CHAPTER 1
INTRODUCTION

1.0 Chapter Overview
This chapter outlines current research which concerns developing information literacy skills among student teachers. The first section gives a brief overview of information literacy. This is followed by a statement of problem, the purpose of the study, research questions and rationale for the study. Some definitions are provided along with a description of the research and structure of the thesis.

1.1 Introduction
Education is one of the fundamental components of human well-being and national productivity. Though education is not to be blamed for a country’s problem, it is a critical part of the solution. High quality education results in providing a way out of the vicious cycle of endemic poverty (Cisco, 2008). W. E. Du Bois in his book “The Talented Tenth” debated the purpose and objects of higher education. According to him we must make the object of our education processes, the cultivation of men and women who are knowledgeable on how to build connections and networks with people anywhere in the world to achieve important economic and social work of local and global communities. Thus we must shape lifelong learners (Bois, 1903). This clearly denotes that in changing times, an existing body of knowledge will not equip students with ability to cope, much less to thrive and advance. There are different factors which bring about change, resulting in need for continuous learning and adaptation. These factors are technology, automation, globalization, workplace changes, demographics, risk and responsibility and information explosion. These factors have prompted some education reformers to argue that the traditional curriculum is not enough: schools must provide students with a broader set of “21st century skills” to thrive in a rapidly evolving, technology-saturated world. But defining what that term actually means can be daunting (Silva, 2008).
1.2 Drivers for change
While it is difficult to peer into the future to ascertain what skills will be important thirty years from now, it is possible to examine trends that have changed the demands of work and life in the recent past and continue to do so today. The most important of them are as follows:

1.2.1 Technology
It has become impossible to escape the implications of new technology. Constant barrage of new devices, new applications are in themselves a constant cause for new learning and opportunities.

1.2.2 Automation
Use of computer technology has led to the automation of many routine jobs once performed by human hands. Whereas human beings are tackling thinking tasks that computers cannot yet handle, particularly those that require solving unpredictable problems and interacting with others.

1.2.3 Globalization
Globalization has brought about drastic changes in the economy. Natives are competing with foreigners for jobs and similarly collaborating with workers in other countries when they do land a job. Globalization demands new learning that is the effect of multinational corporations necessitating the development of new skills in order to gain or retain employment.

1.2.4 Workplace change
The emergence of flatter organization has given workers greater autonomy and personal responsibility for the work they do. Working in teams has become common and work has become collaborative. These teams are global in nature. Thus from project to project and year to year, employees must adapt to new challenges and demands. As a result workers need strong foundational skills as well as the ability to think independently, identify and solve problems on their own and learn new knowledge and skills (Jerald, 2009).

1.2.5 Information Explosion
Finally the backdrop of all these changes is unprecedented explosion of available information. It has also become a challenge for individuals to keep themselves updated (Bruce, 2002).
1.3 Rethinking Education System

These changes have wide ranging consequences for the education system. Following the spread of this economy based on intangible capital, UNESCO has encouraged a profound reflection on the changing role of education and the knowledge. The International Commission on Education for the 21st Century headed by Jacques Delors state that traditional responses to the demand for education are essentially quantitative and knowledge based, are not appropriate. He suggested four pillars, which are foundation of education: learning to live together, learning to know, learning to do and learning to be. Many experts feel that education in the 21st century should focus on the new technology, ability to communicate, work in teams, think critically and adapt to change. This suggests that education should aim at providing different skills for surviving in society. Students who fail to keep up with developments are likely to fall progressively further and further behind and become less employable and competitive. A new type of literacy with a number of skills is required to equip each individual to cope with opportunities in a changing society. According to Gouveia (2002) education in a new society should inculcate these skills in students:

- **Ability to perform:** know how to do and act in new situations and contexts;
- **Work capacity:** demonstrate ability to work under pressure, both individually and in groups;
- **Flexibility:** each individual must be able to work under different contexts and take decisions and cope with change;
- **Self-learner:** be able to learn alone by own practice as well as by own needs;
- **Reporting:** be able to analyze a situation and outline it. This will assure the individual’s role as a communicator;
- **Creative:** considering the need to be a leader, propose new perspectives, take winning decisions and be proactive.

