CHAPTER 3

ANALYSIS AND DESIGN

3.1 Analysis

There are two kinds of preliminary requirement that has been done. The first one is the fact-finding analysis, using several sources like pamphlets, catalogs, magazines, books, newspapers, journals and conference proceedings, internet webpages and education CD-ROMs. The second one is the requirement analysis through questionnaire and structured interviews (Preece and et.al, 1994). Only the requirement part will be highlighted in this chapter as the fact-finding analysis has been discussed in chapter 2.

Analysis is the first phase in Instructional Design Modeling (Jamaludin Harun and et.al, 2001) technique. To get the preliminary requirement about Jawi script and palmtop, a questionnaire was distributed to the 52 respondents. The respondent consist of 50 parents from the L&G-Twintech Institute of Technology in Bandar Sri Damansara, The New Straits Times Press in Bangsar and 2 preschool teachers from Taski Kampung Pasir, Kuala Lumpur. While for the preschool students, structured interviews were done to get the data requirement about Jawi, Jawi application and palmtop.
3.1.1 The Questionnaire and Structured Interview Participants

Questionnaires are often used to get the information and opinions from large number of people (Preece and et.al, 1994). In this research, the questionnaires were distributed through paper. The purpose of the questionnaire was to get the preliminary data on users’ knowledge on Jawi script and palmtop especially for the chosen groups like parents and preschool teachers. 25 samples of parents were from the L&G-Twintech Institute of Technology in Bandar Sri Damansara, and the other 25 were from The New Straits Times Press in Bangsar. The other two are preschool teachers in Kampung Pasir Baru, Kuala Lumpur.

3.1.2 The Questionnaire Design

The questionnaire in this chapter was designed to gather data about user knowledge on Jawi script and palmtop. The design of questionnaire used in this research is summarized as below:

1. The design of this preliminary data gathering uses simplest form of questionnaire, multi choice questions with answers (Faulkner, 1998) like ‘Yes’, ‘No’ and ‘Not Sure’. Please refer the Appendices to see the complete form of preliminary data gathering about Jawi script and palmtop.

2. In this research, the questions used were closed questions, (Preece and et.al, 1994; Faulkner, 1998) rather than using open question. Eventhough open questions are good for gaining information on a large
basis but they can produce too much data that is very difficult to analyze because of its diversity. In this case, closed questions were chosen because they were simple and easier to analyze the data especially when using software like SPSS.

3. The questions in the questionnaire begin with general questions, followed by the more detailed question. For example, the first question is about the Jawi script and palmtop itself without relating it to other things. The early questions should easily be answered, for example “Do you know what is Jawi script?”. User just need to answer Yes or No. When the subject is specific, then the question would more detailed.

4. The questionnaire for each part was only on two sides of A4 paper. This is to avoid user feel uncomfortable and time wasting when they answer the questions.

5. The questionnaire has been tried out by the author in order to find out any difficulties might arise in providing answers. It took just about 2 minutes to fill the form. Three steps were done before the questionnaire was distributed to the respondents. The first step was creating the questions that related to the topic. The second step was checking the grammar and flow of questionnaire. Lastly, the questionnaire was organized in a suitable form and distributed to the selected respondents.
3.1.3 The Structured Interview Design

Structured interview with predetermined questions set in structured (Jamaludin Harun and et.al., 2001; Preece and et.al., 1994), will not explore one’s attitudes and the interviewer just have to tick the answers of the prepared questions. It is the proper way to get the data requirement from the preschool pupils because not all of them know how to read the questionnaire. The interview sessions involved the verbal conversation and this made the students comfortable and eager to answer the questions. The structured interview was designed to gather data about preschool pupils requirement on Jawi application, Jawi and palmtop. The design of structured interview used in this research is summarized as below:

1. The interview includes multi choice questions. It also gives multiple answers and users can give more than one answers per question. Please refer the appendices to see the complete form of structure questions about Jawi script, Jawi application and palmtop.

2. The questions used are closed questions and the interviewer just has to tick the answers in the answer sheet.

3. The first part in the questions are about the preschool pupils knowledge on Jawi script. The second part of the questions are about the Jawi application like their favorite colors, shapes and preferred mediums like audio and graphic. The final part of the questions is about their acceptance of palmtop.
4. The structured interview questions contained in two side of A4 paper. This to avoid the preschool pupils feel uncomfortable and bored during the interviews.

5. The structured interview questions are based on the preschool pupils environment. The questions created have to be related with the prototype Jawi application on palmtop like preschool pupils knowledge on Jawi script, favorite colors, shapes, mediums and their opinions about palmtop itself. Then, the grammar and flow of questionnaire were checked. Lastly, the questions were organized in suitable form for a structured interview and the interviews were conducted for preschool pupils.
3.1.4 Result, Analysis and Discussion on the Preliminary Data Gathering from Questionnaire

3.1.4.1 Jawi Script Category

3.1.4.1.1 Result

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answers</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you know what is Jawi script?</td>
<td>Yes</td>
<td>90.4</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>9.6</td>
</tr>
<tr>
<td>2. Do you know that Jawi script was a popular writing script not long ago?</td>
<td>Yes</td>
<td>84.6</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>15.4</td>
</tr>
<tr>
<td>3. Do you know that Jawi script became less significant after romans script takes over?</td>
<td>Yes</td>
<td>73.1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>26.9</td>
</tr>
<tr>
<td>4. Have you ever thought that Jawi script will become a history and be placed in archives?</td>
<td>Yes</td>
<td>36.5</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>19.2</td>
</tr>
<tr>
<td></td>
<td>Not Sure</td>
<td>44.2</td>
</tr>
<tr>
<td>5. Do you know that Jawi script is based on the Arabic script and have been added 6 characters to accommodate Malay vocal sound?</td>
<td>Yes</td>
<td>59.6</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>40.4</td>
</tr>
<tr>
<td>6. Do you know that Jawi script was official script used for writing in Tanah Melayu?</td>
<td>Yes</td>
<td>84.6</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>15.4</td>
</tr>
<tr>
<td>7. Do you know that the past population of Malaysia, Singapore, Brunei, South Thailand and Indonesia have used Jawi</td>
<td>Yes</td>
<td>63.5</td>
</tr>
<tr>
<td>Question</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>8. Do you know that JAKIM, PENJAWIM and UM are among institutions that try to revive Jawi script through JAWINET?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>9. Will you support the effort taken by government and other institutions in popularizing Jawi script?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>10. In your opinion, do you think that Jawi script should be revived specifically to preserve Malay heritage and generally for language civilization?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Not Sure</td>
<td>21.2</td>
</tr>
</tbody>
</table>

**Table 3.1: Answers and percentages of Jawi Knowledge**
Question 1: Do you know what is Jawi script?

Answer

Graph 3.1: Percentages of respondents know about Jawi script

Question 2: Do you know that Jawi script was a popular writing script not long ago?

