"A Study on Effects of Teaching through Cartoon /Comics and Traditional Method on Learning Outcomes of the Students"

Research Project

Submitted to

State Council of Educational Research & Training (SCERT) Chhattisgarh

Research By

ALOK K SHARMA
BHAUNA CHAUHAN
Assistant Professor, Govt. CTE Raipur

GOVT. COLLEGE OF TEACHER EDUCATION (CTE)
RAIPUR, CHHATTISGARH
2019

शासकीय शिक्षा महाविद्यालय
(सी.टी.ई.) ,रायपुर
छत्तीसगढ़, भारत

GOVERNMENT COLLEGE OF
TEACHER EDUCATION
RAIPUR, CHHATTISGARH

Phone: 0771-2443796; **E-Mail Id**: ctechhattisgrh@gmail.com

CERTIFICATE

This is to certify that **Mr. ALOK K SHARMA** (Assistant Professor) of Govt. CTE Raipur has completed this Research Study titled:

"A Study on Effects of Teaching through Cartoon / Comics and Traditional Method on Learning Outcomes of the Students"

. This Research Study is his original place of work.

Raipur
30th March 2019

(Dr. YOGESH SHEOHARE)
(Joint Director Cadre)
Principal
Govt. College of Teacher Education
Raipur, Chhattisgarh

Acknowledgement

It is important that students participate in the lesson actively and the usage of visual aids can provide more meaningful learning for them by creating better environment. One of these tools is cartoons as students discover fun and enjoyable aspect during teaching-learning process.

Taking advantages of cartoons in education has not been sufficiently preferred today. Cartoon as visual aids motivates the students and creates the opportunity for learning. The function of the cartoons which press firmly on the ground of getting the students to instruct and to think, increases the effect of cartoon in education (Özer,1998).

Cartoon has great importance in terms of education so this is interested **to determine the Effects of Teaching through Cartoon & Comics in comparison to Traditional way of teaching on Learning Outcomes of the Students of primary classes.**

In this respect, the need of this study is to investigate how the usage of cartoon and comics affects on academic achievement of primary school students. **For this purpose, researchers decided to study the following:**

"A Study on Effects of Teaching through Cartoon & Comics to Traditional Method on Learning Outcomes of the Students"

We would like to express our sincere gratitude to **Shri P.Dayanand** (IAS) Director, State Council of Educational Research and Training (SCERT) and **Mrs. Jyoti Chakraborty**, Assistant Professor (SCERT) & Co-coordinator of Research Committee for their kind support and opportunity for the conduct of this research study.

We extend our sincere thanks to **Dr. Yogesh Sheohare**, Principal, Govt. College of Teacher Education (CTE), Raipur for his insightful comments and encouragement for completion of this research project.

We also would like to express our gratitude to **Shri Utpal Kumar Chakraborty**, Senior Faculty member & Assistant Professor (CTE Raipur) for his continuous guidance which enabled us to conduct the present research effectively and writing of this thesis.

We extend our sincere thanks to the **Head Masters & Teachers** of different schools namely **DIET Raipur Practice Primary School**, Shankar Nagar, Raipur; **Primary School, Khamhardih** and **Primary School, Nimora** who gave access to their schools for conducting the research study without their precious support it would not be possible to conduct this research.

Researcher

Raipur

30th March 2019

(ALOK K SHARMA)
Assistant Professor
Govt. College of Teacher Education
Raipur, Chhattisgarh

Executive Summary

It is important that students participate in the lesson actively and the usage of visual aids can provide more meaningful learning for them by creating better environment. One of these tools is cartoons as students discover fun and enjoyable aspect during teaching-learning process. The uses of the cartoon as means of alternative and fun have an importance in terms of supporting to meaningful learning. In this respect, the need of this study is to investigate how the usage of cartoon and comics affects on academic achievement of primary school students. **For this purpose, researchers have decided to study the following:**

"A Study on Effects of Teaching through Cartoon & Comics to Traditional Method on Learning Outcomes of the Students"

OBJECTIVES OF THE STUDY:

i. To measure the learning outcomes (Scholastic achievement) of the students when exposed to traditional method of teaching.

ii. To measure the learning outcomes (Scholastic achievement) of the students when exposed to **Teaching using Cartoon & Comics.**

iii. To compare the learning outcomes (Scholastic achievement) of **Teaching through Cartoon & Comics to Traditional Method.**

iv. To investigate the Teachers' Perception on **Teaching through Cartoon & Comics to Traditional Method.**

RESEARCH QUESTIONS:

I. Will there be significant difference between the experimental group and the control group in the students' learning outcomes (Scholastic achievement).

II. What would be Teachers' perceptions about cartoon based teaching?

Research Design:

In present research, the quasi-experimental design with pre-test/posttest for both experimental and control group was used. This study was applied to students of class 4th in selected different primary schools in Raipur city from which two groups of the students namely experimental group and control group were formed In this study, 04 lessons were chosen (02 each from Hindi & Environment Science subjects) for teaching the children placed in experimental group.

All lessons were converted into form of stories considering the learning outcomes to be acquired by the children. The stories were developed into 04 stages: (i) The introductory and beginning part (ii) The main body of the story (iii) The critical points to be emphasized as per the lesson. (iv) The concluding part or summarization (Central Idea or message)

Findings:

1. **Learning Outcomes of the Students:** The means and standard deviations for scores of students under 'Experimental Group have found 62.97 and 17.22 whereas means and standard deviations for scores of students under 'Control Group have found 40.64 & 18.22 so **the Learning Outcomes of the Students who exposed to Cartoon Based Approach placed under experimental group are found higher than the students who exposed to traditional method of teaching placed under control group.**
2. **Teacher's Perception on Cartoon Based Approach:**

Teacher's Perceptions on Cartoon Based Pedagogical Approach in the classroom have been found through the average of teacher responses which are described below:

2.1 Teachers are 'Agreed' in 55.57 % cases & 'Partially Agreed' in '26.67 % cases; it implies that teachers accept in 82.24 % cases with the suitability of Cartoon Based Pedagogical approach during teaching.

2.2 Teachers are 'Agreed' in 77.32 % cases & 'Partially Agreed' in '21.34 % cases; it implies that teachers accept in 98.66 % cases with the fact that Conducive Learning Environment in Classroom' prevails when children are exposed to Cartoon Based approach

2.3 Teachers are ‘Agreed’ in 58.33 % cases & ‘Partially Agreed’ in 30.00 % cases; it implies that teachers accept in 98.66 % cases with the fact that ‘Logical Thinking & Creativity’ develops in the children during classroom processes when they are exposed to Cartoon Based approach.

2.4 Teachers are ‘Agreed’ in 66.67 % cases & ‘Partially Agreed’ in 28.87 % cases; it implies that teachers accept in 95.54 % cases with the fact that ‘Participation in Teaching-Learning Process’ increases when students are exposed to Cartoon Based approach. they are exposed to Cartoon Based approach.

Researcher

(ALOK K SHARMA)
Assistant Professor
Govt. College of Teacher Education
Raipur, Chhattisgarh

Table of Contents

CHAPTER	DESCRIPTION	PAGE NO.
Chapter I	**Theoretical Frame Work of the Study**	**1-12**
1.0	**Introduction**	**1**
1.1	**Rationale of the Study**	**2**
1.2	**Need and Significance of the Study**	**3**
1.3	**Functional Definition of Terms used in the Research Topic**	**7**
1.4	**Objectives of the Study**	**9**
1.5	**Research Questions**	**9**
1.6	**Delimitations of the Study**	**9**
Chapter II	**Methodology of Research**	**13-33**
2.0	**Introduction**	**13**
2.1	**Design**	**13**
2.2	Description of Treatment (Instructional techniques using Cartoons & Comics) in Experimental Group**:**	**15**
2.3	**Population**	**29**
2.4	**Sample**	**29**
2.5	**Tools**	**30**
2.6	**Procedure of Data Collection**	**32**
2.7	**Techniques of Data Analysis**	**32**

CHAPTER	DESCRIPTION	PAGE NO.
Chapter III	**Analysis and Interpretation of Data**	**34-55**
3.0	**Introduction**	**34**
3.1	Administration of Tools	**34**
3.2	**Analysis as per Research Questions**	**43**
3.3	**Interpretation of Data**	**46**
Chapter IV	**Findings & Conclusions**	**56-63**
4.0	**Introduction**	**56**
4.1	**Findings**	**56**
4.2	**Suggestions**	**60**
4.3	**Conclusion**	**61**
4.4	**Suggestions for Further Research**	**63**
References		**64-65**

Annexure:

1. **Questionnaire on Teachers' Perception about Cartoon Based Approach in teaching.**

Chapter I

Theoretical Frame Work of the Study

1.0 Introduction:

Today, science and technology has changed rapidly and people have tried to keep pace with these changes. The students, who are expected in this swift and mass process, are not the ones who are rote, passive and can respond quickly by using only the shortest way. On the contrary to, the aim of the education is to train the students who participate in the lesson actively and can create alternative ways to solve a problem and can think critically. This situation has led to that new education and training approaches gain importance in our education system.

It is important that students participate in the lesson actively and the usage of visual aids can provide more meaningful learning for them by creating better environment. One of these tools is cartoons as students discover fun and enjoyable aspect during teaching-learning process. Cartoons are the tools that draw students' attention and ensure the continuity of this attention and create a more comfortable learning environment. (Heitzmann,1998). Cartoons are effective tools which are used in teaching, they are funny as well. Cartoons can be easily detected by children. In the process of signification of the cartoons, students first concentrate on the line in the cartoon, then think over every detail, make comments by establishing connection and weave a story in minds putting out the contrast and associations between objects. Thus, the students think in creative and critical manner (Özalp, 2006).

According to Micheal and Wyk (2011), cartoons are methods that can be used to support teaching in class or outside of class. They stated that cartoons might support teaching in constructive learning, contextual learning, social skills, collaborative learning, critical thinking and small group learning.

Cartoons are readily processed by children and adults – they are easy on the eye and easy on the brain". It is generally accepted that most people take in approximately 75-80% of information visually. It seems logical that the visual nature of cartoons would therefore make information processing easier. Learning can be enhanced by the use of cartoons over other visual media as it is usual in this media for visual distractions around the focal point of the image to be reduced, allowing people to concentrate on the issue at hand (Fleischer, 2010). As a teaching strategy, alleged benefits include the promotion of understanding, increased attention and interest, motivation towards learning, improved attitudes, productivity, creativity and divergent thinking (Parrott 1994). Other benefits include decreased academic stress and anxiety, boredom and disruptive behavior (Povell and Andrasea 1985).

1.2 Rationale of the Study:

A great way to reach students in the classroom is by using comics. Using comics can teach a wide variety of standards. At the most basic level, you can use them to look for comprehension skills as well as check their knowledge on main ideas. Cartoons are a great way to differentiate learning abilities as well as vary from the normal kill-and-drill worksheets (Stetson, 2011).

It is important that students discover fun and enjoyable aspect of the course and they participate in the lesson actively and the usage of visual aids that can provide more meaningful learning for them by creating discussion environment. One of these tools is cartoons, too. Cartoons are the tools that draw students' attention and ensure the continuity of this attention, reduce tension and test anxiety and create a more comfortable learning environment.

Heitzmann (1998) defines "the cartoon" is a humour art which takes its essence from drawing and can be created by facilitating the technical possibilities of the visual arts, Uslu (2007) defines as humorous drawing of certain depictions. Cartoons are effective tools which are used in order to teach and advise in addition they are funny.

Cartoons can be easily detected by children. In the process of signification of the cartoons, students first concentrate on the line in the cartoon, then think over every detail, make comments by establishing connection and weave a story in minds putting out the contrast and associations between objects. Thus, the students think in creative and critical manner (Özalp, 2006).

If we want our students to become creative and innovative, we need teaching, learning and assessment strategies which are equally creative and thoughtful. Creating cartoons achieves two goals: it stimulates creativity and makes students locate the organisms they are studying in a medium that they value in their everyday lives (Ross, 2012).

Taking advantages of cartoons in education has not been sufficiently preferred today. However, no tool can make teaching as interesting as a cartoon. So, cartoon visual aids, it motivates the students and creates the opportunity to discussion. Communicating with cartoon is an easy communication which isn't complicated. The function of the cartoons which press firmly on the ground of getting the students to instruct and to think, increases the effect of cartoon in education (Özer,1998).

