The Selection of Knowledge Sharing Tools for Special Children Community

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ABSTRACT
This paper reports on the strategy for the selection of an appropriate knowledge sharing tools based on several aspects. The author was adapted the strategy proposed by Volksen (Volksen 1993). There are four steps in this strategy namely as: (i) Defining task and preconditions requirement; (ii) Identifying functional requirement profile; (iii) Identifying functional requirement profile; and (iv) Selecting tools and products. The purpose of this strategy is to determine the most suitable knowledge sharing tools based on the performed task and certain preconditions according to the special children context. Seven preconditions or issues have been indentified. There are (i) Functional criteria; (ii) Technical criteria; (iii) Application criteria; (iv) Usability and ergonomics; (v) Scalability; (vi) Content and (vii) Other criteria. Those preconditions are depending on a community needs. There is not necessary to use the entire criteria. Each precondition is divided into several numbers of sub-criteria. In order to represent functional requirement profiles and tools profiles, matrices presentation is used. These matrices are used to ensure the selection of knowledge sharing tools is equivalent to fit certain environment and also satisfied a community needs. The result shows that the selected strategy yields a number of benefits that include the identification of ways to enhance knowledge sharing practice among special children community. Moreover, the requirement can be used as a pillar in the development of knowledge sharing framework. This framework can be used as a guideline for effective knowledge sharing. Subsequently, recommendations can be derived for better knowledge sharing systems as a communication medium among special children community.

General Terms
Management, Human Factors

Keywords
Knowledge Sharing, Groupware, Social Networking Tool, Collaboration

1. INTRODUCTION
The Malaysian government is undoubtedly serious in providing services via the use of technology to all her citizen as can be seen by the increase in the number of portals developed by all government ministries and their agencies, displaying and promoting their services to the public. However, based on the knowledge audit that was done, most of the existing portals related to special children community are still need further improvement (Aida Suzana, Azizah et al. 2008). Most of the stated portals, only providing the static information and there are limited space for the special community to interact and communicate each other in two way communication. Thus, effective knowledge sharing practice among special children community are quit difficult to be achieved.

Hence, there is a need to investigate all the possible knowledge sharing tools which cope with the special children community’s needs. It is the intention of this paper to identify which tools are most suitable for certain situations. The identification strategies can be applied to formulate a knowledge sharing framework. This framework can be used as a fundamental guideline in delivering information from government to society. Hopefully, this will ensure this community can acquire and share their knowledge in various situations, with the ease and satisfaction to the maximum.

2. PROBLEM BACKGROUND
There are three reasons that motivate the author towards conducting this research. The reasons are as follows.

2.1 Offline knowledge sharing gives limited information and knowledge
Based on the surveys that were done, most of the special children community use offline knowledge sharing to acquire or share their knowledge. One of the scenarios happens is, parent are compelled to go to their children’s school in order to directly approach teachers and other parents who send their children to the same school. The other knowledge sharing approach teachers by them is during related seminar or workshop. However, the respondents reveal that there has no knowledge sharing practiced by them after the seminar. According to their feedbacks, the main reason is because they have no opportunity to do that in terms of geographical barriers. Generally, not all parents can afford to travel just to acquire the necessary information such as available facilities, opportunities and privileges for their children. Therefore, it is hoped that this research may solve this problem by providing the most appropriate tools for the special children community.
2.2 Reluctance of existing group of parents to share knowledge openly
Due to certain reasons, some parents reluctant to share knowledge openly. One of the familiar reason is because of they are shy and not comfortable to do so. They want to share some experience and tips but sometimes they feel not so confident to expose themselves. Basically, this type of community is preferred to use online mechanism. Nowadays, there is literally thousands of knowledge sharing tools on the market that promise to solve organization’s and community’s problems. However, based on the literature reviews that were done, too much tools in the market also make end user quit difficult to make a choice. Therefore, this research focuses on the selection strategies to select the most suitable knowledge sharing tools which cope with the special children community’s needs.

