CHAPTER 11
INTERPRETATION OF FINDINGS

11.0 Chapter Overview
The preceding chapters presented the collated data collected via the five instruments: Questionnaire, pre and post-test, information literacy feedback, focus groups and portfolio assessment. The instruments used were chosen because of their appropriateness for the particular kind of data needed. This data was collated using various means and presented in different formats and the results were analyzed. The purpose of this current chapter, is to consider the analyzed data presented within the context of the research questions delineated in Chapter one as well as in relation to existing research. Chapter twelve will provide an overview of the whole research project and an evaluation of the extent to which the research questions were answered.

11.1 Introduction
The current study is an experimental study and a range of data was collected via different instruments in order to answer the research question. Different instruments of data collection used were questionnaires, Pre-test and Post-test Analysis, Feedback Analysis, Focus group analysis and Portfolio assessment. The purpose of the current study was developing information literacy skills among student teachers through information literacy instruction modules. The purpose required investigating of the following questions
1. What is the current level of information literacy skill among student teachers?
2. Is there a difference in the information literacy skill level based on their faculty of study?
3. Is there a difference in the information literacy skill level based on their degree of study?
4. Was the information literacy instruction module effective in enhancing the information literacy skills of student teachers?
5. What are the opinion and suggestion of student teachers regarding the module?
6. Were the information literacy skills learnt through information literacy instruction module utilized by the student teachers when doing a research project?
This chapter serves to collate the key points and significant features of the body of evidence – theory, literature and data collection instruments and situate them within the framed research question. This chapter is arranged in order of research questions.

11.2 Research Question one:
What is the current level of information literacy skill among student teachers?
Data on information literacy skills was collected from nine colleges which included 386 student teachers revealed the following data

1. The majority of the student teachers had completed their degree in the Arts faculty. Significantly more students, i.e. (85.49%) were female. Student teachers were from age group of 18-25.

2. The majority of the respondents had received library orientation, but only small percentages i.e. 21.58% of the respondents were using the library. It was found that many of them were users of the internet and were able to find information related to their research projects.

3. Data analysis revealed that student teachers lacked understanding of the research process and research skills. The following table gives the percentage of right answers for the research process

Table 11.1 shows that students have scored low i.e. 8.03% on variable call number on research readiness theme and highest score of 74.35% on variable citation on research reporting theme. Out of 13 questions in the information research process students have scored less than 40% for 7 questions. This clearly shows that students lack knowledge and understanding of the research process

Consequences of lack of understanding of research process
Although the information research process is complex both in its conceptualization and its application a lack of knowledge and awareness of this process often has a negative impact on a student’s ability to do research. Among the most important factors impacting the quality of student work is as follows

- Inability to use the library
- Research anxiety
- Lack of confidence and wastage of time
- Poor academic achievement
- Risk of plagiarism due to a lack of knowledge of the principles of the ethical use of information and particularly the use of citations.

Table 11.1 Results showing Percentage of Correct answers for Research process

<table>
<thead>
<tr>
<th>Information Research Process</th>
<th>Variable</th>
<th>Question no</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call number</td>
<td>23</td>
<td>8.03%</td>
<td></td>
</tr>
<tr>
<td>Citation style</td>
<td>44</td>
<td>11.65%</td>
<td></td>
</tr>
<tr>
<td>Reference Material</td>
<td>34</td>
<td>24.61%</td>
<td></td>
</tr>
<tr>
<td>Catalogue</td>
<td>10</td>
<td>30.31%</td>
<td></td>
</tr>
<tr>
<td>Keyword</td>
<td>27</td>
<td>34.71%</td>
<td></td>
</tr>
<tr>
<td>Citation</td>
<td>25</td>
<td>35.23%</td>
<td></td>
</tr>
<tr>
<td>Reference material</td>
<td>20</td>
<td>38.6%</td>
<td></td>
</tr>
<tr>
<td>Citation style</td>
<td>42</td>
<td>40.15%</td>
<td></td>
</tr>
<tr>
<td>Research question</td>
<td>11</td>
<td>51.81%</td>
<td></td>
</tr>
<tr>
<td>Research project</td>
<td>14</td>
<td>61.13%</td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td>16</td>
<td>61.39%</td>
<td></td>
</tr>
<tr>
<td>Information Source</td>
<td>18</td>
<td>73.31%</td>
<td></td>
</tr>
<tr>
<td>Citation</td>
<td>43</td>
<td>74.35%</td>
<td></td>
</tr>
</tbody>
</table>

