Review of Related Literature:

Every researcher must have knowledge of sources available in the field. There are three forms of such literature.

(i) Direct sources which includes thesis, periodicals, journals, books, etc.
(ii) Indirect sources as encyclopedia, indexes, abstracts, etc.
(iii) Electronic sources through internet.

Every researcher must equip themselves with such type of knowledge for worthwhile study in the field of research.

Every researcher must know where and how to find out, because in absence of up-to-date information, his/her research work cannot be worthwhile.

Good, Barr and Seats analyze the purposes of study of related literature as:

(i) To show whether the evidence clearly available solves the problem adequately without further investigation, and thus to avoid risk of duplication.
(ii) To provide ideas, theories, explanations or hypothesis, valuable in formulating the research problem.
(iii) To suggest method of research appropriate to the research problem.
(iv) To locate comparative data useful in interpretation of results and
(v) To contribute to the general scholarship of the investigator or researcher.

The researcher knowing the importance of the related literature has surveyed all the three sources of related literature. Some of them are reported with reference to the topic of research.

The researcher has reviewed the following journals, books, and periodicals and other literature/articles for her research.

Barbara Burks Fasse and Janet L. Kolodner (2000) opines that the qualitative component of research has been restructured to fit the new needs of children by which development grow continue. The finding of this study can be summarized as:

- Middle school students learn science through a design approach which provided student motivation for inquiry.
- By their evaluation they includes ethnographer, observer, student researcher, teacher which doing participant observation and interview-both formal and informal.
- For which used observation instruments video documentation, Bi-weekly nettings. They give examples of ethnographic method which can be used to help teacher understand the social interactions in the environment and effects available or made use of.
- Formative evaluation of curriculum developments projects is a complex undertaking. From which we understandings the success and potential of a curriculum requires than
documentation of what students have learned and how well they can use what they have learned.

**Mr. Nayak A.K. and Rao V.K. (2009)** In the textbook of classroom teaching methods and practices A.K. Nayak and author V.K. Rao discuss the methods and practices of classroom teaching necessary to establish a suitable environment that promotes learning in teaching. He summarized the finding as :-

- Effective learning requires the learner to take a deep approach rather than a surface approach to the curriculum.
- Progression in learning is usually from the concrete to the abstract which guide for project evaluation techniques.
- People learn to do well only what they practice doing is related to the exercise evaluation techniques.
- For Effective learning students requires feedback.
- We have to denote some of experiments as projects by which students can design and implement their own plans for addressing the research question and take ownership of their procedure and result also students have to look for their materials and may acquire improvisation skill in the process.
- By project method evaluation technique teacher should give them some problems related on lessons at levels appropriate to their maturity that require them to decide what evidence is relevant and give their own ideas on it.
- The nature of inquiry depends on what is being investigated and what is learned.

He noted role of science teacher are as follows.

1. Engage students in activity.
2. Science teacher should reflect scientific values.
3. Teacher should strive to welcome curiosity, Reward creativity, Avoid dogmatism, Promote aesthetic response.
4. Students need to have many and varied opportunities for collecting, sorting and cataloging, observing note taking and sketching which teacher have to provide.

**Best John W and Kahn James V. (2011)** has in their research described the following factors related to fundamental of research:-

1. **The research hypothesis**: - the research or scientific hypothesis is a formal affirmative statement predicting a single research outcome a tentative explanation of the relationship between two or more variables for the hypothesis to be testable the variable must be operationally defined. That is specifies what operations were conducted to tests used to measure each variable. Thus the hypothesis focuses the investigation on a definite forget and determine what observations, or measures, are to be used in this research.
In the behavioral sciences the variables may be abstractions that cannot be observed. The hypothesis were true, the experimental group mean scours and a standardized arithmetic achievement test would be significantly higher.

2. The Null hypothesis \( (H_0) \):- When one group will do better than another than we find a difference of some kind in the hypothesis. The null hypothesis related to statistical method of interpreting conclusion about population characteristics that are inferred from the variable relationships observes in sample.

Jandhyala B. G. Tilak (2010):- The book Educational, Society and development how evaluation in higher education is reviewed by Tikal. In this book, the review states the following :-

1. The evaluation approach varies according to impose by which it may be undertaken to maker judgment about the change to be introduced into system to improve upon its excellence.

2. Excellence in higher education is a multidimensional and the concept has evolved one time with the evaluation of the aspiration and exportations of the society which says that there is need of evaluation by formative method.

3. From who’s who in ‘America and American men of science’ Provide the basis for ranking institutions of higher education depend upon the performance of the students are :-

(a) The level at which evaluation is undertaken.

(b) The sponsor of the evaluation and the purpose.

4. Students learn is influenced by their existing ideas, which develop education in student development.

5. Objectives of evaluations :-

(a) To face competition and attract clientele.

