CHAPTER 5
DEVELOPMENT OF INFORMATION LITERACY
INSTRUCTION PROGRAMME

5.0 Chapter Overview
The study involved designing and implementation of the Information Literacy Instruction Program. The present chapter deals with the conceptualization of the Information Literacy Instruction Program, its implementation procedure and the mode of evaluation of the program.

5.1 Development of Information Literacy Instruction Module
Information Literacy was defined in a comprehensive way and the components of the Information Literacy Instruction Program was identified. The content of the Information Literacy Instruction Program was developed around the following major components:
1. Research Success
2. Re-Searching
3. Research Ethics
The program was planned in 4 stages:
Stage 1: Analysis of the literature
Stage 2: Designing of modules for imparting Information Literacy Instruction Program.
Stage 3: Implementation of Information Literacy Instruction Program.
Stage 4: Evaluation of the Information Literacy Instruction Program.

5.2 Analysis of the literature
Researcher reviewed literature pertaining to information literacy theory, practice and behavior. This analysis helped to identify what should be covered in an information literacy program and what methods should be used for teaching information literacy program.
5.3 Designing modules
The modules for Information Literacy instruction programs were designed by the researcher after identifying the topics for information literacy instruction.

5.3.1 Definition of Module
A module is a set of learning opportunities organized around a well-defined topic, which contains the elements of instruction, specific objectives, teaching learning activities and evaluation.

5.3.2 Design
While analyzing the literature for the modules, review indicated that every module needs to have aims, objectives and outcomes. The aim, objective and outcomes determine processes, content i.e. the kinds of knowledge and understanding that are required to be learned and learning and teaching activities. But while framing the aim, objectives and outcomes it is necessary that content, assessment and associated learning and teaching activities must be considered. As a result the researcher identified aim, objectives and outcomes for each session.

5.3.3 Teaching theory and practice
Teaching is a process of communicating a message through particular mediums and may be undertaken as passive transmission where the teacher is in control, to situations of interactive negotiated learning where learners take responsibility for learning and meaning is jointly or individually negotiated. During the last decade the traditional definitions of teaching have been challenged and the role of teacher is somewhat redefined due to new beliefs about how learning occurs and the optimum conditions under which it takes place. Literature suggests that design and selection of teaching methods must take into account not only the nature of the subject matter but also how students learn. One of the first things a teacher must do when considering how to teach students is to acknowledge that each student does not learn in the same way. This means that if the teacher chooses just one style of teaching (direct instruction, collaborative learning, inquiry learning, etc.), the students will not be maximizing their learning potential. Obviously, a teacher cannot reach every student on the same level during one lesson, but implementing a variety of learning styles throughout the course allows all the students will have the chance to learn in at least one way that matches their learning style. The present study has used a constructivist approach to learning.
5.3.3.1 Constructivism

A constructivist approach to learning requires students to be active builders of their own knowledge, and not passive recipients of information. As active participants in their own learning, students construct their own meaning by negotiating that meaning with their learning community,

- make connections with past personal understanding, modifying these prior conceptions if they are not accurate,
- build understandings that are part of their individual, personal conceptual framework, and
- address content in a variety of contexts as a means of developing full understanding.

Constructivist learning is an approach, which is an umbrella term to cover different types of activities that requires a reconceptualization of teaching and learning. Rather than viewing students as passive recipients of information, teachers must focus on helping students construct understanding of concepts for themselves. Instead of spending time memorizing material, filling in the blanks on worksheets, and repeating large numbers of similar problems, students need to solve novel problems, integrate information and create understanding for themselves. The teacher's role is to foster this hard work on the part of the student.

Constructivism approach encourages that students actively construct their knowledge and actually create their own ideas. Students reflect on their past experiences to construct their own meaning of new information, and thus their understanding increases in depth and detail. Lev Vygotsky added the view that learning is greatly enhanced by collaborative social interaction and communication - in other words discussion, feedback, and sharing of ideas are powerful influences on learning. This is known as social constructivism.

Constructivism has brought with it a whole new set of terms learning has become knowledge construction, a class of students have become ‘community learners’; learning by doing has become ‘process approach’ or experiential learning’. In addition giving student support in the form of hints and advice has become scaffolding. Based on the learning theory of the constructivism the researcher used active learning strategy (Kuhn, 2008).

