6.8	39 52.7	28 37.8	4.26 (High)	.70
C18	I will use the app to understand the genre/theme of Surah.	0 0	1 1.4	8 10.8	32 43.2	33 44.6	4.31 (High)	.72
C19	I would recommend the app to others.	0 0	2 2.7	5 6.8	36 48.6	31 41.9	4.30 (High)	.72
C20	I feel delighted when using the app.	1 1.4	1 1.4	6 8.1	33 44.6	33 44.6	4.30 (High)	.79
Total Mean							4.30 (High)	.73

The findings show that the mean of the overall design of motivation is 4.30 which is interpreted as high. This shows that, overall, the respondents strongly agree with the use of semiotic icon-based application as a supportive tool to motivate in reciting Quran.

5.4.4 Acceptance of Application in Quran Domain

The use of application for Quran is built into section five of the questionnaire. The use of the application in this study refers to the consumer's perception of the use of the application as a supportive tool for reciting and the acquisition of Quran knowledge. All components of this use question are derived from questionnaires and interviews. The following are the findings related to using semiotic icon design application in the instrument provided, five (5) items have been developed to obtain data related to the use of semiotic icon design application in the Quran domain. The evaluation of this section provides an insightful application of the use of semiotic icon design application in the Quran literature in its appropriate and effective aspects.

Table 5.7 shows the frequency, percentage, mean, standard deviation (SD) and mean interpretation of each item of acceptance of the application. All five items in the acceptance aspects of the application show high mean level of interpretation (4.01-5.00). No items elicited a medium or low mean. The total mean of the whole item was mean = 4.41 and the standard deviation of .74 was also high. This finding indicates that only one to three of the respondents disagreed or strongly disagreed with each item in acceptance of the application.

From Table 5.7, items that have high means are items it makes the Quran recitation more interesting (mean = 4.45, sp = .72), I am happy to recite the Quran with the app (mean = 4.45, sd = .70), this app can be used as a supportive tool (mean = 4.45, sd = .70), the apps makes my Quran recitation more interesting (mean = 4.45, sd = .62), overall I find the app easy to be used (mean = 4.47, sd = .65), increase motivation in reciting the Quran (mean = 4.49, sd = .68), the content off the app is useful to me (mean = 4.51, sd = .63), and overall, the app can benefit me (mean = 4.53, sd = .69) which was also the highest rated item with the highest percentage of respondents agreeing with 91.9% percent.

Table 5.7: Frequency, Percentage, SD, and Mean - Acceptance (Youth)

Item	Acceptance	SD		D		M		A		SA		Mean Interpretation	SD
		F	F	F	F	F	F	F	F				
		%	%	%	%	%	%	%	%	%			
D1	The app's loading time is short.	1	1	17	30	25	4.04	.87					
		1.4	1.4	23	40.5	33.8	(High)						
D2	The app uses simple language.	0	1	8	31	34	4.32	.72					
		0	1.4	10.8	41.9	45.9	(High)						
D3	Learning how to use the app is easy.	0	1	5	35	33	4.35	.67					
		0	1.4	6.8	47.3	44.6	(High)						
D4	I am happy to recite the Quran with the app.	1	0	3	31	39	4.45	.70					
		1.4	0	4.1	41.9	52.7	(High)						
D5	Overall, I find the app is easy to be used.	0	1	3	30	40	4.47	.65					
		0	1.4	4.1	40.5	54.1	(High)						
D6	I have a better understanding of the idea of Surah when reciting using the Quran app.	0	1	8	27	38	4.38	.74					
		0	1.4	10.8	36.5	51.4	(High)						
D7	The app makes my Quran recitation more interesting.	0	1	2	34	37	4.45	.62					
		0	1.4	2.7	45.9	50	(High)						
D8	The app motivates me to recite Quran more frequently.	0	1	2	34	37	4.40	.62					
		0	1.4	2.7	45.9	50	(High)						
D9	The content of the app is useful to me.	0	1	2	29	42	4.51	.63					
		0	1.4	2.7	39.2	56.8	(High)						
D10	Overall, the app can benefit me.	0	1	5	22	46	4.53	.69					
		0	1.4	6.8	29.7	62.2	(High)						
D11	Suitable for visualizing the genre of Surah in Quran	2	1	8	30	33	4.23	.90					
		2.7	1.4	10.8	40.5	44.6	(High)						
D12	Help to understand the overall idea of Quran verse.	0	1	6	28	39	4.42	.70					
		0	1.4	8.1	37.8	52.7	(High)						
D13	It makes the Quran recitation more interesting.	1	0	4	29	40	4.45	.72					
		1.4	0	5.4	39.2	54.1	(High)						
D14	Increase motivation in reciting the Quran.	0	1	4	27	42	4.49	.68					
		0	1.4	5.4	36.5	56.8	(High)						
D15	This app can be used as a supportive tool.	0	1	6	26	41	4.45	.70					
		0	1.4	8.1	45.1	55.4	(High)						
Total Mean											4.41(High)	.74	

The overall finding of the acceptance of this application is that it has a mean of 4.44 with high interpretation. This reflects the respondents' positive view of using the application. Overall, this illustrates the suitability and acceptance of the application as a supportive tool and as an alternative in reciting Quran.

5.5 Finding on Discussion on Interview (Youth)

In this study, interview technique was used in supporting qualitative data acquisition. Three students out of the respondents were randomly selected after they had used the application and completed the questionnaire form. Respondents were also asked a few questions which can prove whether they gained better understanding on genre of surah by using the application. Process of recording this achievement is done using traditional information acquisition process and the application developed. These results include examples based on the components of this study's evaluation:

5.5.1 Icon Design

As a result of the evaluation survey, respondents were very positive and interested in the application of this study. When asked about the design of the icon the respondents stated that the icon design interface was developed accordingly. Some of them even said something new. However, they consider the icon interface to be used in accordance with the content of the application that communicates the information visually. Here is an example of an interview done that discussed the application interface design.

Table 5.8: Sample Interview Data on Icon Design (Youth)

Respondent	Description
Researcher	<i>What do you think of the application used earlier? In terms of icon design</i>
Respondent 1	<i>Beautiful icon and deep meaning</i>
Respondent 2	<i>It is such an interesting application</i>
Respondent 3	<i>Icon used is easy to understand and very general for user</i>
Researcher	<i>Do you understand the term "icon design"</i>
Respondent 1	<i>Yes, I understand it</i>
Respondent 2	<i>Not really</i>
Respondent 3	<i>Yes</i>
Researcher	<i>What is your view on the design of the icons?</i>
Respondent 1	<i>A very interesting design</i>
Respondent 2	<i>It is simple but still attractive</i>
Respondent 3	<i>Attractive, creative and easy to understand</i>
Researcher	<i>Is the icon design developed appropriately?</i>
Respondent 1	<i>Yeah, that's right</i>
Respondent 2	<i>Yes</i>
Respondent 3	<i>Yes, very appropriate</i>

Respondent	Description
Researcher	<i>Is there any issue with the icon design?</i>
Respondent 1	<i>No. It is a robust and attractive design.</i>
Respondent 2	<i>No issue at all</i>
Respondent 3	<i>No</i>
Researcher	<i>Do you understand the term “semiotic icon design”?</i>
Respondent 1	<i>Yes, it is first time. I guess it is something related to icon design.</i>
Respondent 2	<i>No</i>
Respondent 3	<i>No</i>
Researcher	<i>Do you have any comments and suggestions to improve the icon (if any)</i>
Respondent 1	<i>I think put voice of people reading Quran because not everyone can read, there are also blind people who can only listen to the recitation.</i>
Respondent 2	<i>Nil.</i>
Respondent 3	<i>More color for icon</i>

5.5.2 Usability of Application

In terms application usability, the respondents stated that the application is easy to use, useful, effective and satisfy the semiotic icon and content of the application.

Table 5.9 is the sample of an interview data that discusses usability of the application.