(b) For internal use to improve upon excellence.

Mishra R.C. (2007) :- Have carried out a review of educational research and innovation. There are opinions that :-

- Educational research has come under increased scrutiny by governments of western nation states.

- Educational research and educational researches are being held accountable by governments for the current state of education.

- The role of parents in education system which is most important.

- Now days early studies suggesting the importance of parent involvement are treated as definitive the nitration of parents and students by project and exercise evaluation techniques in her objectives.
Specific types of parents involvement which are as follows:

1. Moderate levels of parents support and supervision.
2. Participation in joint learning activities at home.
3. Autonomy promoting parenting practices. In projects and exercise evaluation techniques every children need the special involvement of parents in their studies which made positive impact on children need.

**Siddiqui Mujibul Hasan (2008)**: According to Mujibul Hasan Siddiqui the objectives and evaluation of an instructional program are closely related. Performance objectives can serve as a blueprint for both instruction and evaluation at that instruction.

Other findings are as follows:

- Evolution is the interpretation of scores and the taking of value judgments such as good or bad which indicates quality of educational progress.
- A teacher must start evaluation at the very beginning of the unit and keep the evaluation in mind throughout the teaching of the unit.
- Teaching and learning is different process but having evaluation at the same time with this process can easily happened by evaluation techniques.
- In elementary school teachers use various means of evaluating student progress same depend on their interpretation of student performance or behavior in the classroom as they view it over a period for academic year.
- For evaluating student teachers lies in their judgment concerning the value of the products of pupil activities like homework i.e. exercise and class project these materials are selected from the students work and the teacher systematically examines them in order to form a judgment about their quality.
- The evaluation techniques are more sensible for student’s evaluation so for that it should be handled by teachers more carefully and they gave proper guidance about them to related students and parents.

**Marzano (2003)**: In what works in schools: outlines five lines of research on student motivation. Those five lines of research on student motivation are as follows:

1. Drive theory: Those who are success oriented are motivated to conquer new tasks. Students who are failure avoidant may develop self- handicapping strategies.
2. Attribution theory: Students attribute success to ability, luck, effort and task difficulty.
3. Self- worth theory: Is based on the premise that self- acceptance is one of our highest priorities as humans.
4. Emotions: Play a large role in human motivation. That can sometimes override our rational and/or cognitive thought.

5. Self – system: Here, Marzano cited the work of Csikszentmihalyi and Maslow in that for students to reach self-actualization (Maslow’s highest level) or “flow experiences” (Csikszentmihalyi), students need:

   1. Freedom, to set clear, meaningful, individual goals.
   2. Resources so that student can become immersed in the work necessary to carry out goals.
   3. Self-awareness in the student of how well he or she is progressing and making adjustment as necessary.
   4. Enjoying short-term successes while keeping the overarching long-term goals in mind.

Marzano outlines action steps for education that can positively impact student motivation: (Italics are may own)

   1. Provide students with feedback on their knowledge gain.
   2. Provide students with tasks and activates that are inherently engaging.
   3. Provide opportunities for students to construct and work on long-term projects of their own design.
   4. Teach students about the dynamics of motivation and how those dynamics affect them.

21\textsuperscript{st} century learning environments include games and activities that give students real time feedback on their progress. These could in the form of online tutorials, quizzes, and games or as a whole-class activity using clickers.

\textbf{Jeffery S. Isaacs (2003)}: Have in their research focused the role of teacher in evaluation and professional development by using 4*4 model of blocks scheduling in which data were collected from 6 selected Virginia public schools by teacher evaluation method and procedures. They are of the opinion that teacher evaluation methods related on:

   - Multiple evaluator instruments.
   - Principal interview.
   - Teacher interview.
   - Survey by questionnaires of 6 selected Virginia public schools.

To face the challenge that facing teacher evaluation reformists which is not only ensures the quality of teaching but also encourages professional growth. The design of the evaluation instrument should merge opportunities for teacher grow professionally while, at the same time completing the required comports that will allow evaluators to make judgment regarding the quality of teacher.

The purpose of this qualitative study was to identify and recommend teacher evaluation process. They survey about:
1. What similarities are there in the methods and instruments used in teacher evaluation?

2. What recommendations do the teacher for future evaluation process?

That points of evaluations methods of teaching are help to the progress in teaching level.

**Sarewitz Daniel (2004)**: Aim to explore the problems of some types of political controversies which become schematized and other from political means before science environmental problems. The review states the following:

- Environmental conditions which humanity depends for well being of man were not getting worse but were actually getting better which we can determined by scientific inquires can determined by scientific inquiry, project as well as by the observations of students in large level.
- Scientific knowledge is co-produced by scientists and society within which they are embedded.
- Project or exercise method from science teaching we can aware for environment to students in following possibilities.

