CHAPTER- II
REVIEW OF RELATED LITERATURE

CHAPTER II
REVIEW OF RELATED LITERATURE

2.0.0 INTRODUCTION

The present chapter includes an overview of previous researches related to present study. Researcher has taken an attempt to careful review the research journals, books dissertations, thesis and other sources of information related to the problem of investigation. Through reviewing the related literature the research knows about the recommendations of the previous researchers listed in their studies for further researches. The overview of the previous researches provides the researcher the background of the problem area. In this process, researcher takes an advantage of the knowledge, which has been already accumulated in the past as a result of constant human endeavor in the form of researches. Review of the related literature allows the researcher to acquaint her with the current knowledge in her area of research. The review of related literature updates the researcher through providing background for understanding latest knowledge on the topic under research. Through the review of previous studies one can have a clear perspective of the problem of the study. Repetition of studies can be avoided through this process. By reviewing the related literature the researcher can avoid the problem areas which have already been done. Through review of related literature the researcher can avoid duplication of research work. The review of related literature enables the researcher to define the limits of her research study. It helps the researcher to delimit and define the problem properly. It helps the investigator with the new understanding and insight which subsequently helps her in proper planning of the study, adopting the suitable methodology, developing tools for data collection and adopting proper techniques for analysis and interpretation of data. The review of related literature gives the researcher an understanding of the research methodology which refers to the way the studies had been conducted. It helps the researcher to know and understand about the tools and instruments used in the previous studies. Through review of related literature the researcher will have an insight into the statistical methods through which validity of result is to be established.

In this chapter, investigator reviewed literature available in the foreign countries as there are very few studies available in the fields of cartoon and comics in India. Researcher has also focused on the studies conducted in the field of joyful learning, various child centered methods, multimedia approach and computer assisted learning which are presented as follow.

2.1.0 REVIEW OF RELATED LITERATURE

The researcher reviewed studies conducted by Gopalakrishnan (1992), Parsons and Smith (1993), Silverstein and Tamir (1993), Wolschke-Bulmahn and Groning (1994), Poohkay and Szabo (1995), Fisch et al. (1997), Rollnick et al. (1997), Witkowski (1997), Das (1998), Patel (1998), Bean, Shannon and Kristen (1999), Keogh and Naylor (1999), Pearce (1999), Solanki (1999), Tomar (1999), Zyoud (1999), Chaudhari (2000), Kharadi (2000), Vyas (2000), Kaptan (2001), Beard and Rhodes (2002), Pandya (2002), Rota and Izquierdo (2003), Kdwai et al. (2004), Jones (2004), Liu (2004), Patel (2004), Biswas (2005), Kabapınar (2005), Perales et al. (2005), Sharma (2005), Cheesman (2006), Gonzalez and Palacios (2006), Dalacosta et al. (2008), Muniran and Yusof (2008), Olson (2008), Song (2008), Patel (2009), Micheal M. van (2011), Mohammad (2011), Jee et al. (2012), in the areas of cartoons and comics, environment education, joyful learning, various child centered methods, multimedia approach and computer assisted learning. Researcher reviewed the related literature in terms of its objectives, sample, design and major findings. The details of the studies reviewed are presented as follow.

Gopalakrishnan (1992) studied the impact of Environment Education on the primary school children. The sample of the study consisted of 1415 children of V standard selected randomly form 30 primary schools, 10 each primary schools randomly selected from Madras, Coimbatore and Nilgiri districts. The tool used for the study was an Environmental Education Test (EET), which was constructed by the investigator. The scores were analyzed under three heads, viz., co relational studies, differential studies and experimental studies. The major findings of the study were that studying Environmental Education had a very good impact on the children and

the participatory learning approach could bring about a better impact on the children of primary school on the learning of environment.

Parsons and Smith (1993) described how commercial comic books can be used to stimulate students' learning. The researcher believed that comics are very suitable for teaching geography and environmental issues. In addition, science fiction comic book was believed to be appropriate for teaching science and technology concepts. Comics can be created and directly used for teaching a specific concept.

Silverstein and Tamir (1993) compared two types of animation in biology teaching; story animations and documentary animations on TV. Results showed that TV broadcasts carrying biological concepts resulted in significant knowledge gains in both form. In addition, it was found that story animation leads to better knowledge gain and attitude but more misconceptions than documentaries. The researchers concluded that perception of visuals does not depend only on the factors related to sight. In other words, the researchers claimed that the students see what they believe which means an innocent eye does no exist.