Inability to use the library

Libraries play an important role in the research process. A vast amount of knowledge is stored in the library in the form of different sources of information. In order to make these knowledge sources accessible, different tools are available. To make use of the library, it is necessary that students should be made aware of the organization of information in the library and tools available. Students who are unaware of this will always find it difficult to use the library. Question 23 pertaining to the call number and question 10 pertaining to catalogue had a success rate of only 8.03% and 30.31% respectively. This lack of knowledge about the structure and content of the library catalogue may also prevent students from finding documents. For example, it was
found that students search for magazines or newspaper articles and college courses in the catalogue. As this tool does not allow one to search by the author or the title of an article, students may be led to believe that the library does not have the document they want. This finding corroborates with the finding of Sasikala and Dhanraju (2011) study wherein majority of the students do not have proper knowledge about the details of library materials covered in the library catalogue (Sasikala & Dhanraju, 2011). A study done by Owolabi and Salaam (2011) discovered that students often do not use the catalogue to locate materials but instead try to locate items independently (Owolabi & Salaam, 2011). It was also found that majority of student teachers had received library orientation in school or college or university but lacked awareness of the library catalogue. This finding corroborates with the study done by Amkpa and Imam (2011) which indicated that most students saw the relevance of the library user education program but it did not seem to be affecting their use of the library in a statistically demonstrable way (Amkpa & Imam, 2011). This lack of awareness may also attribute to the fact that many students view libraries and librarians having limited roles in the research process. (Harrington, 2009)

**Research anxiety**

Head and Eisenberg (2009) summarized common problems that incoming freshman face with conducting research. One of the problems identified by them was that professors give poorly planned assignments and do not help students to direct or develop research (Head & Eisenberg, 2009). When the analysis of data was done on information research needs it was found that for question 14 pertaining to project detail and question no. 23 pertaining to information source had a success rate of 61.13% and 73.31% respectively. This clearly indicates that student teachers had moderate awareness and partial understanding of research needs. Partial understanding of research needs may lead to research anxiety and poor academic achievement among the students. If the students are not aware of the expectations and limitation regarding research they will not be able to focus leading to anxiety and loss of confidence in doing research.
Lack of confidence and wastage of time

As research is a time bound process it is necessary to have a strategy. Research begins with identifying the topic of interest and converting it into a research question. Question no. 9 pertaining to experience of research among the student teachers revealed that almost 70.98% had previous research experience. But the success rate of 51.81% on the question 11 related to revising of research question indicates that the students are not aware of the fact that research questions can be revised. This may be partly due to the fact that many professors believed that research question developed out of exploratory research is manageable and they believed that having only a vague idea was acceptable at the outset (Nutefall & Ryder, 2010). Though this may be partially correct, it is necessary that students have a good understanding of strategy when doing research because this leads to developing a research question which will be either too narrow or too broad resulting in getting too less or too much information for a particular topic. This will result in making research unmanageable leading to further wastage of time. If the students are not trained in developing strategy in constructing a research question, they will proceed in the wrong direction leading to poor academic achievement and research anxiety. Students are aware that they should start working on their individual research projects by becoming familiar with the topic through consulting reference materials as 61.39% opted for the correct answer. But they have a poor understanding of the strategy to be followed when consulting reference material as only 38.60% opted for correct answers. Atwood and Crosetto (2009) study by revealed that this may be due to the fact that there is a lack of engagement with scholarly conversation and there is a lack of scrutiny of sources (Atwood & Crosetto, 2009). Question no. 25 pertaining to citations and question no. 27 related to keyword reveals partial understanding. Failure to understand this variable may result in the inability to retrieve relevant information.