In this sense, the cartoon has great importance in terms of education so this is interested to determine the Effects of Teaching through Cartoon & Comics in comparison to Traditional way of teaching on Learning Outcomes of the Students of primary classes.

1.3 Need and Significance of the Study:

Excellent and effective teaching demands a host of devices, techniques and strategies not only to achieve cross critical outcomes, but because variety. It has long been accepted that using a variety of teaching styles and training media, is more likely to aid learning than reliance on one style or a limited range of media.

It has long been recognized that keeping it light, simple and using humor are powerful tools to be included in any learning methodology (Fleischer, 2010). One teaching instrument which perhaps is seldom used is the cartoon.

The presentation of ideas in visual form has been proven to be particularly important as it helps the educational process in a critical way (Dalacosta et al.,2009). Many writers have already pointed out the importance of visual communication in the instructive practice (Arnheim, 1969; Barlex & Carré, 1985; Fisher, 1990). Graphical representations have advantages, given that words only have context in the culture of the speakers. Scientists are lost in their own sub-culture based vocabulary. In contrary, the concept that “a picture speaks a thousand words” has been used in numerous settings to communicate educational messages of importance (Srikwan and Jacobsson, 2007). Because a cartoon is a pictorial representation its effectiveness as an educational device is increased. More learning occurs visually than orally. Experienced teachers have seen so-called slow learners or non-academic students gaze intently at pictures, filmstrips, moving pictures, and cartoons. To be used effectively, cartoons must be seen by all. For this purpose the overhead projector, opaque projector or handouts will be found useful (Eulie, 1969).

When the students are given lesson by taking advantage of cartoon, those ones will better understand the fact and especially the knowledge about that subject. (Grünewald, 1979).Cartoons are examined by observing the fine details and then they contain crucial messages which are generated with the way that events are defined by being simplified the details. Therefore, the function of the cartoons which press firmly on the ground of getting the students to instruct and to think, increases the effect of cartoon in education (Özer,1998). In this sense, the cartoon has great importance in terms of education.

The importance of the benefitting from cartoons in the process of education and instruction benefit from cartoons, can be summarized as follows: (Holliday ve Grskovic, 2002; Brummett, 2003)

Students want entertainment during lesson. Cartoon has the power to achieve it through the language of humor. This language of humor learning leads the student to learn. This enables the students to participate more in class without getting bored and will provide the lessons with a fun dimension. Because a positive classroom environment created in the course by smiling is more beneficial than the lesson taught by being used the method of narration.

I. It is effective in terms of learning the skills and abilities of the students. The teachers attract the student's attention and help them to learn the subject by asking question about cartoon drawn in the lesson. In addition, the students develop oral and written skills by examining the cartoon which they draw.
II. Cartoons are important in terms of that the students establish a relationship between the subjects and they contribute learners to develop problem solving skills. Students' perspective for cartoon will be different and it will bring a wealth of ideas. Thus, it will be easier to capture the details from the information.
III. Children's attention span is very limited. The student's attention is quickly distracted in the class and they quickly get bored. Teaching the subjects with cartoons will prevent them from getting bored and will provide the focus on lesson for a long time. At the same time, it will be a significant contribution to like the course.
IV. Cartoon has an important role on motivating the student to the lesson for a long time. When knowledge is being given and their interests decline during lesson, it is effective for focusing on lesson again. This situation will get them to retention.

V. Cartoon makes a positive contribution to the development of the students' thinking and comprehension skills. Therefore, they have a role in the formation of a ready audience as the objectives set are effective in teaching them well.

VI. Cartoon is effective to communicate with the students. It makes the students it easier to memorize the messages related with the goals. It can be mentioned that humour approach is attractive while communicating with the students. Communicating with the cartoon is an easy way that is not complex, there is a side kept in mind.

VII. Education with cartoon has not memorizing. Since cartoons are composed of different, interesting, images and symbols, they remain in the minds of individuals for a long time. As a result, it is easy to remember the knowledge learned.

VIII. Cartoons improve the students' abilities to comment. Students' perspectives for cartoons will be different and interpretations will emerge on the same subject. In addition to this case show the richness and diversity of ideas among students, group discussion and finding the most accurate results together brings.

IX. Drawing cartoon in the classroom will help the students who are interested in cartoon and have the capable for cartoon to emerge.

Therefore, the uses of the cartoon as means of alternative and fun have an importance in terms of supporting to meaningful learning. In this respect, the need of this study is to investigate how the usage of cartoon and comics affects on academic achievement of primary school students.

For this purpose, researchers have decided to study the following:

"A Study on Effects of Teaching through Cartoon & Comics to Traditional Method on Learning Outcomes of the Students"

The following questions will be sought for answer through the research study:

I. What would be the effectiveness of using cartoons & Comics on learning outcomes (Scholastic achievement) of the students?
ii. Will there be significant difference between the experimental group and the control group in the students' learning outcomes (Scholastic achievement).
III. What would be Teachers' Perception about cartoon based teaching?

So the need and significance of this study is to determine effect of cartoons and comics as a teaching tool on student's learning outcomes. For this purpose, achievement of students when exposed to cartoon-based intervention and who follows conventional methods of teaching will be compared.

1.4 Functional Definition of Terms used in the Research Topic:

"A Study on Effects of Teaching through Cartoon / Comics and Traditional Method on Learning Outcomes of the Students"

1.4.1 Effects of Teaching:

It means the factor which contributes to student achievement. Effective teaching helps student learning. ... James (n/d) suggests that "educational evaluation is a professional responsibility for academic staff, arising from a commitment to understanding the effects of teaching on students and to enhance student learning." In present study, the researcher wants to determine the 'Effects of Teaching' using 'Cartoon & Comics' and 'Traditional Method'

1.4.2 Cartoon & Comics:

A cartoon is a type of illustration, possibly animated, typically in a non-realistic or semi-realistic style. A cartoon is a single panel image usually used to convey an idea whereas comic is a story told using sequential panel images. A cartoon can either be a funny drawing on the page, or an animated show on screen. A comic book is a book or magazine (sometimes just called a comic) containing various cartoons and cartoon stories.

In present study, '**Cartoon & Comics'** will be used as a teaching method in the classrooms over other traditional methods of teaching and consequently, the effects of '**Cartoon & Comics'** will be assessed.

1.4.3 Traditional Method:

Here the **'Traditional method of teaching'** means teacher's approaches/traditional method (Instruction activities based on primary school curriculum), when a teacher directs students to learn through traditional method (memorization and recitation techniques) thereby not developing their critical thinking problem solving and decision making skills (Sunal et al 1994)

1.4.4 Learning Outcomes:

'Learning Outcomes' are statements of "What a student should Know, Understand & be able to Demonstrate after completion of a Process of Learning or a result of a learning activity. Learning outcomes are statements which describes a desired condition – that is, the knowledge, skills, or attitudes

1.4.5 Students:

It means the students of Grade 4 (Class 4th) studying at the primary level.

1.5 OBJECTIVES OF THE STUDY:

v. To measure the learning outcomes (Scholastic achievement) of the students when exposed to traditional method of teaching.

vi. To measure the learning outcomes (Scholastic achievement) of the students when exposed to **Teaching using Cartoon & Comics.**

vii. To compare the learning outcomes (Scholastic achievement) of **Teaching through Cartoon & Comics to Traditional Method.**

viii. To investigate the Teachers' Perception on **Teaching through Cartoon & Comics to Traditional Method.**

1.6 RESEARCH QUESTIONS:

III. Will there be significant difference between the experimental group and the control group in the students' learning outcomes (Scholastic achievement).

IV. What would be Teachers' perceptions about cartoon based teaching?

1.7 Delimitations of the Study:

The cartoons and comics which are especially made to help children's characteristic, development of values (responsibility, fairness, trust, sharing, etc.), facilitate the learning and the development of other cognitive skills has quickly increased.

Türkmen (2012) stated that cartoons are a door which opens to imaginary world from the real world and explained that children can fictionalize themselves in this realm freely and meanwhile, they transfer what they learn or see in this world they entered the real life, and it is possible to shape the children and, in a sense, their way of life through the world of cartoons.

Doring (2002) supported the use of cartoons in class and stated that they prevent students' destructive behaviors, ease boredom and the increasing amount of interest and connection, therefore helping build a positive learning environment. However, Doring also stated that using other types of humor and cartoons in classroom has its risks as well as the benefits and warned teachers about not using excessively. Doring added that using cartoons is very useful for eliminating the contradiction between perception and reality because phenomena and events are generally exaggerated to succeed in the explaining.

Use of Cartoons for Various Purposes and Benefits:

According to Micheal and Wyk (2011), cartoons are methods that can be used to support teaching in class or outside of class. They stated that cartoons might support teaching in constructive learning, contextual learning, social skills, collaborative learning, critical thinking and small group learning.

Print media: In print media, a cartoon is an illustration or series of illustrations, usually humorous in intent. This usage dates from 1843, when *Punch*magazine applied the term to satirical drawings in its pages, particularly sketches by John Leech. The first of these parodied the preparatory cartoons for grand historical frescoes in the then-new Palace of Westminster. .

Political Cartoons: Cartoons can be divided into gag cartoons, which include editorial cartoons, and comic strips. Modern single-panel *gag cartoons*, found in newspapers and magazines, generally consist of a single drawing. *Comic strips*, also known as *cartoon strips* in the United Kingdom, are found daily in newspapers worldwide.

Scientific Cartoons: Cartoons found their place in the world of science, mathematics, and technology. Cartoons related to chemistry are, for example, the *Wonderlab*, which looked at daily life in the lab. In the U.S., one well-known cartoonist for these fields is Sidney Harris. Not all, but many of Gary Larson's cartoons have a scientific flavor.

Comic books: Books with cartoons are usually magazine-format "comic books," or occasionally reprints of newspaper cartoons. In Britain in the 1930s adventure magazines became quite popular, especially those published by DC Thomson; the publisher sent observers around the country to talk to students and learn what they wanted to read about

Animation: Because of the stylistic similarities between comic strips and early animated movies, *cartoon* came to refer to animation, and the word *cartoon* is currently used in reference to both animated cartoons and gag cartoons.

While *animation* designates any style of illustrated images seen in rapid succession to give the impression of movement, the word "cartoon" is most often used as a descriptor for television programs and short films aimed at children, possibly featuring anthropomorphized animals, superheroes, the adventures of child protagonists or related themes. In the 1980s, *cartoon* was shortened to *toon*, referring to characters in animated productions. This term was popularized in 1988 by the combined live-action/animated film *Who Framed Roger Rabbit*, followed in 1990 by the animated TV series

It is seen that the benefit perceived from the cartoons differ when related resources and researchers are examined. Cartoons are methods that can be used to support teaching in class or outside of class. It has experienced that cartoons might support teaching in constructive learning, contextual learning, social skills, collaborative learning, critical thinking and small group learning.

We can summarize that Cartoons are being used for various purposes and benefits in different areas like:

- Use of Cartoons for support teaching in constructive learning, contextual learning, social skills, collaborative learning, critical thinking and small group learning.
- Facilitating the students for use of cartoons in class to prevent their destructive behaviors,
- In order to ease boredom and the increasing amount of interest and connection.
- Helping children to build a positive learning environment for them.
- *Using animation* through television programs and short films aimed at children *for entertainment and education purposes.*
- *The learning and the development of other cognitive skills.*
- *To help children's* characteristic, development of values, etc.

The benefit perceived from the use of cartoons are very different in different situations and applying related resources which may be examined through the researches so the scope of researches for the use of cartoons are very elaborated but in present study, the research is delimited to the usage of cartoon and comics up to an extent how it affects on academic achievement of the students studying in primary schools.

So present research is taken and delimited here to Study on Effects of Teaching through Cartoon & Comics to Traditional Method on Learning Outcomes of the Students.

Chapter II

Methodology of Research

2.0 Introduction:

This chapter indicates the line of approach of the study. The first aspect deals with the method, population and sample of the study and second part provides the tools and techniques employed in the research. It also presents the procedure of the study. In this section, the research design used in the study has been described comprising of the study groups, data collection tools, and techniques of data analysis.