In addition to this, four levels of literacy must be acquired. These levels describe general skills that any individual must have in order to be able to take advantage of the opportunities provided. These four levels are:

*Basic literacy:* knowing how to read and write and to use language. Nowadays along with native language, it is expected that at least another language be used with a regular level of proficiency.
Technological literacy: knowing how to use and take advantage of information and communication technologies in particular, the computer, its use and the knowledge of the most common applications of word processing, spreadsheets etc. is needed. Additionally, a basic skill is to take advantage of computers to solve its own problems and needs.

Information Literacy: knowing how to use information, dealing with information overload and developing a critical use of information. This level in particular is very important as it provides individuals with the tools to minimize their efforts in day to day lives. Who can use information has the ability to perform smarter, faster and cheaper.

Communication literacy: it provides the necessary skills related to human communication and leadership. This may include group motivation and self-motivation as well as reporting and negotiating skills.

The last two levels information and communication literacy are major concerns in a changing society and provide an opportunity for higher education renewal. Of this information literacy has taken shape and has come to be recognized as the critical literacy for the 21st century (Gouveia, 2002).

1.4 Information Literacy: a crucial and critical literacy

Information literacy is the natural extension of the concept of literacy and information literacy education is the catalyst required to transform the information society of today to the learning society of tomorrow. Information literacy is the foundation for learning in an environment of continuous technological change. The information environment is increasingly becoming complex due to the development of information and communication technology. As a result, educators are recognizing the need for learners to engage with the information environment as part of their formal learning process. Information Literacy is generally seen as pivotal to the pursuit of lifelong learning and central to achieving both personal empowerment and economic development.

1.4.1 Definition

The most frequently used definition of information literacy comes from the First National Report on the concept that was released by ALA in 1989. “People who are
information literate are good at knowing when they have a need for information, identifying information needed to address a given problem or issue, finding needed information, evaluating the information, organizing information and using information effectively to address the problem or issue at hand” (ACRL, 2000). UNESCO (2005) declared it as a basic human right in a digital world (UNESCO, 2005). The US Association of College and Research Libraries have asserted that information literacy is “common to all disciplines and to all learning environments and to all levels of education (ACRL, 2000).

Thus it can be said that information literacy is a vital factor for development of an individual’s learning not only in formal education settings but also in wider, social and cultural, political and economic arenas (Bruce, 2002). Individual autonomy is a significant element of information literacy wherein learners possess the capacity to “extend their investigation, become more self-directed, and assume greater control over their own learning” (ACRL, 2000). They are endowed with the ability to take responsibility for their own knowledge framework. This enables learners to develop strategies to meet and handle new information contexts, formats or media, modifying learning attitudes, habits and behavior as required (SCONUL, 2011).

Information literacy therefore addresses learning as an on-going, developmental process, a continuous evaluation of and adoption to information environment. Information literacy cannot be seen as something to be addressed once and then ignored. It is an integrated part of lifelong learning which must be recognized, enhanced and continually updated (Project, 2011).

Autonomy, discernment and on-going development are key characteristics of the knowledge economy, described thus by Lovitts (2005) “graduate education is about producing the knowledge worker who ensures the ultimate success and survival of all major institutions of society by preserving, creating and developing the ideas, information and technology necessary for them to persist and advance” (Lovitts, 2005). Whitworth (2006) asserts that information literacy is “a potential weapon in the cognitive arsenal available to the citizen of the information society”. It empowers individuals with an understanding of not merely, how to access but also how to judge and make use of information, make ones voice heard and make a difference (Whitworth, 2006).
1.4.2 Concerns due to lack of Information Literacy

Research has indicated that if students are not trained in information literacy skills, they may face the following problems.