The module incorporates both behaviorist and constructivist approaches to learning. The module designed incorporated constructivist approach to learning as it was
assumed that people are actively involved in creating meaning and that these meanings are mediated through communication. Teaching and evaluation methods used by the researcher like a pre-test, post-test and the teaching of the specific skills that assumed that certain skills would be learnt and demonstrated were used that stem from behaviorist approaches to learning. Similarly there was emphasis on the communication and sharing of ideas and reflective learning.

5.3.4. Description of the Module
The training program ran over three days generally from 10.00 am to 3.00 pm for pilot testing. But as the number of colleges which were visited by the researcher refused to give permission for utilizing three full days so it was decided to implement in the second half of the day i.e. from 2.00 pm to 4.00 pm for the actual testing of the module. As a result researcher requested the students to complete the worksheets at home. Though the researcher has envisaged and also implemented group exercises in the pilot where group presentation as well as group reflection was incorporated the researcher had to do away with this in the actual module testing due to shortage of time allotted. The module included the following

5.3.4.1 Information Literacy Questionnaire (Pre-test – Post-Test)
The Information literacy questionnaire which also acted as a pre-test and post-test was implemented at the start and the end of the module. This was used to determine changes in the student knowledge over the period of the module.

5.3.4.2 Structure of the Module
The course had the following structure:

- Research Success
- Re - Searching
- Research Ethics

5.3.4.3 Description of sessions
5.3.4.3.1 Session 1: Research Success
Students were already aware of the training was going to be implemented as a result they had come with ideas for the topic they wanted to explore in their Individual Research Project. The researcher discussed reasons for defining the problem, how this
could be done and introduced them to resources that could help them achieve this goal, such as available dictionaries and encyclopedias. Researcher started with familiar resources and the ones that were easy to use. Students were asked to identify what they already knew about the topic, as the literature demonstrates it is good practice to build on existing knowledge and because this approach creates a less intimidating learning experience (Hepworth & Wema, 2006) (Bruce C. S., 1995; Bundy A., 2004; Irving, 1985; CILIP, 2005). Once the topics were finalized researcher also introduced the concept mapping technique to the student which can be used for broadening and narrowing the topic of research. This was followed by identifying keywords and synonyms. Particular emphasis was given to identifying and organizing suitable terms that related to their topic. This process helped to ensure that the students were clear about what they were researching. It also meant that they used terms that could be applied as input for later searching (Spink, Bateman, & Jansen, 1998; Hepworth M., 2003). Students find it difficult to quickly identify terms. This limits the success of their searching. This was followed by a practical session wherein students were given worksheets which they had to complete and bring it back the next day. Next day around thirty minutes were devoted wherein the groups of students were made with similar area of research and discuss the problems they faced. This was partly to create a supportive environment but also to ensure discussion between individuals (Garland, 1995; Laurillard, 2002) (Laverty, 2008; Mayes & De Freitas, 2004). After each session students were given quiz and reflective exercises. During the day students completed a quiz that was set partly to test individual understanding but more importantly to encourage trainees to reflect on what they had learnt and also to provide immediate feedback to help ensure that, individually, students were on track (Squires, 1994; Race, 2001; Kolb, 1984; Fry, Ketteridge, & Marshall, 1999). From the researcher's perspective it also helped to see whether the training was effective, whether additional training was required and whether, in the long term, aspects of the course needed to change. Reflective exercises for session 1 included questions such as

- Give a brief explanation of what you did in today's session.
- Which new skills did you learn in this session?
- Were you able to apply the skills you learnt in your practical session? Provide your answers with a brief explanation on how the skills learnt helped you in defining your research problem.
If you were not able to apply the skills to your work today, what could be the reasons? Please explain briefly.

As well as encouraging reflective learning these questions aimed to help the trainees identify possible problems and solutions in order to develop a deeper understanding of the process that they were undertaking, such as defining the problem, or location and access and foster the ability to take a strategic approach to ‘defining a problem’ rather than only learning discrete skills.