Risk of plagiarism

One of the basic aims of research is ethical use of information; this is possible if students are aware of referencing and citation style to be followed. Understanding of student teachers relating to reference was tested on question number 34 which revealed that students had a partial understanding of citing as only 24.61% of the student teachers had answered correctly. Partial understanding of referencing may
lead to risk of plagiarism because students may use the information without acknowledgment. It also indicated that the majority of students are aware of the importance of citing sources but they lack the understanding of the mechanics of giving references. This finding further confirms the study done by Kargbo (2010) which revealed that students knew that they were required to provide citations for their research but that only 10% of them had been taught by the faculty how to do so (Kargbo, 2010). The author recommends that faculty should adopt a consistent style and that library staff should be more proactive in teaching citation practices.
Research Skills
Following table 11.2 gives the percentage of right answers for the research skills

**Table 11.2 Results showing Percentage of Correct answers for Research skills**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Question no</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search Option</td>
<td>22</td>
<td>11.91%</td>
</tr>
<tr>
<td>Contradictory information</td>
<td>38</td>
<td>15.02%</td>
</tr>
<tr>
<td>Referencing</td>
<td>41</td>
<td>15.8%</td>
</tr>
<tr>
<td>citation elements</td>
<td>33</td>
<td>17.09%</td>
</tr>
<tr>
<td>Copyright</td>
<td>48</td>
<td>18.39%</td>
</tr>
<tr>
<td>significant word</td>
<td>26</td>
<td>18.91%</td>
</tr>
<tr>
<td>Synonyms</td>
<td>28</td>
<td>24.09%</td>
</tr>
<tr>
<td>Password</td>
<td>35</td>
<td>24.87%</td>
</tr>
<tr>
<td>Webpage</td>
<td>40</td>
<td>25.64%</td>
</tr>
<tr>
<td>Truncation</td>
<td>31</td>
<td>25.9%</td>
</tr>
<tr>
<td>Plagiarism</td>
<td>46</td>
<td>28.49%</td>
</tr>
<tr>
<td>verbatim information</td>
<td>37</td>
<td>28.75%</td>
</tr>
<tr>
<td>interlibrary loan</td>
<td>24</td>
<td>29.01%</td>
</tr>
<tr>
<td>citation style</td>
<td>45</td>
<td>31.08%</td>
</tr>
<tr>
<td>reading citation</td>
<td>46</td>
<td>32.38%</td>
</tr>
<tr>
<td>Encyclopaedia</td>
<td>17</td>
<td>32.64%</td>
</tr>
<tr>
<td>Popular Magazine</td>
<td>19</td>
<td>33.16%</td>
</tr>
<tr>
<td>controlled vocabulary</td>
<td>32</td>
<td>33.16%</td>
</tr>
<tr>
<td>books article</td>
<td>50</td>
<td>35.23%</td>
</tr>
<tr>
<td>information need</td>
<td>12</td>
<td>36.52%</td>
</tr>
<tr>
<td>Or</td>
<td>30</td>
<td>36.52%</td>
</tr>
<tr>
<td>Evaluation</td>
<td>39</td>
<td>39.63%</td>
</tr>
<tr>
<td>IPR</td>
<td>49</td>
<td>39.63%</td>
</tr>
<tr>
<td>research question</td>
<td>15</td>
<td>46.89%</td>
</tr>
<tr>
<td>Database</td>
<td>36</td>
<td>49.22%</td>
</tr>
<tr>
<td>Research Question</td>
<td>13</td>
<td>52.07%</td>
</tr>
<tr>
<td>relevant information</td>
<td>21</td>
<td>58.29%</td>
</tr>
<tr>
<td>boolean operator</td>
<td>29</td>
<td>59.06%</td>
</tr>
</tbody>
</table>
The present table shows that students have scored low i.e. 11.91% on variable search option highest score of 59.06% on Boolean operators. Out of 28 questions in research skills students have scored less than 40% for 22 questions. This clearly shows that students lack knowledge and understanding of research skills.