- **Information Overload**: This usually represents a stage where an individual’s efficiency in using information at work is hampered by the amount of relevant and potentially useful information available. Individuals experience the feeling of loss of control over the situation and being overwhelmed. Accordingly information overload leads to information addictions, leading to overdependence on sources such as internet and as such there is a drop in productivity (Elson, 1999).

- **Information Anxiety**: a term coined by Saul Warman is usually taken to be a condition of stress caused by the inability to access, understand or make use of necessary information. This may happen due to information overload, insufficient information, poorly organized or presented information. Individuals experience feelings of powerlessness, being lost and afraid. This may also lead to brain freeze or fatigue leading to information avoidance.

- **Infobesity**: is a situation of personal information overload. Individuals purposefully avoid or ignore relevant or useful information because there is too much to deal with.

- **Satisficing**: is described as a method of coping because an individual limits sources just enough to meet a need (Bawden, 2001). According to Elson (1999) this form of behavior is known as bounded rationality i.e. A way of making decisions and choices when the full spectrum of options may not be known and when it is not feasible to compare fully the benefit of each (Elson, 1999).

- **Plagiarism**: Ryerson University in its webpage on academic integrity gives different reasons on why do students cheat, some of these are: ignorance or miseducation, confusion about how to cite sources, careless note taking, pressure to get good grades, competition or fear of failure, education as a commodity, lack of knowledge or misconception of copyright, intellectual property or public domain, the culture of downloading and sharing, poor time management, organization skill and so on (Ryerson, 2012).
Elson (1999) has succinctly came up with fallouts of information explosion such as

- shorter attention span
- information contamination due to availability of uncensored information leading to making wrong decisions and serious mistakes.
- long range thinking stops when information needed is available in large quantities for a user to select. Individuals tend to think of the past and immediate future without adequate attention to the present (Elson, 1999).

1.5 Information Literacy Instruction

Instruction in information literacy skills and education can be the most important instrument for sensitizing society to the importance of recognizing information literacy as a critical literacy. It is indicative of its urgency that makes information literacy and issues related to it to come into focus. This has led to the need for an educational response at different stages of education to provide scientific knowledge to students regarding different aspects of information literacy. It may also help students to cope with different concerns of lack of information literacy skills. This need and concern has resulted in the introduction of information literacy instruction (Birch, 2012).

1.5.1 Background of Information Literacy Instruction

Dewey (1876) opined that the role of the librarian is changing from “keeper and preserver of book” to providing guidance in the use of library and insight on materials to be consulted in the library collection (Dewey, 1876). Lorenzen (2001) added that prior to 20th century libraries were small and required little or no guidance in their use. However as colleges and universities expanded, libraries also grew. Thus once small and easily navigated libraries became larger and complex, librarians were required to provide learners with guidance in the use of libraries as well as a recommendation for books for research and study. As a result libraries initiated with library orientation (Lorenzen, 2001). Renford (1980) defines library orientation as “activities that introduce patrons to the facilities, services and policies of the library” (Renford & Hendrickson, 1980). Here less emphasis was given to assisting learners with an understanding of the research process and use of resources for study. An expanded version of instruction, commonly referred to as bibliographic instruction was
introduced later which focused more on research process and use of resources. There was a paradigm shift in library instruction due to academic specialization and shift towards industrial society (Hopkins, 1982). This resulted in the widespread use of technology leading to an information explosion. There was also an increase in people wanting to become more active citizens, which required them to become better informed for making effective decisions. Development of the internet led to adoption of the internet as a research tool (Dorian, 1995). Thus many users felt that internet was equitable to a library. The emergence of technology and rapid transfer of information made it necessary for researchers, scholars and students to develop a skill set that would equip them with the ability to navigate the information streams in order to utilize information effectively, efficiently and ethically. Library instruction thus moved away from library acquaintance to methods of instruction that provided users with the knowledge of available research resources as well as the techniques by which users could obtain the information necessary to prepare their research. This instruction incorporated elements of critical thinking and active learning (Grassian, 2004). This new method of instruction known as information literacy instruction focussed on providing patrons with the skills needed to navigate through the explosion of information and appropriate and the effective use of information and information technology.