Wolschke-Bulmahn and Groning (1994) stated that comics can successfully used to attract attention of students in environmental issues. Researchers discussed how comics published in magazines and newspapers could be used in teaching environmental issues to the children. The researchers concluded that children should be educated about nature protection issues with the sense of humor instead of the conscious of mission while teaching through comics.

Poohkay and Szabo (1995) compared animations, still graphics and texts in mathematics skills of drawing triangle on a group of 147 undergraduate students. Results showed that animation group had significantly higher scores than graphics group, and graphics group had higher scores than text groups. In addition, according to attitude scores of three groups, results showed that those animation and graphics groups were equal and higher than text group. They inferred that animations were more appropriate for teaching motivation based concepts.

Fisch et al. (1997) compared educational and non-educational cartoon animations about pre-historic era. Results of this study indicated that children do not distinguish between educational and non-educational cartoon animations with respect to their content. In other words, children think that educational and non-educational cartoons are not different from each other. Actually, they watch educational and non-educational cartoons only for fun, however, they learn from both. Cartoon animations on television contain intentionally or unintentionally some science concepts.

Rollnick et al. (1997) tried to incorporate puppets and comics into primary science lessons. Produced material package included adventures of four comic characters and their puppets. These materials were evaluated by teachers and science educators. The results showed that science educators recognized comics and puppets as supplementary materials rather than main curriculum materials. Also, teachers' philosophy influenced the way of using these materials in the classroom.

Witkowski (1997) explained the reflections about scientific comics created by two famous comic artists Sydney Harris and Nick Downes. According to the researcher comics play an important role in communicating science in public, because humorous events in the comics make science concepts simpler and more familiar.

Das (1998) conducted a study entitled "Exploring effectiveness of computer assisted learning material on rhymes in different modes". The objectives of the study were to develop computer software on rhymes in graphic text, graphic text music, and graphic text with music recitation modes and to study the effectiveness of the different mode of presentation. The findings of the study revealed that the computer as a potential medium significantly contributing to the realization of the objectives and also computer assisted teaching material developed by researcher ensure higher learning in all areas of language development.

Patel (1998) conducted a study on the impact of Trang Ullhasmai Abhyas (TUA) Programme in rural area of Baroda block during 1995-97. The major objective were, (1) to study the extent to which objectives of TUA programme has been achieved, (2) to study the opinion of teachers about implementation of TUA programme. The sample of the study was taken randomly through lottery method. Inquiry forms and

observation were used as tools. The major findings were, (1) the TUA programme had helped to reduce the dropout rate to some extent, (2) at lest 77 percent of the pupil attend the school regularly, which was near to the attendance rate, the TUA programme had helped to increase the average attendance of the students, (3) most of the teacher (95 percent) agreed that the TUA increase self-confidence in the students and creates the joyful atmosphere in the classroom but only 55percent of them believed that the student take interest in teaching learning process with the implementation of TUA programme, (4) it was observed that some of the teacher were not checking the exercise done by the student, and (5) 50 percent of students have achieved the competencies in mathematics, environment and language as per the required norms.

Bean, Shannon and Kristen (1999) examined how students can be engaged through ICT using the multi literacy approach. One of the findings that raise implications for this study is how to engage the children technically, practically and critically to read and develop their understanding so as to communicate effectively. Film and video can be used to bridge popular and classroom culture. In the study, the researchers suggested the need to supplement the reading of print fiction with viewing of films and video. They also suggested the use of popular cultural texts and the new technologies. They also found the importance of a functional, meaning-based meta language that describe knowledge about language, visual and digital meaning that are needed for the comprehension and composition of any traditional text materials or computer-based text material. Working on the project involving primary aged children in the United Kingdom, the researchers suggested a new approach for the teachers. The new approach should involve building pupils experiences of digital literacy in popular culture and encouraging them to make inference between everyday meaning and the school curriculum. They found that the use of digital media in building pupil everyday experiences were stories, comprehension and vocabulary within the pupils popular culture. The ultimate objective of which is to be able to tap into and extend the interest of the pupils by building their literacy understanding in a creative way.