2.3 Ineffective related government agencies portals
The number of portals developed by all government ministries and their agencies has rapidly increased in order to display and promote their services to the public. This is inline with the author’s findings that portal can be used as a knowledge sharing tools which users not only can get the information but also can contribute to this portal. Furthermore, portal provides more effective features and allows access to other online knowledge sharing tools. Nevertheless, there is still having some weaknesses that can be seen in the special children related government agencies portals. The portals are the Social Welfare department, the Special Education Department and the Ministry of Health (myHealth). In general, the author found that those portals were developed with the public in mind. However, based on the literature review that was done (Aida Suzana, Azizah et al. 2008), there are opportunities to improve those stated portals. Based on the provision of information, those webs are slightly static and contain incomplete information. Furthermore, there are very limited activities that can be done using online services. Based on the analysis, it can be seen that those three portals emphasize on one way communication while two way communications give more benefit to the special children community. Hopefully, this study can solve the community’s problem and give a guideline to the government in improving their current portals towards effective knowledge sharing practice.

3. OBJECTIVES
The main objective of this research is to develop knowledge sharing framework as a guideline for effective knowledge sharing practice. In order to develop an effective knowledge sharing framework, there are three other objectives that need to be achieved. The objectives are:

i. To identify the entities related to the special children context.
ii. To identify the knowledge that can be shared within and between the groups of special children community.
iii. To identify possible knowledge sharing tools including all the criteria to determine which tools are most suitable for certain situations

For the purpose of this paper, the author will report on the third objectives.

4. METHODOLOGY
For the purpose of this paper, the author was adapted the selection strategy for suitable knowledge sharing tools proposed by Volksen (Volksen 1993) as shown in Figure 1.

There are four steps in order to select appropriate tools suitable to certain conditions and environments. The steps are: (i) Defining task and preconditions requirement; (ii) Indentifying functional requirement profile; (iii) Identifying tools profile; and (iv) Selecting tools and products. The above strategy refers to a top-down process starting with the requirements and finishing with the technical issues.

4.1 Step 1: Defining Task and Precondition Requirement
Due to rapid emergence of knowledge sharing tools and product, acquiring and listing all the existing knowledge sharing tools are quite difficult. Therefore, there is need to identify the required task performed by the community of practice related to special children context and to determine the possible precondition (E.g. technical issues or price) to fix the profile. Based on the identified task and precondition, the first step will be performed which is defining the requirements for the task and preconditions.

For this research, defining the requirements for the tasks is to determine the application domain which requires community support. There are two major domains i.e. problem solving work field and the management work field. Once application domain was identified, the author need to investigate if there is precondition needed. Several numbers of preconditions was identified namely as: (i) Functional criteria; (ii) Technical criteria; (iii) Application criteria; (iv) Usability and ergonomics; (v) Scalability; (vi) Content and (vii) Other criteria.

4.2 Step 2: Identifying Functional Requirement Profile
Before the possible tools can be determine, the possible functional requirements based on the certain task need to be identified. These requirements can be used to scope the selection process. The major goal of this step is to investigate the characteristics of the task and listing the possible functional requirement for each task.

In order to acquire the functional requirement, matrix presentation was used. This matrix consists of precondition which chose by the community including their sub-criteria. As an example, Table 1 shows the
functional requirement profile matrix for the functional criteria context.

The functional requirement may differ between different tasks. It is due to every task has their own characteristic which may require different requirement. Therefore, for a start, special children community needs to fill up this matrix by entering the task name. In order to perform the task, several number of task processes possibly need to be conducted. As an example, to finish certain task, is it needs a brainstorming process or evaluation. If yes, what are the criteria or requirement needed for performing those task processes? That answer will be a guideline for the author to provide the most suitable tools depending on the users’ requirement.