1.5.2 General Objectives of the Information Literacy Instruction
Association of College and Research Libraries has provided a model statement of objectives of information literacy instruction.

- The information literate student determines the extent of the information needed.
- The information literate student accesses needed information effectively and efficiently.
- The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.
- The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.
• The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally (A.C.R.L., 2003)

1.5.3 Major Components of Information Literacy Instruction

The following components are usually included in the information literacy instruction

Task Initiation: this step in information literacy instruction helps to clarify and understand the requirements of the problem or task for which information is sought

Locating Information: Information is available in different forms and formats. Students should be aware of these sources as well as be adept at locating information therein for which purpose one should know the organization of information as well as formulates search strategy and use different search techniques. Information on a topic is available in different sources in different measures for different purposes. This step helps students in locating and accessing information.

Evaluating Information: An information literate person should evaluate information for its authenticity, reliability, validity, accuracy and timeliness. Such a person should be able to evaluate not only the source of information and information per se but also the validity of information for the purpose at hand. This step orients students to different criteria which can be used for evaluating information.

Using information ethically:

Information leads to the creation of knowledge. It has to be understood, assimilated, synthesized, and communicated for others to know and lead to more information and knowledge which is a never ending spiral resulting in the creation of knowledge. An IL person should be able to use information effectively such that he/she is able to correlate it to his/her repertoire of knowledge and add to it to apply to the task at hand. IL also assumes that anyone using this information uses it ethically. An IL person acknowledges the source of information wherever used by him/her (Ashraf, 2009).

In addition Shapiro and Hughes (1996) outlined a "prototype curriculum" that encompassed the concepts of computer literacy, library skills, and "a broader, critical conception of a more humanistic sort", suggesting seven important components of a holistic approach to information literacy:
Tool literacy: or the ability to understand and use the practical and conceptual tools of current information technology relevant to education and the areas of work and professional life that the individual expects to inhabit.

Resource literacy: or the ability to understand the form, format, location and access methods of information resources, especially daily expanding networked information resources.

Social-structural literacy: or understanding how information is socially situated and produced.

Research literacy: or the ability to understand and use the IT-based tools relevant to the work of today's researcher and scholar.

Publishing literacy: or the ability to format and publish research and ideas electronically, in textual and multimedia forms, to introduce them into the electronic public realm and the electronic community of scholars.

Emerging technology literacy: or the ability to continuously adapt to, understand, evaluate and make use of the continually emerging innovations in information technology so as not to be a prisoner of prior tools and resources, and to make intelligent decisions about the adoption of new ones.

Critical literacy: or the ability to evaluate critically the intellectual, human and social strengths and weaknesses, potentials and limits, benefits and costs of information technologies (Shapiro, 1996).

1.5.4 Information Literacy Models

In order to achieve information literacy goals, information scientists have invented different models. These models help students and teachers to reach the ultimate goal of the education, with a specific guided plan. Several such popular models are given below:

- **Big 6 Eisenberg/Berkowitz (1987)** (Eisenberg & Berkowitz, 1990)
- **Information Search Process Model -Kuhlthau (1993)** (Kuhlthau C. C., 1993)
- **Seven Pillars of information Literacy (SCONUL,1999)** (S.C.O.N.U.L., 1999)
1.6 Implementation of Information Literacy Instruction

The way information literacy instruction is delivered on academic campuses is as varied as the campuses themselves. Outlined below are some of the ways information literacy is integrated and delivered.

Independent Courses: These courses can with or without credit, optional/obligatory or distant or face-to-face (Kasowitz-Scheer, 2002). Because independent courses can be optional, some of the students might not choose these courses. As this means that not all students would benefit from these courses, which can be regarded as a negative situation (Polat, 2005).

