

CHAPTER- V
SUMMARY,
SUGGESTION AND
CONCLUSION

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5.0.0 INTRODUCTION

Education is the means, which opens the doors of opportunities for human beings to attain what they hope. In this way, education is not just learning about books, but it is also learning about life. Education makes one know the disparity between right and wrong. It develops positive attitude towards life and gets rid of all worries in mind. It is a powerful tool in the hands of a person to make his/her life better and worth living. Education permits one to comprehend, to think, to question, judge separately, and to be a clever administrator. In addition, it raises one's skill and renews awareness needed to advance and to makes attentive for one's responsibilities. It develops one's awareness by discovering novel things. It offers bright career opportunities. Education aids an individual to draw the best out of his mind. Education of an individual starts with elementary or primary education and ends at any levels according to his/her will, interest and ability. Primary education prepares the foundation structure on which the total education depends. If this foundation structure is strong and solid, the person can take a career easily. The Government, both at centre and at state had taken the responsibility to provide a sound primary education to all the children of the required age. The help of many initiatives are sought in this process of providing primary education including traditional methods as well as highly technological methods considering the psychological and pedagogical aspects of teaching and learning. Introduction of multimedia and the medium of cartoon and comics could be the vital elements in some aspects in this process of universalisation of primary/elementary education.

The entire structure of the educational set up of a nation rests upon the primary education. Primary stage of education is one of the important phases of learning for human being. This is the stage, where children come from an informal setup to a formal setup of learning. This is the stage, where entire growth, development and enrichment of mental as well as physical potentialities of the children take place. Further study of the children also depends upon this stage of education. Considering

the importance of this stage, it is assumed that a proper atmosphere should be provided to the children to make their teaching learning smooth, easy, joyful, and interesting and burden free. But unfortunately, the environment at this stage is not found proper for these children learners, for which there are many problems in the name of dropout, stagnation, low retention, low enrolment, low achievement etc. This can be also called as the cause for the failure in the achievement of universalisation of elementary education even after more than sixty five years of independence. Most of the commissions and committees related to primary education highlighted the similar problems and suggested for better teaching learning environment in the form of joyful learning, learning without burden, child-centered education and many more. In this regard, one of the major concerns is related to the teaching learning material available to these learners. Mostly, traditional teaching learning material occupies the place in most of the subjects, which are not so interested and not joyful to the learners. There is a need of suitable teaching learning materials according to the need of the learners to make them interested and motivated using different modes of presentation. Cartoons and comics are considered as one of such mode, which attract the readers of all age, particularly the young readers and viewers. In forties and fifties attempts had made to use this mode in teaching learning process. Now, with the invention of new technologies, the cartoon and comic mode can be used in the teaching learning. The present study is an attempt in this direction to capture the magic influence of cartoon and comics in a dynamic multimedia form and to test its effectiveness while teaching Environment to primary school students.

5.1.0 IMPLICATION OF THE REVIEW OF RELATED LITERATURE FOR THE PRESENT STUDY

From the review of related 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. 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), Ausman et al. (2004), Liu (2004), Biswas (2005), Sharma (2005), Kabapınar (2005) etc. From the reviewed studies, the studies conducted by Parsons and Smith (1993), Wolschke and Groning

(1994), Fisch et al. (1997), Witkowski (1997), Rollnick (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 Comic based Multimedia Package for teaching Environment to Primary School Students.

5.2.0 RESEARCH QUESTIONS

In the process of formulating the research and studying the related literature the following research questions came in the mind of the researcher. The researcher had try to get the answers of these research question in this research work.

- Whether cartoon and comics can be used as a medium for teaching learning in primary stage?
- Whether teaching through cartoons and comics can enhance the academic achievement of primary school students in environment education?
- Whether the academic achievement of primary school students in environment education due to teaching through cartoon and comics will last longer in comparison to traditional method?