**Consequences of lack of research skills**

According to Mittermeyer and Quirion (2003) lack of knowledge and awareness of research skills often has a negative impact on students’ abilities to search and retrieve the information needed to complete their coursework. Among the most important factors impacting the quality of students’ work is the following:

**Information need analysis**
- lack of focus
- Incomplete information

**Accessing and Locating skills**
- few or no relevant documents are found;
- too many documents are found;
- too few documents are found.

**Evaluating Skills**
- Information Assessment deficiency
- lack of development of critical thinking

**Ethical use of Information**
- Plagiarism
- Academic dishonesty
- Punishment for theft

**Lack of focus and incomplete information**

Data on information need analysis revealed that students feel information is needed when discussing current issues as the question 12 on information need analysis had a success rate of 36.52%. Question no. 15 pertaining to research question dealt with students’ ability of broadening and narrowing the research question, it was found that only 46.89% of the students opted for the correct answer. Inability to focus the research question may lead research anxiety. Question no. 17 relating to information source revealed that students had a partial understanding of the information source to be used for background information. As a result students would get incomplete
information pertaining to a subject. For e.g. if the students are using journal articles for background reading, they would get only current aspects of the topic rather than an overview. Question 24 related to inter library loan had a success rate of only 29.01% and almost 10.88% of the students were not aware of this facility. In some cases especially in rare or old books it will be very difficult to buy them, or to get them from a bookstore. This lack of knowledge of students regarding this facility would prevent them from using information available in these books and lead to incomplete research. Similarly it was found that students tend to use both relevant and irrelevant words when searching for information, as question no 26 relating to the significant word had a success rate of only 18.91%. This inability of identifying significant word will lead to either too much or too little information.

**Few or no relevant documents are found**

Different search tools like catalogue, databases and indexes have a definite structure and option through which information can be searched. Students’ who are unaware of this may search in the wrong option and will get very few results. It can be clearly seen that students’ are not aware of different search options available through the catalogue as the question no. 22 pertaining to search option of the catalogue had success rate of only 11.91%. In order to get sufficient and full information pertaining to a research project, it is necessary to broaden or narrow a search statement, this is possible only when sufficient terms pertaining to a topic is selected rather than using a single term. Synonyms will play a major role here. If a student is not aware of this it will lead to getting very few documents. An analysis of question 28 pertaining to synonyms had a success rate of only 24.09%. Similarly, since many search tools like catalogue, databases and indexes must be queried using a controlled vocabulary, students who are unaware of this and always use the same term or expression for a given concept will experience difficulties. Question number 32 pertaining to controlled vocabulary had a success rate of only 33.16%. Question number 33 regarding citation elements and question number 46 relating to citation had a success rate of only 17.09% and 32.38% respectively. This shows that students lacked the skills of reading citation and identifying citation elements. Failure to understand this will result in inability to retrieve relevant information. A student who is unable to interpret bibliographic references may have difficulties retrieving relevant documents.
This finding validates the findings of Islam and Tsuji (2010) which showed that only 60% of the students could correctly identify citation (Islam & Tsuji, 2010).

**Too many or too few documents found**

This consequence is due to inappropriate concept identification and a deficient search strategy. Question no 26 (significant word) and question no. 29, 30, 31, (Boolean operators, ‘or’ operator, truncation symbol) touched upon these skills. Once the need for information has been recognized, the next step is to state the problem and identify concepts. If the concept identification step is not mastered, the result may give too few documents because of the inclusion of non-significant words and large number of irrelevant documents because significant words were omitted. But just as it is essential to use significant words to obtain satisfactory results, a thorough understanding of how to use Boolean operators and truncation symbols within the specific search tool is also important. Question 29 pertaining to awareness of Boolean operator revealed that almost 59.06% of the student teachers are aware of Boolean operators. But when students were asked to select the Boolean operator and a truncation symbol to search (question 30 and question 31) only 36.52% and 25.90% were able to do so.