1. Advocates the action believe that scientific knowledge will advance their value positions or interests
2. Advocates of action believe that scientific uncertainly will advance their interest.
3. Effective mechanism for eliciting and adjudicating value disputes are already in place and well accepted.

**Dr. Kasture, P.B. Mr. Joshi P.N. (2011)**: This paper inform about opinions of teacher educations and student teachers regarding continuous and comprehensive evaluation. The conclusion shows that student’s teachers are wiling to accept CCE but they identify obstacles in the implementation of the same. The findings of research are as:

- National policy on education recommend the concept of continuous comprehensive evaluation,
- Continuous and comprehensive evaluates refers to a system of school based assessment development.
- According to right to education action this evaluation became mandatory at primary level of education.
- This evaluator is useful to identify difficulties and weakness in learning of student.
- Evaluation is a process by which we can collect evidences for student progress.
- Evaluation means a process of correcting weakness in self and which is taking on individual towards developments.
Analysis to all B.Ed trainees know the concept of new evaluation and according to that it will facilitate all around development of students it will also be beneficial to provide all the students the same opportunity to display their individual potential.

**Shinnammon A, Gelmon S and Holiand B (1999)**: Have investigated methods and Strategies for students assessment by the survey of student which impact on assess and student’s general attitudes after they have completed a learning program. The finding are :-

- This tool is meant to complement other data gathering strategies to develop a clear picture of student.
- It is suggested that the pre-tests be given within the first week of the academic term and that post tests be completed during last week.
- If external researchers evaluators may have difficulty accessing the students this survey will help them.
- Student’s anonymity should be assured to them and maintained throughout collection process.

It concludes that the goals of either focus group are to discover patterns of experience and to generate suggestion for improvement in organizing and supporting the course. Additional this tool should produce data regarding impact on students according to study variables.

**Staver John R. (2007)**: In their study aimed to deleted effectiveness of teaching science within scientist inquiry effective teaching. The researcher has portrayed how the process of effective science teaching can be beneficial to school teachers and students. They are the opinion about explaining education in science they give three purposes :-

- It prepares students to study science at higher level of education.
- It prepare students to enter the workforce pursue occupations and take up careers
- It prepares them to become more scientifically literate citizens.
- Teacher believe that all students can and will learn science.
- . Commit to the learning and intellectual growth of all learners.
- View oneself as capable, dependable and generally positive while teaching science.
- Outline how core scientific ideas that are introduced in the early grades will developed further in the upper and middle grades.
- Provide opportunities for students to claim ownership of their learning.
- Aim the level of instruction slightly beyond the capabilities of individual learners but within the capabilities of group of learners.
Use teaching strategies and assessment formats that are consistent with the goals of the lesson for their active construction.

Thuywayba Ahmad Al Barwani, Wajeha Thabit Al- Ani and Ismail Hussein Amzat (2005) : According to the research of paper it is an investigation about what is most important characteristic that to leads to effective teaching in the general education school in the general education school in Oman as perceived by the student. According to report he described are as follows :-

- Community relationships factor is the most important factor that leads to effective teaching that it predicts an effective teacher in Oman.
- To have effective teaching in Oman from the student’s perspectives the school must involve the society to participate and support the educational process, while on effective teacher should align her teaching service with society heeds.
- Teaching strategies having found to be the second factor and predictor for effectiveness of teaching.

Dogan Mustafa (2011) :- Have focused on students teachers view about assessment and evaluation methods in mathematics. The researcher has portrayed how the process of evolution can be beneficial to teacher training department. They are of the opinion that traditional aspects of educational outcomes are based on pure subject knowledge and its memorization. On the other hand modern aspects of educational outcomes concentrate on the progressive side of knowledge and its applications with individual involvement :-

- They believe that the use of formative assessment in classroom instruction can empower students as learners and thus improve students performance (Sadler 1998, Black et al, 2004)
- According to research of Mustafa Dogan in Primary and Secondary Schools in Turkey (MEB,2005) New curriculum is designed to use new development in education by which evaluation new techniques such as project, performance investigation, and observation helps students to learn better mathematics, which helps students to achieve Review of alternative.
- By the literature Review of alternative assessment are motivate students to do their best work build the self-confidence and self concept of students. Grading and scoring in alternative assessment is more informative.
- By the conclusion of mathematics education and the results performance they are surprised by the results. As example the teacher felt that the assessment impacted their learning by pushing them to learn more then they have.
- In this research journal Sainsbury and Walker (2007) mention four function of assessment related to directly students learning
  - Motivating learning.
  - Focusing learning
  - Correcting and guiding learning

Consolidating and structuring learning at last they suggest that teacher need to be involved in the changes and need time to decide how best to change the strategies that they use with their practice.
Vasquez Jo Anne (2008) : have focused on tools and traits for highly effective science teaching. Jo Anne Vasquez has suggested 4 keys of effective teaching :-

1. To improve the future of elementary science instruction teacher must be held responsible for their content knowledge.

2. Along with having the essential skill and knowledge base, teacher needs to manage and execute inquiry – based instruction.