5.3.0 RATIONALE OF THE STUDY

In 1964-66 the Indian Education Commission stressed for vigorous efforts for cent percent primary education by the year 1980. The National Policy on Education (1968) also emphasized the free and compulsory education and the draft The National Policy on Education (1979) sets a target to have the cent percent primary education by the end of Sixth Five Years Plan period. But unfortunately, it was not fulfilled. The National Policy on Education (1986) had fixed the target to be achieved by the end of twentieth century. Elementary education is the foundation of the pyramid of education system, stemming from provisions enshrined in the Directive Principles of State Policy and the 86th Amendment in the Constitution of India. DPEP though in selected districts showed the right path to the states and the union for achieving Universalization of Elementary Education. The Sarva Shiksha Abhiyan (SSA), in the brain child emerged from the success of DPEP and a high profiled programme implemented in the country for Universalization of Elementary Education. It has , has created a tremendous awareness among the masses regarding the importance of elementary education. It has created enthusiasm and vigor among the masses to management school education by themselves. The Panchayati Raj Act added stimuli in this process by empowering the common people to take care of their quality education. SSA has achieved provisioning of basic minimum conditions including physical infrastructure and the requirements of teachers. However, it has yet not been able to achieve the said target and not able to provide good quality education at elementary level to a wide cross-section of children in the country. This is because SSA has not yet addressed systemic reforms with a broad based objective of equalizing opportunities and life chances for all children. Besides, it was lacking in rights approach of techno-pedagogy provided in the process of teaching and learning. At the heart of the issue of quality are the weak teaching processes and transactions between teachers and learners that are neither child-friendly nor adopt child-centred approach to curriculum. The capacity, motivation and accountability of teachers to deliver quality education with significant and measurable improvements in learning outcomes of students need to be critically and urgently addressed. A major achievement in recent years has been the establishment of Constitutional and legal underpinnings for achieving universal elementary education. The Right of Children to Free and Compulsory Education (RTE) Act, 2009, became operative on 1 April 2010.

After this act, there is a strong need to provide quality elementary education by the state and the centre without giving any excuses. Yet, we are far away from this goal, may be due to more dropout rate, and less interested teaching learning methods used in the system. One of the major causes of dropout, low retention, and poor achievement is associated with the process of teaching learning at this stage. There is need to systematize the process of elementary education. Most reliable and valid approaches need to be adopted to get the maximum public support in this process. Teachers and the school administrators need to take their responsibilities and to be accountable for their doing. Quality in elementary education and its achievement is inherently dependent on the following aspects like, (i) curriculum and learning objectives, (ii) learning materials, (iii) techno- pedagogic processes, (iv) classroom assessment frameworks, (v) teacher support in the classrooms, and (vi) school leadership and management development. A new framework for curriculum is needed at regular intervals in order to take cognizance of the developing issues in society and how to address them. There is a need to consider and use the research base available in our research institutions in the teaching learning process. A variety of research based learning packages should be developed at State and district levels, with adequate provision for cluster- and school-level modifications to aid the teacher and provide increased choice. There is a need to introduce teaching learning materials at each and every stage of education which could be attractive and interesting to the learners. So there is a need to research on effective teaching materials using different modes, which may be helpful to make the learners more interested reducing dropout rate and increasing achievement at different stages.

A similar scenario can be seen in the state of Gujarat in terms of achieving Universalization of Elementary Education in spite of being a forward state in terms of industrial development and per capita income. A proper management of the elementary education system is needed at the state level. There is a need of drastic change in the input and process of primary education to make it more effective and quality oriented. There is also a need to reduce dropout and retention and to increase enrolment and achievement. It can be done with help of a tested child centered, play way and joyful learning method using innovative practices and products taking the help of technology. In the present study, the researcher had made an attempt to

improve achievement of students in environment using cartoon and comic based multimedia package.