Keogh and Naylor (1999) examined the use of concept cartoons in science lessons. A concept cartoon is a single frame illustration of a case including conflicting ideas. According to the researcher, concept cartoons are beneficial for science teaching, because they create cognitive conflict in students' mind; therefore, they make students ready to accommodate new knowledge. In addition, concept cartoons are also found to be beneficial to gain students' attention. They explained their impressions about the use of concept cartoons from teachers' and students' experiences. Results showed that concept cartoons make students think about their own and others' thoughts. Results also showed that teachers found concept cartoons beneficial in determining, challenging and developing students' ideas. Concept cartoons are not unique form of instructional comics meant for the teaching learning purposes.

Pearce (1999) also reported the results of a survey about animation. According to the result of this survey, over 90 percent of 500 students found animations as effective or extremely effective in teaching/learning process. One of the most popular uses of animation in education is as supplementary material of computer-based instruction. According to the researcher, animation is a great innovation in education to display some important concepts or principles that might not otherwise be able to shown in the classroom. For instance, speeding up naturally slow phenomena or slowing down naturally fast phenomena in animations can be effective on students' understanding.

Solanki (1999) conducted a study on the effectiveness of competency base joyful and activity based text books and training in Shahera District. The major objectives of the study were, (1) to examine the effectiveness of teacher guide and new text of standard I and (2) to examine the effectiveness of training given in the context of the new text book. The sample of the study was randomly selected. Opinionnaire was used as a tool and the study was of survey type. The major findings were, (1) teachers willingly accepted residential training given by DIET, (2) teaching learning process was made successful by preparing the teaching learning material by using the kits supplied by GCERT with the help of teachers, (3) colour box was accepted by students and were used for colour filling in the pictures willingly, (4) all had the opinion that the new text book was useful for multi grade teaching, competency base joyful learning and was able to promote students' as well as teachers' creativity, (5) a combined text book

of language and environment as well as a separate text book of mathematics have been accepted by students, teachers and parents.

Tomar (1999) prepared an intervention instructional material to improve the quality of instruction in the environment science. The major objectives were, (1) to implement the intervention programme and to study its effectiveness on standard IV students in terms of their academic achievement, (2) to study teacher's opinion about the intervention programme implemented by the investigator, (3) to study the opinion of the students of standard IV about the intervention programme. The design of the study was pre-test and post-test control group experimental design. Achievement test, information schedule, and interview were used for data collection. The major findings were, (1) the intervention programme helped the learner to improve their previous academic performance, (2) it also helped them to developed higher cognitive abilities, meta-cognitive abilities, psychomotor skills and some aspects related to effective domain, (3) all the students favoured learning through such intervention programme as it makes use of different teaching strategies, (4) the teachers opined that the intervention programme, on the whole, was effective in terms of students' achievement and self learning. It has also enabled them to involve themselves in learning process with the lot more interest and curiosity.

Zyoud (1999) conducted a study entitled "Development of computer assisted English language teaching for standard VIII students" with the objectives to develop a computer assisted ELT programme for standard VIII Gujarati medium students, to study the effectiveness of computer assisted ELT programme on experiment students' achievement in vocabulary, grammar and comprehension with respect to their intelligent, motivation and attitude. It also studied the attitude of the student towards the usefulness of Computer Assisted ELT programme. The researcher used BASICA language for developing software. The findings of the study were that the developed package helped students in learning vocabulary and grammar but it had no effect on comprehension. Student had the positive attitude towards it.

Chaudhari (2000) conducted a study on the effect of Joyful learning of attendance on class-I students. The major objectives were, (1) to know the effectiveness of joyful learning on enrolment of the students of class-I during the year 1994-97, (2) to know

the effect of joyful learning on the attendance of class-I, and (3) to know the teachers' opinion about joyful learning. The major findings were, (1) 20 percent more increase was observed in enrolment in the year of 1997 in comparison to 1994, (2) 72 percent teachers were of the opinion that joyful learning approach was instrumental in increasing attendance in class I.

Kharadi (2000) conducted a study with the objective to know the opinions of the resource persons regarding Joyful Learning in Bharuch District. Sample of the study was taken on a random sampling method. The openionnaire was used as a tool for the study. The study was conducted by using survey method. The major findings of the study were, (1) positive opinions were obtained regarding the need of joyful learning in terms of interest of the resource persons, training and various activities done; (2) self-made teaching learning materials were not easily made at resource centers, (3) resource persons felt shy to perform easily, during performing art such as drama, and abhinaygeet.