Table 5.9: Sample Interview Data on Usability of Application (Youth)

Respondent	Description
Researcher	<i>What do you think of the application used earlier?</i>
	<i>In terms of satisfaction</i>
Respondent 1	<i>I am satisfied with the application.</i>
Respondent 2	<i>The text in the application is all readable and the color is suitable.</i>
Respondent 3	<i>I am very satisfied with the application. Can use frequently.</i>
	<i>In terms of effectiveness</i>
Respondent 1	<i>The app is effective.</i>
Respondent 2	<i>The navigation buttons are working perfectly so it is good.</i>
Respondent 3	<i>Yes, the application is very effective for users. Can ease the recitation.</i>
Researcher:	<i>Is the use of the mobile application appropriate to understand the genre/idea of surah in the Quran?</i>
Respondent 1	<i>Yes</i>
Respondent 2	<i>Yes</i>
Respondent 3	<i>Yes, this application is so suitable for understanding the idea in surah</i>
Researcher:	<i>What are the advantages and disadvantages of this mobile app?</i>
Respondent 1	<i>Easy to use</i>
Respondent 2	<i>Provide medium to get new info but amount of information is limited.</i>
Respondent 3	<i>The advantage of this app, in my opinion, it can facilitate the user in using it as well as in understanding recitation</i>
Researcher:	<i>Please provide any suggestions for improvement of the application.</i>
Respondent 1	<i>Put more interesting chapters like Al-Mulk and Al-Waqiah</i>
Respondent 2	<i>Nothing. It is already good.</i>
Respondent 3	<i>Maybe in the way to pronounce words in verses of al-Quran.</i>

5.5.3 Motivation

In term of motivation in using of application to recite Quran, the respondents stated that the application aroused their attention, content is relevant, they were confident and satisfied with the icon and content of application. Here is the interview that discusses on motivation.

Table 5.10: Sample Interview Data on Motivation (Youth)

Respondent	Description
<i>Researcher</i>	<i>What do you think of the application used earlier? In term of understanding of surah genre in the Quran?</i>
<i>Respondent 1</i>	<i>Gives a deep meaning</i>
<i>Respondent 2</i>	<i>The application is such an easy medium.</i>
<i>Respondent 3</i>	<i>Yes, easy to understand the verse, themes and meaning in relevant surah.</i>
	<i>In terms of motivation to recite Quran</i>
<i>Respondent 1</i>	<i>I felt motivated to recite Quran.</i>
<i>Respondent 2</i>	<i>Nice because it shares interesting information related to Surah in Quran. Can facilitate users in understanding terms related to the themes of Surah.</i>
<i>Respondent 3</i>	<i>Assist to recite Quran frequently</i>
	<i>In terms of attention of application</i>
<i>Respondent 1</i>	<i>Application grabs my attention.</i>
<i>Respondent 2</i>	<i>Good because the content is simple.</i>
<i>Respondent 3</i>	<i>Grab my attention.</i>
	<i>In terms of relevance of application</i>
<i>Respondent 1</i>	<i>Yes, it is relevant to understand the message of surah</i>
<i>Respondent 2</i>	<i>It is relevant because it offers a new medium for people to gain information.</i>
<i>Respondent 3</i>	<i>Relevant to understand the message of surah</i>
	<i>In term of confidence on application</i>
<i>Respondent 1</i>	<i>Yes, I am confident with the application.</i>
<i>Respondent 2</i>	<i>Confident because the developer is a Muslim.</i>
<i>Respondent 3</i>	<i>Confident with the application. Motivate user.</i>
	<i>In terms of satisfaction on application</i>
<i>Respondent 1</i>	<i>Yes, I satisfy [I am satisfied] with [the] application.</i>
<i>Respondent 2</i>	<i>The content is just nice for people who want to gain knowledge about Surah in</i>
<i>Respondent 3</i>	<i>Quran. I am satisfied with the application</i>
<i>Researcher</i>	<i>Are there any other sources, like the proposed application?</i>
<i>Respondent 1</i>	<i>No, I think.</i>
<i>Respondent 2</i>	<i>None to my knowledge</i>
<i>Respondent 3</i>	<i>No. Many apps more to listening Quran</i>
<i>Researcher</i>	<i>Please provide any suggestions for improving the applications</i>
<i>Respondent 1</i>	<i>Just nice</i>
<i>Respondent 2</i>	<i>Nothing. It is already good.</i>
<i>Respondent 3</i>	<i>My suggestion, can add audio and tajwid recitation.</i>

5.5.4 Acceptance of Application in the Quran Domain

Discussion from the findings summarized respondents with a positive view of application use in the Quran domain. Their views of such development studies were useful for the application that can assist in understanding the genre of Surah in Quran. They proposed that such research be carried out for the benefit of the community and suggested that this prototype be extended for other surah in the Quran. Table 5.11 is an example of an interview data that discusses the use of Semiotic Icon Design Application (SIDAQ) in the Quran domain.

Table 5.11: Sample Interview Data on Acceptance (Youth)

Respondent	Description
Researcher	<i>What do you think of the application used earlier? In term of usefulness of the application</i>
Respondent 1	<i>It can benefit to people. It is useful for Muslim</i>
Respondent 2	<i>It is a good approach to let people grab information. An interesting medium to gain knowledge about theme of Surah in Quran.</i>
Respondent 3:	<i>Easy to use. Very useful app to assist user. In terms of ease of use of the application</i>
Respondent 1	<i>Easy to use, very useful and functional uses.</i>
Respondent 2	<i>It is an easy application because of it is interactive. The transition from page to page is smooth so it is easy to use.</i>
Respondent 3	<i>Usage of general icons. Application is easy to use for all age because the icons used can be easily understood. Can read anywhere.</i>
Researcher	<i>Are there any other sources, like the proposed application?</i>
Respondent 1	<i>No, I think.</i>
Respondent 2	<i>None to my knowledge</i>
Respondent 3	<i>Not sure</i>
Researcher	<i>What are the advantages and disadvantages of the application?</i>
Respondent 1	<i>Can understand the message of Surah. But not all verses have icon.</i>
Respondent 2	<i>The advantage is people can gain knowledge about Surah in Quran through a simple medium. The disadvantage is the information may be limited.</i>
Respondent 3	<i>Advantage of the application is that it facilitates the reciters anywhere and ease to understand the Surah, while the weakness of the application is no audio method in reading verses. It also may confuse the user.</i>
Researcher	<i>Please provide any suggestions for improving the application</i>
Respondent 1	<i>Just nice</i>
Respondent 2	<i>Nothing. It is already good.</i>
Respondent 3	<i>My suggestion, maybe from the aspect of adding audio.</i>

Table 5.12 shows the summary of youth evaluation in the aspect of icon design, usability, motivation, and acceptance of application. Figure 5.3, Figure 5.4, Figure 5.5,

and Figure 5.6 shows the network view diagram to visualize the youth evaluation on SIDAQ for the domain of Quran.

Table 5.12: Findings on Evaluation of SIDAQ (Youth)

No	Component/Aspect	Respondent View (Youth)
1	Icon Design	Lack of understanding on the term 'semiotic icon' Icon design is simple and interesting Icon design is appropriate/suitable. Icon is easy to understand and general to user Icon is creative Suggest more color for icon
2	Usability	Suitable to be used in domain Quran. Suitable for all age because the icon is simple and easy to understand. Satisfy with application. Give impact to user Easy application Application is easy to use, ease the recitation Text is all readable and color is suitable. Put more interesting chapters like Al-Mulk and Al-Waqiah Navigation is good Interesting medium to gain knowledge about genre or idea of Surah in Quran Provide medium to get new information. Suggest adding in pronunciation of verses Can use frequently
3	Motivation	Nice because it shares interesting information related to Surah in Quran Good because the content is simple Its relevant as if offers new medium to gain information Confident as the developer is Muslim Content is just nice for people who want to gain knowledge about Surah in Quran. Easy and relevant to understand the genre/message of Surah. Suggestion to add in audio and tajwid. Easy to use with as it uses general icon Motivate user to recite Quran Many apps more to listening Quran Assist to recite Quran frequently. App grab my attention.
4	Acceptance	Good approach to let people grab information Can gain knowledge about Surah in Quran. Information may be limited. Easy to use. Using general icon Suggestion for element of audio for verse or kalimah Can benefit people. Useful app to assist user. Easy for the user to read anywhere they want Ease to understand Surah Also may confuse the user