The subject environment or environment education is one of the very important components of the school education where the child needs a different type of exposure to understand his/her environment around it. Environment is the study of nature and its aim is to help pupils to understand the nearby area in which they have to live and how it came to be, so that they may become responsible citizens. It aims to promote critical thinking and a readiness for social change. The subject of the Environment which deals directly with man and the society in which he lives, carries special responsibility of preparing young children to become well informed, constructive participants in society and capable of developing healthy social relationships. The National Focus Group in National Curriculum Framework (2005) pointed that the Environment carry a normative responsibility to create and widen the popular base for human values, namely freedom, trust, mutual respect, and respect for diversity. Through the discussion of concerns such as, threats to the Environment, caste/class inequality, state repression through an interdisciplinary approach, the textbook should stimulate the child's thought process and creativity. As Primary Education is the base of Education, there is a felt base for having Environment as a subject at this Primary level. Considering the nature of the subject there is strong need to teach this subject with the help of a medium that can be enjoyable to the students and for which their learning would be more fruitful. Therefore, the researcher conducted this present study to test a medium like cartoon and comics in the teaching learning process of Environment subject with the help of multimedia.

Children like a medium, which can provide them with pleasure and fun. Generally, education seldom contains this type of medium. So, there is less interest or disliking and negative attraction of children towards teaching learning process. It is a common phenomenon in the primary classes, which leads to less interest among children. An interesting medium can be created using cartoons and comics, which can motivate and make students interested towards learning. In India comic books are getting popularity among children readers. Comic books are available in the market in many forms based on mythological and other stories like, Ramayana, Mahabharata, imaginary stories like Spiderman, Phantom, Chacha Chaudhari etc. Some publishers are trying to

impart values and morals to the children with the help of comics. Now-a-days, many private educational institutes are using CDs to teach English language in primary classes which are based on cartoon and comic. Indian film industry becomes active to make such movies like, Hanuman, Krishna, Ganesha which inspire small children to know mythological stories. Apart from these, the entry of cartoons and comics to the television media is a significant event in the recent days. Realizing the potentials of this medium, multi-national companies started special programmes and channels for selling entertainment and education to each and every types of viewers. It is available in the channels like, cartoon TNT Network, POGO, Good Morning Disney and Disney Hour of Zee TV, Star Plus, Sony TV and many more. These programmes are so powerful in the form of their picture, action, vision, imagination and contents that language is not considered as a barrier. For the kids, it can be called as language free medium. It can attract many other viewers of different age groups. Hence, it can be said that the use of cartoons and comics are quite popular in our country particularly among children, but only there is a need to provide an educational touch to these cartoons and comics to use it in the field of education. It may help a lot to reduce the rate of dropout, to increase enrollment and in overall to increase the quality of education. Cartoons and comics have their own unique features. A content can be presented either in the form of cartoon or comics. But, whenever it is needed to present the content only in one form either cartoons or comics; there is a need to high-level professionalism on the part of the presenter or the content writer to present the material effectively. But, in the lower standard the children can take more pleasure and can be more interested if both the modes of presentation i.e. cartoon and comics are used to present the material. In the present study the help of both the modes i.e. cartoons and comics were used to develop the materials in a multimedia form. .

Education has always acknowledged versatility and efficiency of multi-media communications. Multimedia is a rapidly evolving technology that is bridging the gap between reality and magic. Multimedia has revolutionized every aspect of life around us and is fast gaining acceptance in the field of education. It is a natural extension of a creative mind. Multimedia package can be presented as an interactive medium to cater all levels of education. These user-friendly packages can be developed that will include a wide variety of animation, graphics and video clippings, etc. The

multimedia package has been developed in the present study using cartoons and comics as the medium to teach environment.