**Information Assessment deficiency and lack of development of critical and synthesizing skills**

A study conducted by the Rosenblatt (2010) uncovered that students were unable to connect scholarly sources identified in their research (Rosenblatt, 2010). This finding is further verified by the present study where it was found that students were not able to synthesize the information obtained through different sources. Question 21 dealing with identifying relevant information for the topic has a success rate of only 58.29%. Question no. 37 related to identifying verbatim information and question number 38 relating to identifying contradictory information had a success rate of only 28.75% and 15.02%. This clearly shows that students are not able to synthesize the information obtained through information sources. As a result the purpose of research will not be served because if students are not aware and able to use already available information it will difficult for them to generate new knowledge. As a result students will not develop critical thinking and synthesizing skills.

Studies conducted by the Kyung-Sun (2011) and Currie, L., (2010) discovered that students lacked evaluation skills. These studies further revealed that students mostly
select sources based on accessibility rather than accuracy and had limited knowledge of criteria used for evaluation (Kyung- Sun & Sei-Ching Joanna, 2011), (Currie, F., Emde, & Graves, 2010). The present study supports the findings of the above cited study as it was found that student lacked evaluation skills. Question no 39 referring to date of source of information had a success rate of only 39.63%. Date of the source is very important especially in fields like science and technology when evaluating sources of information, because using old information may lead to wrong conclusions and in some cases like medicine may affect the patient. Question no. 40 (criteria for web page evaluation and question 50 (criteria for evaluating books and periodical articles) had a success rate of 25.64% and 35.23% respectively. This shows that students are not aware of the criteria to be followed when evaluating sources of information. Lack of these skills may lead to information assessment deficiency because students will use incorrect, inaccurate information.

**Plagiarism, Academic dishonesty, Punishment for theft**

It is very important to have awareness about ethical use of information for the growth of scholarly communities and open access. Question number 35 was asked to assess the ability of students regarding fee based access to information. Analysis revealed that only 24.87% are aware of it. A study done by Warren (2010) suggests teaching value of peer review and scholarly communication vis a vis the cost of accessing information. Teaching information as a commodity, helps students learn better access methods, appreciate the costs involved, and realize the inequalities of information access (Warren & Duckett, 2010). Different questions pertaining to plagiarism, citation styles revealed that students lacked the knowledge of ethical use of information. Students should be made aware of this as it may lead to plagiarism and academic dishonesty further resulting in serious punishment for academic theft. (Mittermeyer & Quirion, 2003)
11.3 Research Question Two:
Is there a difference in the information literacy skill level based on their faculty of study?
The study also intended to study the interrelationship of faculty of study with information literacy skills. One way ANOVA was applied to see if there is a significant difference in the information literacy skills of student teachers from Art, Science and Commerce faculty. It was found that mean information literacy skills of student teachers from the arts and commerce faculties, arts and science faculties and student teachers from commerce and science faculties significantly differ from each other, with student teachers from science faculty being the highest. i.e. student teachers from the science faculty have higher information literacy skills compared to the student teachers from commerce and arts faculty. The difference in the information literacy skills scores of arts, science and commerce could have arisen due to the fact that science students are learning by doing, i.e. they perform practical and gain knowledge by doing experiments themselves. In addition to this they have to do projects and presentation as a part of their syllabus. Similarly they have to keep themselves updated about the current discoveries in their field of study. This helps in enhancement of their information literacy skills. The study of the arts and commerce is limited to self whereby they learn by reading literature, philosophy, history, accounts, statistics etc. which limits their interaction with the rest of the world and this has a direct impact on their information literacy skills. This is a very important finding as this will have implication on the information literacy instruction.