Education Integrated with Courses: Students can acquire information-literacy skills in a private course of any discipline or in a general course for all disciplines (scientific research methods, etc.) (Polat, 2005).

Education Integrated with the Education Program: This is one of the most effective ways of teaching information-literacy. Here, the education program of a certain discipline is combined with information-literacy skills as a whole (Guven, 2008).

Web-based On-line education: In recent years, web-based on-line education has begun to have a very important and effective place in the education system, and information-literacy education aiming at the effectiveness of the student has been started to be given on the web (Guven, 2008).

According to Turnbow (2009) instruction can also be implemented as follows;

“One-shot”: “One-shot” instruction is provided to a class as requested by a faculty member. These sessions can be general overviews of how to use the library or focused on a specific paper or project students need to complete for their course.

“Just in Time”: Librarians sometimes provide several workshops to students as requested by a faculty member. The workshops are dispersed throughout the course and cover topics that students need when they need them.

“First-year experience”: This one-unit course is usually a semester long and targets new and transfer students. The goal is to provide students with essential skills that will help them succeed in college, such as note taking, research, and critical thinking (Turnbow, 2009).
1.7 Information Literacy and Teacher Training

The importance of the role of technology in teacher training programs has considerably increased with the onset of information literacy, and the need for learning and teaching has been enhanced. Technology leads to more powerful information input. These changes as suggested by Guven (2008) can be stated as under:

*Learning in a multiple environment:* the learner learns not consecutively but interactively.

*Teaching based on structuring and discovering rather than direct teaching:* the student structures the information on his/her own and maintains learning in the same way instead of information provided by the teacher.

*Student centered education rather than teacher centered education:* the focus is on the learning rather than on the teacher. The teacher helps new information to be created and structured in class instead of transforming information to the student.

*Discovering information about the subject rather than selecting the truth:* this requires higher thinking skills such as analysis and synthesis.

*Life based education rather than school based education:* knowledge of learners is based upon regularly revised life experience and the school prepares students for the future.

*Learning appropriate to the characteristics of students rather than single type education:* student finds their own ways of learning (learning style).

*Turning learning from torture into entertainment:* it encourages students to learn and helps them to take responsibility for development in learning.

*A helping teacher rather than teacher transforming information.* (Guven, 2008).

These changes are the main causes of the source based approaches. Based on this, as the society and the world change, the duties and responsibilities attributed to a teacher increase. The role of the teacher has changed with the information era. Teachers are expected to carry out the requirements of the information era. ALA reported that teachers should organize environments in which students can gain competence in learning on their own (A.L.A., 1989). A qualified teacher with the desired qualifications is the one who can reach any kind of information s/he wants at any time and can combine the s/he has found with her/his own and use it again (Saglam, 1999). Teachers should encourage their students to ask questions, enrich their learning
environment, help their understanding of communication and help them on the ability to organize their own learning. Unless the teachers train their students on the issue of information literacy they will have difficulty understanding how information will be found and used (Adiguzel, 2005); (Carr, 1998). This makes it necessary for teachers to possess skills of information literacy and to direct their students towards this issue. Shinew & Walter (2003) explain why teaching Information Literacy is necessary for teachers:

- Information era
- Critical thinking
- Lifelong learning
- Instructional Collaborator
- Reflective applications
- Instructional Leadership

Moreover, they mention three aspects of Information Literacy for teachers. According to these aspects, a teacher is regarded as a student, a teacher and an instructional collaborator.

*Information Literate Student:* teaching information literacy is to provide students with the abilities to determine, accept, evaluate and synthesize their future information needs. This consists of pre service and in service lessons for students and of activities that will help them to become effective learners.

*Information-literate teacher:* Teaching information-literacy comprises the abilities of accepting information skills and real-teaching and accepting both of these together or cooperating with experts from the school library. These include direct teaching and evaluation of information-literacy and teaching and evaluation of information-literacy integrated with content based teaching.

