Chapter 2: Review of Literature

2.1 INTRODUCTION

The chalk and talk method of teaching which involve too much conversion in teaching has lost its efficacy and student's interest in subject. From online free teaching, it was stated that the advancement in instructional and has strongly influenced the field of education. It was discovered that teaching and learning are being influence by a number of new media such as interaction that give room for manipulation which might not be possible by using any other medium. Students can learn new information due to ICT provision of easiness and facilities in education. Semerci expressed the fact that the message via ICT reaches the receivers in various ways, this provides enablement learning environment. The subject being taught could be transmitted to the students with web-based audio, visuals, video and animations in a way that might not be taught in classrooms with other techniques. Students can gain the knowledge and information that would not be able to get from other ways of teaching, besides students could have the opportunity to prepare their own products with ICT technique. With that information, it could be asserted that the use of ICT helps students with different skills and learning styles.

The impact of the use of ICT on students' learning is two folds: the enormous and easy availability of textual and audio visual content to be used for teaching can make lessons completer and more attractive; then self-production of content that information and communication

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technology offer can help teacher customize the teaching more effectively. In an evaluation of the "laptops for teachers" program of the British Government (2004-2007), teachers who had been equipped with a laptop having extended their capacity to access resources and save time for lesson planning and preparation. The use of ICT might affect education positively when designed properly compared to traditional instruction in terms of academic achievement. By considering the facts gathered from the literature, it could be asserted that ICT apart from ease and objectifies learning, it makes the learner active and each and every one of them contribute their quota and making learning of science more interesting.

2.2 Study Related to the Achievement in Science

Singh (2009) in "a study of effectiveness of multimedia program in teaching biology". Conducted pre-test and post-test and concluded that, the students learning with the help of multimedia program is better in biology than the students learning through the traditional method, the multimedia program has helped the students to score more marks in the post-test and the traditional method of teaching will not help the students to score more marks in the post test

Jyothi (2007) "Chemical bond for 9th standard students of chemistry & compare the effectiveness of their instruction module with conventional teaching method".

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The main objectives of this study were:

a) To prepare a self-instructional module on the topic "chemical bond" for class 9th chemistry.

b) To compare the effectiveness of this self-instructional module with conventional teaching method.

Major findings were:

i.   The study revealed that the self- instructional module prepared by the teacher through PowerPoint presentation could show immense impact on learning of chemistry.

ii   Students are better motivated & interestingly participated in computer-based learning. They did not hesitate to clarify their doubts through computer-based learning.

iii   There were significant difference in score achievement of control & experimental groups.

Subramanian & Meera (2002) "Relative effectiveness of different mode of computer-based instructions in teaching biology". The main objectives were

a) To find out whether there is any significant different among the different mode of computer assisted instructional strategies viz. tutorial, drill, and practice in realizing the instruction objective in biology at standard 11th.

b) To develop a criterion reference test in the content areas being instructed to subjects of control and experimental groups.

c) To develop syllabus-based computer based instructional packages in different mode viz. tutorial, drill, and practices and stimulations for the selected content areas.

The major findings were

i.   The result of the study has proved that CAI in drill and practice is most effective than tutorial and stimulations modes in teaching biology at std. 11th

ii.   More software packages can be developed for the whole syllabus which will help the students to learn at their own pace.

iii. The CAI package in biology should be planned developed evaluated and implemented with the help of team of expert constituting curriculum planner, educational technologist, computer expert and biology teachers. It will be helpful in development of quality packages in the teaching and learning of biology.

Gurudev (2012) conducted a comparative study of multimedia approach and traditional approach on the achievement in science of grade 8th student with different learning styles.

Objective of the study was

a) To compare the achievement in science of grade 8th student taught through multimedia and traditional approach.

b) To compare the achievement in science of grade 8th boys taught through multimedia and traditional approach.

c) To compare the achievement in science of grade 8th taught through multimedia and traditional approach.

d) To compare the achievement in science of grade 8th visual learner taught by multimedia and traditional approach.

Finding was that the achievement of students taught through multimedia approach get higher score than the students taught through traditional approach.

Padmanabhan (2005) studied the effectiveness of constructivist approach 2005 on the science achievement and problem-solving ability in science of VII grade students. Her study shows positive effect on the achievement of student in science.

Swiltzer and Shriner, (2000), Mimicking the scientific process in the upper division laboratory. Bioscience, in this article two professor of an introductory biology courses discuss the implementation and assessment of inquiry-based learning strategies in their large lecture classroom and associated labs. They present an argument that supports claims of researcher who suggested that the inclusion of such strategy's aids student understanding of course content.

2.3 Other Studies Related to the Effectiveness or ICT Approach

Malik at al (2012) in "Use of Multimedia as a New Educational Technology Tools-A-Study" In their paper, a study has been carried out to analyze the reverence of literature in reference with a variety of university approaches, it has been learnt that multimedia has enormous potential to impart flexible, multi-modal, life-long education to heterogeneous mass learners. The Multi-disciplinary nature of multimedia makes it increasingly popular among people from diverse domains. The literature study clearly demonstrates its qualifications as a vast source of customized learning environment, to accommodate varied behavioural problems like confidence building and stress reduction. Multimedia used in right direction has also succeeded in psychomotor development and strengthening of visual processing of the intended users.