11.4 Research Question Three:
Is there a difference in the information literacy skill level based on their degree of study?
The research also intended to study the interrelationship of degree of study with information literacy skills. The statistical technique used to test this hypothesis is one way classification of ANOVA. There was no significant difference in the information literacy scores of student teachers on the basis of their degree of study. A study done by Chu, S.K.-W. and Law, N. (2008) determined that even at advanced levels, Ph. D. students still required IL training (Chu & Law, 2008)
11.5 Research Question Four:

Was the information literacy instruction module effective in enhancing the information literacy skills of student teachers?

In order to test the effectiveness of the module, pre-test post-test analysis was done, hypothesis were tested to see if there was a difference in information literacy scores of student teachers from control and experimental group, and Wolf formula was applied to study the magnitude of effect and size of the treatment on the information literacy skills of the student teachers. As the table 11.3 and table 11.4 indicates that there was a significant rise in the information literacy skills of student teachers from the control and experimental group.
Table 11.3 Scores of Experimental and Control Group on Pre-Test and Post-test for Research Process
Table 11.4 Scores of Experimental and Control Group on Pre-Test and Post-test for Research Skills
For Information source and project detail variable there was only 1% rise, because student teachers already had high scores on the information source variable. As student teachers were oriented regarding the research before the implementation of the module, this may have resulted in only 1% rise on this variable.

As evident from the table variable, call number under the research process theme and search option under research skill which were having low scores on the information literacy questionnaire shows significant rise of 18.46% and 26.15% respectively. Similarly it can be observed that students have good theoretical knowledge, but the application of that knowledge to a practical situation is lacking. Though the majority of students had previous research experience they had difficulty in modifying or revising the research question. Though students were aware of Boolean operator, they were not able to frame a search strategy using ‘or’ operator. This clearly indicates that modules which are developed for information literacy instruction should emphasize on practical skills of the students.

In order to test the effectiveness, hypothesis were tested statistically. There was no significant difference in the pre-test scores of information literacy skills of control and experimental group, i.e. both the groups were on the same level. Thus it can be said that student teachers from both the experimental and control groups are nearly similar in their information literacy skills. Whereas there was a significant difference in the post-test information literacy skills scores of the control group and the experimental group after exposing them to the Information literacy instruction program.

To study the magnitude of the effect of the treatment Wolf formula was applied. It was found that the effect size of treatment on information literacy skills program is 1.0, which means there is high effect of treatment on enhancement of information literacy skills on student teachers of the experimental group.

The treatment i.e. the information literacy instruction module developed by the researcher for the enhancement of information skills among the student teachers of the experimental group was effective. It means student teachers have gained the knowledge and understanding of the research process and research skills to a large extent.

Thus it can be said that there was a high effect of information literacy skill instruction on the information literacy skills of the student teacher. This may be due to the fact that
Active Learning: intervention had adopted learner friendly strategies which reduce the threat and stress to the students.

Timing: Timing of the module was convenient as during vacation students were supposed to work on their research topic. The module provided them with the necessary knowledge, framework and motivation to conduct the research as it was conducted few days before the commencement of the vacation.

No assessment: As there was no formal assessment or grades there were no pressure and this may have helped them to learn from the module.

11.6 Research Question Five:

What are the opinions and suggestions of student teachers regarding the module?

Opinions and suggestions of the students were obtained through feedback forms and focus group interviews. The major aspects of the module for which information was sought:

- usefulness of the content of each session
- confidence in ability to do research
- different methods used like worksheets, quiz, reflection exercises etc.
- Study materials and handouts
- most helpful sessions
- Least helpful session
- Opinions and Suggestions for improvement of the module

The information literacy feedback revealed that almost 90% of the students agree that the sessions were helpful. Focus group analysis further revealed in addition to these being useful, the session helped them to acquire different skills which will be helpful to them in their individual research projects.

The analysis further added that 17% of respondents strongly felt that the information literacy instruction session had increased their confidence in doing research, whereas 58% agreed that it had enhanced their ability to do research. Information literacy feedback and focus group analysis revealed that student teachers had benefited from different methods like quiz, worksheets and reflection exercises. More than 60% of student teacher felt that it has helped them. Focus group exercises revealed that reflection exercise helped them to visualize what was done in the session, new skills learnt, and use of those skills in projects. Worksheets helped them to work more
systematically, quizzes helped to clarify concepts. For more than 50% of the respondents study materials and handouts were helpful and useful because students could carry them to refer to afterwards.