*Instructional collaborator:* Teaching information-literacy is to gather instructional sources such as school libraries with instructional collaborators such as librarians. At such gatherings, teaching methods or program activities are discussed, or conclusions are drawn related to field experience in school libraries (Shinew & Walter, 2003).
1.8 Background of the Study

Institutes of teacher education are centers of learning and knowledge generation. This means that students, academic staff, administrative staff, researchers and librarians work with information. Thus it is imperative for students to have the information literacy skills to enable them to search, identify, locate, retrieve and use information. The researcher based on her experience has observed that most student teachers do not possess the much-needed information literacy skills required for conducting research. Thus students are unprepared or underprepared for higher education. This may due to the fact that till today traditional lecture methods are followed to teach students and students rely heavily on lecture notes and textbooks. Thus the familiarity with and critical use of academic literature is limited. Similarly when students are given a subject to study or a research project, they are not given formal instruction on how to use the resources, evaluate them nor are they taught how to give credit. This can be easily seen when reading project works of students which are usually copied from the published text. Immediate availability and vastness of fee-based and free resources have heightened the need for information literacy instruction. It has become imperative to make students aware of the nature and use of these different resources, how to evaluate them, the process of research and the ethical considerations around the use of ideas.

Over the last few years information literacy skills are considered as one of a graduate’s attributes. There is a gradual shift in focus from content to critical thinking and lifelong learning, move from teacher centered teaching to student centered teaching. In these developments the importance of information literacy is increasingly receiving recognition within academic and non-academic communities.

One can say that instruction provided by librarians still focuses on the skills of use of resources and retrieval of information rather than a broader spectrum of process, knowledge, skills and experience implicit in an information literacy approach. Thus a paradigm shift in thinking, planning, teaching, and learning and assessment activities are required for an information literacy program to be developed.
1.9 Rationale for the study

Most student teachers lack or do not possess adequate information literacy skills required to complete research work.

Being an information literate individual is of importance in today’s information society. Students must be able to deal with information overload, information anxiety and constant changes in format and retrieval technology.

Information Literacy is recognized as an important skill in higher education. Because an information literate person will not only be someone who has the ability to find, access and evaluate information for specific need but will also use cognitive skills of analyzing, assessing, synthesizing, organizing and using information. The so called “higher order” of information literacy skills includes critical thinking and problem solving cognitive processes. These are the skills that students should acquire to function effectively in the workplace and the information society. The need for individuals to be information literate is accentuated by the fact that the growth of knowledge is such that university curriculum and course content will always lag behind (Bundy, 1999). Information literate students are those who have learned how to learn because they can always find the information they need for any task or decision at hand instead of trying to remember content learned long ago (Breivik-Senn, 1998)

Though information literacy is widely researched and practiced, it is still in its infancy though it is one of the critical skills in education. Students lacking these crucial skills will find it difficult to cope successfully in their academic courses or eventually fail to measure up to the demands of employers. The information environment is complex and changing far too rapidly to expect students to acquire information literacy without a planned instructional program.

In view of these facts it is thought to be extremely important to introduce students to information literacy skills through information literacy instruction. It is in this regard that the present study was conceptualized so as to attempt to assess the information literacy skills of student teachers and enhance the skills through designing an Information Literacy Instruction for student teachers.
1.10 Statement of the problem
A Study to develop Information Literacy Skills in Student Teachers through Information Literacy Instruction Modules

1.11 Variables of the study
Phase I
The variable of the descriptive study is:
Information literacy skills

Phase II
Independent Variables:
A module for enhancing information literacy skills
Dependent Variable
Pre-test and post-test scores on information literacy skills

Phase III
Research Report

1.12 Operational definitions of terms
Information Literacy Skills: are the skills required to solve information problems. They include the skills needed for defining the information task, locating sources, selecting and processing of data and presenting and evaluating information. For the present research information literacy is seen as a process involving certain phases each with specific skills.

Research Process: are the steps involved in doing research. The research process is conceptualized as steps for effectively locating information for a research project.