Vyas (2000) conducted a study on the influence of Joyful Learning environment on MLL through Balmitravarga. The major objectives of the study were, (1) to prepare ideal Balmitravarga, (2) to create joyful learning environment through Balmitravarge, (3) to study the effect of joyful learning on students' MLL. The sample of the study consisted the population itself. It was a survey type of study. Openionnaire was used as a tool for the study. The major findings of the study were, (1) retention was effective on account of classroom environment which was made more attractive, joyful and interesting due to decorative rooms, (2) Balmitravarga was useful and interesting due to decorative rooms, (2) Balmitravarga was useful to teachers teaching in multi-grade classrooms, (3) parents were satisfied with the joyful environment of Balmitravarga and began to extend support to school for it's physical needs, (4) according to teachers' opinion student's quality of competencies enhanced due to Balmitravarga.

Kaptan (2001) conduct a study on effectiveness of Cartoon and Comic Based Learning materials for 2nd standard of Environment subject. The objectives of the study were, (1) to design and develop cartoon and comics based learning material for teaching environment to primary students, (2) to study the effectiveness of cartoon

and comics based learning material in terms of the achievement of primary students in environment, (3) to compare the achievement of students taught through cartoon and comics based learning material and traditional learning material i.e. textbook. The findings of the study were that the cartoon and comics based learning material was found effective in increasing the achievement of students in Environment significantly and the said materials was also found significantly more effective in comparison to traditional learning material i.e. text book which showed the importance of joyful learning in the form of Cartoon and Comics Based Learning Materials on students.

Beard and Rhodes (2002) used comics in assessment process. The researchers examined the use of comics as reflective tool in adult learning in M.S. degree outdoor management development program. In this study, the researchers preferred using pre-prepared comics with empty balloons for capturing subjects' reflections. According to the results, comics were a good way of expressing feelings, anxieties, and other emotions which may not surface through traditional techniques. In the literature, it was observed that one of the advantages of comics is about its relationship with reading comprehension.

Pandya (2002) concluded a study on the Effectiveness of Programmed Learning Method as compared to traditional method. The objectives were, (1) to construct programmed learning material for unit “Power and Indices” of standard VI Mathematics, (2) to compare the results of programme learning and traditional learning. The sample of the study was taken purposively. Questionnaire was used as a tool and study was of experimental in nature. The major finding was that programme learning was found to be more effective as compare to traditional in the teaching of Mathematics.

Rota and Izquierdo (2003) created and used comics directly to teach biotechnology concepts in primary school level. They tried to teach biotechnology concepts through the adventures of three comic characters that are a scientist, a girl and a dog. After implementation, it was observed that objectives of the course were reached successfully. According to the researchers, comics were very effective instructional tools, because they combine two very rich forms of cultural expression: the literature and the art. In addition, the researcher states that reading comics is not a passive

activity. Because, while reading a comic story, the reader should fill out the gaps between panels which needs an active thinking.

Kidwai et al. (2004) examined the effects of animation on higher order achievement in a web-based programmed instruction on human heart. When designed and placed properly, the use of animation is found to be an important variable complementing web-based instruction, and it is found to increase overall achievement of students. However, it was also found that higher order achievement is not guaranteed even students have prerequisite knowledge.

Jones (2004) stated that children give up reading books after exposure to traditional school-mandated literature. According to researcher, students those are not willingly read any novels, stories or poems, like to read comic magazines interestingly. It was concluded that comics have save USA from illiteracy as well as streaking comets, alien invasions and exploding stars. According to the researcher, educational authorities obviously does not consider comic books and magazines as serious reading materials; however, comic books are a kind of work of art and literature telling about our world and can be used as reading materials for those readers having a dislike for traditional text books. .

Liu (2004) investigated the role of comic strips in reading comprehension of English learners through an experiment. The results showed that beginner level students receiving high level text with comic strip gained score significantly higher than the students receiving high-level text only. It is a fact that comics are cheap among a variety of instructional media.