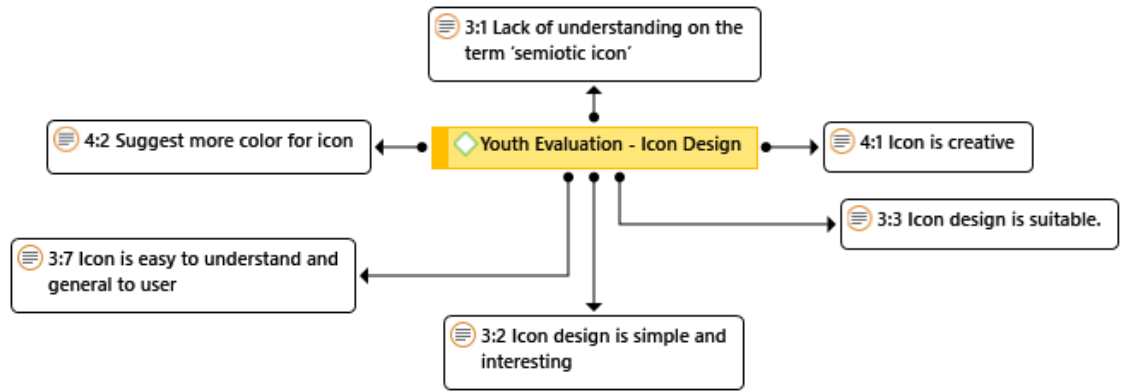


Figure 5.3: Youth Evaluation – Icon Design

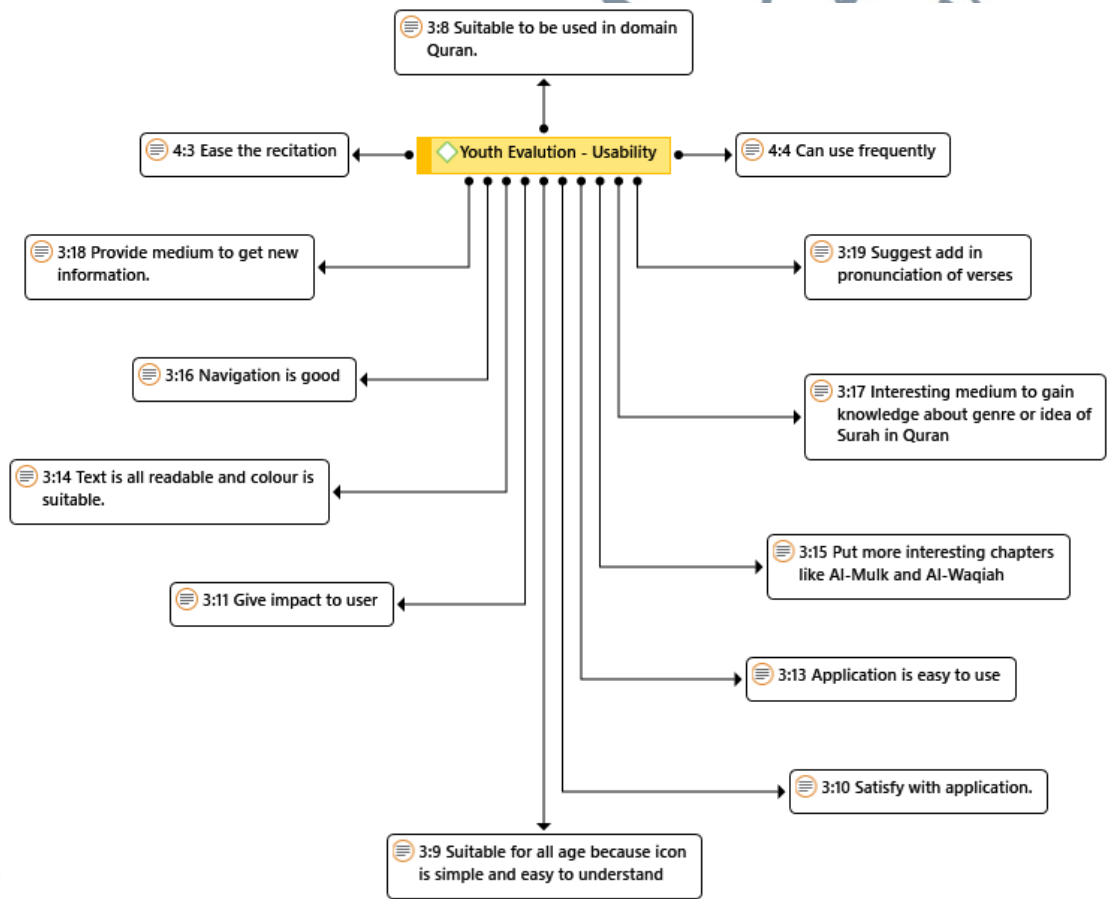


Figure 5.4: Youth Evaluation – Usability

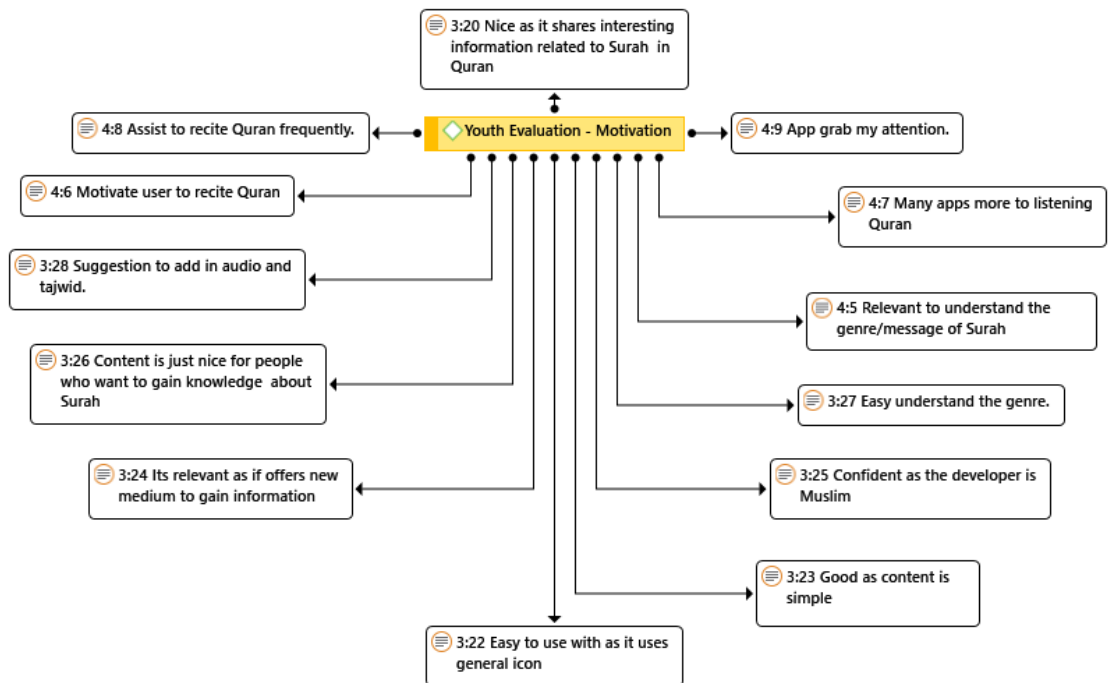


Figure 5.5: Youth Evaluation – Motivation

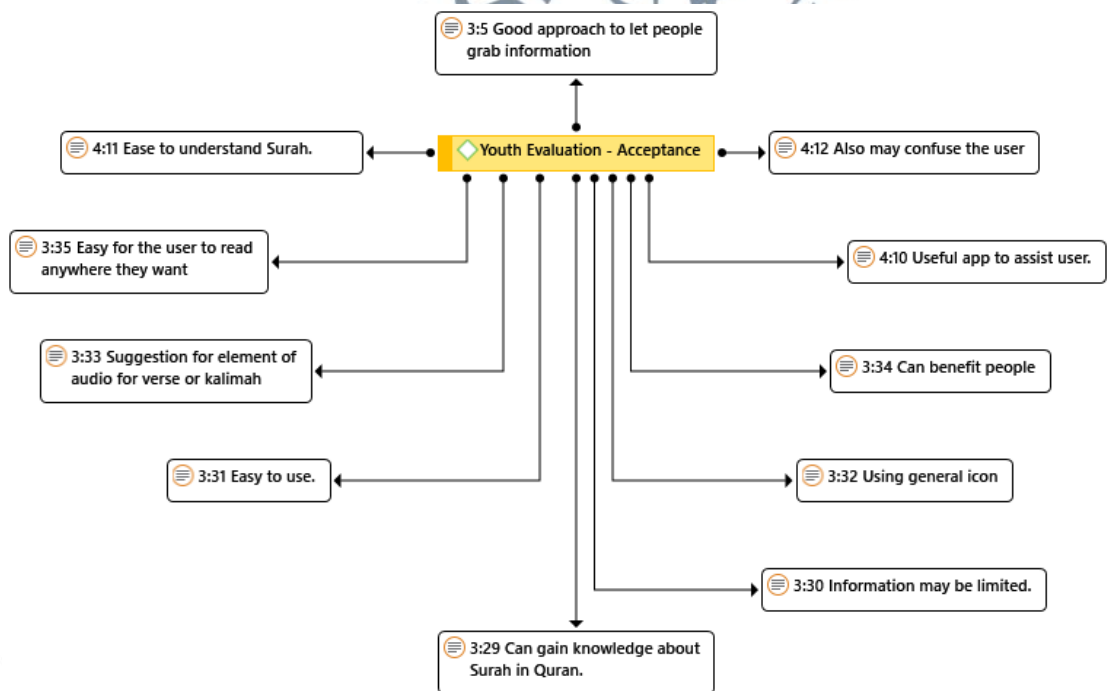


Figure 5.6: Youth Evaluation – Acceptance

In conclusion, the researcher summarized that an application to assist youth in visualizing the genre of Surah and motivating them to recite Quran is extremely helpful.

Findings proved that the youth could understand the message or genre of surah using

the semiotic icon application with some improvement on the design of the icon. Their positive views also supported this kind of research effort.

5.6 Expert Evaluation

5.6.1 Preliminary Analysis

The need for specialists who dominated the field of Information Technology (IT) and the Quran domain was important to see the views and responses to the research and application development. The expert respondents in this study were three experts in information technology and three in the domain of Quran and Arabic Studies. According to Nielson (1992), expert evaluation was important to generate the valuable opinion on the specific domain.

5.6.2 Evaluation Based on Questionnaire Form

Three experts in information technology were involved in evaluating the semiotic icon design applications. In the set of expert questionnaires, four main components that refer to the elements developed in the evaluation design process were: icon design, usability of application, motivation and acceptance. The scale used was 1 = strongly disagree, 2 = disagree, 3 = moderately agree, 4 = agree and 5 = strongly agree.

Table 5.13 shows the findings on expert evaluation for Semiotic Icon Design Application. The first component of icon design obtained a mean of 4.25 and 4. Two experts agreed, and one expert is moderately agreeing that the application had a good design of icon. Examples of icon design were where the icon is designed with recognizable, simple, color, familiarity, semantic and consistency elements.

While the second item statement, the usability of application compatibility between the application and the real world, one expert agreed, and two experts strongly

agreed. Some examples of these usability elements were satisfaction and effectiveness. Application also motivated the user in reciting Quran by some of these motivation elements are attention, relevant, confidence and satisfaction. The overall mean of this first component was 4.13 which is interpreted high.

Table 5.13: Findings on Expert Evaluation of SIDAQ

A. Icon Design		Scale					SD	Remarks
Element	Item	1 SD	2 D	3 M	4 A	5 SA	Mean Interpretation	E: Expert
Recognizable	Easy to recognize			/ (2)	/ (1)	/ (1)	3.75 (medium high)	.96 <i>E1: Some icon is confusing. Maybe can put some tooltips. E3: Few image icons do not represent meaning</i>