**Table 1. Functional requirement profile matrix**

<table>
<thead>
<tr>
<th>Task Name:</th>
<th>Task Requirement:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional Criteria</td>
<td>Process/Technique of task</td>
</tr>
<tr>
<td>Interaction</td>
<td>E.g. 1</td>
</tr>
<tr>
<td>• Synchronous (S) / Asynchronous (A)</td>
<td></td>
</tr>
<tr>
<td>• Formal (F)/Informal (I)</td>
<td></td>
</tr>
<tr>
<td>• Implicit (I)/Explicit (E)</td>
<td></td>
</tr>
<tr>
<td>Distribution</td>
<td>E.g. 1</td>
</tr>
<tr>
<td>• Central (C)/Local (L) /Global (G)</td>
<td></td>
</tr>
<tr>
<td>Group Coordination</td>
<td>E.g. 1</td>
</tr>
<tr>
<td>• Group size (Small, Medium, Large)</td>
<td></td>
</tr>
<tr>
<td>• Interaction Control</td>
<td></td>
</tr>
<tr>
<td>Synchronous: Basic mode (Bs), Designation mode (Ds), Baton Mode (Bt), First-come-first-served mode (FF), Free mode (F)</td>
<td></td>
</tr>
<tr>
<td>Asynchronous: Free Order (Fo)/ Specific Order (So)</td>
<td></td>
</tr>
<tr>
<td>User Specific Reaction</td>
<td>E.g. 1</td>
</tr>
<tr>
<td>• Transparent (T)/Aware (A)</td>
<td></td>
</tr>
<tr>
<td>User Specific Views</td>
<td>E.g. 1</td>
</tr>
<tr>
<td>• Pure (P)/Relaxed (R) WYSIWIS</td>
<td></td>
</tr>
<tr>
<td>• Data Hiding (Private, Public to certain group, Public to general)</td>
<td></td>
</tr>
</tbody>
</table>

**4.3 Step 3: Identifying Tools Profile**

As mentioned by Volksen, the way to characterize a groupware tool is to write the criteria into list and enter the value for each criterion (Volksen 1993). The results are the profile of the tool. The criteria consist in this matrix (See Table 2) are not indispensable depending on the functional requirement matrix (see Table 1). However, there are much easier if using the same criteria.

**Table 2. Tools profile matrix**

<table>
<thead>
<tr>
<th>Task Name:</th>
<th>Task Requirement:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional Criteria</td>
<td>Tools/Product</td>
</tr>
<tr>
<td>Interaction</td>
<td>E.g. 1</td>
</tr>
<tr>
<td>• Synchronous (S) / Asynchronous (A)</td>
<td></td>
</tr>
<tr>
<td>• Formal (F)/Informal (I)</td>
<td></td>
</tr>
<tr>
<td>• Implicit (I)/Explicit (E)</td>
<td></td>
</tr>
</tbody>
</table>

As can be seen in Table 1 and Table 2, there are some similarities between them. The differences are only on the respective value. In the simple word, the major goal of the matrix as shown in Table 2 is to identify what are the users’ needs or required from the tools. On the other hand, matrix in Table 3 is purposely for reporting the value posses by each tool or product. The “same” matrices are used purposely for an analysis process.

Basically, identifying tools profile is based on the required criteria needs by the CoP. However, this study concern to provide the most suitable tools based on certain environment. Required criteria is not necessary will lead to the best tool. Thus, literature reviews on the knowledge sharing tools need to be conducted. For a start, there is a need to listing all the possible existing knowledge sharing tools including their criteria. Indirectly two types of tools profile will be produced i.e.: (i) General Tools Profile which profile of tools without fit it in any required criteria and (ii) Tools profile fit to the required criteria.

**4.4 Step 4: Selecting Tools/Products**

The last step proposed in this strategy is Selecting Tools/Product. In this step, Functional Requirement Profile matrix and Tools/Product Profile matrix must be compared including preconditions. Tools or product will be selected based on the minimum deviation.

However, since the criteria in both matrices are not necessary consist of the same content; the other criteria need to be considered. Of course deviations of different criteria cannot be handled the same. As an example, if the essential criterion (E.g. synchronous interaction) is not satisfied. It is probably the price criteria need to be considered. For each criterion there should be a factor which determines how important a deviation is. The usability criterion might get a greater factor if acceptance of the new knowledge sharing tool is essential for the users. This preference might be paid by less flexibility in e.g. group coordination.
5. RESULTS
This section reports on the partial results of the selection of knowledge sharing tool by adapted strategy proposed by Volksen. For a start, the required tasks perform by special children community was identified. It is followed by the identification of the possible precondition. Subsequently, the selection of knowledge sharing tools has been performed for each required task.