Patel (2004) conduct a study on the role of Balmitravarga in learning and achievement of children. The major objectives were, (1) to prepare a test determining representative competencies, (2) to know the difference of achievement if any, between the children availing and not availing Balamitravarga. The sample of the study was selected randomly. The achievement test was used as a tool in the study. The study used survey and relational method. The major findings were that the children who availed themselves of Balamitravarga facility recorded better achievement than those who had not such facility.

Biswas (2005) conducted a study on Educational Television (ETV) programmes (Tarang) at Primary School Level. The research proved that such activity based or Tarang based special programme has great impact on learning. The impact of educational television programmes established the considerable success for making an avoidance of the dry and drab teaching learning process. By collecting information from various schools, the present study reveals that content areas, languages, voice, audio-visuals, teaching methods needs to be great changes to improve quality in primary education.

Kabapınar (2005) examined the effectiveness of concept cartoons in science teaching and learning. The researcher focused on students' misconceptions about science. The results showed that concept cartoon approach is effective in determining and remedying students' misconceptions about science. However, the researcher underlined that the success of this approach is not related to only concept cartoon itself but also classroom discussions used as additional activities.

Perales et al. (2005) examined the use of commercial cartoon animations as an instructional material in physics lesson in secondary school. In this study, some sequences taken from commercial cartoon animations were used for identifying and discussing fictitious phenomena, problem solving, assessment of the learning and increasing motivation and participation. The results showed that showing cartoons in the classroom positively changed students' attitude towards the subject, and it was observed that students' misconceptions show a certain parallelism to those on cartoon animations. According to the researchers, showing cartoons in the classroom can reduce the barrier between the school science and everyday knowledge. In addition to these findings, it was also observed that the analysis of cartoons to identify non-physical events in it, stimulated a critical view about the messages from television in the classroom. To integrate science into society, it should be first ensured how the image of science for the individuals especially for the children.

Sharma (2005) studied the effectiveness of an instructional package in environmental studies among students of standard VII. The research design was single group pre-test and post-test design. Sample consisted of all the students of standard VII (of one

section only) of one school. Tools used were pre-test, post-test and a structured interview schedule with the students. The findings of the study revealed that the instructional package was effective in promoting a better understanding of the environment among the students of VII standard.

Cheesman (2006) explained how to use comic strips found in newspapers and magazines in science classrooms as attention getters and starter for critical thinking. According to this study, comics helped students to focus on lessons and to learn to think in critical way. The researcher also gave some clues for best use of comics. According to the researcher, large and clear comics should be used in the classroom, and comics should be appropriate for age and background of the students.

Gonzalez and Palacios (2006) analyzed the image of science presented in cartoon animations and compared it with the image presented in the comics. In other words, the researchers monitored and analyzed 100 cartoon episodes broadcast in Spanish televisions and compared them with the results obtained from comics. The results showed that, although cartoon animations and comics have some differences, both present a distorted image of science and scientists. For instance, in those media, science is presented as a rigid work including a set of mechanical steps. In addition, in cartoon animations and comics, science is presented as only empirical works in which there are no theories. Also, science is presented as an individualist work which is not performed by groups or teams.

Dalacosta et al. (2008) conducted a research study on the use of animated cartoons in a multimedia application meant to evaluate their effectiveness in supporting teaching and learning in science. The researchers have developed a cartoon-style multimedia application whereas animated cartoons where designed from scratches using appropriate programs. The study was carried out in various elementary schools of Athens and Greece. 179 pupils aged 10–11 years participated as the sample of the study. The research results provide evidence that the use of animated cartoons significantly increases the young students' knowledge and understanding of specific science concepts, which are normally difficult to comprehend and often cause misconceptions to them. It is a fact that children learn much from cartoon animations

on television. For years, various types of this powerful tool have been used in teaching/learning process in formal education.

Muniran and Yusof (2008) on the basis of their study on the use of comics novels, suggested that using comics and graphic novels in schools and libraries to promote literacy among undeveloped children because their dynamic style and presentation with visual storytelling make them more interesting than textbooks and make it possible to deliver heavier content in a simpler way.

Olson (2008) evaluated the use of comic strips in science classroom as a teaching method to promote science literacy. For this study, the researcher created a collection of comic strips about the adventures of two lab rats namely Newton and Copernicus. In this study, these comic strips were implemented in science classes as instructional activities to read, think and discuss. The results showed that comic strips increase students performance only in some specific concepts. In addition, students were perceived comic strips funny and effective in learning. As well as in learning activity, comics can also be used as assessment tool.