	Use common images			/ (1)	/ (3)		3.75 (medium high)	.50 <i>E2: Agree E2: Need some improvement to some of icon E3: Image common to user</i>
	Grab user attention			/ (3)	/ (1)		3.25 (medium high)	.50 <i>E2: Need some improvement to some of icon E3: Color of icon should be arranged according to meaning. Example icon blue represent message about</i>
	Express the idea of Surah.			/ (2)	/ (2)		3.50 (medium high)	.58 <i>Aqidah, red icon represents warning message to ummah E1: Surah maybe not. But ayat yes. because at surah just use rectangle icon E3: Size of icon is small so difficult to get the idea unless we point to the icon</i>
	Can understand the meaning.			/ (2)	/ (2)		3.50 (medium high)	.58 <i>E1: Some of it quite confusing such as dilarang mengumpat suppostly have slash (/) at icon. E3: User need a guideline before using apps</i>

Color	Maintain identical color combination.	/ (1)	/ (1)	/ (2)	4.25 (high)	.96	E2: Agree E3: suggest color of icon can be categorized according to message from Quran
	Color combination is harmony.	/ (1)	/ (1)	/ (2)	4.25 (high)	.96	E2: Agree E3: Need to be improved
	The color attracts user attention.	/ (2)	/ (2)	/ (2)	4.00 (high)	1.16	E2: Agree E3: Icons are less attractive because they shared same color code
	Use suitable color contrast. The color suitable with the app content.	/ (1)	/ (1)	/ (2)	4.50 (high) 4.25 (high)	.58 .96	E2: Agree E3: Acceptable E2: Agree E3: For young people, color of icon needs to be variety
Simple	The design is simple.	/ (2)	/ (2)	/ (2)	4.50 (high)	.58	E2: Agree E3: Agree
	Use simple graphic style.	/ (2)	/ (2)	/ (2)	4.50 (high)	.58	E2: Agree E3: Agree
	Use simple background.	/ (1)	/ (3)	/ (3)	4.75 (high)	.50	E2: Agree E3: Agree
	Easy to comprehend.	/ (1)	/ (1)	/ (2)	4.25 (high)	.96	E2: Agree E3: Some can easily understand, some are not
	Quick to be found.	/ (1)	/ (1)	/ (3)	4.75 (high)	.50	E1: Usually, home and next button place is at bottom E2: Agree
Semantic	Understand the icon's meaning.	/ (2)	/ (2)	/ (2)	3.50 (medium high)	.58	E1: Some of it quite confusing. E3: Most icons are understandable
	Assist to understand the idea of Surah.	/ (3)	/ (3)	/ (1)	4.25 (high)	.50	E3: Agree
	Have a close connection to the theme of Surah	/ (1)	/ (2)	/ (1)	3.75 (medium high)	1.26	E2: Agree E3: Few icons are confusing
	Represent the genre of Surah.	/ (2)	/ (2)	/ (2)	4.50 (high)	.58	E2: Agree E3: Agree
	Representing the icon's purpose.	/ (2)	/ (2)	/ (2)	4.00 (high)	1.16	E2: Need some improvement to some of icon E3: Agree
Familiarity	Use familiar images.	/ (1)	/ (1)	/ (2)	3.25 (medium high)	.96	E1: Icon is unique. E3: Few icons are using same image
	Easy to be found.	/ (2)	/ (2)	/ (2)	4.50 (high)	.58	E2: Agree
	Easy to be comprehended.	/ (1)	/ (2)	/ (1)	4.00 (high)	.82	E2: Agree E3: Few icons need to be revised