Some related studies have confirmed the need for child centered and activity based learning materials in the form of joyful learning those supports the need for the present study. Researchers conducted by Tomar (1988), Patel (1998), Das (1998), Solanki (1999), Kharadi (2000), Vyas (2000), Pandya (2002), Patel (2004), emphasized on the child centered joyful learning and found the effectiveness of such materials to motivate students for more achievement and a self paced learning environment. Study conducted by Kaptan (2001) found the Cartoon and Comics material effective in comparison to traditional method of teaching Environment to primary school students. Researcher has come across the studies conducted abroad that deal directly with cartoon and comic based instructional material in subjects like Mathematics, English, Science. The studies were conducted by Wolschke-Bulmahn and Gröning (1994), Williams (1995), Poohkay and Szabo (1995), Witkowski (1997), Keogh and Naylor (1999), Beard and Rhodes (2002), Rota and Izquierdo (2003), Perales-Palacios and Vilchez-Gonzalez (2005), Vilchez-Gonzalez and Perales-Palacios (2006). But researcher did not come across more related literature that dealt directly on the effectiveness of any materials based on the multimedia package on cartoons and comics in India. Few cartoon and comic based material are available in market and these are used by teachers in classrooms. But there is no scientific research conducted to check the effectiveness of these materials in teaching learning process. Hence, the present study is an attempt to use cartoons and comics as a medium in the form of multimedia to teach environment education to primary school students. With this rationale the present study is taken with the following research questions in mind.

5.4.0 STATEMENT OF THE PROBLEM

EFFECTIVENESS OF CARTOON AND COMIC BASED MULTIMEDIA PACKAGE FOR TEACHING ENVIRONMENT TO PRIMARY SCHOOL STUDENTS

5.5.0 OBJECTIVES OF THE STUDY

The present study was designed with the following objectives.

1. To design and develop cartoon and comics based multimedia package for teaching environment to primary students.
2. To study the effectiveness of the developed cartoon and comics based multimedia package in terms of the achievement of primary students in environment.
3. To study the delayed effect of developed cartoon and comics based multimedia package in terms of the achievement of the primary students in environment.
4. To study the effectiveness of developed cartoon and comics based multimedia package in terms of the reaction of primary students.

5.6.0 HYPOTHESES

The following null hypotheses were formulated to achieve the said objectives of the proposed study and to be tested at 0.01 level of significance.

1. There will be no significance difference between the mean post-test achievement scores of primary students in Environment studied Environment through cartoon and comics based multimedia package and traditional method.
2. There will be no significance difference between the mean post-test achievement score and mean delayed post-test achievement score of primary students in Environment studied Environment using cartoon and comics based multimedia package.
3. There will be no significance difference between the mean post-test achievement score and mean delayed post-test achievement score of primary students in Environment studied Environment through traditional method.
4. There will be no significance difference between the mean delayed post-test achievement scores in Environment of primary students studied

Environment using Cartoon and Comics Based multimedia package and Traditional method.

5.7.0 OPERATIONAL DEFINITION OF THE TERM

Achievement in Environment: Scores secured in achievement test in environment prepared by the investigator is considered as the achievement of student in environment.

5.8.0 DEFINITION OF THE TERMS

Effectiveness: In the present study effectiveness is defined as the effectiveness of the developed multimedia package in terms of achievement of primary students in Environment and in terms of the reaction of students towards the package. Effectiveness in terms of achievement will be the significant difference between the mean posttest scores of experiment and control group students. Effectiveness in terms of reaction of students will be the overall favourable reaction towards the package.

Cartoon & Comics Based Multimedia Package: It is the multimedia package developed by the researcher with the technical help of eSense Learning Private Limited (Navneet Publication), Ahmedabad for standard III Environment subject using both cartoons and comics in digital medium.

Traditional Approach of Teaching: Teaching by the teacher may be through the combination of lecture method, demonstration method or story telling method using text books used in the as usual day-to-day process of teaching learning.

Primary School Students: In the present study the students studying in the standards from I to VIII will be known as primary school students.

1.15.0 DELIMITATION OF THE STUDY

The present study is delimited to the following aspects.