2.1 Research Design:

Research design is defined as a framework of methods and techniques chosen by a researcher to combine various components of research in a reasonably logical manner so that the research problem is efficiently handled. It provides insights about "how" to conduct research using a particular methodology. Every researcher has a list of research questions which need to be assessed – this can be done with research design. Kerlinger asserts that research design has two basic purposes: (1) to provide answers to research questions, and (2) to control the variance.

In other words, Research design is a choice of an investigator about the components of the study and development of certain components of the design. The selection of research components is done keeping in view of the objectives of the research. Research hypotheses or research questions also provide the basis for designing a research work. A research design includes the following components :(*a*) Research method or research strategy (*b*) Sampling design. (*c*) Choice of research tools, and (*d*) Choice of statistical techniques.

In present research, the quasi-experimental design with pre-test/posttest for both experimental and control group was used.

As per Cook & Campbell, (1979)' Quasi-experimental research is research that resembles experimental research but is not true experimental research in which the independent variable is manipulated; participants are not randomly assigned to conditions or orders of conditions.

Quasi-experiment is conducted to evaluate the effectiveness of a treatment. In this research, the design "Pre-Test only Non-Equivalent groups design" has been used under **Quasi-experimental research. In this design, both the groups are tested once for the effectiveness of an already inducted practice.**

The design used here is explained below:

Non-Equivalent Groups	Pre Test Scores	Treatment	Post Test Scores
Experimental Group	---	X	O (1)
Control Group	---	---	O (2)

The treatment 'X' referred here in present research is the 'Cartoon Based Pedagogical Approach' so in this research, the experimental group studies with using cartoons while the control group studies with the traditional method of teaching.

The Quasi-Experimental Design used for present research is described specifically below:

Groups	Pre-test	Treatment	Post-test
Experimental Group	---	Instructional techniques using Cartoons & Comics	• Learning Outcome Test • Questionnaire on Perception of using Cartoons & Comics
Control Group	---	Traditional methods	Learning Outcome Test

2.2 Description of Treatment (Instructional techniques using Cartoons & Comics) in Experimental Group:

This study was applied to students of class 4th in selected different primary schools in Raipur city from which two groups of the students namely experimental group and control group were formed. As stated before, **the** experimental group studies with using **Instructional techniques through Cartoons & Comics** while the control group studies with the traditional method of teaching.

The brief Description of Treatment (Instructional techniques using Cartoons & Comics) in Experimental Group is given below:

a) **Selection of Contents:**

The contents were selected from class 4th subject text books on **'Hindi'** and **'Environmental Science'** as described below:

Class	Subject	Lessons Selected
4th Grade	Hindi	Lesson 19- 'Hi MERI CHARPAI'
		Lesson 21- 'CHITRO KI BAAT'
	Environmental Science'	Lesson 20-'TARAH-TARAH KE GHAR'
		Lesson 21-'CHITRO KI BAAT'

b) The Learning Outcomes:

The learning outcomes to be expected and attained from the students after exposing them through the lessons are described below:

Subject: Hindi

Lesson Titled	Broad Learning Outcomes	Specific Learning Outcomes
'Hi MERI CHARPAI'	The name of various festivals, the reason for celebration of the festivals, The 'Holy' festival, Precautions in Holy festival, The information about environment.	• To make aware of thing available in home other than cot just like bench table, chair. • To make connectivity of student with festival from title of lesson. • To let us know about different types of festival. • To tell about importance of celebrating the festival • To Know about mentality of children about Holi festival. • To tell about ways of celebrating Holi festival. • To tell about advantage so disadvantage of Holi festival. • To discuss about Holi festival by linking it with environment, society & family. • To make aware of precautions that should be taken in Holi festival. • To let us know about different phases of various festival, dresses worn & dishes made.
'CHITRO KI BAAT'	Uses of Books, How the book is developed, Safety of Books, Different nature and contents of Books.	**To let children learn about:** • What are books? • Importance of books. • How to keep books safely. • Importance of books in our life. • Information about different types of books. • To let us know about books that is being taught in school. • To give information on science, stories, environment, organism, birds, gardens, river etc.

Subject: Environment Science

Lesson Titled	Broad Learning Outcomes	Specific Learning Outcomes
'TARAH-TARAH KE GHAR'	Types of Houses, Flats, Kuccha & Pukka Ghar, Hut, Bamboo Houses, Igloo House, Materials used in constructing Houses, Uses of Houses etc.	**To give information on:-** • Types of houses- Kutcha house, Pucca house, Hut, Multi-storey building., Bunglows, Igloo, Bambbo house. • Use of houses • To tell about materials used for construction of houses. • Safety measures used in houses. • Information about construction of houses according to areas. • Different workers, labours needed for construction of houses. • Importance of different types of houses. • How to take care of houses. • Purpose of building houses.
'CHITRO KI BAAT'	Understand the Picture of ancient time, The materials used in picture, Places where picture can be developed, Comparison of pictures of early & present age etc.	• To give general information on picture. • To give information obtained from picture. • To give information on festival based picture. • Information on picture of historic & pre historic. • Information on where else picture can be made. • Use to colour in picture. • To give information of making colours from different material. • Comparison of pictures of early & present age. • Importance, Uses & benefits of pictures. • To give information of picture of historic age.

c) Contents Development using Cartoon Based Pedagogical Approach:

As described above, 04 lessons were chosen (02 each from Hindi & Environment Science subjects) for teaching the children placed in experimental group. The experts (teachers) who taught these lessons in the experimental group developed the contents first for using Cartoon Based Pedagogical Approach.

All lessons were converted into form of stories considering the learning outcomes to be acquired by the children. The stories were developed into 04 stages:

(i) The introductory and beginning part
(ii) The main body of the story
(iii) The critical points to be emphasized as per the lesson
(iv) The concluding part or summarization (Central Idea or message)

The stages of the story as described above was developed in the form of Cartoons & Comics under 04 panels, each panel describes the respective stage of the story. The arrows of bubbles are usually placed towards the cartoons who ask the questions and the arrow of bubbles are placed downwards who responds to the questions. The body languages, face expression, funny shapes etc. of the characters are portrayed in the cartoons as per the requirement of the story under different panels.

d) Content Delivery using Cartoon Based Pedagogical Approach:

First of all, different panels containing Cartoon based comic related to particular lesson are sticked to the board in front of students and then they are asked to observe and reflect upon the concepts.

The teacher develops the lesson by allowing children to describe the story using displayed cartoons under 04 panels using different types of questions like thought provoking questions, explanatory questions in the form of conversation. Students are encouraged to prepare different cartoon based pictures with the help of their imagination during the course of delivery of the lesson by giving them sufficient time.

e) How Evaluation is done using Cartoon Based Pedagogical Approach?

Students are asked testing questions in the form of oral and written questions using formative assessment technique during display of cartoons/ pictures.

f) Pre & Post test:

As described earlier, tow groups were formed for conduct of this research study namely:- the experimental group in which **'Instructional techniques through Cartoons & Comics'** used for teaching of selected lessons whereas the **traditional method of teaching** used for teaching in the control group. In both the groups, students were given test (Pre & Post) in Experimental and Control group. The same test was administered for both the group.

Two separate tests were prepared for the study:

i. Test on "Learning Outcomes (Scholastic achievement)" related to students of Class 4th
ii. Questionnaire on students' perceptions about cartoon based teaching.

The details of items included in the questionnaires are given under the heading "Tool" section in Chapter 3.

g) Children Profile of Sample Schools:

The details of schools selected for conducting teaching of children under both the Experimental & Control groups are given under the heading 'Sample' In the Chapter 3. The children admitted to selected schools **(DIET Practicing School, Shankar Nagar & Primary School, Khamhardih)** belong to slum areas situated nearby schools, the parents of these children are mostly laborer class or auto/rickshaw pullers whereas the parents of the children studying in **Primary School, Nimora** are engaged in agriculture or labour work.

h) Sample of Developed Contents (Cartoons & Comics Strip) for Teaching in the Experimental Group:

As stated earlier, the contents were selected from class 4th subject text books on **'Hindi'** and **'Environmental Science'** and total 04 lessons (02 lessons from each subject).

The contents in the form of **Cartoons & Comics Strip** were prepared for all 04 lessons which was used to teach children under Experimental Group. The samples of **Cartoons & Comics Strip** used by the teachers are given in the next pages:

हाय मेरी चारपाई

इतनी ही लकड़ी इकठ्ठा हो पायी, पर झाड़ को पहाड़ जैसा उँचा बनाने के लिए और लकड़ी की जरुरत हो क्या करे?
मेरा सुझाव है, कि घरो से और अन्य लोगो के यहाँ से चारपाई, फाटक मेज-कुर्सी और ऐसा कोई भी सामान बाहर रखा हो उठा लिया जाय। खूसट व गुस्सैल लोगों पर विशेष ध्यान दे।
वाह एकदम सही सुझाव है।
अगले ही पल
ये रहा मन्नेसाव का फाटक
और ये हरीचन्द धुने वाले की सीढ़ी।
ये गंगाप्रसाद की चारपाई
वाह मजा आ गया हुर्रेऽऽ
ढम ढम ढम
सभी होलिका दहन में खूब थिरके।

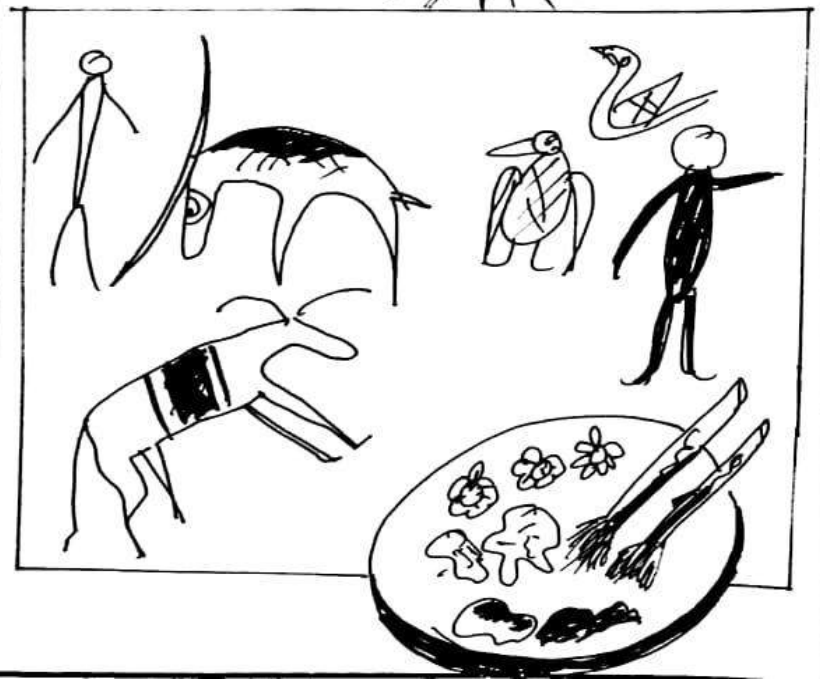
कक्षा - 4 थी
विषय - हिन्दी
पाठ 19 - हाय मेरी चारपाई

चित्रों की बात

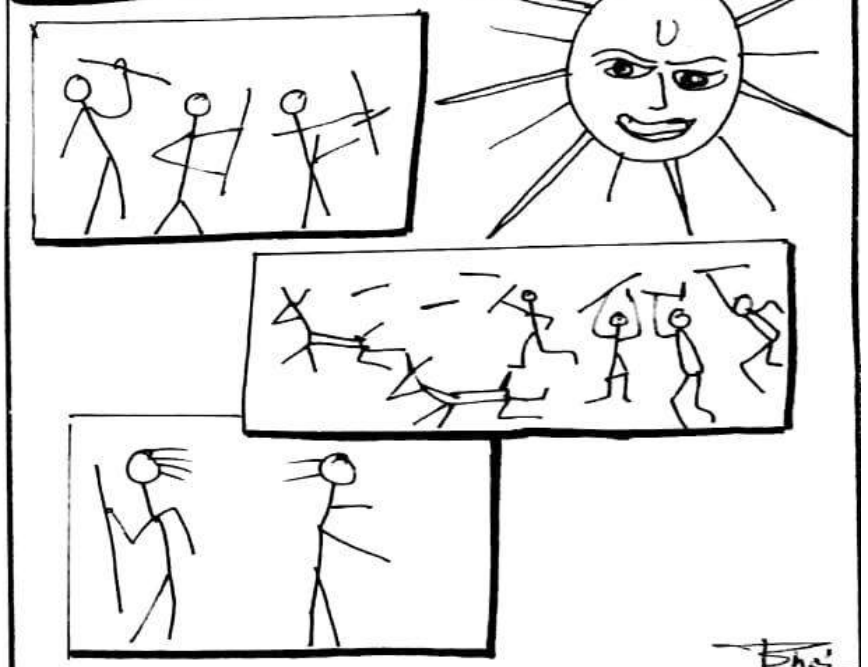
चित्रों को रंगने के लिये रंगीन मिट्टी, फूलों के रंग, रंगीन पत्थर का उपयोग किया जाता था और पेड़ के डाली से ब्रश।