3. Students with the help of teachers will uncover content and facts associated with their standards.

4. While conducting professional development seminars all over the country she stresses co-operative learning for investigation and project which have embraced co-operative learning techniques.

Jo Anne Vasquez while explaining tools and trails also including views of other masters of science Dr. Molina – waters that effective teacher of science first need to have a passion for science and then develop the skills for effective teaching which need a balance between knowing what to teach and how to teach it. In their science methods classes they hold students responsible for not only learning how to teach science but also knowing and understanding the canton they are going to be learn.

Policy Statements and Guidance (2008) : Aim to discover student’s evaluation of programmers of study which used as a policy statements by learning and teaching committee. Student evaluation gives department’s vital feedback on their teaching and how and where it could improve. The process of Student evaluation should give students the opportunity to reflect and provide feedback on their educational experience on an anonymous basis on the understanding their views are taken seriously and acted upon where appropriate.

It is senate Policy that :

- All programmers of study should be evaluated by students on an annual basis using questionnaire surveys in either electronic or paper format. The entire programmer of study should be systematically evaluated, as well as each contributing level and every component unit.

- Evaluation on an annual basis enables Departments to demonstrate that the leaning environment provides students with the appropriate opportunities to achieve their learning outcomes.

- Students are made aware of the outcomes of evolutions and are informed of the changes made as a result of the information they have provided.

The outcomes of students evaluation, together with ab appropriate commentary from the Department should be used to inform reviews of programs of study undertaken by the faculty and/or the University’s Learning and Teaching Committee.

Sharma Promila (2011) :- In this book Aim in education are describes. They focus how education is important from ancient time to recent time by Philosophers view. The research findings are summarized the aim of education :-

They are of the opinion that :-
1. The aim must always represent a freeing of activities.

2. An educational aim must be founded upon the intrinsic activities and needs (including original instincts and acquired habits) of the given individual to be educated.

3. An aim must be capable of translation into a method of cooperating with the activities of those undergoing instruction.

4. The possibilities of growth and of freedom unending depend on man’s growing awareness and developing responses to the life of the Universe. “In growing thus he is free, because he is fulfilling an inmost law of his own nature as a human being.

The views of Philosophers According are noted as :-

Tagore: What is important is that by one’s own intensively experienced action, something aeries that was not there before, and according to Gandhi Ji, this is the was nor of ‘doing’ which is not directed to ‘having’.

Plato: Real belief, real feeling and real thought should encounter each other in mutuality. This is the fundamental synthesis of the Eastern and Western philosophies on education.

Mishra R.C. (2009): In this book of educational research and development have focused on effective education of student, “The research has mention. A typical list of steps/characteristics required for effective teaching :-

1. Clear explanations from the teacher as to what pupils must learn:

2. Skills being taught until mastery of them are automatic:

3. Regular testing, and expectations that pupils will be accountable for their work.

According to report effective educational practices are depended on

1. parents Involvements

2. Graded Homework

3. Aligned Time on Task

4. Direct teaching

5. Advance Organizers

Das R.C.( Reprint 2009) : The book science teaching in school : Method and procedures of science teaching. The review states the following:-

1. Any teaching procedure centers round three pivotal factors: the pupils, the teacher and the subject, out of these three; the teacher is the most important factor in the teaching-learning process. Since

2. Science is a rapidly growing subject; its teaching demands continued reassessment and periodical review of the contents and the method of teaching. The science teacher should be acquainted with the use of a variety of method and procedures of teaching science.

The author in his book states the special methods of teaching science: which are:
1. Lecture method

2. Historical method

3. Project method: The project method is a suitable method for teaching science in ELE mentor classes. Planning and carrying out a project involves much more work on the part of the teacher than our traditional method of teaching science.

Naba Kr. Mondal, Tanmoy Roy, Chittaranjan Das (2009): In their research on achievement in environmental education they mentioned relationship of science with environment:

Education does not mean merely teaching people what they do not know. It means teaching them to behave as they do not behave, that is, to bring a transition in their behavior.

The main objective of Environmental education with related to Science:

- Awareness
- Knowledge

For that build up student’s capabilities to use latest environmental research tools and techniques and use of information technology.

From this observation it may be concluded that boys little better than girls but not in all aspects of EE and the success of boys is better that the girls due to their participation in co-curricular activates and other formal and non-formal activates. Moreover, for overall development about EE schools should take some initiatives regarding teaching-learning process and also other activities where directly or indirectly EE is associated.

Statement of the problem:

“The study of implementation of evaluation Techniques in Science.”

Aim of the Study:

The aim of the research is to study the implementation of evaluation techniques in science subject by project and exercise