- The study is delimited to standard III Gujarati medium students of primary sections only.
- The study is delimited to 10 chapters viz. પ્રકરણ-૧ શિસ્ત અને સલામતી, પ્રકરણ-૨ આપણી સંસ્થાઓ, પ્રકરણ-૩ બાદગીત્પાદક, પ્રકરણ-૪ નાનું કુટુંબ-સુખી કુટુંબ, પ્રકરણ-૫ પદાર્થના ગુણધર્મો, પ્રકરણ-૬ સજીવ સૃષ્ટિ, પ્રકરણ-૭ વનસ્પતિ જગત, પ્રકરણ-૮ પ્રાણી જગત, પ્રકરણ-૯ આપણું શરીર, પ્રકરણ-૧૦ હવા ઇકા Environment subject of Standard III following GSEB syllabus only.

5.10.0 METHODOLOGY OF THE STUDY

The present study was experimental in nature. The details of the methodology including the design, population, sample, tools, data collection and the method of data analysis is given as follow.

5.10.1 Design of the Study

The present study was experimental in nature where Quasi-experimental design was used for the present study. The Pretest-Posttest Nonequivalent-Controlled Group Design was followed in this research.

5.10.2 Population of the Study

All the Gujarati medium standard III primary school students of Gujarat State following the curriculum of Gujarat State Education Board, Gandhinagar constituted as the population for the present study.

5.10.3 Sample of the Study

Sample for the present study was selected purposively with the help of convenient sampling considering the convenience criteria i.e. availability of the schools as per the reach of the researcher and the availability of the gadgets to use the cartoon and comics based multimedia package in the class. One school i.e. Utkrash Vidyalaya, a Gujarati medium schools of Baroda city was selected purposively. Students of one section i.e. section A of standard III was considered as experimental group and the students of another section i.e. section B of standard III from the same school was considered as the control group. Initially, there were 30 and 35 students in experimental and control group respectively. On the basis of their pre-test achievement score in Environment, the experimental and control group were made equivalent. In these equivalent groups, 22 students from each group were considered as the sample for the present study.

5.10.4 Tools for Data Collection

The following tool was constructed by the researcher for the purpose of data collection for the present study.

Achievement test: An achievement test was prepared by the investigator to collect data i.e. pre-test, post-test and delayed post-test on ten chapters of the Environment subject of standard III. The achievement test was prepared on the basis of the competencies prepared by the Gujarat State Board of School Textbooks, Gandhinagar. Ten chapters out of 15 chapters were taken for the experimentation. The achievement test was prepared on these taken ten chapters. Weightage of Ten marks was given to each chapter in the achievement test in Environment. The researcher outlined a blue print for the construction of the achievement test in Environment taking into consideration the type and level of questions. The constructed achievement test was shown to the experts. The suggestions of the experts were duly incorporated in the Environment achievement test. The prepared achievement test was administered thrice i.e. pre-test, post- test and delayed post-test on both control group as well as experimental group.

5.10.5 Development of Cartoon and Comic Based Multimedia Package

The present study was conducted in three phases viz. phase I: development of cartoon and comics based multimedia package, phase II: experimentation or the implementation of the developed cartoon and comics based multimedia package and phase III: to see the effectiveness of the developed cartoon and comics based multimedia package. In order to develop a multimedia package, the researcher has followed following stages. The stages are 1. Planning and Analysis of Content 2. Drafting Script and Voice Recording 3. Development of Video Features (Cartoons, Story Boarding and Animation) and lastly Assemble it. After rounds of corrections and reviews and final edits, the package was developed. The developed package was shown to the experts in the field of environment, education, and technology. The suggestions from these subject experts were duly incorporated and the final version of the multimedia package was developed. In second phase the researcher has conduct the pilot study of the multimedia package was done for a week on a group of standard III students. The researcher observed students reaction, asked them few questions to see usability of the package and noted down the problems and errors on the basis of the reaction of the students. On the basis of the feedback and reaction of the students, the package was modified.

5.10.6 Procedure of Data Collection

The required data were collected with the help of the prepared achievement test in Environment. The researcher herself administered these tests personally on control group and experimental group students as follow.