छत्तीसगढ़ के रायगढ़ की कबरा पहाड़ी और सिंघनपुर की गुफाओं में आदि मानव के समय के चित्र मिले हैं।

चित्रों को रंगने के लिये रंगीन मिट्टी, फूलों के रंग, रंगीन पत्थर का उपयोग किया जाता था और पेड़ के डालीसे ब्रश।



छत्तीसगढ़ के रायगढ़ की कबरा पहाड़ी और सिंघनपुर की गुफाओं में आदि मानव के समय के चित्र मिले हैं।



तरह तरह के घर
एक बार सोनू का घर देश भ्रमण के लिये निकला।
आप इतने ऊपर में क्यों बने हैं? मित्र वो भी लकड़ी और बांस के सहारे
सोनू जी यहाँ असम व मेघालय में बारिश अधिक होती है। तथा पानी और कीचड़ से बचने के लिए मैं बांस व लकड़ी से बना हूँ।

कुछ दिन बाद बाम्बे में
आप इतने ऊँचे और विशाल बने हैं राज क्या है? बतलाइए?
बाम्बे में जगह की कमी है। जनसंख्या अधिक है इसलिए बहुत सी मंजिलों से बनी हूँ ताकि कई परिवार रह सके।

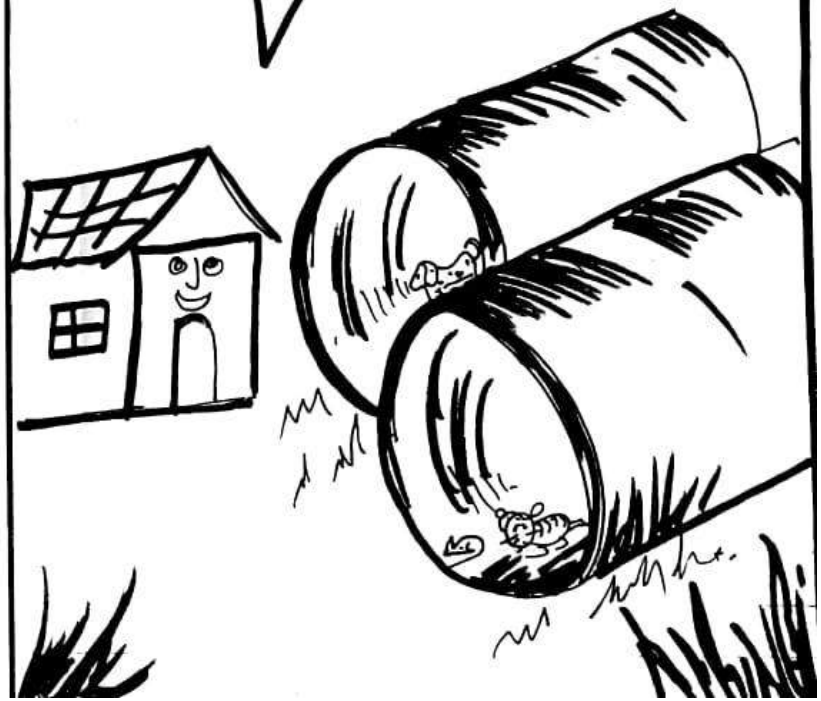
छह महीने बाद कश्मीर में

आप बड़ी विचित्र दिख रही हो कौन हो बताओ?

मेरा नाम "इग्लू" है। मैं बर्फ की सिल्ली से बनी हूँ। बाहर की हवा को अंदर आने से रोकती हूँ। मेरे अंदर रहने वालो को गर्म महसूस कराता हूँ।

घूम कर वापस आते समय

अरे यह एक पाइप है। रहने लायक तो दिख रहा है। क्या इसका घर जैसा उपयोग हो सकता है।



किताबें

किताबें आपके पास रहना चाहती हैं
बातें करना चाहती हैं - बीते जमानों की, इंसानो की, दुनिया की
और फूलों की, बमों की, हार की और जीत की बातें
क्या आप सुनना चाहेंगे?
पुस्तक
किताबों में चिड़िया चहचहाती हैं। खेत लहलहाते हैं
और झरने गुनगुनाते हैं
परियों की कहानी सुनाते हैं

कक्षा - 4
विषय - हिन्दी
पाठ - 22 "किताबें"

2.3 POPULATION:

A research population is generally a large collection of individuals or objects that is the main focus of a scientific query. However, due to the large sizes of populations, researchers often cannot test every individual in the population because it is too expensive and time-consuming.

The group of students studying in class 4th of primary level education is said to be a population for the present study. **The sample has been chosen from this population under** experimental and control group in order to observe the effects of cartoons based pedagogical approach in classroom teaching.

2.4 SAMPLE:

This study was applied to students of class 4th in selected different primary schools from which two groups of the students namely experimental group and control group were formed. The purposive sampling design was followed in the selection of sample. The sample of 94 learners from different primary schools (Class IV) comprised of boys and girls were selected from the Raipur district. The description of sample chosen for the study is given below:

Table 1

The Description of Sample

S.N.	Name of School	Experimental Group			Control Group			Total No. of Students in both the Groups
		Boys	Girls	Total	Boys	Girls	Total	
1	DIET Raipur Practice Primary School, Shankar Nagar	04	11	**15**	04	15	**19**	**34**
2	Primary School, Khamhardih	04	09	**13**	03	07	**10**	**23**
3	Primary School, Nimora	03	06	**09**	04	06	**10**	**19**
Total		**11**	**26**	**37**	**11**	**28**	**39**	**76**

The learners of class IV from different primary schools comprised of boys and girls were randomly placed under experimental group and control group as shown above in the table.

Table 2
(Distribution of Students Located in the Experimental and Control Group)

Group	Boys	Girls	Total
Experimental Group	**11**	**26**	**37**
Control Group	**11**	**28**	**39**

So table 2 tells that there have been 11 boys & 26 girls in the experimental group and 11 boys & 28 girls in the control group during the course of study.

2.5 TOOLS:

Two separate tests were prepared for the study:

1) Test on "Learning Outcomes (Scholastic achievement)" related to students of Class 4th
2) Questionnaire on Teachers' Perception about cartoon based teaching.

(A) **Test on Learning Outcomes (Scholastic achievement)*:***

This test prepared for the purposes the acquisitions of the different units in order to determine academic achievement of the students placed in control and experimental group. While the questions of the academic achievement test were being prepared, the views of assessment experts considered, in the line of these views or try out, test was given final shape after necessary corrections.

Table 3
Details of test on Scholastic Achievement

Class	Subject	Lessons Selected	No. of Questions	
			Pre Test	Post Test
4th Grade	Hindi	Lesson 19- 'Hi MERI CHARPAI'	6	6
		Lesson 21- 'CHITRO KI BAAT'	5	5
	Environ-mental Science	Lesson 20-'TARAH-TARAH KE GHAR'	5	6
		Lesson 21-'CHITRO KI BAAT'	6	6

(B) **Questionnaire on Teachers' Perception on Cartoon Based Teaching.**

Questionnaire was developed for finding out the information on **Teachers' perceptions on Cartoon Based Teaching-Learning Processes.** In this Questionnaire, total 15 items or statement prepared for Teacher's Perception on 04 different areas of 'Teaching-Learning Process as described below in the table:

Name of Tool	Area under which Items Included	Number of Items
Teachers' Perception on Cartoon Based Teaching-Learning Processes.	I. Teaching Pedagogy	03
	II. Conducive Learning Environment in Class	05
	III. Logical Thinking & Creativity	04
	IV. Participation in Teaching-Learning Process	03

2.6 Procedure of Data Collection:

The Quasi-Experimental Design was used for present research. The academic achievement test (Post Test) was applied to a total of 76 students at the 4th grade in primary school under experimental & control groups. The marks obtained by students were compared.

Groups	Pre-test	Post-test
Experimental Group	---	• Learning Outcome Test • Questionnaire on Perception of using Cartoons & Comics
Control Group	---	Learning Outcome Test

In addition to administration of academic achievement test, data was collected through other **Questionnaire on Perception of students** while using Cartoons & Comics instructional approach.

2.7 Techniques of Data Analysis:

Data analysis is the collecting and organizing of data so that a researcher can come to a conclusion. Data analysis allows one to answer research questions, solve problems, and derive important information through the use of various tools.

In present research, the parametric techniques for data analysis have used. The techniques like Mean, Standard Deviation, t-Value / Critical ratio for finding out significant difference between two means have been used to draw inferences from the collected data which are described below:

The statistical techniques used like Mean, Standard Deviation, Critical ratio in present research are described below:

a) Mean:

The *mean* (or average) of a data set is simply the average of all the numbers. Its formula is:

$$M = A + \frac{\sum fu}{N} \times i$$

Where M = Mean
A = Assumed Mean
u = (X-A)/i
i = Class Interval
N = Total Frequency

b) Standard deviation:

The formula for the standard deviation of a data set is

$$SD = i \sqrt{\frac{\sum fu^2}{N} - \left[\frac{\sum fu}{N}\right]^2}$$

Where SD = Standard Deviation
U = (X-A)/i
i = Class Interval
N = Total Frequency

c) Critical Ration:

The formula for the Critical Ratio of a data set is-

$$CR = \frac{M_1 \sim M_2}{\sqrt{\frac{(SD_1)^2}{N_1} + \frac{(SD_2)^2}{N_2}}}$$

Where CR = Critical Ratio
SD_1 = Standard Deviation of 1st Sample
SD_2 = Standard Deviation of 2nd Sample
M_1 = Mean of 1st Sample
M_2 = Mean of 2nd Sample
N_1 = Total Frequency of 1st Sample
N_2 =Standard Deviation of 2nd Sample

Chapter III

Analysis and Interpretation of Data

3.0 Introduction

After administering and scoring research tools, data are collected and organized. The collected data are known as 'raw data', unless certain statistical treatment is given to them. Analysis of data means to make the raw data meaningful or to draw some results from the data after the use of appropriate statistical techniques.

3.1 Administration of Tools:

In present research, two separate tests were used for collecting of research data and drawing inferences.