Answer

Graph 3.2: Percentages of respondents know about Jawi script popularity
Question 6: Do you know that Jawi script was official script used for writing in Tanah Melayu?

Answer

Graph 3.3: Percentages of Respondents know about Jawi as official script

Question 9: Will you support the effort taken by government and other institutions in popularizing Jawi script?

Answer

Graph 3.4: Percentages of Respondents that supports the effort in popularizing Jawi script
3.1.4.1.2 Analysis

A survey using questionnaire was carried out on parents L&G-Twintech Institute of Technology, The New Straits Times Press and preschool teachers of Taski Kampung Pasir to access their knowledge and awareness about Jawi script and palmtop. The survey was done using multiple choice questions. The participants questions are as shown in Table 3.1. Four questions that got the highest percentage of 'Yes' will be discussed.

Referring to the Table 3.1 and Graph 3.1, the result has shown that 90.4% of the respondents know Jawi script because most of the respondents are Malay (see Table 3.2) and other races also know the Jawi script. The mean is 1.10.

84.6% of the respondents also know that Jawi script was a popular writing script and was being used as official script not long ago, though the roman script is more popular and widely used now. The mean for this question is 1.15.

From Table 3.1 and Graph 3.4, 92.3% of the participants will support the effort by government and other institutions in popularizing Jawi script. The mean for this question is 1.08. From this survey, we can safely assume that they might support the research about palmtop usage for Jawi application by completing the questionnaire properly.
<table>
<thead>
<tr>
<th>Race</th>
<th>Frequency</th>
<th>Percentage(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malay</td>
<td>45</td>
<td>86.5</td>
</tr>
<tr>
<td>Chinese</td>
<td>2</td>
<td>3.8</td>
</tr>
<tr>
<td>Indian</td>
<td>2</td>
<td>3.8</td>
</tr>
<tr>
<td>Others</td>
<td>3</td>
<td>5.8</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 3.2: Percentages of respondents’ races

<table>
<thead>
<tr>
<th>Range of age</th>
<th>Frequency</th>
<th>Percentage(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>24-29</td>
<td>10</td>
<td>19.2</td>
</tr>
<tr>
<td>30-49</td>
<td>41</td>
<td>78.8</td>
</tr>
<tr>
<td>50 above</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 3.3: Percentages of respondents’ ages

3.1.4.1.3 Discussion

From the result and analysis of Table 3.1 and Graph 3.1, it shows that most of the parents and preschool teachers have an idea about Jawi script. It shows that these parents and preschool teachers have seen, learn, teach or heard about Jawi script. The preschool teachers very familiar with Jawi script because they have to teach the preschool pupils at kindergarten about Jawi alphabet in recognizing, writing and reading the Jawi script. Parents with ages of 30 and above who were born before
1974 also familiar with Jawi as Jawi was part of the syllabus in religious classes they probably attended. Therefore they must have the brief idea about Jawi script that will be developed as application on the palmtop.

Besides the brief idea of Jawi script, the parents and preschool teachers are also aware about the Jawi script popularity in the past. They also know about the fact that Jawi script once was used an official script in Tanah Melayu (Malaysia) as shown in the Graph 3.2 and Graph 3.3. Therefore the Jawi application for preschool children on palmtop should cater these 2 facts.

Other issue that must be highlighted, is the support in any effort taken by government and other institutions in popularizing Jawi script especially for the preschool pupils. From Graph 3.4, it is obvious that most parents and preschool teachers will support efforts in popularizing Jawi script. Thus, the Jawi application for preschool students on palmtop as one of the efforts in popularizing Jawi script will likely gain their support.

Jawi script comes from the Arabic alphabets and 6 alphabets to represent the Malay vocal sound. Jawi application will be presented in Bahasa Malaysia.
### 3.1.4.2 Palmtop Category

#### 3.1.4.2.1 Result

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answers</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Have you ever been heard/seen/read about Palmtop/PDA?</td>
<td>Yes</td>
<td>98.1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>1.9</td>
</tr>
<tr>
<td>2. Are you aware of Palmtop as an electronic organizer that can be used to access Internet, to play games and listening to music i.e. MP3's?</td>
<td>Yes</td>
<td>59.6</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>5.8</td>
</tr>
<tr>
<td></td>
<td>Not Sure</td>
<td>34.6</td>
</tr>
<tr>
<td>3. Do you agree that Palmtop is better than laptop in the sense of its portability and smaller size?</td>
<td>Yes</td>
<td>71.2</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>28.8</td>
</tr>
<tr>
<td>4. Do you know that the latest Palmtop technology integrates handphone and digital camera function?</td>
<td>Yes</td>
<td>82.7</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>17.3</td>
</tr>
<tr>
<td>5. Do you agree that palmtop would be a necessity rather than a luxury in the future?</td>
<td>Yes</td>
<td>88.5</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>11.5</td>
</tr>
<tr>
<td>6. If Palmtop become affordable, would you like to own one?</td>
<td>Yes</td>
<td>96.2</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>3.8</td>
</tr>
<tr>
<td>7. Would you believe if in the future Palmtop would be capable of running complete Multimedia application?</td>
<td>Yes</td>
<td>98.1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>1.9</td>
</tr>
<tr>
<td>8. If such technology in question 7 exists, would you like to try it?</td>
<td>Yes</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>9. Do you know that in the software market, there are electronic Qurans that can be operated on Palmtop for</td>
<td>Yes</td>
<td>69.2</td>
</tr>
<tr>
<td>Question</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>10. Based on question 9, do you think that a Multimedia application like Jawi software for preschool children can be implemented on Palmtops like Al-Muhaffiz?</td>
<td>Yes</td>
<td>61.5</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>5.8</td>
</tr>
<tr>
<td></td>
<td>Not Sure</td>
<td>32.7</td>
</tr>
<tr>
<td>11. Would you like to buy that Jawi software on palmtop for your used or for others?</td>
<td>Yes</td>
<td>71.2</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>28.8</td>
</tr>
</tbody>
</table>

Table 3.4: Answers and Percentage of Palmtop Knowledge

Graph 3.5: Percentages of respondents that have heard about Palmtop
Question 4: Do you know that the latest Palmtop technology integrates handphone and digital camera function?

Answer

Graph 3.6: Percentages of respondents that know about the integration of handphone and digital camera function on palmtop

Question 5: Do you agree that Palmtop would be a necessity rather than a luxury in the future?

Answer

Graph 3.7: Percentages of respondents that agree with palmtop necessity in the future
Graph 3.8: Percentages of respondents that interested to own palmtop if palmtop become affordable

Question 6: If Palmtop become affordable, would you like to own one?

Answer

Graph 3.9: Percentages of respondents that believes the palmtop capability of running multimedia application

Question 7: Would you believe if in the future Palmtop will be capable of running complete Multimedia application?

Answer
Question 8: If such technology in question 7 exists, would you like to try it?