Song (2008) investigated in what ways comics can be used as assessment tool in the classroom. The researchers stated that comics can successfully be used as assessment tool in three ways. Firstly, comics can be used to assess students' ideas they brought to classroom. In other words, comics can be implemented to assess myths and misconceptions. A concept cartoon is a good example of this way of use. Secondly, students' learning difficulties can be assessed by comics. For instance, students may be asked to complete blank balloons in a dialog. This provides recognition students learning difficulties for teachers. In addition, comics can be used to assess application students' learning to daily life. For example, students may be asked to make a comic story project about science concepts.

Patel (2009) developed and implemented the CAI to teach English Grammar for VIII standard students in different modes. The main objectives of this study were to develop and to study the effectiveness of CAI material in different modes for teaching of English Grammar. Second objective of the study was to study the effectiveness of developed CAI in terms of the reactions of students. The different modes of CAI used

in the experiment were (a) only CAI, (b) CAI with repetition, and (c) CAI with discussion. The major findings were (a) CAI was found significantly higher achievement than that of the students taught through traditional method. (b) CAI with repetition was found more faithful than the teaching of English grammar with traditional method. (d) Discussion was also found more effective than the teaching of English grammar in traditional method (e) CAI was also found to be effective in terms of the reaction of the students.

Micheal and Van (2011) conducted research on " The use of cartoons as a Teaching Tool to Enhance Student Learning in Economics Education" The researcher conducted an empirical investigation by employing quantitative and qualitative research methods. A survey and interviews were used to investigate the impact of using cartoons as a teaching tool on student learning in Economics education. Different types of economics cartoons were used as a teaching strategy to engage the students in discussion about contemporary economics issues of South Africa. The findings of the study revealed that the cartoon-based teaching and learning strategies which were employed enhanced the students interpretative and communicative skills to great extend. Developing students' ability to interpret the work of cartoonists contributes to a deeper understanding of contemporary economics issues in South African economy. It contributed and served as a learning tool through which students develop an ability to identify bias and formulate opinions.

Mohammad (2011) conducted a research project on effects of Multimedia-based Instructional Cartoons in Students of ZEP schools. This project aimed at the development of a set of pedagogical materials for the primary school curriculum using the cartoon-based story telling approach for students in schools. Students in those schools mainly come from poor families and from families experiencing different types of social problems. Students have difficulties to learn and concentrate in schools and do not have appropriate follow-ups at home. Many of them have problems related to reading, writing and foreign language understanding (English and to extent French). This study was related to the use of animated cartoons in a multimedia application meant to evaluate their effectiveness in supporting teaching and learning in science. The research results provide evidence that the use of animated cartoons

significantly increases the knowledge and understanding of students in specific science concepts.

Jee et al. (2012) conducted a study on "Comic Cognition: Exploring the Potential Cognitive Impacts of Science Comics". In this theoretical article, author draw on researches from cognitive science and education to discuss here to unexplored cognitive impacts of science comics. In the conclusion, the researcher stated that research on the mechanisms of human cognition is leading to a deeper understanding of how the processes of thinking, problem solving, attention, perception, and memory affect learning and have led to effective strategies to enhance learning in educational settings ranging from pre-K-G to adult education environments. They proposed several ways in which learning could be enhanced or impaired through reading science comics and discuss several broader issues related to the use of comic books in education, including individual differences and informal learning.

2.2.0 IMPLICATION OF THE REVIEW FOR THE PRESENT STUDY

As one can see from the review of related literature that most of the studies are related to new method of teaching learning related to different subjects at different levels. In most of the cases their objectives were to provide joyful learning and innovation in instructional material to improve the achievement or interest of the learners. It was found that there was significant impact of child-centered approaches on the achievement and interest of students. Experimental studies have been conducted to study the effectiveness of instructional packages developed by using multimedia and different transactional modalities for the students of different level and few studies are related to the use of cartoon and comics mainly in science subjects. Some of the studies were related to environment education. These instructional packages have been found effective in creating awareness and promoting a better understanding of the subject matter. In most of the studies both the teachers and the students have shown positive attitude towards these instructional packages.