	Relate to the icon's meaning.	/	/	/	4.00 (high)	.82	<i>E3: Few icons need to be change</i>
	Familiarity of icons ease understanding.	/	/	/	4.00 (high)	.82	<i>E3: Agree</i>
Consistency	Have a consistent style.		/	/	4.50 (high)	.56	<i>E3: Agree</i>
	Maintain consistent design.		/	/	4.50 (high)	.56	<i>E3: Agree</i>
	Have consistent shape.		/	/	4.75 (high)	.50	<i>E2: Agree E3: Agree but different type of shape can make reader easily</i>
	Maintain consistent size.		/	/	4.75 (high)	.50	<i>E2: Agree E3: Agree</i>
	Consistency of icons ease understanding.		/	/	4.25 (high)	.50	<i>E3: Agree E3: Agree</i>
Mean Icon Design					4.14 ((High)	.72	

		i. Usability					Scale			
Element	Item	1	2	3	4	5	Mean Interpretation	SD		
User	The content is useful.				/	/	4.50 (high)	.58	<i>E3: Agree if the improvement could be done</i>	
Satisfaction	Assist to understand the overall idea of Surah.			/	/	/	4.00 (high)	.82	<i>E1: Translation is only for certain ayat. Maybe can add summary of surah. E3: Agree if improvement could be done</i>	
	Motivate in reciting the Quran.			/	/	/	4.00 (high)	.82	<i>E1: Have to put some element of reward. E3: Agree if improvement could be done</i>	
	Will recommend to others.				/	/	4.25 (high)	.50	<i>E3: Agree if improvement could be done</i>	
	Satisfied with the app.			/	/		3.75 (medium high)	.50	<i>E3: Icon design need to be improved and translation box need to have a recitation indicator.</i>	
Effectiveness	Simple to use the app.				/	/	4.50 (high)	.58	<i>E3: Agree</i>	
	Encouraged to spend more time in reciting Quran.			/	/	/	4.00 (high)	.82	<i>E1: Have to put some fun element or reinforcement to make user learn more about surah. E3: Agree</i>	
	Increase curiosity to				/	/	4.25 (high)	.50	<i>E3: Agree if the improvement</i>	

understand Quran verse.									could be done. E3: Agree
Increase understanding on idea of Surah.			/	/			4.25 (high)	.50	E3: Agree if improvement could be done
Makes reciting Quran more effective.		/	/	/			4.25 (high)	.96	E1: Have to put audio how to recite the surah. E3: Agree
Mean Usability							4.18 (High)	.66	

C. Motivation		Scale					Mean Interpretation	SD	
Element	Item	1	2	3	4	5			
Attention	Icons are unique			/	/		3.50 (medium high)	.58	E2: Need some improvement to give more uniqueness to some of semiotic icon E3: Some image redundant used in other icon
	Can gain attention.				/		4.00 (high)	.00	E3: The consistency color use for icon can make reader feel bored
	Stimulated curiosity			/	/	/	4.00 (high)	.82	E2: Need some improvement to some of icon E3: Agree
	Manage to keep attention.	/			/		3.50 (medium high)	1.0	E3: Agree
	Content are surprising.			/	/		3.25 (medium high)	.50	E1: Content is expected. Maybe do not use capital letter for all sentences. E2: Need some improvement to some of icon E3: Content should be something that reader can guess by looking at icon
Relevant	Content is relevant to interests.				/	/	4.50 (high)	.58	E2: Agree E3: Agree
	Content relates to way of life.				/	/	4.75 (high)	.50	E2: Agree E3: Agree
	Content is useful to				/	/	4.75 (high)	.50	E2: Agree E3: Agree
	Content is worth to know.				/	/	4.75 (high)	.50	E2: Agree E3: Agree
	App is significant to user.				/	/	4.75 (high)	.50	E2: Agree E3: Agree

Confident	Looked easy when first saw the app	/ (1)	/ (1)	/ (2)	4.25 (high)	.96	E2: Agree E3: Reader need to understand the purpose of each icon because they can use it
	User confident to understand the content.		/ (3)	/ (1)	4.25 (high)	.50	E3: Agree
	The content may develop user;'s confidence to use		/ (3)	/ (1)	4.25 (high)	.50	E3: Agree
	Organization of content assist to understand the app.		/ (2)	/ (2)	4.50 (high)	.58	E2: Agree E3: Agree
	Increases user's confidence to understand idea of Surah in Quran.		/ (1)	/ (3)	4.75 (high)	.50	E2: Agree E3: Agree
Satisfaction	Satisfy with the content	/ (1)	/ (2)	/ (1)	4.00	.82	E3: Agree if improvement could be done E2: Make relevant to represent exact meaning to give right understanding for Quranic verses
	Feel good when successfully browsing the app.		/ (3)	/ (1)	4.25 (high)	.50	E3: Agree if improvement could be done
	Understand the genre/theme of Surah.		/ (2)	/ (2)	4.50 (high)	.58	E2: Agree E3: Agree if improvement could be done
	Will recommend the app to others.		/ (2)	/ (2)	4.50 (high)	.58	E2: Agree E3: Agree if improvement could be done
	Feel delighted using the app.		/ (3)	/ (1)	4.25 (high)	.50	E3: Agree if improvement could be done
Mean Motivation					4.26 (High)	.58	

A. Acceptance		Scale					Mean Interpretation	SD	
Element	Item	1	2	3	4	5			
Perceived Ease of Use	Loading time is short.				/ (1)	/ (3)	4.75 (high)	.50	E3: Agree

	Use simple language.	/	/	4.25	.50	E3: Agree	
	Easy to learn.	/	/	4.75	.50	E3: Agree	
	Happy to recite the Quran with the app.	/	/	4.25	.50	E3: Agree	
	Easy to be used.	/	/	4.25	.50	E3: Agree	
Perceived Usefulness	Better understanding on the idea of Surah.	(1)	(2)	(1)	4.00	.82	E1: Can add short summary of surah
	Makes Quran recitation more interesting.	/	/	4.25	.50	E3: Agree	
	Motivate in reciting Quran more frequently.	/	/	4.50	.58	E3: Agree	
	Useful app content.	(1)	(3)	(high)	4.75	.50	E3: Agree
	The app beneficial to user.	(1)	(3)	(high)	4.75	.50	E3: Agree
Actual Use	Suitable for visualizing the genre of Surah	(3)	(1)	(high)	4.25	.50	E2: Agree E3: Agree
	Help to understand the overall idea of Quran verse.	(1)	(2)	(1)	4.00	.82	E1: Only certain ayat have translation. User may interpreted next ayat incorrect. E2: Agree E3: Agree
	Makes the Quran recitation more interesting.	/	/	4.50	.58	E1: It is more interesting if have audio or visual appearance (ex video, animation). E2: Agree E3: Agree	
	Increase motivation in reciting Quran.	(1)	(1)	(2)	4.25	.96	E1: Have to put some element of reward. E2: Agree E3: Agree
	Can be used as a supportive tool.	/	/	4.75	.50	E2: Agree E3: Agree	
Mean Acceptance				4.42 (High)	.58		
Total Mean				4.25 (High)	.63		

For the icon design elements, thirty (30) items were outlined in this study. These elements are Recognizable, Color, Simple, Semantic, Consistency and Familiarity. The findings showed that two experts agreed, and two experts strongly agreed with the

application features (mean = 4.75). One of the features of application that refers to icon design element was that the use of the semiotic icon technique can accurately represent the relationship of the icon for Surah in the Quran. In addition to being informational, the application also had very useful content especially in the domain of Quran.

5.6.3 Expert Review

The semiotic icon design has been reviewed by three (3) experts in the field of Information Technology and three experts in Quran field through a questionnaire sheet. For the evaluation session the researcher outlined some key questions in requesting expert review for content validation and evaluation of the application design. Overall, experts argued that this application is one that will make a significant contribution to the domain of Quran. The application is an up-to-date application that combines the domain of Quran science with information technology.

The following is a summary of reviews by three (3) experts in Information Technology and one (1) expert in Quranic field based on interviews conducted in this development study. The experts' views also include the conclusions and suggestions on the icon design aspects, usability of application, motivation and acceptance of application developed in this study. Details result on the expert interview data listed in Appendix 13. The results of expert interview were summarized and analyzed in Table 5.14.