5.3.4.3.2 Session Two: Searching Basics

The searching basics session was started by the researcher by discovering what was already known and familiar to the students. This led to a lecture/discussion about how knowledge is generated in society. This helped them to know them about the wider information landscape and made them aware range of sources that are available. This was followed by information about the structure of information sources and an introduction to search strategies. The latter included how to use fields, controlled vocabulary and how the structure of sources could be used to broaden and narrow a search. As the previous researches (Allen, 1991) (Shneiderman, Byrd, & Croft, 1997) (Rowley, 2000) (Hepworth & Wema, 2006) conducted had indicated that students faces problems in these areas, as they do not know where to go for information, lack of understanding of the functionality of information retrieval systems and what to do when they retrieve too many or too few items. Influenced by (Kuhlthau C. C., 1993) it was also felt important for students to be conscious of the affective states associated with information retrieval and the wider research process. This would include the feeling of uncertainty at the start of the process. It was felt therefore that students needed to be emotionally at ease with the ‘messy’ process of building a mental map of the subject and the resources. Students applied this search and retrieve knowledge and, to reinforce this learning, were asked to identify tasks and processes that they experienced. The researcher also told about the evaluation criteria which can be used for evaluating information. This fed into the worksheets that consolidated the learning through reflection and discussion. This was followed by the quiz that included questions such as:
Which one of these search types looks for terms anywhere in the record of a book or article?
   a) Title search
   b) Keyword search
   c) Author search

Which three things should you consider when evaluating a website?
   a) Navigation, structure and format
   b) Authority, purpose and currency
   c) Layout, Graphics and Publisher

This was followed by reflective exercises which included questions such as:
   a. Give a brief explanation of what you did in today’s session.
   b. Which new skills did you learn in this session?
   c. Do you think that the skills you acquired in the process of searching would apply to other situations in your academic work? If yes, what is one thing you learned in this lesson that you will use for similar or future assignment?
   d. Generally describe possible problems encountered in the entire process of searching and evaluating information (if any) and how you solved them.

Question c was intended to help the students to think outside the current situation and to develop knowledge that could be applied to other situations. It was also intended to demonstrate that this was the case and hence show the value of what was learned in terms of its wider usefulness. Questions d was designed to help develop a strategic approach to search and the ability to independently solve problems experienced in the past. (Wema & Hepworth, 2007)

5.3.4.3.3 Session 3 - Research Ethics

Last session included the mechanics of referencing and citation and the ethical and legal issues surrounding the effective use of information, including the topic of plagiarism. Initial interviews with library and academic staff had confirmed that plagiarism was a serious problem. Again this session was followed by a quiz providing immediate feedback to the students and a reflective exercise to test understanding and to help embed learning. Questions in the quiz included:
When you present ideas from sources in the text of your paper, which of the following methods require you to provide citation information about the source

a) Direct quote  b) paraphrase  c) summary of the information  d) all of the above

The section of copyright law that allows libraries and educational institutions to use copyrighted works is called:

a) Public domain  b) fair use  c) Intellectual property  d) None of the above

Which of the following is a journal article? Please tick


The exercise, as in previous days, was intended to encourage reflection and to see what individuals had learnt.

a. Give a brief explanation of what you did in today’s session.

b. Were you able to gain any important skills? If yes, give an outline of the major skills that you have learned in this lesson.

c. In case you encountered the problems, how were the problems solved?

Answers generated from these questions also provided feedback to the researcher about what had and had not been taught as well as the problems experienced.

5.3.4.4 Assessment and feedback

Curzon (2004) defined assessment as ‘collecting, measuring and interpreting information relating to students’ responses to the process of instruction’ (Curzon, 2004). Assessment is required by both learner and teacher as some sort of measure of performance and learning and success for the individual and in terms of a module or task, as well as for purposes of certification and to add to the body of knowledge about learners. Assessment should occur at suitable times; in appropriate forms, be
valid and reliable for that which is being assessed and be an integral part of a module, not assessment for its own sake. Summative assessment is the most common form as it is time efficient, allows for standardization, compares individuals with one another and is used as a yardstick for potential to progress along the educational continuum. The alternative or constructivist approach suggests that learning happens by constructing knowledge and interpreting it. Instruction is thus seen not as a direct transfer of knowledge but an ‘intervention, in an ongoing knowledge construction process.’ Assessment here thus needs to take cognisance of levels and complexity of understanding rather than recognition or recalling of fact. Gipps (1994) notes that a more problem solving approach to learning and assessment is required and assessment should focus on higher order learning skills such as understanding of principles, application of knowledge and skills to new tasks; investigating, analyzing and discussing complex issues. Gipps (1994) notes the importance of scaffold assessment which denotes a more interactive mode of assessment (Gipps, 1994). Formative assessment or continuous assessment provides scope for more time feedback as well as investigating and testing a wider range of conceptual and declarative knowledge than might otherwise be possible through summative testing.