Answer

Graph 3.10: Percentages of respondents that like to try the technology of multimedia application on palmtop

3.1.4.2.2 Analysis

Referring to the Table 3.4 and Graph 3.5, result shows that 98.1% of the respondents have seen or heard or read about palmtop. These proved that the parents and preschool teachers are aware of the hardware. This means that most of the parents and preschool teachers are knowledgeable and exposed to the computing technology. The mean for this question is 1.02.

From Graph 3.6, 82.7% of the respondents knew about the integration of handphone and digital camera on palmtop. The knowledge about the integration of handphone and digital camera on palmtop has the mean of 1.17.
Based on Graph 3.7, 88.5% of the respondents agreed that palmtop in the future would be a necessity rather than a luxury. It means that the parents and preschool teachers agree about palmtop necessity in the future. This part has the mean of 1.12. They also wanted to own the palmtop if palmtop become affordable in the future. Based on Graph 3.8, 96.2% of the respondents wanted to own a palmtop if it affordable. The mean of this question is 1.04.

From Graph 3.9, 98.1% believed that in the future, palmtop will be capable of running multimedia applications. These proved that parents and preschool teachers have the positive attitude towards computing technology in the future. Mean for this question is 1.02. If the palmtop capable of running multimedia application, 100% of the respondents liked to try the multimedia application on palmtop (Graph 3.10). It shows that all the respondents like to try the new technology if it exist. The mean of the question is 1.00.

3.1.4.2.3 Discussion

From the analysis of Graph 3.5, it is obvious that most of the respondents are aware about the hardware. This shows that these parents and preschool teachers are exposed with the computing technology in their working environment. They also have the understanding about palmtop for example in integrating multimedia application on palmtop for preschool pupils. This is supported by parents and preschool teachers’ knowledge about the integration of handphone
and digital camera function on palmtop based on Graph 3.6. It shows that parents and preschool teachers are knowledgeable about this issue.

Another issue that must be catered for is, the parents and preschool teachers agreed that palmtop in the future would be a necessity rather than a luxury. Based on Graph 3.7, most of the respondent gives positive feedback about the issue. When computer was introduced, the price was so expensive and can only be afforded by the wealthy people. Today, computer is no more a luxury and it is a necessity in everyday life. Same as handphone, in the first era when it was introduced, the price was quite expensive. However with the rapid changes in technologies, handphone nowadays is a necessity. The same things might happen to the palmtop and the analysis obviously shows that the respondents positively think that the palmtop in the future will be a necessity. Furthermore based on the analysis of Graph 3.8, nearly all of the participants would like to own a palmtop if it is affordable. This supports the issue of palmtop as a necessity if it is affordable. Therefore, before the Jawi application for preschool can be implemented on palmtop and accepted by the parents and preschool teachers, the price of the palmtop have to be affordable. Thus in the future it is possible that parents and preschool teachers can provided palmtops to their children and pupils for learning purposes. As an analogue, parents provide handphones for their children for better communication.
From analysis of Graph 3.9, almost all of the parents and preschool teachers believed in palmtop capability of running complete multimedia applications. Furthermore, all of the parents and preschool teachers would like to try the multimedia application in palmtop if it really exist. It shows that the respondent like to try the new technology. Therefore, Jawi application for preschool children on palmtop will have the support from the parents and preschool teachers. Thus in the future, palmtop might change the preschool pupils’ life and the preschool children can access information and gain knowledge at their own pace. These things could contribute to the ‘knowledge mobility’ where knowledge can be sought in any place.
3.1.5 Result, Analysis and Discussion on the Preliminary Data Gathering from Structured Interview

3.1.5.1 Jawi Script

3.1.5.1.1 Result

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>24</td>
<td>48</td>
</tr>
<tr>
<td>6</td>
<td>22</td>
<td>44</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 3.5: Percentage of age for preschool pupils

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answers</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you know Jawi/Alif Ba Ta?</td>
<td>Yes</td>
<td>100</td>
</tr>
<tr>
<td>2. Do you learn Jawi at school? (If answer no 1: yes)</td>
<td>Yes</td>
<td>100</td>
</tr>
<tr>
<td>3. What tool do they use to teach you Jawi? (If answer no 1: yes)</td>
<td>1. Books</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2. Chalk and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>blackboard/Marker</td>
<td></td>
</tr>
<tr>
<td></td>
<td>pen and whiteboard</td>
<td></td>
</tr>
<tr>
<td>4. Which of these tools do you prefer? (can choose &lt;1)</td>
<td>1. Books</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>2. Chalk and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>blackboard/Marker</td>
<td></td>
</tr>
<tr>
<td></td>
<td>pen and whiteboard</td>
<td>76</td>
</tr>
<tr>
<td>Question</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>5. Do you think it is easier to understand, using your preferred tool of teaching Jawi?</td>
<td>Yes</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>6. After learning Jawi at school, do you still learn them at home? (If answer no 2: yes)</td>
<td>Yes</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>36</td>
</tr>
<tr>
<td>7. If 6 is Yes, a. Then with whom do you learn Jawi at home?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mother</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>Father</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Brother</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Sister</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Books</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Television/VCD</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 3.6: Answers of the interviews for preschool pupils

Question 4: Which of these tools do you prefer?
(can choose <1)

Graph 3.11: Preschool pupils tools preferences in learning Jawi
Graph 3.12: The percentages of preschool pupils who learn Jawi after school

Graph 3.13: Individual that teaches the preschool pupils Jawi at home
Graph 3.14: Type of tool that preschool pupils used to learn Jawi at home

3.1.5.1.2 Analysis

Based on Table 3.6, 100% of the preschool pupils of TASKI Kampung Pasir know Jawi and 100% of them learn Jawi at school. It shows that preschool pupils at TASKI (Taman Asuhan Kanak-kanak Islam) are learning Jawi as part of their syllabus. In the Taski Kampung Pasir, the preschool teacher used books, marker pen and whiteboard to teach Jawi. It means that the preschool teachers still used the conventional way in teaching the Jawi syllabus without mixing it with other tool like computer or VCD. Means for these questions are 1.00.

However between books, marker pen and whiteboard, from Table 3.6 and Graph 3.11, 76% of the preschool pupils preferred the preschool teachers to use marker pen and whiteboard in teaching Jawi. While 24% of the pupils preferred
books as medium to learn Jawi. Mean for this question is 2.52. From Table 3.6, 100% of the preschool pupils, whether they choose books or marker and whiteboard, stated that its easier to learn Jawi using the tool they preferred.

From Graph 3.12, 64% of the pupils still learns Jawi at home after school. It shows that the pupils make the revision at home to enhance their understanding in Jawi. Mean for this question is 1.36.

Based on Graph 3.12 and Graph 3.13, from 64% of pupils that learns Jawi at home, 46% of the pupils learns Jawi at home with their mother. While 12% of the pupils learns with their father, 2% of the pupils learns with their brother and 4% of the pupils learns with their sister. Mean for this question is 1.44.