5.1 Identification of required task
There are four major community of practice (CoP) have been identified in this context. There are Parents, Educators, Medical Experts and Researchers. Every CoP will perform different task although it might be related each other. In order to acquire those tasks perform by them, knowledge audit analysis need to be conducted. However this paper is not going to report on the knowledge audit results in detail. More detailed explanation can be found in previous paper (Aida Suzana, Azizah et al. 2008). For the purpose of this paper, only a part of the knowledge audit result will be shown.

5.2 Identification of the possible precondition
Based on the literature reviews that were done, there are various criteria which need to be considered for selection of appropriate knowledge sharing tools (Robichaux 1993; Volksen 1993; Rao 2005). For the purpose of this study, there seven criteria for preconditions namely as: (i) Functional criteria; (ii) Technical criteria; (iii) Application criteria; (iv) Usability and ergonomics; (v) Scalability; (vi) Content and (vii) Other criteria. This research also concern on the content or sub criteria for each identified criteria.

5.3 Step 1: Defining task and preconditions requirement
As mentioned above, there are four community of practice have been identified in special children context. A lot of communication can be happen between them. The justification of why they need to communicate among each other is depends on their needs. For the purpose of this paper, the result only shows the excerpt from entire requirement required by CoP. The result shows the selection process for screening task.

Based on the knowledge audit results (see (Aida Suzana, Azizah et al. 2008)), screening process is performed purposely to consider if the child needs further assessment. Screening result will lead to the diagnostic process. This process is quit critical since children with LD are totally different with typical children. Two different children with same type of LD maybe have different symptoms. Therefore, there is a need to the medical experts like pediatricians, speech therapist, clinical psychologist or audiologists communicate among each other in order to ensure that diagnosis result is accurate.

Based on the survey that was done, the respondent classified this task as a problem solving work and also management work field (see Table 3). This task also classified as management work field due to the difficulties in explaining about medical context without showing medical reports. Thus, it is important to provide tool which easy to manage and easy to share those reports. In the context of required precondition the respondent is concerned on the functional criteria.

5.4 Step 2: Identifying functional requirement profile
Based on the required task and precondition as shown in Table 3, there are a numbers of sub-criteria required by medical experts. Those requirements are shown in Table 4. There are two basic processes needed in order to perform screening task i.e. brainstorming and evaluation.

<table>
<thead>
<tr>
<th>Task Name:</th>
<th>Screening (Management of children with communication problem)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task Requirement:</td>
<td>Problem solving work field</td>
</tr>
<tr>
<td>Precondition:</td>
<td>Functional criteria X Scalability</td>
</tr>
<tr>
<td>Technical criteria</td>
<td>Content</td>
</tr>
<tr>
<td>Application criteria</td>
<td>Other criteria</td>
</tr>
<tr>
<td>Usability and ergonomics</td>
<td></td>
</tr>
</tbody>
</table>

5.5 Step 3: Identifying tools profile
According to the author’s experience, there are quit difficult to get the full cooperation from the identified community of practice due to certain reasons. There are very limited information can be gathered from them. Identifying tools merely based on the required criteria is not guaranteed working. Thus, there still a
need to perform literature review on the possible tools with the best functionality. For the purpose of this paper, the author was made an analysis on several types of tools and product. The partial result of this analysis is shown in Table 5 and Table 6.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Video Conferencing/NetMeeting Microsoft</th>
<th>Web Conferencing/PictureTalk</th>
<th>Web Conferencing/Netscape Communicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion DB</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>- Moderated</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Live Chat/Instant Messenger</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>- Moderated</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audio conferencing/Internet phone</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Video conferencing</td>
<td>Yes with CamWiz</td>
<td>Can share images via camera</td>
<td>Yes</td>
</tr>
<tr>
<td>Data conferencing</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes (sketching ideas)</td>
</tr>
<tr>
<td>Whiteboard</td>
<td>Yes</td>
<td>No</td>
<td>Yes (sketching ideas)</td>
</tr>
<tr>
<td>Real time group editing</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>File sharing</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Application Sharing</td>
<td>Yes, across LANs, internet or telephone network</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>File transfer</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Messenger/Email</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capture Frame Technology</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaborative browsing tools (Browsing the web together)</td>
<td>Yes</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td>Polling and Quizzing</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Record and Playback</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groups calendar and schedule</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>18</td>
<td>10</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 6. Tools profile matrix