- Pre-test was conducted with the help of achievement test in Environment prepared by researcher in both the groups i.e. control group and experimental group before the experimentation. Pre-testing was done to make the experimental and control groups equivalent.
- Post-test was conducted with the help of the same achievement test in Environment after the completion of the selected ten units of the Environment on both the experimental and control groups. Post -testing was done to know

the effectiveness of the developed cartoon and comics based multimedia package in terms of the achievement of students in Environment.

- Delayed post-test was conducted with the help of the same achievement test in Environment after 30 days of the post-testing on both the experimental and control groups. Delayed post -testing was done to know the delayed effectiveness of the developed cartoon and comics based multimedia package in terms of the achievement of students in Environment.
- The reactions of the students towards the cartoon and comics based multimedia package were collected with the help of discussion with the students after the implementation of the package.

5.10.7 Data Analysis

The collected data obtained through pre-test, post-test and delayed post-test were analyzed by employing quantitative data analysis techniques. Pre-test achievement data related to Environment was used to make control and experimental group equivalent. Mean, Standard Deviation, Standard Error of Mean and Mann-Whitney U-test were used to analyze the quantitative data collected through post-tests and delayed post-tests. The non-parametric Mann Whitney U-test was used to analyze the data as the sample was taken purposively as it is considered as the most powerful non parametric equivalent of t-test of parametric family. Data collected through discussion were analysed qualitatively.

5.11.0 MAJOR FINDINGS

Following were the major findings of the present study.

1. The developed cartoon and comics based multimedia package was found to be significantly effective in terms of enhancing achievement of standard III students in Environment in comparison to the traditional method of teaching.
2. The developed cartoon and comics based multimedia package was not found to be significantly effective in terms of enhancing delayed achievement of standard III students in Environment studied through this multimedia package.

3. The developed cartoon and comics based multimedia package was found to be significantly effective in terms of enhancing delayed achievement of standard III students in Environment those studied through this package in comparison to the delayed achievement of standard III students studied environment through traditional method of teaching.
4. The developed cartoon and comics based multimedia package to teach Environment to standard III students was also found to be effective in terms of the reaction and feelings of students towards the package.

5.12.0 SUGGESTIONS FOR THE FURTHER RESEARCH

Since the present study was delimited to few topics of Environment, the researcher would like to suggest some more topics for the further research.

- The CCBMP can be used with some other modes.
- The full academic year can be cover with the help of CCBMP.
- CCBMP can be made self learning material.
- Much more advanced package can be developed for teaching same or other subjects.
- The effectiveness of the same CCBMP can be tested by taking other variables like communication skill, critical thinking, creative thinking, secondary students, urban area, rural area and gender.
- CCBMP can be prepared using other software like flash, max, 2D, 3D for better clarity and animation.
- Similar study can be conducted for the student of other board like CBSE, ICSE and in English medium too.
- Similar study can be conducted for the secondary or higher secondary class students.
- Qualitative research can be conducted by using similar package.

5.13.0 CONCLUSION

The findings of the present study show that the developed cartoon and comics based multimedia package was more effective than the traditional method of teaching in terms of achievement and delayed achievement of students in Environment. As far as the reactions and feelings of the students were concerned it was found positive and favourable towards the multimedia package. Change is the spice of life and so one of the reasons behind positive and favourable reaction may be the change adopted in teaching – learning process itself. The researcher opines that the students of this level like the cartoon and comics based animation and pictures which might have developed their liking for the developed cartoon and comics based multimedia package. The present study was a humble attempt to explore the potential of an entertainment medium of cartoon and comics in the field of education and learning considering the techno- pedagogic principles of teaching and learning. Parsons and Smith (1993), Wolschke and Groning (1994), Fisch et al. (1997), Witkowski (1997), Rollnick (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. On the basis of the findings of the present study, it can be concluded that the medium has the potential to provide a platform for joyful learning to the primary school students. With the advent of more and more new technologies and considering the magic effect of cartoon and comics, the medium has huge scope for future in the potential areas like, universalization of elementary education, problems of drop out, preparation of quality teaching learning materials for little learners and above and all to enhance the quality of elementary education in the country.