Table 5.14: Summary of Findings on Evaluation for SIDAQ (Experts)

No	Component/Aspect	Summary of Expert View
1	Overall review by evaluator (IT Expert)	App brings benefits to community. Very interesting. Idea is genuine as not met app yet in any apps store. Semiotic icons used in apps target for youth to frequently recite Quran and understand meaning of surah. Nowadays, it is difficult to attract youth to recite Quran. Most of them did not understand what they read as they do not understand Arabic language. Currently, youths have smartphone and use to search for info or entertainment besides calling and receiving call or message. Emergence semiotic icon design application is awaited. Apps showed translation on spot that increase motivation and excitement to recite Quran every day. Apps easy to use as design of icon is simple to understand as it represents meaning of surah. Reader can understand meaning of recitation faster although they [do] not understand Arabic language.
	Recommendation for Improvement (IT Expert)	Recommend for improvement on some of icon design (see Table 5.9) Recommend enhancing app with more multimedia elements, motivation reinforcement and reward. Suggest for inserting full translation of all verses in Surah. Good apps but quite difficult to design an icon to represent ayah (Al-Quran). Confusing for first-time user. App is suitable not only for youth but also for all age range. Expecting semiotic icon design app would be references of similar app in future. Highly recommended app to be used by not only young Muslims but also other Muslims. Recommend for improvement on some icon's images, color, and shape. Few icons using same image. Although icons contain another image or text, but it still can be confusing. Images on icon should be different and unique. Reader can easily guess content of surah. Can increase enjoyment of reading surah. Improvement to give more uniqueness to some of semiotic icons and to make them relevant to represent exact meaning that give right understanding for Quranic verses.
2	Overall review by evaluator (Quran Expert)	Icons might have identical meaning with context. Poses good contribution to Quranic field or domain. Excellent approach and effort in developing icons for understanding Quran. Semiotic icon makes good contribution to Quranic domain. Very good innovation
	Suggestion for the content improvement (Quran Expert)	Simple and appropriate icon design with some improvements. A very good innovation. Overall, it is good. Hope have chance to improve icon as suggested (see Table 5.9). Better if researcher put clear picture about how icon was chosen. Is it just for vocabularies or to convey main messages of certain Quranic verses?

Table 5.14 summarised the discussion with experts on semiotic icon design application in the aspect of icon design, usability of the application, motivation, and acceptance.

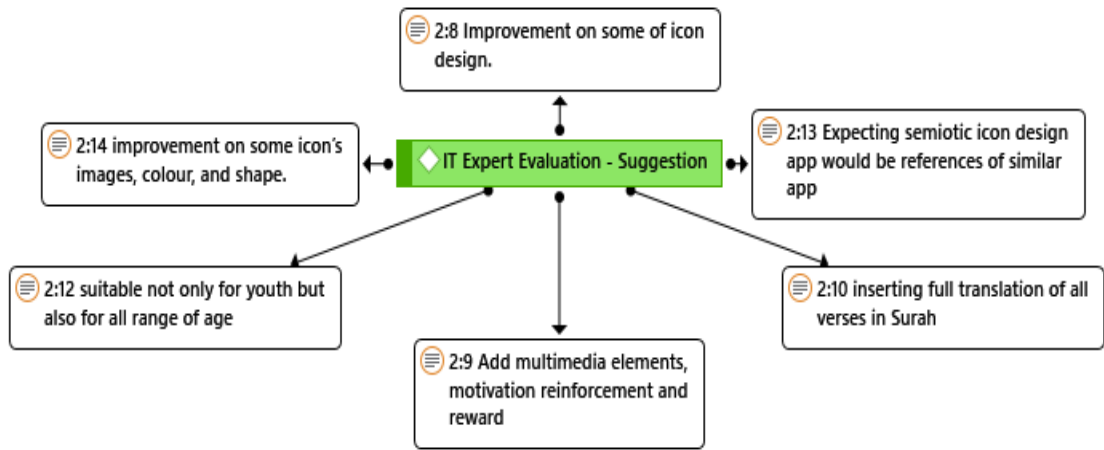


Figure 5.7: IT Expert Evaluation – Overview

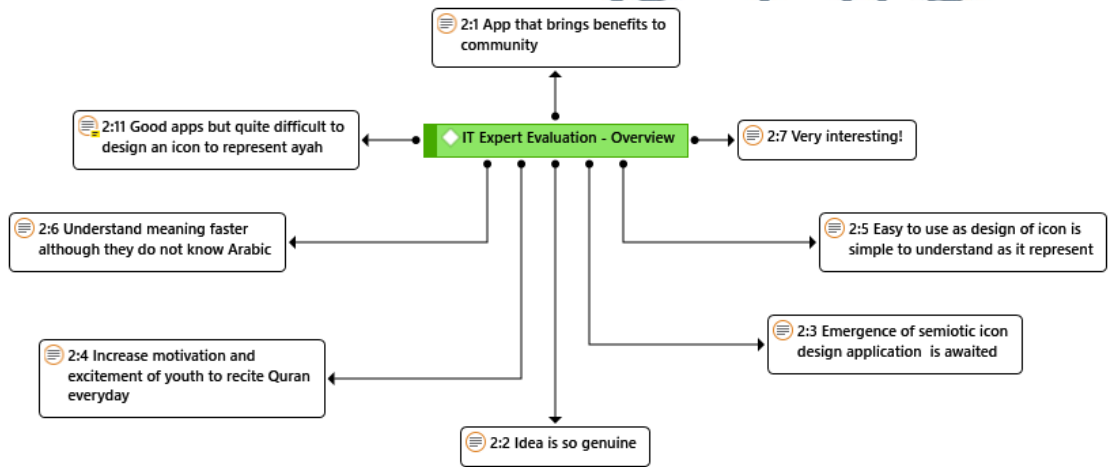


Figure 5.8: IT Expert Evaluation – Suggestion

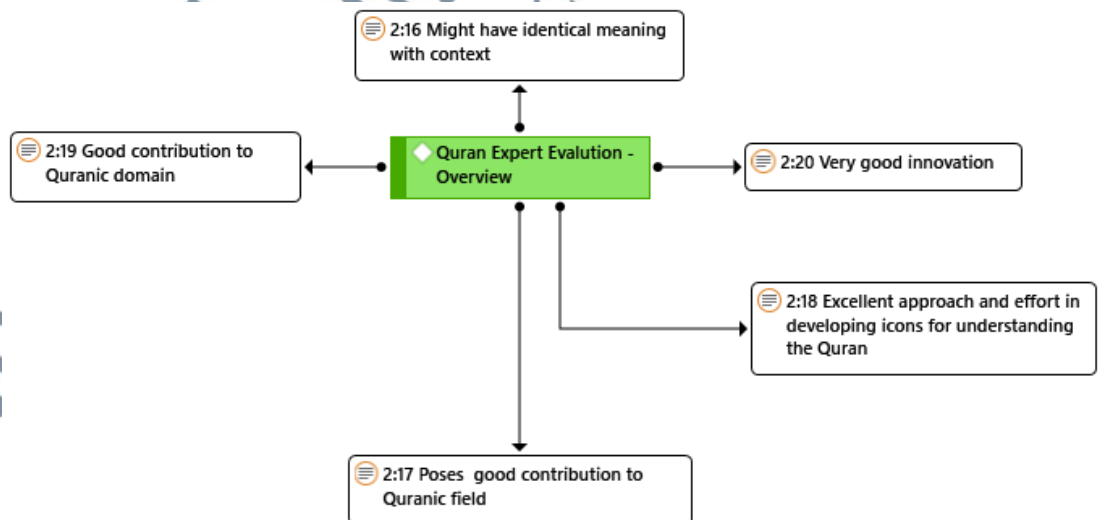


Figure 5.9: Quran Expert Evaluation – Suggestion

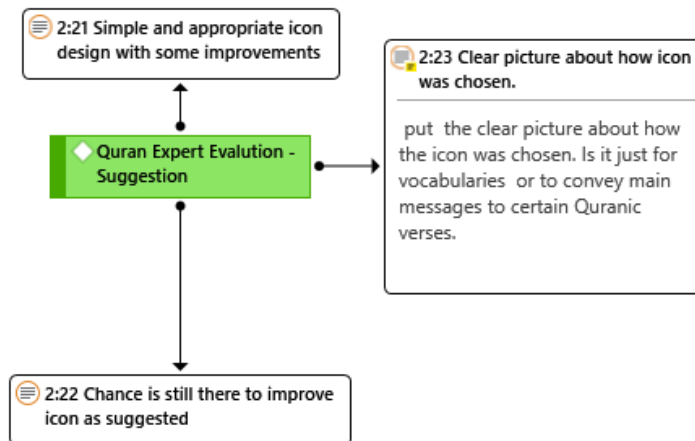


Figure 5.10: Quran Expert Evaluation – Suggestion

In conclusion, the researcher summarized that the need for an application for assisting youth to understand the genre of Surah and motivating them to recite Quran is beneficial and brings good contribution and innovation to the community and Quranic domain while contributing to the icon design field in IT. The experts' review proved that youth could understand the genre of surah using the semiotic icon application with some improvement on the icon design. The semiotic icon design application increases the motivation and the excitement of youth to recite Quran every day. Besides, experts also had suggested a constructive recommendation for future enhancement of the icon design as mentioned in Table 5.14. Their positive views were highly supported and very much appreciated toward this research effort.