From the reviewed literature, the researcher has found that there has been a great concern regarding the child centered education, multimedia approach and joyful learning as well as development of instructional material to compare the achievement

of students with traditional method. As many researches have been conducted on this aspect, which can be seen from the studies conducted by Das (1998), Patel (1998), Solanki (1999), Tomar (1999), Zyoud (1999), Chaudhari (2000), Kharadi (2000), Vyas (2000), Pandya (2002), Patel (2004), Kdwai et al. (2004), Liu (2004), Biswas (2005), Sharma (2005), Kabapınar (2005) etc. And many researchers have been conducted to see the effectiveness of computer assisted learning material, those researches have been based on CAI, PLM, CALM, CALL, etc. Out of these researches only one research conducted by Das (1998) was found measuring the effectiveness of the CAI presented in different modes and that too was for teaching rhymes at lower standard. The researcher Zyoud, 1999) have been found which were measuring the effectiveness of the CAI in English subject. The study was for teaching English grammar, but it was for the students of Gujarati medium and it was conducted with old syllabus and the then approach of teaching grammar was structural approach. All the studies were found following experimental research following quasi experimental design. Some of the studies mainly conducted abroad was found on cartoon and comics. Some of them conducted research on commercial comic books, puppets and comics, educational and non-educational cartoon and animation were used to check the effectiveness of it with respective to teaching method, material, achieve higher order achievement in different subjects like Mathematics, Science and Language. The study conducted by Parsons and Smith (1993) described how commercial comic books can be used to stimulate students' learning. The study conducted by Parsons and Smith (1993) described how commercial comic books can be used to stimulate students' learning. The study conducted by Poohkay and Szabo (1995) compared animations, still graphics and texts in mathematics skills of drawing triangle on undergraduate students. Results showed that animation group had significantly higher scores than graphics group, and graphics group had higher scores than text groups. The study conducted by Rollnick et al. (1997) tried to incorporate puppets and comics into primary science lessons. The study conducted by Keogh and Naylor (1999) explained their impressions about the use of concept cartoons from teachers' and students' experiences. The study conducted by Rota and Izquierdo (2003) created and used comics directly to teach biotechnology concepts in primary school level. According to the researcher comics are very effective instructional tools, because they combine two very rich forms of cultural expression and the art. Gonzalez and Palacios (2006) monitored and analyzed 100 cartoon episodes broadcast

in Spanish televisions and compared them with the results obtained from comics. Cheesman (2006) explained how to use comic strips found in newspapers and magazines in science classrooms as attention getters and starter for critical thinking. Dalacosta et al. (2008) researched on the use of animated cartoons in a multimedia application meant in supporting teaching and learning in science. The study of Muniran and Yusof (2008) was on comics novels for literacy. Olson (2008) evaluated the use of comic strips in science classroom. The study of Song (2008) was on the use of comics for assessment. Patel (2009) examined the use of CAI to teach in different modes. Micheal and Van (2011) used cartoons as a teaching tool for Economics education. The study by Mohammad (2011) was on the effects of Multimedia-based Instructional Cartoons for knowledge and understanding of students in science. Jee et al. (2012) examined the potential cognitive impacts of science comics.

From the reviewed studies, the studies conducted by Parsons and Smith (1993), Wolschke and Groning (1994), Fisch et al. (1997), Witkowski (1997), Rollnick et al. (1997), Keogh and Naylor (1999), Kaptan (2001), Beard and Rhodes (2002), Rota and Izquierdo (2003), Jones (2004), Liu (2004), Kabapinar (2005), Perales et al. (2005), Gonzalez and Palacios (2006), Cheesman (2006), Dalacosta et al. (2008), Muniran and Yusof (2008), Olson (2008), Song (2008), Micheal and Van (2011), Mohammad (2011) and Jee et al. (2012) were on the use of cartoon and comics for different classes for different subjects in different forms for different purposes like for enhancing achievement, evaluation and for motivating students. In all these studies cartoons and comics in different forms were emerged as a medium which can be used in the process of education. Except the study by Kaptan (2001), all the studies were foreign studies. It can be said that there is a felt research gap found through this review of related literature to conduct studies on the effectiveness of cartoons and comics in India. Hence, the present study is an attempt to undertake a study to examine the effect of Cartoon and Comics based Multimedia Package for teaching Environment to Primary School Students.