From Graph 3.14, 54% of the pupils that learns Jawi at home use books as the teaching tool. Only 10% of the students used televisions or VCD in learning Jawi at home. It shows that the use of technology in learning is lower than the conventional method like using books. Mean for the question is 1.16.

3.1.5.1.3 Discussion

Based on Table 3.6, all of the preschool pupils of Taski Kampung Pasir know Jawi and learn Jawi at school as Jawi is part of the syllabus in National Preschool Curriculum for the Islamic Education in Spiritual and Moral Component. Thus, we can conclude that the TASKI is implementing the
National Preschool Curriculum in its teaching. However in Taski Kampung Pasir, the preschool teachers still used the conventional way, like using books, marker pen and whiteboard to teach Jawi. Teachers do not use other approaches in teaching like computers or VCD. It could be a matter of resources, as the government does not financially support private kindergarten. The TASKI is under ABIM, private organization and the resources of the TASKI come from the fees and the organization. Thus, the usage of computer technology and other technology in their teaching is not possible.

Referring to the Graph 3.11, most of the preschool pupils preferred using marker pen and whiteboard as medium to learn Jawi. It shows that the pupils like to see the movement of teachers' hand on the whiteboard and listening to the teachers' voice. Thus, the Jawi application that would be developed shall cater the elements like animation and audio. However from the Table 3.6, all of the pupils said that it is easier to understand Jawi using the tool they preferred whether its books, marker pen and whiteboard. It means different pupils have different preferred tools, and its easier for them to understand Jawi with the tool they like.

Graph 3.12 shows that, more than half of the pupils in the kindergarten also learn Jawi at home after school. From the informal conversation with the preschool teachers at TASKI Kampung Pasir, pupils are encouraged to learn Jawi and other subjects after school to strengthen their memory and making the
learning process at school easier. The preschool pupils can recall the information easily if they always make revision at home. Therefore the Jawi application on palmtop is one of the alternatives for the preschool students to study the subject at home or with the guidance from their parents.

Based on Graph 3.14, most of the pupils used books when they learn Jawi at home after school. It shows that in their home, they do not have other alternative tool in learning except by books. Only a small number of the pupils used television or VCD to learn Jawi. The students might learn the Jawi from educational VCD package that can be played on television. Therefore the Jawi application for preschool on palmtop can be implemented especially for pupils who want to learn in their own free time, anywhere.

3.1.5.2 Jawi application

The preschool pupils of TASKI Kampung Pasir were interviewed to get their requirement about the Jawi application that will be developed. The interview was on the 3 main issues in developing Jawi application interface such as favorite of colors, shapes and mediums that they like. Each of the preschool pupils can select more than one of their favorite colors, shapes and mediums.
Graph 3.15: Percentages of preschool pupils’ preferences for combinations of colors
<table>
<thead>
<tr>
<th>Color</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Red</td>
<td>49</td>
<td>98</td>
</tr>
<tr>
<td>2. Blue</td>
<td>35</td>
<td>70</td>
</tr>
<tr>
<td>3. Green</td>
<td>26</td>
<td>52</td>
</tr>
<tr>
<td>4. Yellow</td>
<td>42</td>
<td>84</td>
</tr>
<tr>
<td>5. Black</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6. White</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7. Brown</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>8. Others</td>
<td>7</td>
<td>14</td>
</tr>
</tbody>
</table>

Table 3.7: Percentage of preschool pupils’ preferences for individual color
Graph 3.16: Percentages of preschool pupils’ preferences for combinations of shapes

<table>
<thead>
<tr>
<th>Shape</th>
<th>Frequency</th>
<th>Percentage(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Circle</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>2. Square</td>
<td>46</td>
<td>92</td>
</tr>
<tr>
<td>3. Triangle</td>
<td>14</td>
<td>28</td>
</tr>
<tr>
<td>4. Others</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3.8: Percentages of preschool pupils preferences for each shapes
Graph 3.17: Percentages of preschool pupils’ favorite media combinations

<table>
<thead>
<tr>
<th>Media</th>
<th>Frequency</th>
<th>Percentage(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sound/audio</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>2. Graphic/picture</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>3. Animation/moving image</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>4. Others</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3.9: Percentages of preschool pupils’ preferences for each media
3.1.5.2.2 Analysis

Graph 3.15 shows the combinations of colors that interest the preschool pupils. From Graph 3.15, 32% of the preschool pupils chose the combination of red, blue, green and yellow. While 22% of the pupils liked the combination of red, blue and green. It shows that preschool pupils like the bright and cheerful color. 8% of the pupils preferred the combination of red and yellow. While 6% of the preschool pupils selected the combination of red and blue. Same with the combination of red, green and yellow, 6% of the pupils preferred the color combination. In addition, only 4% of the preschool pupils preferred the combination of red and green. The combination of color such as red, yellow and other color like orange and pink, got 4% of the vote from the preschool pupils. While for the other combinations of colors (Refer Graph 3.15), only 2% of the preschool pupils selected each of the combinations.

The percentages of each color preferred by the preschool students are showed in Table 3.7 illustrates the most attractive color for the preschool students. 98% of the preschool students like red. It’s proven in Graph 3.15, red was always in the preferred the combination. While 84% of the children preferred yellow, 70% of the children liked blue and 52% of the children liked green. It shows that preschool pupils like the bright and cheerful colors. For brown, only 6% of the preschool students preferred it. The other colors like orange and pink, 14% of the students choose them. However, for black and white, none of the preschool pupils like the
colors. It means that the preschool pupils do not like plain colors. They prefer and attracted to the colorful and bright colors.

Referring to Graph 3.16, 68% of the preschool pupils preferred circle and square shapes. 24% of the pupils liked the combination of circle, square and triangle shapes. While 4% of the pupils liked circle alone. Another 4% of the pupils preferred circle and triangle shapes. Based on Graph 3.16, it is obvious that circle shape is selected in every favorite combinations. From Table 3.8, if all of the preschool pupils liked circle. 92% of them chose square shape and only 28% prefer triangle shape. It shows that preschool pupils prefer circle and square shape.

Based on Graph 3.17, 70% of the preschool pupils liked the combination of Sound/Audio and Graphic/Picture mediums, only 30% of the preschool pupils liked the integration of Sound/Audio, Graphic/Picture and Animation/Moving Image. From Table 3.9, if all of the preschool pupils liked Sound/Audio and Graphic/Picture media, only 30% of the pupils like Animation/Moving Image.

3.1.5.2.3 Discussion

Referring to Table 3.7, all of the preschool pupils liked red color. Most of them also liked yellow and blue. While half of the pupils like green. It shows that preschool pupils like the primer colors like red and blue. This is proven by Graph 3.15, when half of the students liked the combination of red, green, blue, yellow and red, blue, green. The colors are bright, cheerful and attractive. It shows that preschool pupils
attracted to colorful things and not prefer dull and plain colors like black and white. It reflected on Table 3.7 when none of the preschool students liked white and black colors. Thus Jawi application that will be developed have to consider the students favorite colors to attract them using the application. However besides preschool pupils opinions about their favorite colors, the interface should also cater the appropriateness of color combinations based on HCI theory.