The researcher chose to incorporate a variety of assessment methods because the particular nature of aspects of the module necessitated it, to align objectives and outcomes. The assessment was largely continuous in nature with some summative testing. The assessment activities, in total, reflected a gradation of degree of difficulty and application of skills and knowledge in different ways. Accompanying worksheets and exercises were assessed to ascertain the student’s ability to analyze a topic with all its related aspects. In terms of the knowledge of and use of sources of information, hands on exercises took place during the tutorial or practical periods and written exercises to reinforce the practical period were handed in. Students then had to apply these skills and knowledge to a range of situations.

5.3.4.5 Teaching methods:

After experimenting with different ideas and considering the literature, the researcher determined that a combination of teaching methods was appropriate, particularly in the light of an interest in developing a more constructivist learning environment and active learning approach. The objectives and outcomes and learner centered approach also necessitated multiple methods. Input by the researcher was often followed by, or
interposed with brief worksheets and discussion. As the active learning approach was chosen, the researcher emphasized group discussion and feedback. This allowed the class to take responsibility for the learning and allowed the researcher to facilitate rather than dictate. One day before the actual implementation of the module a pre-test was given. The purpose of the pre-test (and later in the post-test) was to identify what the students did not know or recall thus acting as confirmation of content in the module as well as indicating particularly weak areas that might need scaffolding or extra work. The post-test provided evidence as to what and whether improvement resulted from attendance in the course. Varieties of teaching methods used were lecturing, PowerPoint presentation, concept mapping and lab work.

5.3.4.6 Validation of the module
On the basis of review of related literature, a pilot program was designed by the investigator and teaching material related to the module was created. The modules designed, were analyzed by the experts and professional working in the field of library and information science and education for establishing their relevance. Discussion was held with experts to modify them.

5.3.4.7. Pilot Testing of the Module
Informal chat with the librarian and academic staff of the college was undertaken. This was taken to ensure that the assumptions made about student knowledge of information literacy and the kind of problems experienced by the student were correct. This chat informed the investigator that there was a need for information literacy program and similar problems, such as unfamiliarity with information sources their use, lack of searching basics were experienced by the students. Once the program and material was created, pilot study of the module was undertaken at the Gokhale College of Education and Research, Parel. This helped to determine whether the format of the program could be run in the way it had been envisaged. Changes were then made in the module based on the pilot testing and relevant material was created for the training of Bachelors students from the Faculty of Education it was hoped that inculcating information literacy among future teachers could lead to the incorporation of information literacy teaching in schools and colleges.
5.4 Implementation of information literacy instruction
The program revolved around the core components of information literacy instruction namely research success, Re-searching and research ethics. To implement the program the various strategies were adopted

5.4.1 Administration of Questionnaire to the Students
Before the modules were implemented in the classroom settings a questionnaire was administered to the students to know their information literacy skills. This necessitated in making further modifications and adjustments in the already designed modules so as to suit the requirements.

5.4.2 Module Implementation
From the academic year 2011-2012, the B Ed curriculum was implemented in the semester pattern. As a result whichever college the researcher had visited for the permission for implementing the module, refused to give permission for three full days for conducting the module. This was partly because B Ed curriculum being one year program was very hectic and semester pattern had increased the workload of the student as well as teacher. As this was the case with all the B Ed colleges, researcher decided to conduct the module wherein instead of three full days which included lectures and practical, lectures will be taken to introduce students to the information literacy skills and practical will be completed by the students at home.
As a result information literacy instruction module was implemented in All India Khilafat College of Education, Byculla for the period of three days. Lectures started at 2.00 pm in the afternoon and two slots of 50 minutes each were given to the researcher for the period of three days. Practical’s which students were supposed to do at home were discussed on the next day and their doubts were clarified. After the completion of three days post-test was given to the students.