<table>
<thead>
<tr>
<th>Functional Criteria</th>
<th>Video Conferencing/NetMeeting Microsoft</th>
<th>Web Conferencing/PictureTalk</th>
<th>Web Conferencing/Netscape Communicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interaction</td>
<td>S</td>
<td>S</td>
<td>Both</td>
</tr>
<tr>
<td>- Synchronous (S)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Asynchronous (A)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal (F)/Informal (I)</td>
<td>I</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>Implicit (I)/Explicit (E)</td>
<td>Both</td>
<td>E</td>
<td>Both</td>
</tr>
<tr>
<td>Distribution</td>
<td>C</td>
<td>L&amp;G</td>
<td>G</td>
</tr>
<tr>
<td>- Central (C)/Local (L)/Global (G)</td>
<td>C</td>
<td>L&amp;G</td>
<td>G</td>
</tr>
<tr>
<td>Group Coordination</td>
<td>small-medium</td>
<td>All</td>
<td>All</td>
</tr>
<tr>
<td>Interaction Control</td>
<td>Bs</td>
<td>Bs</td>
<td>NA</td>
</tr>
<tr>
<td>- Synchronous (S): Basic mode (Bs), Designation mode (Ds), Baton Mode (Bt), First-come-first-served mode (FF), Free mode (F)</td>
<td>Bs</td>
<td>Bs</td>
<td>NA</td>
</tr>
<tr>
<td>- Asynchronous (A): Free Order (Fo)/Specific Order (So)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User specific reaction</td>
<td>Both</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>User Specific Views</td>
<td>Pure (P)/Relaxed (R)</td>
<td>R</td>
<td>R (PowerPoint)</td>
</tr>
<tr>
<td>- WYSIWIS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Hiding (Private (P1), Public to certain group (P2), Public to general (P3))</td>
<td>P1, P3</td>
<td>All</td>
<td>All</td>
</tr>
</tbody>
</table>
The author was used these matrices to list down all possible and known tools in the market. As shown in Table 4, in order to perform Screening task, there are two basics process which need to be conducted. One of the processes is brainstorming. As defined in the Oxford dictionary, brainstorming is a way of making a group of people all think about something at the same time, often in order to solve a problem or to create good ideas (Oxford 2009). In practice, normally to brainstorm, a group of people forms a circle so everyone can see everyone else (Cleary and Duncan 2008). Therefore, in the author’s opinion, there is a need to suggest a list of tools that able to provide a visual interaction. Thus, further assessment need to be conducted (see Table 5).

There are three products of web based conferencing tools was identified. There are NetMeeting (video conferencing), PictureTalk (web conferencing) and Netscape Communicator (web conferencing). These products were chosen since visual interaction was provided. As shown in Table 5, there are various numbers of functionality involved in web based conferencing. The functionality are Discussion DB, Live Chat, Audio Conferencing, Video conferencing, whiteboard, Real time group editing, File Sharing, Application Sharing, File Transfer, Email, Discussion Forum, Capture Frame Technology, Collaborative Browsing tool, Polling and Quizzing, Record and Playback, and Group calendar and Schedule. These criteria also can be used to make decision by filling up tools profile as shown in Table 6.

As an example, NetMeeting and Netscape Communicator provide whiteboard facilities in their product. Whiteboard can be as an object of interest during user communication. Implicit communication refers to the object of interest of the common work. Therefore, we can consider that both products were designed to apply implicit interaction (see Figure 2).

Step 4 is the critical part of this strategy. There are several methods can be used in order to make a selection. Based on the profiles as shown in Table 4 and 5, both tables need to be compared in order to get the deviation between them. Since both table consist of the same criteria, both tables can be combined to see the differences (see Table 7).