The preschool pupils also liked the basic shapes like circle, square and triangle. Referring to Table 3.8, all of the preschool pupils liked circle shape, most of them liked square and quarter of them preferred triangle. Based on Graph 3.16, more than half of the preschool pupils like the combination of circle and square. Nearly quarter of them like the combination of circle, square and triangle shapes. Only a small numbers of them liked the combination of circle and triangle shape. The rest just like the circle shape alone. None of the students mentioned about other shapes in the interview. Therefore the Jawi application should consider the preschool students preferences besides the appropriateness to put the suitable shapes in the application. The design should cater the preschool pupils’ preferences because the pupils are the main target users for the preschool Jawi application on palmtop.

Referring to the Table 3.9, all of the preschool students prefer the Sound/Audio and Graphic/Picture media. While more than quarter of the preschool pupils liked Animation/Moving Image media. It shows that preschool pupils liked variety of media. It is proven in Graph 3.17, when most of the preschool pupils liked the
combination of Sound/Audio and Graphic/Picture media and more than quarter of the students like the integration of Sound/Audio, Graphic/Picture and Animation/Moving Image media. Therefore the Jawi application for preschool pupils on palmtop should consider the favorite media of the preschool pupils. However, it does not mean that the Sound/Audio and Graphic/Picture media have to dominate the application and putting aside the Animation/Moving Image media. All of the media chosen by the preschool pupils have to be put in appropriate manner without interrupting the message and information that shall be delivered. Too much Sound/Audio, Graphic/Picture and Animation/Moving Image elements in the application can distract preschool students attention in learning the content. Thus the balancing between the media is important in order to make sure the Jawi application for preschool pupils on palmtop can have maximum impact to student learning.
3.1.5.3 Palmtop

3.1.5.3.1 Result

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answers</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is it portable?</td>
<td>Yes</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>2. If you could own it, do you want to have one?</td>
<td>Yes</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>3. Do you want to learn Jawi on palmtop?</td>
<td>Yes</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3.10: Result of palmtop acceptance feedback

3.1.5.3.2 Analysis

Referring to the Table 3.10, all of the preschool pupils admitted that palmtop is portable. It shows that the HP iPaq Pocket PC is portable and small. All of the preschool pupils also wanted to own the palmtop if they have given a chance to have it. They also wanted to learn Jawi on palmtop if they get the opportunity. It shows in Table 3.10, all of the pupils wanted to learn Jawi on palmtop. Mean of the questions are 1.00.

3.1.5.3.3 Discussion

Based on the Table 3.10, all of the preschool pupils give positive feedback about the palmtop. It shows that, the preschool pupils were excited about the
new hardware technology especially when they can feel, touch and lift the palmtop by themselves. They can feel the palmtop portability and smallness on their own hand. All of the pupils wanted to own a palmtop if they can have one. It means that they really excited with the palmtop technology. In addition, all of the students wanted to learn Jawi on palmtop. It means that they could accept the new platform as an alternative tool in learning and gaining knowledge. Therefore, from the analysis of Table 3.10, palmtop is well accepted by the preschool pupils, which is the target group of the Jawi application for preschool pupils on palmtop.

3.16 Conclusion

The analysis of the data gathered from the parents and preschool teachers shows that they gave positive feedback in popularizing the Jawi script (Graph 3.4) and accepted the new platform, palmtop in learning and spreading the knowledge (Graph 3.9). The preschool pupils involved also gave positive feedback about implementation of Jawi application for preschool education on palmtop. All of them give 100% support in learning Jawi through palmtop (According Table 3.10).

The main factors, which were considered as the requirements in the prototype of Jawi application for preschool education on palmtop in this research, are presented below:
1. Most of the parents and preschool teachers would support the effort by any organization in popularizing Jawi script (Graph 3.4).

2. All of the parents and preschool teachers surveyed would like to try the Multimedia application on palmtop (Graph 3.10).

3. Most of the parents and preschool teachers wanted to buy the Jawi software on palmtop (Table 3.4).

4. All preschool pupils in kindergarten know about Jawi as they are being taught Jawi in the school (Table 3.6).

5. Most of the preschool pupils preferred the combination of red, blue, and green and yellow (Graph 3.15) and red stand out as the students’ choice (Table 3.7).

6. Preschool students like the combination of circle and square shapes (Graph 3.16) and circle shape on its own get the highest ranking in preschool pupils choice (Table 3.8).

7. The preschool pupils preferred Sound/Audio and Graphic/Picture media (Graph 3.17) and both media individually get the 100% support from the preschool pupils (Table 3.9).

8. All of the preschool students (Table 3.10) admitted the portability of the palmtop and wanted to learn Jawi on palmtop.

The mentioned requirements from the questionnaire and structured interviews are part of the requirements used in the design of Jawi application prototype in this research. The requirement also found from fact-finding analysis through
educational CD-ROMs, books, magazines and Internet. The prototype design will be discussed in next topic of this chapter and the prototype implementation on palmtop is discussed in Chapter 4.

3.2 Design Specification

3.2.1 Modules in ‘Mari Belajar Jawi’

There are six modules in ‘Mari Belajar Jawi’ prototype. ‘Baca AlifBaT’a, ‘Tulis AlifBaT’a, ‘Lagu AlifBaT’a, ‘Kuiz AlifBaTa’, ‘Bantuan’ and ‘Kredit’ are the modules.
‘Baca AlifBaTa’ module is a module where users can hear the pronunciation of a Jawi alphabet from ‘Alif’ to ‘Tsa’. Figure 3.1 is the overview of the interface. Each of the alphabets will show a picture of an example that begins with the chosen alphabet. Below the picture, Jawi writing of the example, will appear once users select the alphabet.
Figure 3.2: Example of Interface ‘Tulis AlifBaTa’ Module

While ‘Tulis AlifBaT’a module is the module where users can see the animation of each Jawi script they have chosen. In addition the picture of Jawi alphabet showing how it is written is shown.
Figure 3.3: Example of Interface ‘Lagu AlifBaTa’ Module

If users choose to listen to music, they can proceed to ‘Lagu AlifBaTa’ module.

There are 4 songs that users can select.
'Alif' Alphabet

'Alif' Button for Quiz

Pictures selected

Figure 3.4: Example of Interface 'Kuiz AlifBaTa' Module

'Kuiz AlifBaTa' module is a module given to test what the users have learned in 'Baca AlifBaTa' module. Users have to select the right picture of an example that begins with the alphabet they have chosen earlier. They have to find the right answer before they are allowed to proceed to another alphabet.
Figure 3.5 : Example of Interface ‘Bantuan’ Module

Users can proceed to ‘Bantuan’ module if they want to know about each button provided in the application. Please refer Figure 3.5 for interface overview.
Figure 3.6: Example of Interface ‘Kredit’ Module

Lastly ‘Kredit’ module is the module where author expressed appreciation towards specific persons that contributed to this project. Figure 3.6 shows the overview of the interface.
3.2.2 Structure of Mari Belajar Jawi

Figure 3.7: Structure of Mari Belajar Jawi
The structure defines the methods in which users can navigate through 'Mari Belajar Jawi' application. Please see Figure 3.8 for the overview. The introduction page is the main page that contains the application title. From the introduction, users can proceed to three main parts, which are 'Belajar AlifBata', 'Bantuan' and 'Kredit' modules. Each part contains a link to go to each other without having to go back to the introduction page. This mechanism gives users the freedom to navigate on their own pace. Users would not get lost because it's just a standalone system and they can easily go to any part they want.