5.4.2.1 Day One Lecture 1 and 2
In the first lecture researcher introduced the researcher’s research and the ethical expectations of the University as regards participation by the students. In this lecture, the approach to be taken with the teaching and learning of the information literacy module was explained as well as an explanation of expectations and the more informal manner in which classes would proceed. The use of discussion and group work to
facilitate sharing of ideas as well as debate was explained and some basics of the operation of group work were provided. The module outline was also discussed. The session was started by providing the illustration about the importance of research and proper planning which served as an ice breaker. Then the researcher introduced students to the concept of research, followed by the purpose of research. As the research is nonlinear process, students were made aware of the steps in the research process.

In addition to this they were also acquainted with the research planning through use of research timeline. This was followed by a topic selection. In the topic selection students were told about kinds of topic to be selected, ideas for selecting the topic. Students had already come prepared with the general topic of research for their individual research project. Students build on prior knowledge and experiences by brainstorming what they already know about the topic, and they develop questions to guide the processing of information. Thus students were asked about what they already knew about the topic and how in depth knowledge of the topic will help them to broaden or narrow the research question was discussed. Then the background sources which will help them to find a general overview of the topic which they selected were introduced. Then the researcher demonstrated focusing on the topic with the help of concept mapping. During the lecture the researcher was illustrating concepts with the help of topic suggested by the students which made it easier for them to understand the concept. Students were oriented to the technique of writing the research question and different ways in which research can be broadened or narrowed.

The researcher then explained to the students after having a preliminary view of the problem, the next step in creating an effective research strategy is identifying potential research sources. First you need to determine which research sources are likely to have relevant information. Then you must determine the order in which you want to research those sources. There are three general categories of sources, primary, secondary and tertiary. You need to decide which of these sources provides a good starting point for research and then within each category which sources you should consult. For many research projects the ultimate goal is to produce a written document describing and applying primary sources relevant to the research problem, if this type of source does not exist or does not fully resolve the research the question then, you will need to discuss primary as well as secondary sources or both. Then the researcher explained in detail different types of resources like primary, secondary and tertiary,
scholarly sources, reference sources and websites. It was then demonstrated to the students how to identify key concepts in the research question and need of identifying all the synonyms of the key concept. The lecture was followed by practical sessions where students were asked to complete the worksheets and the students with the same topic or general topic were asked to discuss among themselves. Researcher personally went to each student to help them out in completing the worksheet and solving the problems faced by the students while attempting to complete the worksheet. This was followed by a quiz and reflection exercise. Due to the time constraints students were asked to complete the worksheets and reflection exercise at home. As per the suggestion given by the students it was decided each student will work individually on their topic which they were finally going to submit to their individual research project. Instructional design for the session, study material, worksheet, quiz and reflection exercise are provided in the appendix.

5.4.2.2 Day two: Lecture 1 and 2

Day two of the module started with the discussion on worksheets. Followed by discussion, the worksheets of the students were checked individually by the researcher and any problem or difficulty encountered was solved. Lecture on day two started with the searching basics. Researcher oriented students to different tools which can be used for accessing the information followed by an in depth description of each tool required for accessing information in print and non print form. Card catalogue and online catalogue were shown and the structure of the catalogue was explained. The different access point which is available through card and online catalogue was also explained. Use of index and table of content for accessing the information available in the periodical was demonstrated. This was followed by a description on the structure of databases. Search engines, meta search engines and subject directories were discussed. Then the students were introduced to the concept of Boolean operators, truncation and other search strategies. Basic search and advanced search were also discussed in detail. The researcher also discussed in detail with students CRAAP (currency, relevance, authority, accuracy and purpose) criteria for evaluating the information which is available online. The lecture was followed by practical sessions where students were asked to complete the worksheets, quiz and reflection exercises. Instructional design for the session, study material, worksheet, quiz and reflection exercise are provided in the appendix.
Day 3 of the module started with the discussion on worksheets. Followed by discussion, the worksheets of the students were checked individually by the researcher and any problem or difficulty encountered was solved. Last day of the module was devoted to the concept of research ethics which included presenting, synthesizing and incorporating information. Ethical and legal issues pertaining to the use of information was also discussed. Though these were not part of the objective but specific techniques such as scanning, reading headings, summaries and conclusions to capture the essence of the materials used were discussed. Various techniques such as note taking were also discussed. Even though many students were expected to have these skills it was felt that they needed to consciously apply these skills during the information seeking process. This was followed by discussion on citation and the need of using the citation. Plagiarism, copyright and intellectual property rights were also discussed. Students were also acquainted with different components of the citation and citation styles. This was followed by a small exercise on how to write citation using APA style for different resources. Quiz and reflection exercises were given. Instructional design for the session, study material, worksheet, quiz and reflection exercise are provided in the appendix.