Research Skills: set of abilities related to undertaking research. Research skill is defined as the ability to identify a problem, determine what sorts of informational resources are needed to respond to the problem, find those resources efficiently, evaluate the gathered information for quality and relevance, and use the information effectively to address the problem.

B. Ed student teachers: are students enrolled in B. Ed course

Information Literacy modules: a set of learning opportunities organized around a well-defined topic which contains the elements of instruction, specific objectives, teaching learning activities and evaluation.
1.13 Aims of the study
The present research has a threefold aim:

- To assess the information literacy skills of student teachers with respect to understanding of the research process and research skills related to information handling
- To develop, implement and ascertain the effectiveness of the module enhancing information literacy skills of student teachers based on the first phase of the study
- To analyze the research projects of student teachers after the implementation of the module.

1.14 Objectives

**Phase I**
1) To develop a testing tool to assess the information literacy skills among student teachers with respect to the
   a) understanding of role of information in the research process
   b) research skills in relation to information

2) To ascertain the difference in information literacy skills among student teacher from the:
   a) Arts faculty
   b) Science faculty
   c) Commerce faculty

3) To ascertain the difference in information literacy skills among student teachers with a
   a) Graduate degree
   b) Post graduate degree
Phase II

4) To develop and implement information literacy instruction modules.

5) To compare the pre-test information literacy skills scores of students from experimental and control group.

6) To compare the post-test information literacy skills scores of students from experimental and control group.

7) To ascertain the effectiveness of the program to enhance information literacy skills among the student teachers by comparing the post-test scores of information literacy when the differences in the pre-test scores of the two groups have been controlled.

8) To seek feedback from the B. Ed student teachers with respect to their
   - opinions about Information literacy Instruction Modules
   - suggestions about Information Literacy Instruction Modules

Phase III

9) To assess the extent of usage of Information Literacy skills in preparation of the research project by B. Ed student teachers.

1.15 Research Question

The study is set to answer six research questions derived from the objectives.

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 opinions and suggestions 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?
1.16 Hypotheses
The following null hypotheses are formulated for the present study

*Phase I*

1. There is no significant difference in the information literacy skills of student teachers from the
   a) Arts faculty
   b) Science faculty
   c) Commerce faculty

2. There is no significant difference in the information literacy skills of student teachers with a
   a) Graduate degree
   b) Postgraduate degree

*Phase II*

3) There is no significant difference in the pre-test scores of information literacy skills of students from experimental and control group.

4) There is no significant difference in the post-test scores of information literacy skills of students from experimental and control group.

5) There is no significant effect of the treatment on students’ information literacy skills post-test scores when the differences in the pre-test scores of the two groups have been controlled.

1.17 Nature of Research
In keeping with the three fold aims of the study the research will be carried out in phases:

*Phase I*

The study used the quantitative paradigm to test the hypothesis statistically in order to study the difference in information literacy skills among student teachers based on their levels of education and faculties of education. In the present study the researcher used the descriptive method of the casual comparative type. In this study the casual
comparative method was used to study the difference in information literacy skills among student teachers based on their levels of education and faculties of education.

Phase II
For achieving the second objective the experimental method was used for implementing and testing the effectiveness of the program to be developed.
In the present study the quasi-experimental design was used. The pre-test – post-test non-equivalent group design was used which is as follows:
\[ O_1 \times O_2 \] Where X: Experimental group and C: Control group
\[ O_3 \times O_4 \] Where \( O_1 \) and \( O_3 \): pre-test scores and \( O_2 \) and \( O_4 \): post-test scores

Phase III
The extent of usage of information literacy skills by student teachers as account of training in Information literacy instruction was assessed quantitatively.

1.18 Scope and Delimitations
- The study is limited to the students of teacher education.
- For the first phase of study students were limited to Greater Mumbai.
- For the second phase of the study only students from English medium were considered for the study.
- It has found that different aspects of information literacy are covered in literature i.e. from learners, teaching, organizational culture and assessment. This study will deal only with the design and implementation of information literacy instruction.