Students from the focus group felt that the session on searching was most helpful. The majority of the students felt that all the sessions were helpful. Only one student from focus group analysis revealed that session on plagiarism and citation was less helpful, but was not able to provide reasons for the same. Some of the opinions of student teachers with regard to modules are as follows:

- Their perception about the research was that it was very tough, but after attending the session they felt more confident in their ability to do research.
- They felt the knowledge gained from the session could be used not only in research but different aspects like lesson planning.

With regard to their suggestions for improvement of the module, they felt that it should be more practical. The module should incorporate group learning and collaborative learning. Similarly a helping hand should be used by the instructor for handling PowerPoint presentation.

11.7 Research Question Six:
Was the information literacy skills learnt through information literacy instruction module utilized by the student teachers when doing a research project?

Analysis of the research project revealed that only 15.38% of the students had made use of the skills learnt through instruction. This clearly denotes that only a small percentage of students were able to make use of skills learnt.

The findings of the research further confirmed the study done by Goodin (1991) which revealed that the program of instruction had made the impact on students attitudes and performance, but the transfer of these beneficial effects were less clear. (Goodin, 1991)

Herring (2011) did a study on the extent to which students valued information literacy practices and factors involved in determining whether the students were more likely to transfer information literacy practices across time and school subjects. The study identified three groups of students
1. a minority who are engaged in their own learning, valued information literacy practices and were likely to transfer these practices.
2. a majority who valued information literacy practices in principle but were unlikely to transfer these practices without intervention by teachers or a librarian.
3. a very small minority who failed to grasp the concepts of learning or information literacy practices and could not transfer such practices.

The study also found that the lack of a culture of transfer in schools was a significant hindrance in developing students as transferors. (Herring, 2011)

Researches done the transfer have revealed that different factors like environmental, cognitive and sociocultural are responsible for transfer (Fogarty & Pete, 2004), (Haskell, 2001) (Royer, Mestre, & Dufresne, 2005). Research conducted on critical thinking skills in school (Beyer, 1997) established that effective transfer as a key part of information literacy, but also made clear that “the most serious problem with teaching skills is that transfer is not automatic (Nisbet & Schuksmith, 1989) and that “even when students are able to demonstrate mastery of certain skills, they are unlikely to transfer these skills to new areas of learning on their own. (Grotzer, 2005).

Markless and Streatfield (2007) gives different strategies for supporting transfer of information literacy skills. Students should be encouraged to think of their skills and how to apply them (Markless & Streatfield, 2007). Perkins and Salomon (1992) observed that “unfortunately, many learning situations do not encourage a high level of mental investment and therefore the transfer does not occur as we want. Specifically teaching to encourage and support transfer should

- make overt connections
- provide links to specific applications
- focus on the purpose of strategies
- consider how strategies might be adapted
- provide opportunities to practice, apply, reapply and reteach
- include time for student reflection
- provide feedback to students

Planning to encourage and support transfer should encompass

- continued availability of contexts for using the strategies
- time for reflection and discussion
- support for self-monitoring (Perkins & Salomon, 1992)
Thus based on these researches it can be said that only a small percentage of students are able to transfer information literacy skills and the majority can be trained only after applying interventions. The transfer of skills is dependent on different cognitive, environmental and social cultural factors. Even though there is transfer it is not clear. In order to transfer skills, planning and teaching should be planned in such a manner that it should be active and should include reflection. In addition to researchers while analyzing the project observed that guiding teacher is also influential in developing information literacy skills

11.8 Summary
This chapter has collated and presented the key points indicated by the findings with respect to the research questions. The next chapter, Chapter twelve, considers the extent to which the research questions were answered in terms of the findings. This chapter will also review the current research and offers some suggestions for future research.