(a) Analysis of Test on "Learning Outcomes (Scholastic achievement)" related to students of Class 4th :

I. Scores of Students (Experimental Group) in the Test on "Learning Outcomes (Scholastic achievement)"

Cartoon Based Pedagogy (Experimental Group)	
Class	**Frequency**
25-35	3
35-45	2
45-55	7
55-65	9
65-75	6
75-85	5
85-95	5
Total	**37**

II. Scores of Students (Control Group) in the Test on "Learning Outcomes (Scholastic achievement)"

Traditional Teaching Method
(Control Group)

Class	Frequency
0-10	1
10-20	5
20-30	8
30-40	4
40-50	8
50-60	4
60-70	9
Total	**39**

III. Calculation of Mean & SD of the Scores of Students (Experimental Group) in the Test on "Learning Outcomes (Scholastic achievement)"

Cartoon Based Pedagogy (Experimental Group)						
Calculation of Mean & SD						
Class	**f**	**Mid Point (x)**	**d=x-60**	**u**	**fu**	**fu^2**
25-35	3	30	-30	-3	-9	27
35-45	2	40	-20	-2	-4	8
45-55	7	50	-10	-1	-7	7
55-65	9	60	0	0	0	0
65-75	6	70	10	1	6	6
75-85	5	80	20	2	10	20
85-95	5	90	30	3	15	45
Total	**37**				**11**	**113**

We have the following values as per the table above:

N or $\sum f$ = 37

$\sum fu$ = 11

$\sum f u^2$ = 113

(a) Calculation of Mean of the Scores of Students (Experimental Group) in the Test on "Learning Outcomes (Scholastic achievement)"

$$M_1 = A + \frac{\sum fu}{N} \times i$$

$$= 60 + \frac{11}{37} \times i10$$

$$= \mathbf{62.97}$$

(b) Calculation of Standard Deviation of the Scores of Students (Experimental Group) in the Test on "Learning Outcomes (Scholastic achievement)"

$$(SD)_1 = i \sqrt{\frac{\sum fu^2}{N} - \left[\frac{\sum fu}{N}\right]^2}$$

$$= 10 \sqrt{\frac{113}{37} - \left[\frac{11}{37}\right]^2}$$

$$= \mathbf{17.22}$$

IV. Calculation of Mean & SD of the Scores of Students (Control Group) in the Test on "Learning Outcomes (Scholastic achievement)"

Traditional Teaching Method (Control Group)

Calculation of Mean & SD

Class	f	Mid Point (x)	d=x-35	u	fu	fu^2
0-10	1	5	-30	-3	-3	9
10-20	5	15	-20	-2	-10	20
20-30	8	25	-10	-1	-8	8
30-40	4	35	0	0	0	0
40-50	8	45	10	1	8	8
50-60	4	55	20	2	8	16
60-70	9	65	30	3	27	81
Total	**39**				**22**	**142**

We have the following values as per the table above:

N or $\sum f$ = 39

$\sum fu$ = 22

$\sum f u^2$ = 142

(a) Calculation of Mean of the Scores of Students (Control Group) in the Test on "Learning Outcomes (Scholastic achievement)"

$$M_2 = A + \frac{\sum fu}{N} \times i$$

$$= 35 + \frac{22}{39} \times i10$$

= 40.64

(b) Calculation of Standard Deviation of the Scores of Students (Control Group) in the Test on "Learning Outcomes (Scholastic achievement)"

$$(SD)_2 = i \sqrt{\frac{\sum fu^2}{N} - \left[\frac{\sum fu}{N}\right]^2}$$

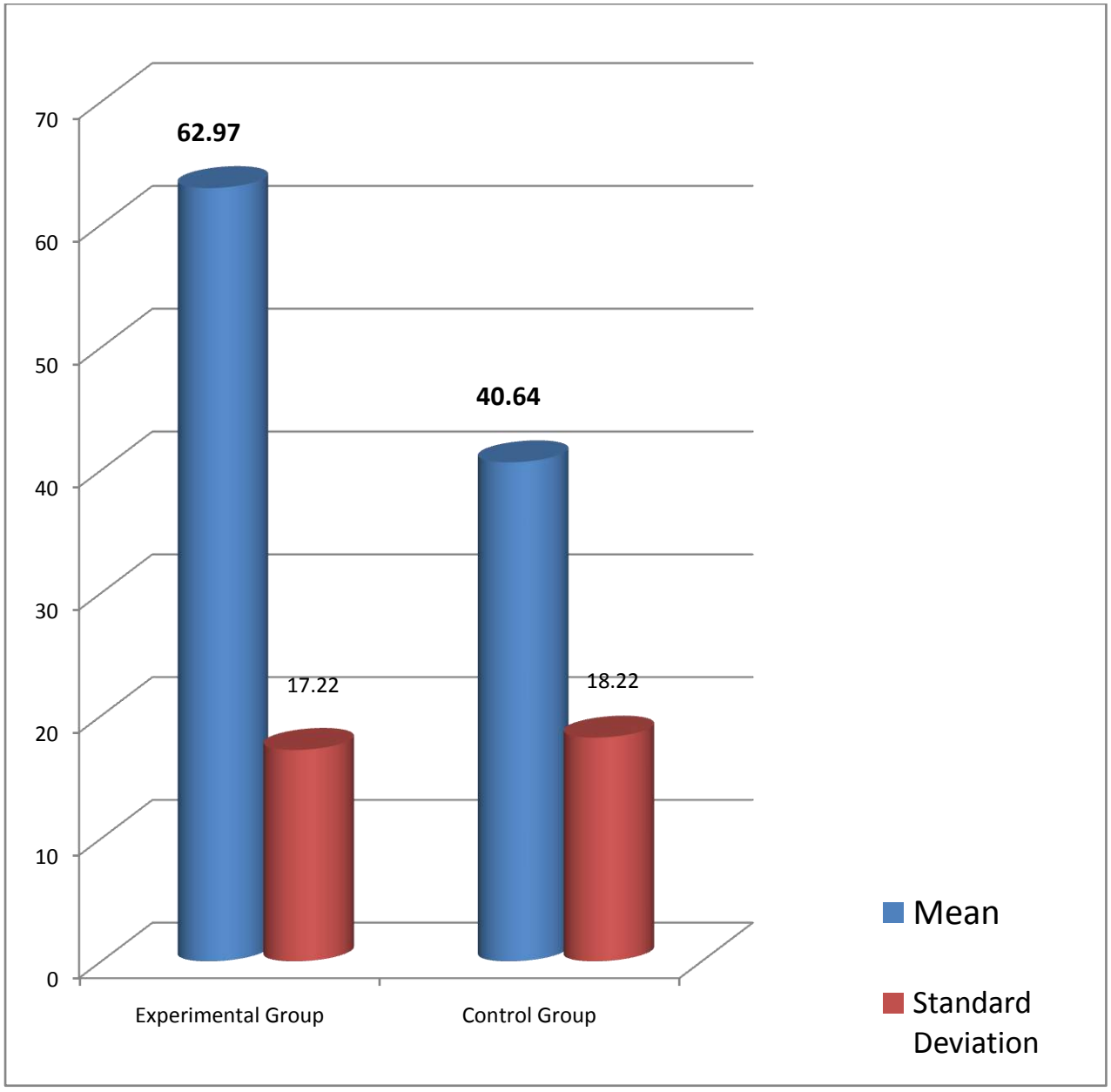
$$= 10 \sqrt{\frac{142}{39} - \left[\frac{22}{39}\right]^2}$$

= 18.22

Graphical Representation of

Means and Standard Deviations for Scores of Students (Experimental Group) and Scores of Students (Control Group) in the

Test on “Learning Outcomes



V. Calculation of Significant Difference between Means of the Scores of Students (Experimental Group) and Scores of Students (Control Group) in the Test on "Learning Outcomes (Scholastic achievement)"

In order to find out the significant difference between the means of Scores of Students (Experimental Group) and Scores of Students (Control Group) in the Test on "Learning Outcomes, the **Critical Ration** have been computed.

(a) Critical Ration: The formula for the Critical Ratio of a data set is-

$$CR = \frac{M_1 \sim M_2}{\sqrt{\frac{(SD_1)^2}{N_1} + \frac{(SD_2)^2}{N_2}}}$$

We have the values of Means and Standard Deviations for Scores of Students (Experimental Group) and Scores of Students (Control Group) in the Test on "Learning Outcomes as described below:

Experimental Group: $M_1 = 62.97$; $SD_1 = 17.22$ & $N_1 = 37$

Control Group: $M_2 = 40.64$; $SD_2 = 18.22$ & $N_1 = 39$

Hence

$$CR = \frac{M_1 \sim M_2}{\sqrt{\frac{(SD_1)^2}{N_1} + \frac{(SD_2)^2}{N_2}}}$$

$$CR = \frac{62.97 \sim 40.64}{\sqrt{\frac{(17.22)^2}{37} + \frac{(18.22)^2}{39}}}$$

= 5.493

(b) Calculation of Degree of Freedom (df)

df = N_1 **+**N_2**- 2 =** 37 **+**39**- 2 = 74**

(b) Questionnaire on Teachers' Perception about cartoon based teaching:

Questionnaire was developed for finding out the information on **Teachers' perceptions on Cartoon Based Teaching-Learning Processes.** This tool was administered on 15 teachers of 03 different schools from where sample was collected. Teacher's Perception on 04 different areas of 'Teaching-Learning Process was determined on the basis of teacher responses on different aspects of teaching-Learning Processes which is as follows:

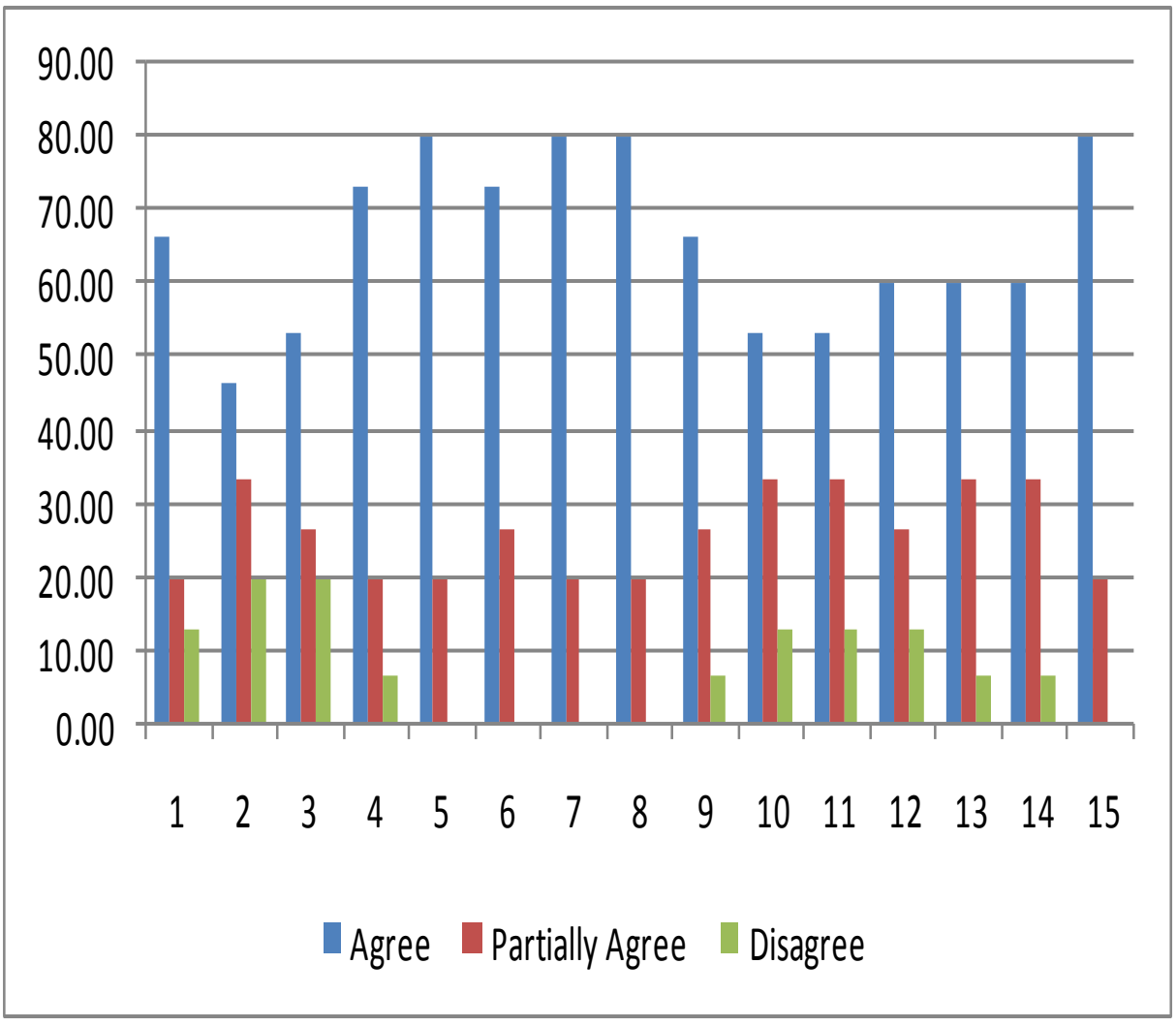
SN	Statement	Teachers' Responses (In %)		
		सहमत	आंशिक सहमत	असहमत
1	कार्टून आधारित विषयवस्तु के अनुप्रयोग से बच्चों की उपलब्धि बेहतर होती है।	66.70	20.00	13.30
2	कार्टून आधारित शिक्षण का प्रयोग अधिकतर विषयों में किया जा सकता है।	46.70	33.30	20.00
3	कार्टून के अनुप्रयोग से शिक्षक को विषय–वस्तु का अध्यापन सरलीकृत रूप में करना संभव होता है।	53.30	26.70	20.00
4	कार्टून के माध्यम से विषयवस्तु की बेहतर समझ संभव है।	73.30	20.00	6.67
5	कार्टून आधारित शिक्षण प्रविधि के प्रयोग से बच्चे विषयवस्तु के अध्ययन में आनंद का अनुभव करते हैं।	80.00	20.00	0.00
6	कार्टून के सीखने में उपयोग से कक्षा का वातावरण धनात्मक होता है।	73.30	26.70	0.00
7	पुस्तक में विषयवस्तु (ज्मगज) उबाऊ होता है जबकि कार्टून/चित्र मजेदार होता है।	80.00	20.00	0.00
8	कार्टून आधारित शिक्षण में बच्चे बहुत अधिक रूचि लेते हैं।	80.00	20.00	0.00
9	बच्चों में कार्टून के माध्यम से शिक्षण करने में अधिक कल्पनाशीलता का विकास होता है।	66.70	26.70	6.67
10	कार्टून के प्रयोग से बच्चों में सृजनात्मकता के विकास हेतु प्रोत्साहन प्राप्त होता है।	53.30	33.30	13.30
11	कार्टून के अधिक प्रयोग से बच्चों का चिंतन उच्चस्तरीय होता है।	53.30	33.30	13.30
12	कार्टून आधारित शिक्षण में समस्या समाधान योग्यता एवं तर्क शक्ति का विकास संभव है।	60.00	26.70	13.30
13	बच्चे अधिक प्रश्न करते हैं जब कार्टून–कामिक्स का शिक्षण में प्रयोग किया जाता है।	60.00	33.30	6.67
14	कार्टून आधारित शिक्षण से बच्चों में सम्प्रेषण कौशल का विकास होता है।	60.00	33.30	6.67
15	कार्टून आधारित शिक्षण में कक्षा में बच्चों की सहभागिता का स्तर उच्चस्तरीय होता है।	80.00	20.00	0.00