3.2.3 Storyboard of Mari Belajar Jawi

A storyboard is an expression of everything that would be contained in the program such as how menu screens would look like, pictures (still and moving) to be shown, audio and text will accompany the images, either synchronously or hyperlink. While Jamaludin Harun (Jamaludin Harun and et.al, 2001) stated that storyboard is the rough overview of the screens of certain application in elaborating to the user about the design of the system. Tools like color pencil, paper, and suitable software can be used to create the storyboard. In addition, a storyboard is a series of sketches that describe the content of a sequence of multimedia screens. The simple storyboarding contains a frame for screen layout sketching and a space below the frame for making comment (Hofstetter, 2001).

TITLE: MARI BELAJAR JAWI

IMAGE SOURCES

• BOOK/MAGAZINE
  Filename

• STATIC IMAGE
  Filename: BelajarABT.jpg, Bantuan.jpg, Keluar.jpg

• SLAID
  Filename

• OTHERS: Internet, CD, Own Resources
  Filename: ButtonKeluar.jpg

ANIMATION

• 2D
  Filename: RAMA0001

• 3D
  Filename
  FRAMES TOTAL: 3
  TIME:

VIDEO CLIP

FRAMES TOTAL
  TIME:
  Filename:

MUSIC/SOUND

TIME:
  Filename:

EFFECT

NOTES

• BACKGROUND
  Filename: BgMenuUtama1.jpg

• TOTAL TIME: second

NOTE/INSTRUCTION

Click any balloons to go to any modules or click ‘Ketua’r button to exit.

SCRIPT

As above

BACKGROUND VOICE/NARRATOR

Man’s voice
Click any buttons to go to any modules or click 'Keluar' button to exit.
NOTE/INSTRUCTION
Click any buttons to go to any modules or click ‘Keluar’ button to exit. User can choose any Jawi alphabet in yellow buttons to see the related pictures.

SCRIPT
As above

BACKGROUND VOICE/NARRATOR
Man’s Voice: silaklik.wav
**NOTE/INSTRUCTION**
Click any buttons to go to any modules or click 'Keluar' button to exit. User can choose any Jawi alphabet in yellow buttons to see the related pictures.

**SCRIPT**
As above

**BACKGROUND VOICE/NARRATOR**
Man’s Voice
### TITLE: MARI BELAJAR JAWI

#### IMAGE SOURCES
- **BOOK/MAGAZINE**
- **STATIC IMAGE**
  - Filename
- **SLAID**
  - Filename
- **OTHERS**: Filename: ButtonBacaES.jpg, ButtonBantuanES.jpg, ButtonKreditES.jpg, ButtonLaguES.jpg, ButtonKuisES.jpg, ButtonTulisES.jpg, ButtonKeluar.jpg

#### ANIMATION
- **2D**
  - Filename: RAMA0001
- **3D**
  - Filename
  - FRAMES TOTAL: 3
  - TIME:

#### VIDEO CLIP
- **FRAMES TOTAL**
- **TIME:**
- **Filename:**

#### MUSIC/SOUND
- **TIME:**
  - Filename: babetik.wav

#### EFFECT

#### NOTES
- **BACKGROUND**
  - Filename: BgSubMenu.jpg, Bargreen.jpg
- **TOTAL TIME:**
  - second

### NOTE/INSTRUCTION
Click any buttons to go to any modules or click ‘Keluar’ button to exit. User can choose any Jawi alphabet in yellow buttons to see the related pictures.

### SCRIPT
As above

### BACKGROUND VOICE/NARRATOR
Man’s Voice
**NOTE/INSTRUCTION**
Click any buttons to go to any modules or click ‘Keluar’ button to exit. User can choose any Jawi alphabet in yellow buttons to see the related pictures.

**SCRIPT**
As above

**BACKGROUND VOICE/NARRATOR**
Man’s voice
NOTE/INSTRUCTION

Click any buttons to go to any modules or click ‘Keluar’ button to exit. User can choose any Jawi alphabet in yellow buttons to see the related pictures.

SCRIPT

As above

BACKGROUND VOICE/NARRATOR

Man’s voice
Click any buttons to go to any modules or click 'Keluar' button to exit. User can choose any Jawi alphabet in blue buttons to see the related pictures and animation.
**NOTE/INSTRUCTION**

Click any buttons to go to any modules or click ‘Keluar’ button to exit. User can choose any Jawi alphabet in blue buttons to see the related pictures and animation.

**SCRIPT**

As above

**BACKGROUND VOICE/NARRATOR**

Man’s voice

---

**TITLE:** MARI BELAJAR JAWI

**IMAGE SOURCES**

- **BOOK/MAGAZINE**
  - Filename: AlifButtonT.jpg, BaButtonT.jpg, TaButtonT.jpg, SaButtonT.jpg, AlifIP.jpg

- **STATIC IMAGE**
  - Filename:

- **SLAID**
  - Filename:

- **OTHERS:**
  - ButtonBacaES.jpg, ButtonBantuanES.jpg, ButtonKreditES.jpg, ButtonLaguES.jpg, ButtonKuizES.jpg, ButtonTulisES.jpg, ButtonKeluar.jpg

**ANIMATION**

- **2D**
  - Filename: RAMA0001, ali.gif

- **3D**
  - Filename

- **FRAMES TOTAL:** 3

**VIDEO CLIP**

- **FRAMES TOTAL:**

- **TIME:**

**MUSIC/SOUND**

- **TIME:**

- **Filename:** ali.wav

**EFFECT**

**NOTES**

- **BACKGROUND**
  - Filename: BgSubMenu.jpg, Bargreen.jpg, BG1.jpg

- **TOTAL TIME:** second
Click any buttons to go to any modules or click ‘Keluar’ button to exit. User can choose any Jawi alphabet in blue buttons to see the related pictures and animation.

As above

Man’s voice
**NOTE/INSTRUCTION**

Click any buttons to go to any modules or click 'Keluar' button to exit. User can choose any Jawi alphabet in blue buttons to see the related pictures and animation.

**SCRIPT**

As above

**BACKGROUND VOICE/NARRATOR**

Man’s voice
NOTE/INSTRUCTION
Click any buttons to go to any modules or click 'Keluar' button to exit. User can choose any Jawi alphabet in blue buttons to see the related pictures and animation.