There are nine criteria required by the medical experts in order to perform brainstorming process. NetMeeting profile fitted five from the nine criteria and PictureTalk fulfilled only four from them. On the hand, Netscape Communicator profiles reveal that, this product is contented with the highest "Yes" value from the entire required criteria. This is inline with the literature review result where Netscape Communicator satisfied most of the listed web based criteria compared to the other two products (see Table 5). Therefore, Netscape Communicator can be selected to perform brainstorming process in Screening task.

### 5.6 Step 4: Selecting tools and products

Table 7. Tools profile matrix

<table>
<thead>
<tr>
<th>Functional Criteria</th>
<th>Process</th>
<th>Tools Profile (Product)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Synchronous (S) / Asynchronous (A)</td>
<td>Both</td>
<td>S</td>
</tr>
<tr>
<td>Formal (F)/Informal (I)</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>Implicit (I)/Explicit (E)</td>
<td>E</td>
<td>Both</td>
</tr>
<tr>
<td>Distribution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central (C)/Local (L)/Global (G)</td>
<td>All</td>
<td>C</td>
</tr>
<tr>
<td>Group Coordination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group size (Small, Medium, Large)</td>
<td>Small-Medium</td>
<td>Small-Medium</td>
</tr>
<tr>
<td>Interaction Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Synchronous: Basic mode (Bs), Designation mode (Ds), Baton Mode (Bt), First-come-first-served mode (FF), Free mode (F) Asynchronous: Free Order (Fo)/ Specific Order (So)</td>
<td>F</td>
<td>Bs</td>
</tr>
<tr>
<td>User Specific Reaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transparent (T)/Aware (A)</td>
<td>A</td>
<td>Both</td>
</tr>
<tr>
<td>User Specific Views</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pure (P)/Relaxed (R) WYSIWIS</td>
<td>P</td>
<td>R</td>
</tr>
<tr>
<td>Data Hiding (Private (P1), Public to certain group (P2), Public to general (P3))</td>
<td>P3</td>
<td>P1, P3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>5/9</td>
</tr>
</tbody>
</table>

**Figure 2. Explicit and implicit interaction**
criteria; (iv) Usability and ergonomics; (v) Scalability; (vi) Content and (vii) Other criteria. For the purpose of this paper, the functional criterion is further discussed.

Each criterion consists of several other sub criteria. Value for each sub criteria will reflect to the selection process. These criteria are represented in the matrix form. There are two uses of this matrix. (i) This matrix is used as a scheme to characterize the requirement profile for a certain collaborative task or for special children community as a whole. (ii) Besides that, it is can be used to produce tools profile based on the user requirements.

Both matrices need to be compared in order to see the equivalence between them. Tools with the minimum deviation will be selected. However, the selected tool will be only satisfied user requirement and it is not necessary that tool is the most suitable. Hence, further assessment on the detail criteria for this type of tools need be conducted.

The results show that Netscape Communicator is selected since this product fitted almost the user requirements and also inline with the features identified in literature review. There can be concluded that, user requirements are not always fitted to the best choice. There is possibility that identified product will not satisfied criteria identified during literature review. If this situation happens, further assessment and evaluation need to be conducted.

As discussed in this paper, functional requirement matrix and tools profile consist of same criteria. Therefore, selection process becomes easier. There might become tougher task if different criteria were involved. A set of criteria forms a highly dimensional space where each criterion is related to one dimension. Therefore, selection process may involve special tools which support decision making activities like DSS or AHP.

7. FURTHER WORK
Up to this stage, it can be conclude that, the proposed strategy based on the groupware taxonomy can be used to characterize the myriad of knowledge sharing tools. For further work, this strategy will be adapted in a knowledge sharing framework proposed by the author (see Figure 3.0). Enhancement will be added on dotted circle which is more focusing on knowledge sharing tools.

This framework can be used as a guideline for special children community for effective knowledge sharing practice. Web based knowledge sharing will be developed in order to demonstrate this framework.

8. ACKNOWLEDGMENTS
The author would like to express her sincerely thank to eScienceFund (Project No: 01-01-06-SF0221), Ministry of Science and Technology Innovation (MOSTI) for the financial support of the research work.

9. REFERENCES