Mishra, (2004) in "Interactive ICT in Education and training" they studied in education and training settings, interactive ICT packages have been found to be used as library-based ICT resource for teachers and students, a supplementary curricular material for a specific course, as a tool for teaching and reinforcing analytic and reading skills and for building an entire course around the use and creation of ICT materials. In the modern society, where computer and Net technologies are becoming indispensable, the learning technologies are found to be deployed in all sector: schools, colleges, universities, and industries. The

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emergence of the knowledge and educational content industry, the emergence of virtual campuses of learning, the availability of new learning and training tools, and the deployment of such tools to meet the diverse needs of learners have greatly influence education and training systems. The needs for lifelong learning, just-in-time training, and retraining led to the development of widely accessible and reusable digital ICT content and learning repositories. As the contributors of this book point out, the advantages are multifarious: increased interoperability, reusability, and individualization of digital learning materials. The learners are benefited in terms of increased quality, relevance, and contextualization of their learning.

Nimavathi & Gnandevan (2009) "Developing study habits through ICT programme". The aim of this study was to find out the impact of ICT on the development of study habits of secondary students. The sample consist of secondary students of 9th standard. The pre-test &post-test equivalent group design was followed for this study. The data has been subjected to descriptive & differential analysis. The study shows that the students learning with the help of ICT proved better in their study habits than the students learning through conventional methods.

The major finding of study was:

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a) There was no significant difference between the experimental & control group in their study habits in pre-test.

b) There was a significant difference between the experimental & control group in their study habits score of post-tests.

c) There was a significant difference between the mean study habits score of pre-test & post-test for experimental group.

d) There was no significant difference between the mean study habits score of pre-test & post-test for control group.

2.4 Critical Appraisal

Several studies have been conducted to verify the effectiveness of multimedia approach for learning in the classroom as mentioned in the review of related literature. It has been observed that teaching &learning through multimedia approach is not only effective but also one of the most appropriate methods of teaching.

The approach contributes to the removal of varied behavioural problems like confidence building and stress reduction. Multimedia instruction also succeeded in psychomotor development and strengthen of visual processing of the students studied by **Malik (2012),** Multimedia help to increased interoperability, reusability and individualization of digital material observed by **Mishra (2004),** they also concluded that the learner were benefited in term of increased quality, relevance, and

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contextualization of their learning. The student learning with the help multimedia proved better in their study habit than the student learning through conventional method concluded by **Nimavathi and Gnandevani (2009).** The impact of multimedia on the development of study habit was seen on the second secondary school student. Subramanian and **Meera (2002),** studied the effectiveness of computer assisted instructional strategies in teaching biology and the result of the study have proved that CAI in drill and practice is most effective than tutorial and stimulation models in teaching biology at higher class student.

The self-instructional module prepared by teacher through PowerPoint presentation shows immense impact on learning of chemistry, the student was better motivated and interestingly participated in computer-based learning and they did not hesitate to clarify their doubts through computer-based learning concluded by Jyothi (2007)

The use interactive multimedia in e-learning affects both the learner and the developers. Learners are affected positively because interactive multimedia promotes motivation that accelerates learning, enables knowledge transfer through retention, and provided manipulative experiences unavailable in a normal training environment this study concluded by **Tausend (2010).**

There is a positive relationship between learning and reading on an e-text transfer scores when compared to traditional text. Scores for reading comprehension were similar between both groups as concluded by Gertner (2011) Lord, (1998) observed that using constructivist Based activities like use of multimedia to challenges student team development, inquiry-based activities with in the class utilizing team learning.

Looking at the review of the researches it can be observed that the effectiveness of multimedia was studied by several researches in teaching of science as well as other disciplines also.

2.5 Conclusion of Review of Related Literature

By studying the above researches gets clear that through studied have been conducted in the field of multimedia especially at higher level in a broad sense. There are many researches which have been conducted to see the effect of different teaching methodology on the achievement of the students. Hence above-mentioned researches were the bases for the present study. All the researches which had been conducted in the field multimedia had shown positive impact on student Achievement student enjoy the learning environment which will enhance the students' capabilities and ability to perform the tasks. The gape which I had found after the review of those studies as mentioned in my report was that very

few studies were studies were conducted in secondary level therefore, I had decided to see the effect of multimedia on IX class. In this chapter many reviews have been given which are directly or indirectly related to present study.

The Behaviorists Theory

According to McLeod, the behaviourist approach is only concerned with observable stimulus-response behaviours, and stated that all behaviours are learned through environmental interaction. Behaviourism emphasizes the role of environment factors in influencing behaviour, to the near exclusion of innate or inherited factors. This amounts essentially to a focus on learning. New things can be learnt through 'learning theory and behaviours, no matter how complex can be reduced to a simple stimulus-response association. Watson described the purpose of psychology as: 'to predict, given the stimulus, what reaction will take place; or, given the reaction, state what the situation or stimulus is that has caused the reaction. This theory is relevant to this study especially to the learning of science which required enablement environment and real-life materials to interact with to reduce the abstract level and to simplify the complexity of the subject.