.

Statement wise (SN 1 to 15, As Given in Previous Page)

Teachers' Responses on Different Aspects on Cartoon Based Pedagogy

(In Percentage)



3.2 Analysis as per Research Questions:

Research Question 1:

Will there be significant difference between the experimental group and the control group in the students' learning outcomes (Scholastic achievement)?

Analysis of Research Question 1:

In order to respond to **Research Question 1,** the Significant Difference between Means of the Scores of Students (Experimental Group) and Scores of Students (Control Group) in the Test on "Learning Outcomes (Scholastic achievement)" have been calculated by using the statistical technique "Critical Ratio'. The computational valises are as follows:

Means and Standard Deviations for Scores of Students (Experimental Group) and Scores of Students (Control Group) in the Test on "Learning Outcomes

Group	Experimental Group	Control Group	Critical Ratio
Mean	62.97	40.64	
Standard Deviation	17.22	18.22	**5.493**

The calculated value of Critical Value is 5.493 which greater than the table value of t-test i.e. 3.373 at 74 degree of freedom

So it is concluded that there is significant difference between the experimental group and the control group in the students' learning outcomes (Scholastic achievement).

Research Question 2: What would be Teachers' Perception about cartoon based teaching-Learning Approach?

Analysis of Research Question 2:

As stated earlier, Teacher's Perception on 04 different areas of 'Teaching-Learning Process was determined on the basis of teacher responses on different aspects of **Teaching-Learning Processes** namely:

1. Teaching Pedagogy
2. Conducive Learning Environment in Classroom
3. Logical Thinking & Creativity
4. Participation in Teaching-Learning Processes

The analysis of Teacher responses on their Perception on different aspects regarding Cartoon Based Teaching-Learning Approach are described below:

1) Teachers Responses on the aspect 'Teaching Pedagogy' regarding Cartoon Based Approach:

SN	Statement	Teachers' Responses (In %)		
		सहमत	आंशिक सहमत	असहमत
1	कार्टून आधारित विषयवस्तु के अनुप्रयोग से बच्चों की उपलब्धि बेहतर होती है।	66.70	20.00	13.30
2	कार्टून आधारित शिक्षण का प्रयोग अधिकतर विषयों में किया जा सकता है।	46.70	33.30	20.00
3	कार्टून के अनुप्रयोग से शिक्षक को विषय–वस्तु का अध्यापन सरलीकृत रूप में करना संभव होता है।	53.30	26.70	20.00
Average Responses on Teaching Pedagogy		**55.57**	**26.67**	**17.77**

2) Teachers Responses on the aspect 'Conducive Learning Environment in Classroom' regarding Cartoon Based approach

SN	Statement	Teachers' Responses (In %)		
		सहमत	आंशिक सहमत	असहमत
1	कार्टून के माध्यम से विषयवस्तु की बेहतर समझ संभव है।	73.30	20.00	6.67
2	कार्टून आधारित शिक्षण प्रविधि के प्रयोग से बच्चे विषयवस्तु के अध्ययन में आनंद का अनुभव करते हैं।	80.00	20.00	0.00
3	कार्टून के सीखने में उपयोग से कक्षा का वातावरण धनात्मक होता है।	73.30	26.70	0.00
4	पुस्तक में विषयवस्तु (ज्मगज) उबाऊ होता है जबकि कार्टून/चित्र मजेदार होता है।	80.00	20.00	0.00
5	कार्टून आधारित शिक्षण में बच्चे बहुत अधिक रूचि लेते हैं।	80.00	20.00	0.00
Average Responses on Conducive Learning Environment in Class (In %)		**77.32**	**21.34**	**1.33**

3) Teachers Responses on the aspect 'Logical Thinking & Creativity' regarding Cartoon Based approach

SN	Statement	Teachers' Response (In %)		
		सहमत	आंशिक सहमत	असहमत
1	बच्चों में कार्टून के माध्यम से शिक्षण करने में अधिक कल्पनाशीलता का विकास होता है।	66.70	26.70	6.67
2	कार्टून के प्रयोग से बच्चों में सृजनात्मकता के विकास हेतु प्रोत्साहन प्राप्त होता है।	53.30	33.30	13.30
3	कार्टून के अधिक प्रयोग से बच्चों का चिंतन उच्चस्तरीय होता है।	53.30	33.30	13.30
4	कार्टून आधारित शिक्षण में समस्या समाधान योग्यता एवं तर्क शक्ति का विकास संभव है।	60.00	26.70	13.30
Average Responses on Logical Thinking & Creativity (In %)		**58.33**	**30.00**	**11.64**

4) Teachers Responses on the aspect 'Participation in Teaching-Learning Process' regarding Cartoon Based approach

SN	Statement	Teachers' Responses (In %)		
		सहमत	आंशिक सहमत	असहमत
1	बच्चे अधिक प्रश्न करते हैं जब कार्टून–कामिक्स का शिक्षण में प्रयोग किया जाता है।	60.00	33.30	6.67
2	कार्टून आधारित शिक्षण से बच्चों में सम्प्रेषण कौशल का विकास होता है।	60.00	33.30	6.67
3	कार्टून आधारित शिक्षण में कक्षा में बच्चों की सहभागिता का स्तर उच्चस्तरीय होता है।	80.00	20.00	0.00
Average Responses on 'Participation in Teaching-Learning Process' (In %)		**66.67**	**28.87**	**4.45**

3.3 Interpretation of Data:

(a) With Reference to Research Question 1:

The Significant Difference between Means of the Scores of Students (Experimental Group) and Scores of Students (Control Group) in the Test on "Learning Outcomes (Scholastic achievement)" have been calculated by using the statistical technique "Critical Ratio'. The calculated value of Critical Value is 5.493 which greater than the table value of t-test i.e. 3.373 at 74 degree of freedom

It means there is significant difference between the experimental group and the control group in the students' learning outcomes (Scholastic achievement).

So it can be interpreted that Learning Outcomes of the Students who exposed to Cartoon Based Approach placed under experimental group are found higher than the students who exposed to traditional method of teaching placed under control group.

(b) With Reference to Research Question 2:

The Teacher's Perception on 04 different areas of 'Teaching-Learning Process was determined on the basis of teacher responses on different aspects of **Teaching-Learning Processes**. The findings are as follows:

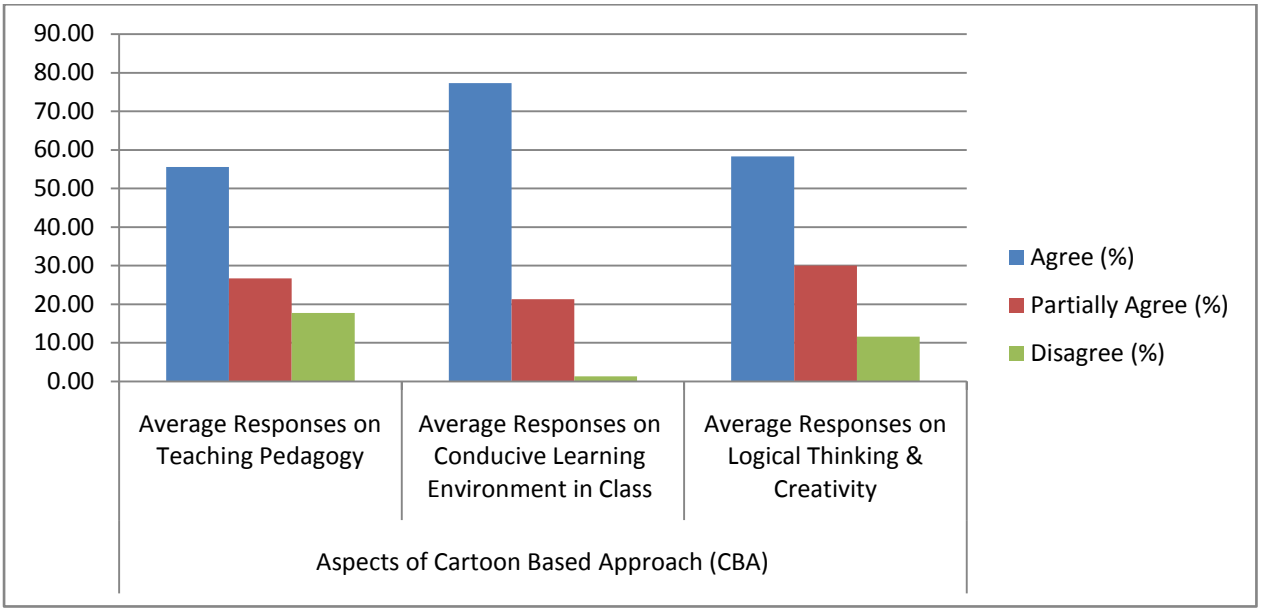
SN	Teacher's Perception on 04 different areas of Teaching-Learning Process	Teacher Average Responses (In %)		
		Agree	Partially Agree	Disagree
1	Average Responses on Teaching Pedagogy	55.57	26.67	17.77
2	Average Responses on Conducive Learning Environment in	77.32	21.34	1.33
3	Average Responses on Logical Thinking & Creativity	58.33	30.00	11.64
4	Average Responses on 'Participation in Teaching-Learning	66.67	28.87	4.45

Teacher's Perception on 04 different areas of Teaching-Learning Process was calculated. On the basis of calculation, researchers found that:

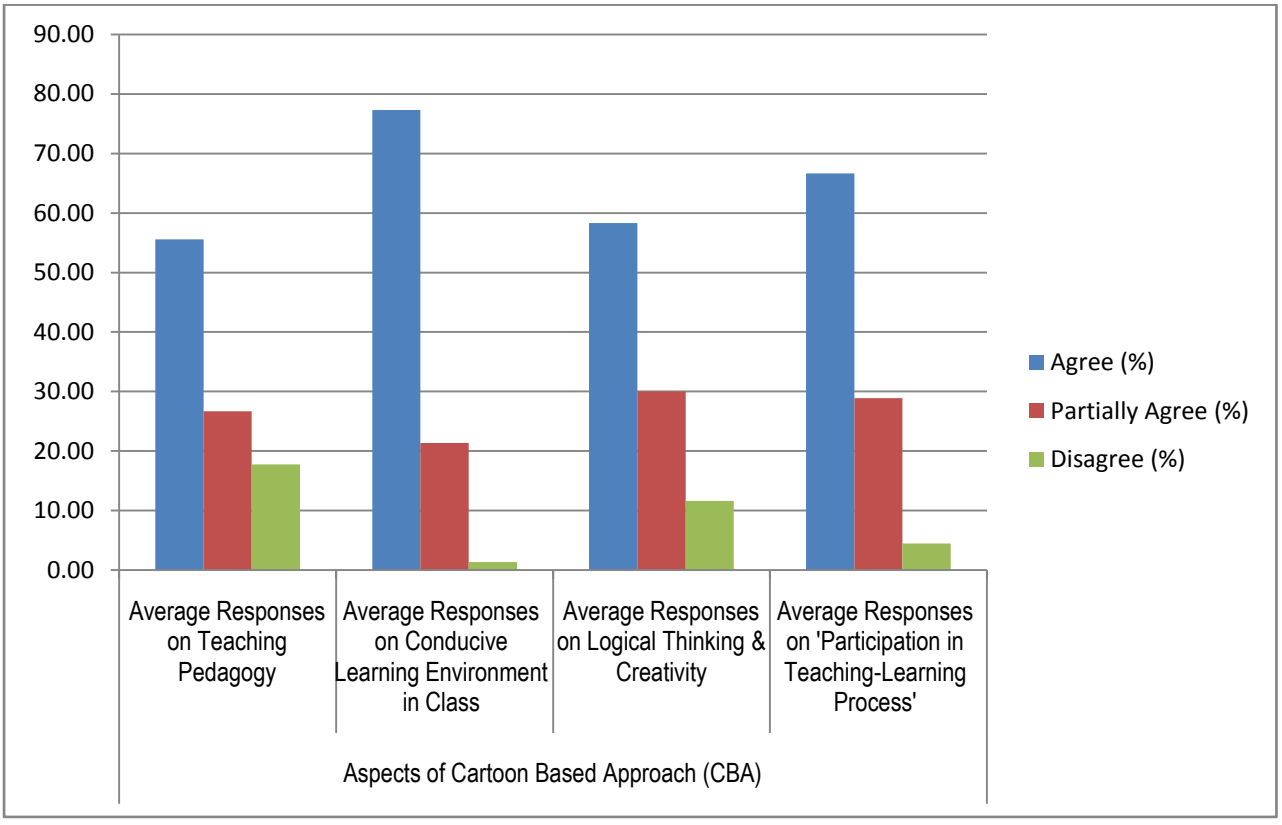
1) Teachers are agreed in **82.24 %** cases with the **suitability of Cartoon Based Pedagogical approach** during teaching.
2) Teachers are agreed in **98.66 %** cases with the fact that **Conducive Learning Environment in Classroom'** prevails when students are exposed to Cartoon Based approach
3) Teachers are agreed in **98.66 %** cases with the fact that '**Logical Thinking & Creativity'** develops in the students during classroom processes when students are exposed to Cartoon Based approach.
4) Teachers are agreed in **95.54** % cases with the fact '**Participation in Teaching-Learning Process'** increases when students are exposed to Cartoon Based approach.

Graphical Representation of Teacher Responses on Different Aspects of Cartoon Based Approach (CBA)

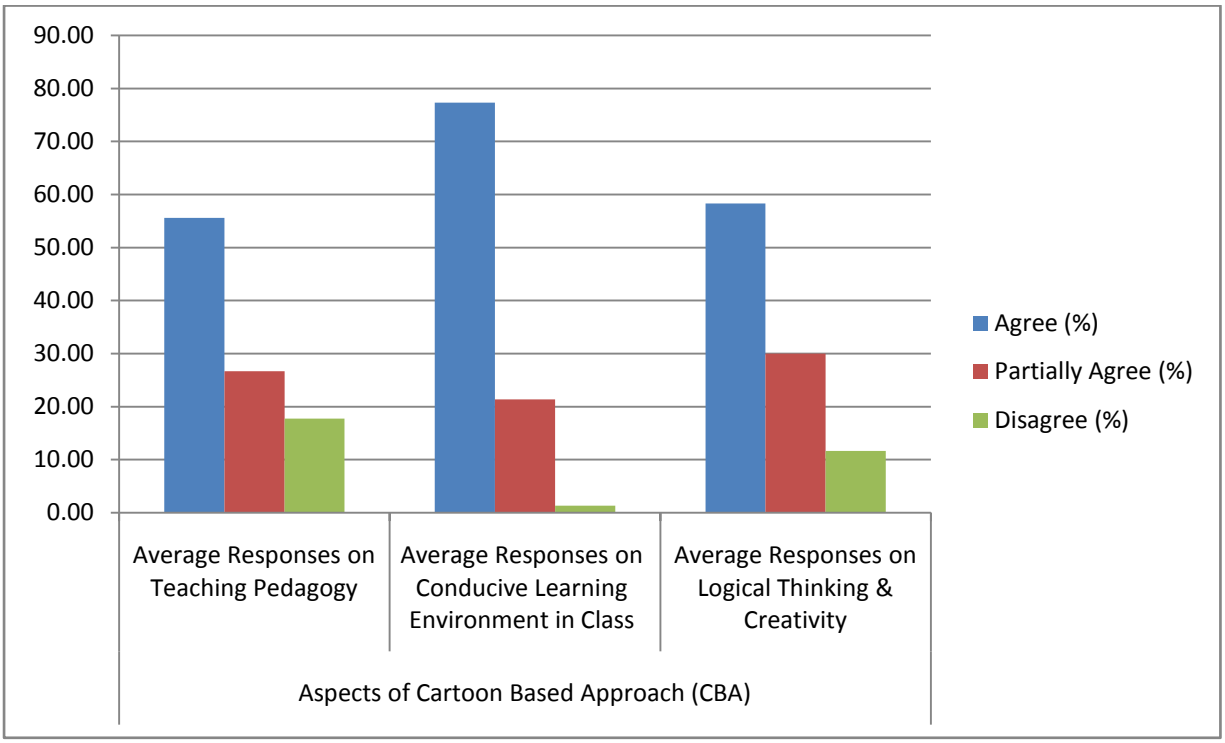
(a) Teachers Responses on the aspect 'Teaching Pedagogy' regarding Cartoon Based Approach:



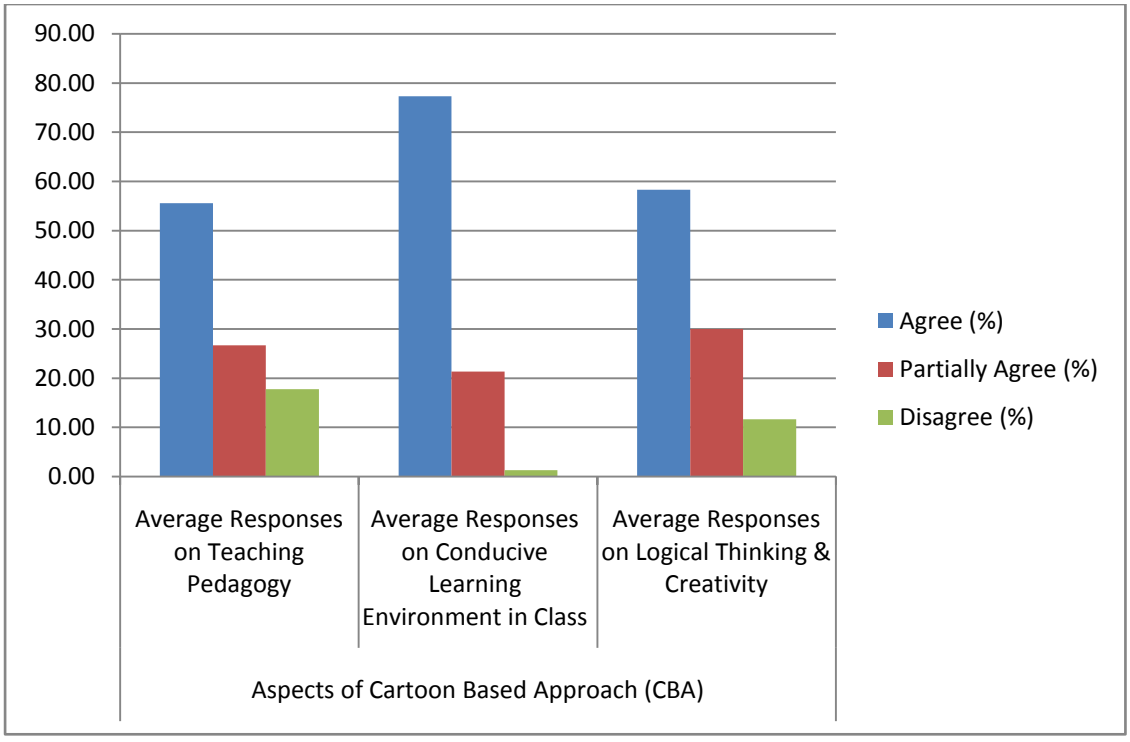
b) Teachers Responses on the aspect 'Conducive Learning Environment in Classroom' regarding Cartoon Based approach



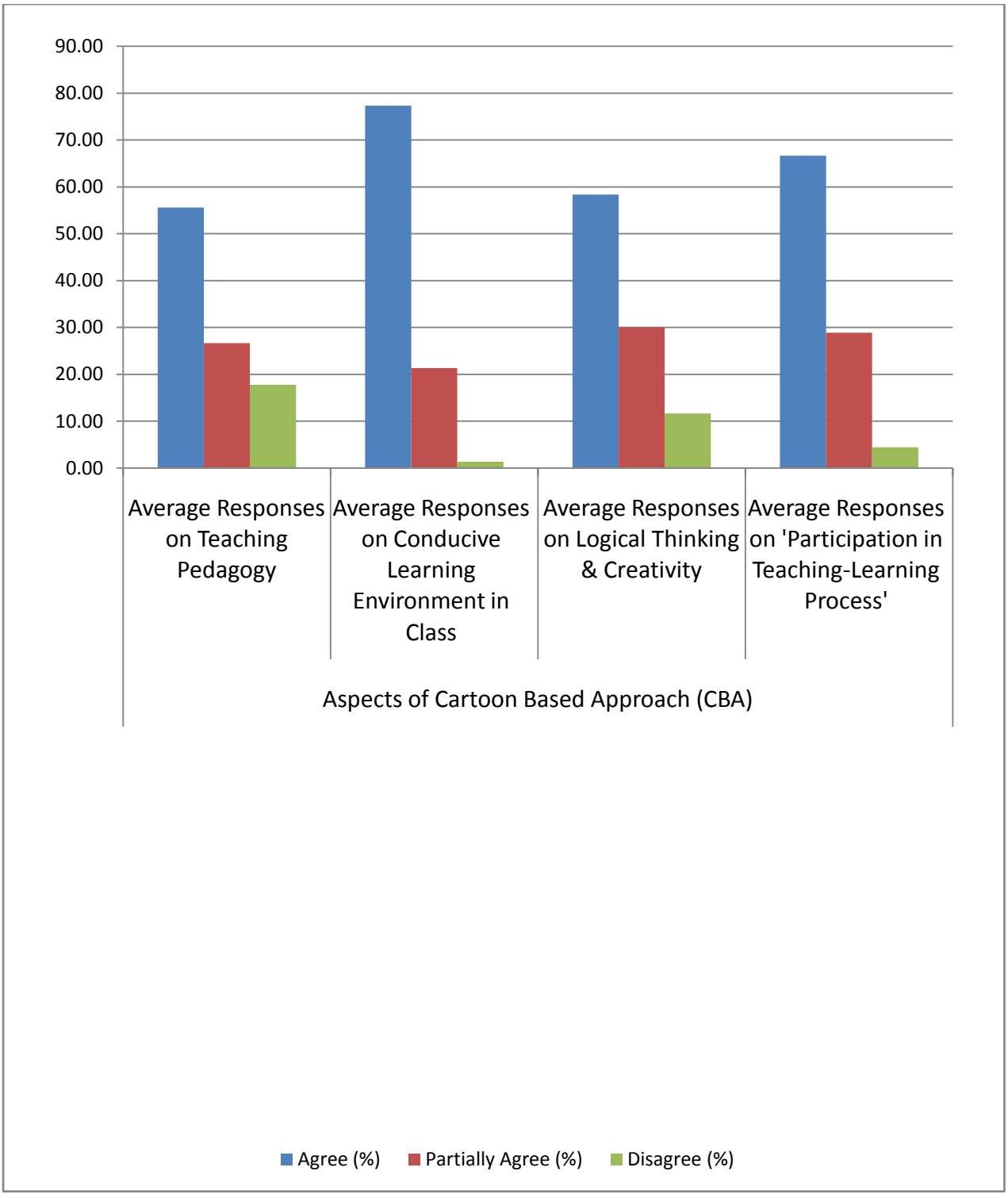
c) Teachers Responses on the aspect 'Logical Thinking & Creativity' regarding Cartoon Based approach



d) Teachers Responses on the aspect 'Participation in Teaching-Learning Process' regarding Cartoon Based approach