During the end of the module information literacy feedback, post-test and focus group discussions were conducted.

**5.5 Evaluation of the Information Literacy Instruction program**

To ascertain the feasibility of the program quiz, reflective exercises, worksheets, focussed group interview and the feedback form on effectiveness were used to provide data regarding the program feedback.

**5.5.1 Findings**

Feedback from students was obtained throughout the course and gathered formally through exercises and reflective discussions. As stated earlier, the purpose of these was to encourage students to reflect on the various activities carried out in each session as well as to provide feedback on the overall course. It was also meant to provide critical evaluation of the course.
5.5.1.1 Findings from quizzes
Quizzes were completed in 10 minutes following each key stage in the module and were followed by immediate feedback where researcher discussed with students their answers enabling the learning process. Quizzes were carried out after each key stage, including: research success, searching basics and research ethics. The questions asked were in the form of multiple choices. Responses to quizzes showed that students understood various aspects covered in the program.

5.5.1.2 Findings from reflective exercises
In conjunction with quizzes, the course made use of reflective exercises. These consisted of a set of questions that prompted individual students to reflect on what they went through in the information seeking process. Reflective exercises were given to students immediately at the end of the session. Examples of such questions were:

What were the major activities that you performed in this course?
- After having studied all the lessons in the information literacy course, have you acquired any skills? State briefly the most important skills that you have acquired in this course.
- Do you think that you have acquired enough skills to solve any information related problems in your future assignments or academic work? State briefly what you would consider to be the most important and relevant skills to use in your future activities
- In general what were the major problems that you encountered in this course?
- What are your general comments about what was covered in this session?

Answers from individual students indicated that they were able to highlight a range of activities carried out throughout the process of defining the problem, locating and accessing information, synthesizing and evaluating information, communicating and using information. Reflective exercises helped to indicate the different skills that students had acquired from the course and how they applied the skills during the course. Comments that related to parts of the course included:

- Today I selected a topic of my interest. I narrowed it down by using sources like book encyclopedia. I prepared a concept map. From the concept map I selected the topic which is the smell of my topic of my interest. I framed a research question and wrote a thesis statement.
- Today’s session gave us information about what is the common layman term ‘research mean’. The detailed session of the research topic finding and the
follow about of the research helped me a lot in preparing myself for the action research project. Also in today’s session had keywords which helped to enlighten me a new knowledge of words and its effect on searching

• Today’s session covered different tools to search the information sources, how to search the internet and how to evaluate the information.

• Today’s session I have learnt a difference between the references and bibliography, citation, plagiarism and writing the references in APA style.

Reflective exercises also indicated areas where students faced problems. The following cases were given:

• generally when we are searching and evaluating information on the entire process many problems are encountered like server down, page cannot be displayed, poor connectivity.

Some of the above comments implied that these problems would either need to be addressed in subsequent programs or indicate additional training that either preceded or followed the information literacy program.

Reflective exercises indicated students’ overall satisfaction with the program and its usefulness for their academic endeavors after finishing studies.

5.5.1.3 Information Literacy feedback and Focus Group Discussion

Overall the focus group and information literacy feedback indicated that the students found the sessions very helpful and they were able to acquire different skills which will be helpful to them in their individual research project. Generally students indicated that there was an appropriate mix of practical and theory although there were requests for more practical work. These will be discussed in more detail in the data analysis chapter.

5.6 Conclusion

The information literacy instruction program was very well received by the student teachers of All India Khilafat College of Education. Further training should be provided on how to present information in reports, essays or journal papers. Additional training on bibliographical citation was also felt necessary. The use of reflection and communication via worksheets, quizzes and reflective exercises seemed to be very effective. These methods, combined with active learning, also provided a
good way to keep students engaged and on track throughout the course. It is recognized that these methods are commonly found in many other areas of learning, but is less evident in the teaching and learning of information literacy.

5.7 Summary
The chapter has outlined the design, development and implementation of the module. Chapter Six will discuss in detail about the analysis of the information literacy questionnaire.