SCRIPT
As above

BACKGROUND VOICE/NARRATOR
Man's voice
NOTE/INSTRUCTION

Click any animated radio to choose any song, click any buttons to go to modules or click ‘Keluar’ button to exit.

SCRIPT

As above

BACKGROUND VOICE/NARRATOR

Man’s voice: dengarmuzik.wav
Click any buttons to go to any modules or click 'Keluar' button to exit. User can choose any Jawi alphabets in pink buttons to see the related pictures and alphabet.
### IMAGE SOURCES
- **BOOK/MAGAZINE**
- **STATIC IMAGE**
  - Filename: BigAlif.jpg
- **SLAID**
  - Filename
- **OTHERS:**
  - Filename: ButtonBacaES.jpg, ButtonBantuanES.jpg, ButtonKreditES.jpg, ButtonLaguES.jpg, ButtonKuizES.jpg, ButtonTulisES.jpg, ButtonKeluar.jpg

### ANIMATION
- **2D**
  - Filename: RAMA0001
- **3D**
  - Filename
  - FRAMES TOTAL: 3
  - TIME:

### VIDEO CLIP
- FRAMES TOTAL
  - TIME:
  - Filename:

### MUSIC
- TIME:
  - Filename

### EFFECT

### NOTES
- **BACKGROUND**
  - Filename: BgSubMenu.jpg, Bargreen.jpg
- **TOTAL TIME:**
  - second

### NOTE/INSTRUCTION
Click any buttons to go to any modules or click 'Keluar' button to exit. User can choose any Jawi alphabets in pink buttons to see the related pictures and alphabets. User have to click the picture begin with 'Alif' alphabet.

### SCRIPT
As above

### BACKGROUND VOICE/NARRATOR
Man's voice
### TITLE: MARI BELAJAR JAWI

#### IMAGE SOURCES
- **BOOK/MAGAZINE**
- **STATIC IMAGE**
  - Filename: BigAlif.jpg
- **SLAID**
  - Filename
- **OTHERS**: Filename: ButtonBacaES.jpg, ButtonBantuanES.jpg, ButtonKreditES.jpg, ButtonLaguES.jpg, ButtonKuizES.jpg, ButtonTulisES.jpg, ButtonKeluar.jpg

#### ANIMATION
- **2D**
  - Filename: RAMA0001
- **3D**
  - Filename
  - FRAMES TOTAL: 3
  - TIME:

#### VIDEO CLIP
- **FRAMES TOTAL**
  - TIME: Filename:

#### MUSIC/SOUND
- **TIME**: Filename: clap.wav

#### EFFECT

#### NOTES
- **BACKGROUND**
  - Filename: BgSubMenu.jpg, Bargreen.jpg
- **TOTAL TIME**: second

### NOTE/INSTRUCTION
Click any buttons to go to any modules or click 'Keluar' button to exit. User can choose any Jawi alphabets in pink buttons to see the related pictures and alphabets.

### SCRIPT
As above

### BACKGROUND VOICE/NARRATOR
Man's voice
NOTE/INSTRUCTION

Click any buttons to go to any modules or click 'Keluar' button to exit. User can choose any Jawi alphabets in pink buttons to see the related pictures and alphabets. User have to click the picture begin with 'Alif' alphabet.

SCRIPT

As above

BACKGROUND VOICE/NARRATOR

Man's voice
Click any buttons to go to any modules or click 'Keluar' button to exit. User can choose any Jawi alphabets in pink buttons to see the related pictures and alphabets. User have to click the picture begin with 'Ba' alphabet.
NOTE/INSTRUCTION
Click any buttons to go to any modules or click 'Keluar' button to exit. User can choose any Jawi alphabets in pink buttons to see the related pictures and alphabets.

SCRIPT
As above

BACKGROUND VOICE/NARRATOR
Man's voice
### TITLE: MARI BELAJAR JAWI

#### IMAGE SOURCES
- **BOOK/MAGAZINE**
- **STATIC IMAGE**
  - Filename: BigBa.jpg
- **SLAID**
  - Filename
- **OTHERS:**
  - Filename: ButtonBacaES.jpg, ButtonBantuanES.jpg, ButtonKreditES.jpg, ButtonLaguES.jpg, ButtonKuisES.jpg, ButtonTulisES.jpg, ButtonKeluar.jpg

#### ANIMATION
- **2D**
  - Filename: RAMA0001
- **3D**
  - Filename
  - FRAMES TOTAL: 3
  - TIME:

#### VIDEO CLIP
- FRAMES TOTAL
- TIME:
- Filename:

#### MUSIC/SOUND
- TIME:
- Filename: RobotzDefault.wav

#### EFFECT

#### NOTES
- **BACKGROUND**
  - Filename: BgSubMenu.jpg, Bargreen.jpg
- **TOTAL TIME:** 3 second

### NOTE/INSTRUCTION
Click any buttons to go to any modules or click *'Keluar' button* to exit. User can choose any Jawi alphabets in pink buttons to see the related pictures and alphabets. User have to click the picture begin with 'Ba' alphabet.

### SCRIPT
- As above

### BACKGROUND VOICE/NARRATOR
- Man's voice
**NOTE/INSTRUCTION**

Click any buttons to go to any modules or click 'Keluar' button to exit. User can choose any Jawi alphabets in pink buttons to see the related pictures and alphabets. User have to click the picture begin with 'Ta' alphabet.

**SCRIPT**

As above

**BACKGROUND VOICE/NARRATOR**

Man's voice
### IMAGE SOURCES

- **BOOK/MAGAZINE**

- **STATIC IMAGE**
  - Filename: BigTa.jpg

- **SLAID**
  - Filename

- **OTHERS:**
  - Filename: ButtonBacaES.jpg, ButtonBantuanES.jpg, ButtonKreditES.jpg, ButtonLaguES.jpg, ButtonKuisES.jpg, ButtonTulisES.jpg, ButtonKeluar.jpg

### ANIMATION

- **2D**
  - Filename: RAMA0001

- **3D**
  - Filename
  - FRAMES TOTAL: 3
  - TIME:

### VIDEO CLIP

- FRAMES TOTAL
  - TIME: Filename:

### MUSIC/SOUND

- TIME: Filename: clap.wav

### EFFECT

### NOTES

- **BACKGROUND**
  - Filename: BgSubMenu.jpg, Bargreen.jpg

### TOTAL TIME: second

### NOTE/INSTRUCTION

Click any buttons to go to any modules or click 'Keluar' button to exit. User can choose any Jawi alphabets in pink buttons to see the related pictures and alphabets.