1.19 Significance of the study
Information literacy has become an important concept since the arrival of the information age. As there are very few studies in India, the present study will contribute to its limited extent, to the field of research in information literacy instruction in India.

The techniques and principles used in the study will have important bearings on attempts for developing information literacy skills in student teachers.
The results of the study will also have implications for student teachers, librarians and faculty members. Student teachers will get a better understanding of their information literacy skill levels. Faculty members and administrators may consider incorporating information literacy instruction in the regular curriculum and offering courses after getting a picture of the student’s competency level. NAAC in its Guidelines on Quality indicators in Library and Information Services has listed Information Literacy program as the best practice to enhance the academic information environment and usability. The findings of this study will provide data, which can be used as a base for Information Instruction.

In the present study the researcher has developed a tool for assessing information literacy skills of student teachers as well as an information literacy instruction module. These tools as well as module will be a ready-made source for future researchers who wish to conduct similar type of studies. The instructional design prepared by the researcher will prove to be a guide to other researchers and educational institutions who wish to develop information literacy instruction modules.

The study has developed an information literacy instruction module which has proved that it can enhance the information literacy skills of the student teachers. This knowledge which student teachers have gained would help them to develop information literacy skills of their students. It will further help them to share their knowledge with colleagues in schools as well as the prospective students which will help them to bring about a change in their attitude towards information literacy skills. It will also enable student teachers to rethink and modify their teaching strategies in the classroom. Thus this study will help to develop an interest among student teachers to learn more about information literacy.

Information Literacy instruction modules developed in the study can be used in developing programs at other education levels such as D. Ed and M Ed.

To understand the importance of the information literacy instruction, training of teachers is necessary. The program developed can be used in schools to train in-service teachers at pre-primary and primary and secondary levels.
1.20 Structure of the Thesis

Chapter One: Introduction
This covers the introduction, statement of the problem, aim, objectives of the study, research questions, and significance of the study and literature review approaches.

Chapter Two: Theoretical and Conceptual Framework of the Study
This chapter covers the theoretical framework used for gaining understanding of the Information literacy concept. Conceptual Framework describes a concept which was informed through theory.

Chapter Three: Review of Related Literature
The chapter covers the literature review of the teaching and learning of information literacy. This will be done using books, journal articles, and internet resources.

Chapter Four: Research Methodology
This chapter focuses on how the research was carried out and covers the research methodology, research method, target population, instruments of data collection, data collection techniques and procedures and data analysis.

Chapter Five: Development of Information Literacy Instruction program
This chapter describes the design, development and implementation of the Information Literacy Instruction program.

Chapter Six: Information Literacy Skills of Student Teachers
This chapter presents the analysis the data obtained through an information literacy questionnaire.

Chapter Seven: Descriptive Statistics
This chapter presents the descriptive statistics for information literacy questionnaire and pre-test and post-test.

Chapter Eight: Inferential Analysis of data
This chapter presents the findings obtained through inferential analysis of data.

Chapter Nine: Pre-test Post-test Analysis
It analyses the data obtained through information literacy questionnaire before and after intervention.

Chapter Ten: Opinions and Suggestions regarding Module
This chapter analyses the data received from information literacy feedback forms and focus group interviews.
Chapter Eleven: Interpretation of Findings
This chapter discusses the results of findings according to the research questions.

Chapter Twelve: Summary, Conclusion and recommendations
This chapter presents the summary, conclusion and recommendations based on the findings of the study.

Bibliography
Appendices

1.21. Summary
This first chapter has set the scene for the current research by providing the background of the study with respect to information literacy. The statement of the problem is followed by the purpose of the study, research questions and rationale for the study. The delimitations of the study, definitions of terminology used in the study and the nature of the research are provided. Overview of the structure of the study in terms of the content of the chapters is presented. The next chapter, Chapter two, presents the theoretical and conceptual framework which underpinned the current research.