5.7 Evaluation Summary

This section summarized the expert and youth evaluation based on the descriptive analysis data for each evaluation element of the application. The evaluation of Semiotic Icon Design Application (SIDAQ) was carried out by two groups of respondents: youth,

and experts. The evaluations include four (4) key aspects, namely icon design, usability of application, motivation, and acceptance of application.

Table 5.15: Mean and SD for Evaluation of SIDAQ (Respondent)

Aspect	Mean (Interpretation)	SD
Icon Design	4.21 (High)	.76
Usability of Application	4.42 (High)	.70
Motivation	4.30 (High)	.74
Acceptance	4.41 (High)	.74
Total Mean	4.34 (High)	.74

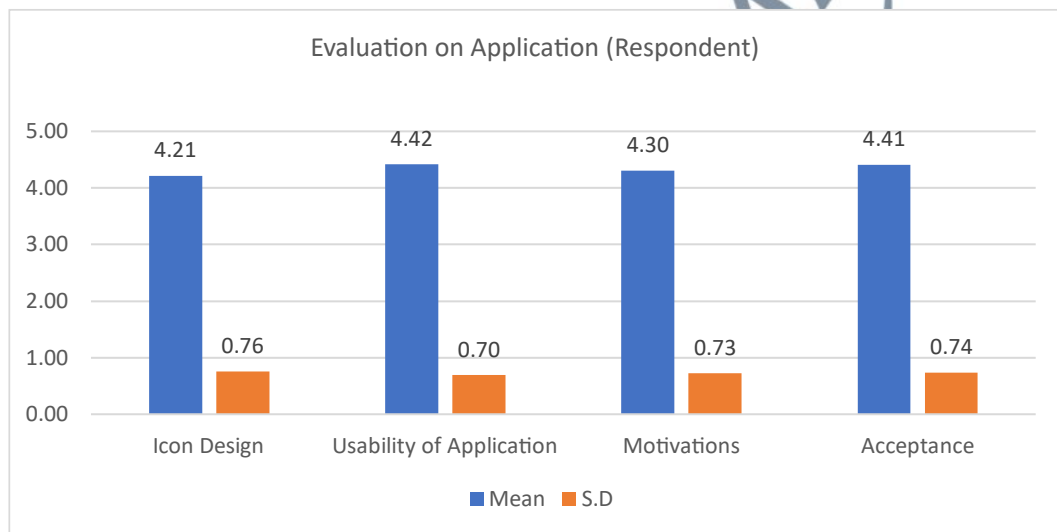


Figure 5.11: Mean and SD for Evaluation of SIDAQ (Respondent)

Table 5.15 and Figure 5.11 summarize the mean, standard deviation (SD), and interpretation for each evaluation element of SIDAQ by respondents. The four key evaluation aspects of application include icon design, usability of application, motivation and acceptance. The evaluation studies obtained results through statistical analysis conducted by the researcher. All four components were at the high mean level of interpretation (4.01-5.00) with the overall mean of the components being 4.34 (high interpretation) and the standard deviation of 0.74 was also high. The findings showed that youth were positive toward SIDAQ. The results are statistically proven by the high mean values of each construct submitted: icon design (4.21), usability of application

(4.42), motivation (4.30) and acceptance of semiotic icon application for Quran (4.41). This high mean value indicates the youth's consent to the development of the semiotic icon design prototype and its application for the Quran.

Table 5.16: Mean and SD for Evaluation of SIDAQ (Expert)

Aspects	Mean (Interpretation)	SD
Icon Design	4.14 (High)	.72
Usability of Application	4.18 (High)	.66
Motivation	4.26 (High)	.58
Acceptance	4.42 (High)	.58
Total Mean	4.25 (High)	.63

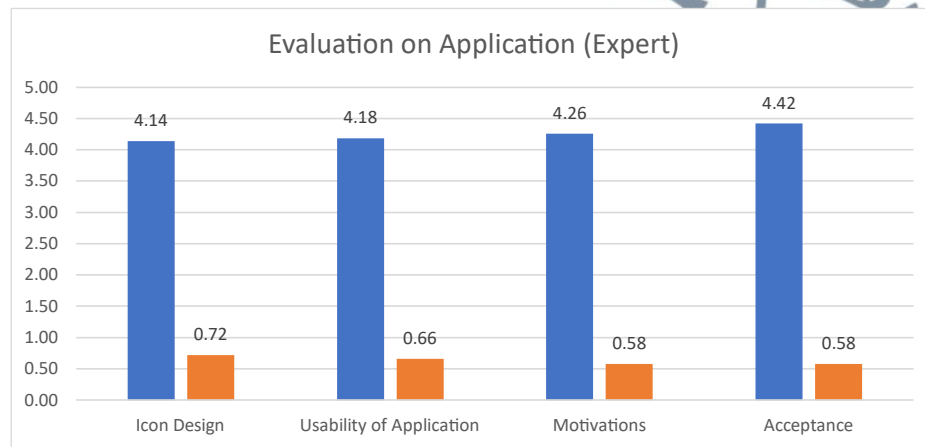


Figure 5.12: Mean and SD for Evaluation of SIDAQ (Expert)

Table 5.16 and Figure 5.12 show expert feedback through statistical analysis conducted by the researcher. The table shows the mean, standard deviation (SD) and the mean interpretation of all the elements evaluated. The four key evaluation aspects of application include icon design, usability of application, motivation and acceptance of application. All components were in the high mean level of interpretation (4.10-5.00). Mean (4.14) was lowest for icon design and highest (4.42) for acceptance of application. This semiotic icon design requires further improvement to ensure icon suitability for representing genre of the Surah. The usability of application attained the second lowest mean (4.18). However, the mean is still highly rated by all experts. Other evaluation elements are rated higher by experts such as motivation (mean = 4.26) and acceptance

of application (mean = 4.42). This finding also proved the support of experts in this development study with an overall high mean score of 4.25. Overall, the elements for icon design, usability of application, motivation and acceptance of application receive positive responses and feedback from experts that are beneficial for further improvements.

5.8 Research Hypothesis

This section presents the result of hypothesis testing on the influences between semiotic icon design elements and youth's motivation in reciting Quran and the influence between acceptance of Semiotic Icon Design Application for reciting Quran (SIDAQ) and youth's motivation in reciting Quran. The hypotheses for each research question are as follows:

Research Question 7: Does the semiotic icon design element influence youth's motivation in reciting Quran?

Hypothesis 1: There is a significant influence between semiotic icon design elements and the youth's motivation in reciting the Quran.

Research Question 8: Does the acceptance of Semiotic Icon Design Application for reciting Quran (SIDAQ) influence youth's motivation in reciting Quran?

Hypothesis 2: There is significant influence between acceptance of Semiotic Icon Design Application (SIDAQ) and the youth's motivation in reciting the Quran.

a. Analysis for Hypothesis 1 proposed (H₁)

To verify H₁, the study used Pearson's correlation coefficient to verify whether the presentation of the recognizable, simple, color, semantic, familiarity and consistency are independent from each other, and whether there is a significant level of

high and low between the independent variables and dependent variables of the youth motivation in reciting Quran. An interpretation of the correlation coefficient is made with reference to Table 5.17, as suggested by Davies (1971), to determine the relationship between the two variables.

Table 5.17: Interpretation of the correlation coefficient

Correlation coefficient value (<i>r</i>)	Interpretation
.01 - .09	Void
.10 - .29	Low
.30 - .49	Medium
.50 - .69	Strong
.70 - .99	Very high
1.00	Perfect

Source: Davies (1971)

Hypothesis 1 (H₁)

H₁: There is a significant influence between Semiotic Icon Design (SIDQ) elements and the youth's motivation in reciting Quran.