### SCRIPT

As above

### BACKGROUND VOICE/NARRATOR

Man's voice
**STORYBOARD PAGE**

**TITLE:** MARI BELAJAR JAWI

**IMAGE SOURCES**
- **BOOK/MAGAZINE**
- **STATIC IMAGE**
  - Filename: BigTa.jpg
- **SLAID**
  - Filename
- **OTHERS:**
  - Filename: ButtonBacaES.jpg, ButtonBantuanES.jpg, ButtonKredietES.jpg, ButtonLaguES.jpg, ButtonKuizES.jpg, ButtonTulisES.jpg, ButtonKeluar.jpg

**ANIMATION**
- **2D**
  - Filename: RAMA0001
- **3D**
  - Filename
  - FRAMES TOTAL: 3

**VIDEO CLIP**
- FRAMES TOTAL
- TIME: Filename:

**MUSIC/SOUND**
- TIME:
  - Filename: RobotzDefault.wav

**EFFECT**

**NOTES**
- **BACKGROUND**
  - Filename: BgSubMenu.jpg, Bargreen.jpg
- **TOTAL TIME:** second

**NOTE/INSTRUCTION**

Click any buttons to go to any modules or click 'Keluar' button to exit. User can choose any Jawi alphabets in pink buttons to see the related pictures and alphabets. User have to click the picture begin with 'Ta' alphabet

**SCRIPT**

As above

**BACKGROUND VOICE/NARRATOR**

Man's voice
NOTE/INSTRUCTION

Click any buttons to go to any modules or click 'Keluar' button to exit. User can choose any Jawi alphabets in pink buttons to see the related pictures and alphabets. User have to click the picture begin with 'Tsa' alphabet.

SCRIPT

As above

BACKGROUND VOICE/NARRATOR

Man's voice
NOTE/INSTRUCTION

Click any buttons to go to any modules or click ‘Keluar’ button to exit. User can choose any Jawi alphabets in pink buttons to see the related pictures and alphabets.

SCRIPT

As above

BACKGROUND VOICE/NARRATOR

Man’s voice
NOTE/INSTRUCTION
Click any buttons to go to any modules or click 'Keluar' button to exit. User can choose any Jawi alphabets in pink buttons to see the related pictures and alphabets. User have to click the picture begin with 'Tsa' alphabet.

SCRIPT
As above

BACKGROUND VOICE/NARRATOR
Man’s voice
**NOTE/INSTRUCTION**

Click Smiley button to go to ‘Menu Utama’ page or ‘Keluar’ button to exit the system.

**SCRIPT**

As above

**BACKGROUND VOICE/NARRATOR**
### Module No: 6  
#### Page No: 28

**Title:** MARI BELAJAR JAWI

**Image Sources**
- **Book/Magazine**
  - Filename
- **Static Image**
  - Filename
- **SLAID**
  - Filename
- **Others:** Filename: ButtonMenuUtamaSmiley.jpg ButtonKeluar.jpg

**Animation**
- **2D**
  - Filename: 
- **3D**
  - Filename: 
  - Frames Total: 
  - Time: 

**Video Clip**
- Frames Total: 
  - Time: 
  - Filename: 

**Music/Sound**
- Time: 
  - Filename: LaguKrRaihan.wav

**Effect**

**Notes**
- **Background**
  - Filename: 
- **Total Time:** second

---

**Note/Instruction**

Click Smiley button to go to ‘Menu Utama’ page or ‘Keluar’ button to exit the system.

**Script**

As above

**Background Voice/Narrator**
**TITLE:** MARI BELAJAR JAWI

**IMAGE SOURCES**
- **BOOK/MAGAZINE**
  
- **STATIC IMAGE**
  
- **SLAID**
  
- **OTHERS:**
  
**ANIMATION**
- **2D**
  
- **3D**
  
**VIDEO CLIP**

**MUSIC**

**EFFECT**

**NOTES**
- **BACKGROUND**
  
- **TOTAL TIME:** second

**NOTE/INSTRUCTION**
Click *TAMAT* button to quit or *KEMBALI* button to go to Introduction Page.

**SCRIPT**
As above

**BACKGROUND VOICE/NARRATOR**
**NOTE/INSTRUCTION**

Dialogue Box of exit confirmation appears, click 'Ya' to exit or 'Tidak' to stay in that page.

**SCRIPT**

As above

**BACKGROUND VOICE/NARRATOR**

Man's voice
3.3 Systems Requirements Specification

3.3.1 Hardware Specification

Requirement and basic specification for development and implementation on PC are categorized into software and hardware. Software requirements are stated in Table 3.12 and hardware requirements are in Table 3.11.

<table>
<thead>
<tr>
<th>Num.</th>
<th>Requirement</th>
<th>Minimum specification</th>
</tr>
</thead>
</table>
| 1.   | Computer    | Processor: Intel Pentium II  
Speed: 166 Mhz  
Hard Disk: 4.1 GB  
Memory: 64 MB EDO RAM  
Disk Drive: 1.44 MB Floppy Disk  
CD ROM Drive: 32  
CD ROM Writer: 12X  
Monitor: 14” SVGA Colour  
Mouse and Mouse Pad  
104 Arabic Keyboard for Windows 2000 |
| 2.   | Printer     | Canon Bubble Jet – 210 B/Colour |
| 3.   | Scanner     | Acer Prisa 610s |
| 4.   | DigiCam     | Sony |
| 5.   | Palm-Top    | HP iPaq Pocket PC h 1910 |

Table 3.11: Hardware Specification
3.3.2 Software Specification

<table>
<thead>
<tr>
<th>Num.</th>
<th>Requirement</th>
<th>Specification</th>
</tr>
</thead>
</table>
| 1.   | Analysis and design of the system  | SPSS 10.0 for Windows
                                           | Microsoft Word 97
                                           | Microsoft Excel 97
                                           | Visio 6.0                                               |
| 2.   | Development                        | Macromedia Flash 5.0                   |
                                           | Sound Forge 4.0                           |
                                           | Adobe Photoshop 6.0                      |
                                           | Paint Shop Pro 6.0                       |
                                           | Animation Shop                           |
| 3.   | Operating System                  | Windows 2000                            |
| 4.   | Project Planning                  | Microsoft Project 98                    |
| 5.   | Report                             | Microsoft Word 97                       |
| 6.   | Project Presentation              | Microsoft PowerPoint 97                 |

Table 3.12: Software Specification

3.4 Contingency Development and Implementation Planning

The Contingency Development Planning was prepared in order to face possible risks that might happen in developing the system and implementing through palmtop. The Table 3.13 shows contingency planning.

<table>
<thead>
<tr>
<th>Num.</th>
<th>Issue</th>
<th>Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Software for developing system especially authoring software is not suitable or system developer cannot mastering the software</td>
<td>Get the other authoring software such as Macromedia Director.</td>
</tr>
<tr>
<td></td>
<td>The packaged application with .exe cannot understand the Pocket PC format</td>
<td>Try to find another alternative authoring tool that use HTML formats file such as Macromedia Flash 5.0.</td>
</tr>
</tbody>
</table>
|   | Lack of software and hardware | • Buy first before get the sponsor from Vot F Scheme.  
|   |                             | • Borrow from certain people and organization. |

Table 3.13: Contingency Planning