The average statistics results of semiotic icon design elements are listed in a high-to-low order: “recognizable” 4.28 (SD = 0.67), “color” 4.26 (SD = 0.72), “consistency” 4.26 (SD = 0.68) “semantic” 4.24 (SD = 0.70), “simple” 4.19 (SD = 0.72) and “familiarity” 4.15 (SD = 0.70). The average of dependent variable is 4.35 (SD = 0.65). Table 5.18 shows the descriptive statistical summary on average mean for the variables.

Table 5.18: Descriptive statistical summary table (H₁)

Variables	Average mean	Standard deviation
Recognizable	4.284	.673
Color	4.257	.684
Simple	4.189	.715
Semantic	4.243	.699
Familiarity	4.149	.696
Consistency	4.257	.703
Youth's motivation in reciting Quran	4.351	.650
N = 74		

Table 5.19 shows the correlation coefficient results of the six variables. In accordance with statistical results, Pearson's correlation coefficient among the variables

is more than 0.5, indicating that the variables are independent variables which have strong positive correlation. There is significant strong positive relationship between the recognizable and color, recognizable and simple, simple, and semantic, simple and familiarity, simple and consistency. There is significant very high positive relationship between the color and simple, semantic and familiarity, semantic and consistency, familiarity and consistency. This study set it as an independent variable.

Table 5.19: Pearson's correlation coefficient analysis (H₁)

variables		recognizable	color	simple	semantic	familiarity	consistency
recognizable	Pearson Correlation	1	.584**	.570**	.492**	.494**	.423**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
color	Pearson Correlation	.584**	1	.712**	.498**	.494**	.488**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
simple	Pearson Correlation	.570**	.712**	1	.510**	.548**	.556**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
semantic	Pearson Correlation	.492**	.498**	.510**	1	.798**	.819**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
familiarity	Pearson Correlation	.494**	.494**	.548**	.798**	1	.760**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
consistency	Pearson Correlation	.423**	.488**	.556**	.819**	.760**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	

** . Correlation is significant at the 0.01 level (2-tailed). (N = 74)

Through correlation analysis, we can observe the relation level between the two variables. The constant correlation coefficient value is between -1.0 to +1.0, +1 ($0 < r < 1$) on behalf of a fully positive correlation between the two variables, -1 ($0 < r < 1$) represents between two variables is perfect negative correlation. Table 5.20 shows the results of dependent variable (youth's motivation in reciting Quran) and Pearson's correlation coefficient among the six variables, which presents a positive correlation by 0 to 1.

Table 5.20: Pearson's correlation analysis (H₁)

variables		recognizable	color	simple	semantic	familiarity	consistency
youth 's motivation in reciting Quran	Pearson Correlation	.583**	.657**	.621**	.563**	.609**	.579**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000

** . Correlation is significant at the 0.01 level (2-tailed). (N= 74)

Statistics show that independent variables and dependent variables, both are arranged in descending order of relevance: color, simple, familiarity, recognizable, consistency, and semantic. Their significance is less than 0.1 ($p \leq 0.1$), indicating these six independent variables and dependent variables (youth's motivation) all have a strong correlation. This result shows that semiotic icon design element has a positive impact on youth' motivation in reciting Quran. Thus, the hypothesis that there is a significant influence between semiotic icon design elements and the youth's motivation in reciting Quran is accepted.

According to the statistical results, the youth's motivation in reciting Quran for application icons has a strong correlation among the six variables: "recognizable", "color", "simple", "semantic", "familiarity" and "consistency". This shows that the youth's motivation in reciting Quran can be improved further. In this study, the icon design elements can influence the youth's motivation in reciting Quran.

b. Analysis for Hypothesis proposed (H₂)

To verify H₂, this study uses Pearson's correlation coefficient to verify whether the presentation of the acceptance is independent, and whether there is a significant level of high or low between the independent variables and dependent variables of the youth motivation in reciting Quran.

Hypothesis 2 (H₂)

H₁: There is a significant influence between acceptance of Semiotic Icon Design Application (SIDAQ) and the youth's motivation in reciting Quran.

The average statistics results of acceptance of application are "acceptance" 4.46 (*SD* = 0.62). The average of dependent variable is 4.35 (*SD* = 0.65). Table 5.21 shows the descriptive statistical summary for each variable.

Table 5.21: Descriptive statistical summary table (H₂)

Variables	Average Mean	Standard deviation
Acceptance	4.459	.623
Youth's motivation in reciting Quran	4.351	.650
N = 74		

Table 5.22 shows the correlation coefficient results of the two variables. In accordance with statistical results, Pearson's correlation coefficient among the variables is more than .6, indicating that the variables are independent variables which have strong correlation. This study set it as an independent variable in correctness.

Table 5.22: Pearson's correlation coefficient analysis (H₂)

Variables	Acceptance	Youth's motivation in reciting Quran
Acceptance	Pearson Correlation Sig. (2-tailed)	1 .000
Youth's motivation in reciting Quran	Pearson Correlation Sig. (2-tailed)	.678** 1

** . Correlation is significant at the 0.01 level (2-tailed). (N = 74)

Through correlation analysis, we can observe the relation level between the two variables. The constant correlation coefficient value is between -1.0 to +1.0, +1 ($0 > r > 1$) on behalf of a fully positive correlation between the two variables, -1 ($0 < r < 1$) represents between two variables is perfect negative correlation. Table 5.23 shows the results of Pearson's correlation analysis for dependent variable (youth' motivation in reciting Quran) and independent variable (acceptance). The correlation coefficient among the variables presents a positive correlation by 0 to 1 with value of .583.

Table 5.23: Pearson’s correlation analysis (H₂)

Variables		Acceptance
Youth’s motivation in reciting Quran	Pearson Correlation	.583**
	Sig. (2-tailed)	.000

** . Correlation is significant at the 0.01 level (2-tailed). (N = 74)

Statistics show that for independent variables and dependent variables, their significance is less than 0.1 ($p \leq 0.1$), indicating the independent variables and dependent variables (youth’s motivation) all have a strong correlation. This result shows that acceptance of semiotic icon design application has a positive impact on youth’s motivation in reciting Quran. Thus, the hypothesis that there is a significant influence between acceptance of semiotic icon design application and youth’s motivation in reciting Quran is accepted.

Overall, according to the statistical results, the youth motivation in reciting Quran has a strong correlation among the variables: “recognizable”, “color”, “simple” and “semantic”, “familiarity” and “consistency” and “acceptance”. This shows that the youth motivation in reciting Quran can be improved if the icons are mainly presented with the element of icon design. For example, when the icons are mainly about the recognizable icon parts, the characteristics of recognisable are clearly shown, and the content of the application can be easily connected. For the youth, it is easy to recognize the icon and the elements of the icons are emphasized and enhanced to increase the youth recognition of the application. The higher the recognizability, the higher the preference level of the icon. In this study, the elements of application of icon design can affect the youth motivation in reciting Quran.

5.9 Chapter Summary

This chapter has presented the results of the data analysis that was performed using the procedure described in Chapter 3. This chapter consists of quantitative data and qualitative data to support the research. The application evaluation was conducted to obtain feedback from respondents and experts. This study uses the common evaluation approach. A set of evaluation elements has been developed for evaluating the application. Guided by the set of elements, the instrument has been built. Two sets of questionnaires and interviews were based on two types of respondents, youth and experts. The youth instrument has been divided into four main components of icon design, usability of application, motivation, and acceptance of application aspects, similar with the expert evaluation form.

Respondents were provided with the application prototype for testing on their own after a briefing and an application usage session. Questionnaire form was distributed to a sample of 74 youth from three age groups: age 15 to 17, 18 to 22, and 23 to 30 from both Islamic and non-Islamic education backgrounds. Based on evaluation elements, the results of quantitative studies were obtained and analysed. The data analysis involved descriptive analysis and correlation analysts. The findings demonstrate a positive view of the use of semiotic icon design application in the process of visualizing the information for the domain of the Quran. The findings also prove that the respondents' motivation responses are positive in using the application as a supportive tool in reciting the Quran. The next chapter will summarize the overall findings according to the research questions and provide some recommendations for further research.