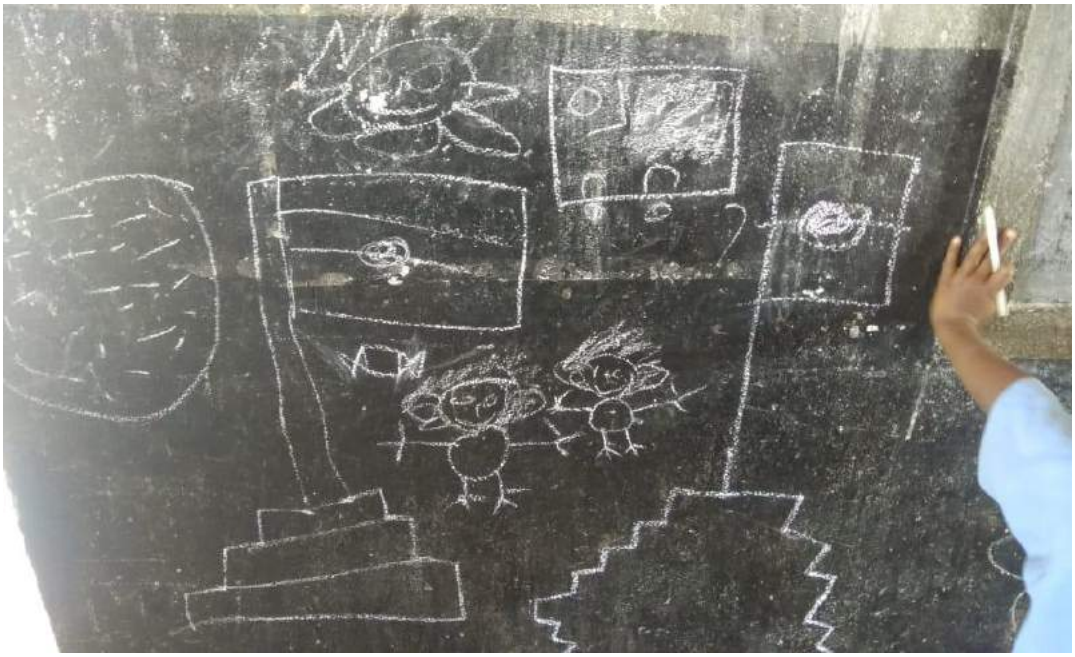


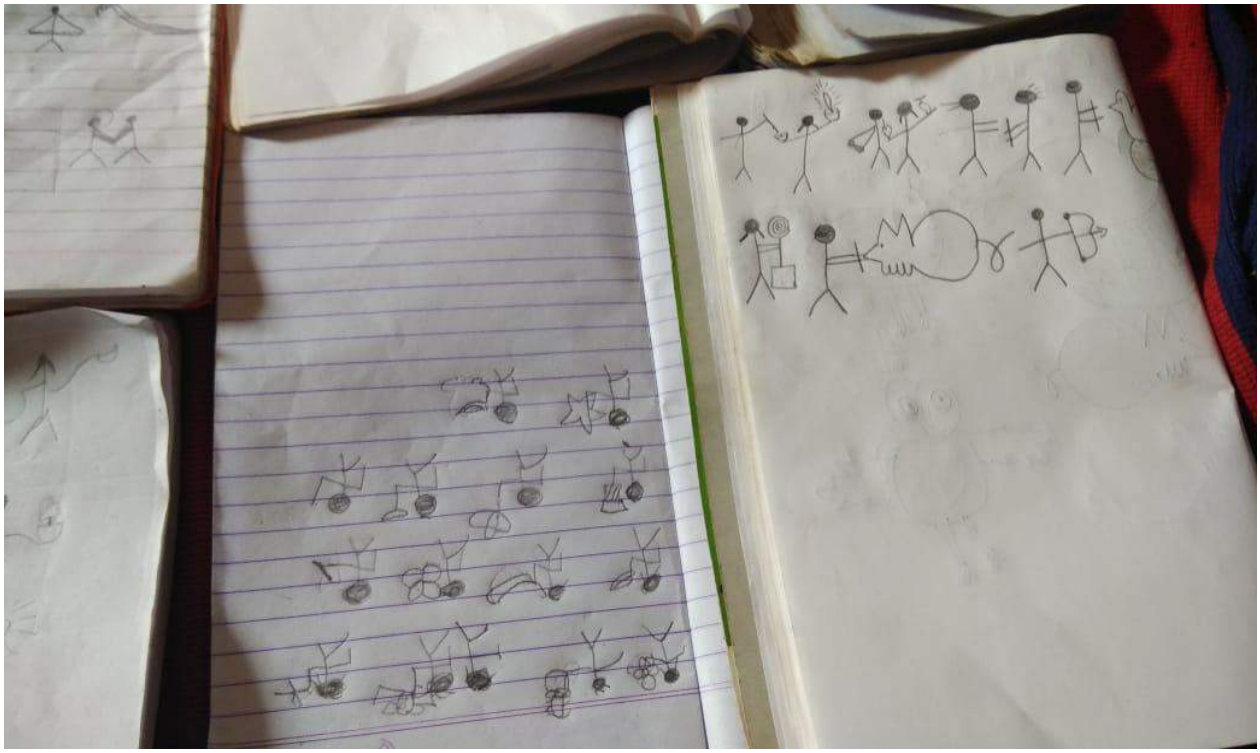
e) Graphical Representation of Teacher Responses on Different Aspects of Cartoon Based Approach (CBA)



Evidences (Photographs, Students' Work etc.)

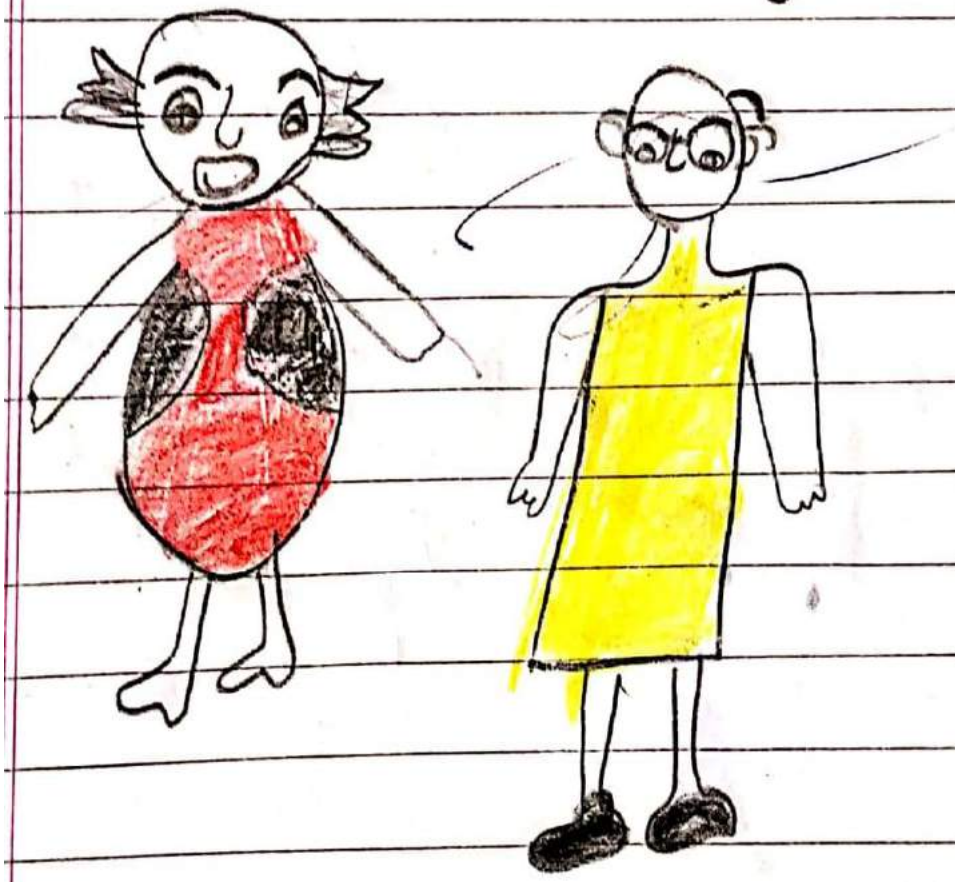
[Teaching through Cartoons Based Approach with the Students
Under Experimental Group]





Date : / /

मोटा अंग पातलू



नोविता

Ranjeet Bharwari

Chapter IV

Findings & Conclusions

4.0 Introduction:

This chapter describes the creative and reflective aspect of the research. The findings of the research study are discussed here to make them more meaningful and to clarify the points being reported. In this chapter of a report, the findings of the study are summarized and suggestions for the further studies are also given. The implications and delimitations of the findings are also mentioned in this section. The main thrust in the section is to provide solution of the research problem which is being reported through current research.

4.1 Findings:

In present study, the objective of research was to investigate the usage of cartoon and comics up to an extent how it affects on academic achievement of the students studying in primary schools so present research was taken and delimited to **Study on Effects of Teaching through Cartoon & Comics to Traditional Method on Learning Outcomes of the Students.**

This study was applied to students of class 4th in selected different primary schools from which two groups of the students were formed, the first group was experimental group used **Instructional techniques through Cartoons & Comics** while the second group was control group that used traditional method of teaching. In the research study, the Learning Outcomes (Scholastic achievement)" related to students of Class 4th from both the groups and Teachers' Perception about cartoon based teaching approach were calculated.

The findings of the present research study found are as described below:

3. **Learning Outcomes of the Students:**

The means and standard deviations for scores of students under 'Experimental Group have found 62.97 and 17.22 whereas means and standard deviations for scores of students under 'Control Group have found 40.64 & 18.22 so **the Learning Outcomes of the Students who exposed to Cartoon Based Approach placed under experimental group are found higher than the students who exposed to traditional method of teaching placed under control group.**

4. Teacher's Perception on Cartoon Based Approach:

Teacher's Perceptions on **Cartoon Based Pedagogical Approach in the classroom have been found through the average of teacher responses which are described below:**

2.5 Teachers are 'Agreed' in 55.57 % cases & 'Partially Agreed' in '26.67 % cases; it implies that teachers accept in 82.24 % cases with the suitability of Cartoon Based Pedagogical approach during teaching.

2.5.1 Teachers are 'Agreed' in 66.7 % cases & 'Partially Agreed' in 20.00 % cases; it implies that **teachers accept in 86.7 % cases that Children achievement is better** when using Cartoon Based Pedagogical approach in teaching.

2.5.2 Teachers are 'Agreed' in 46.7 % cases & 'Partially Agreed' in 33.3 % cases; it implies that **teachers accept in 80.0% cases that Cartoon Based Pedagogical Approach is possible in teaching of different subjects.**

2.5.3 Teachers are 'Agreed' in 53.3 % cases & 'Partially Agreed' in 26.7 % cases; it implies that **teachers accept in 80.0% cases that Teaching is effective through Cartoon Based Pedagogical approach in teaching of different subjects.**

2.6 Teachers are 'Agreed' in 77.32 % cases & 'Partially Agreed' in '21.34 % cases; it implies that teachers accept in 98.66 % cases with the fact that Conducive Learning Environment in Classroom' prevails when children are exposed to Cartoon Based approach

2.6.1 Teachers are 'Agreed' in 73.3 % cases & 'Partially Agreed' in 20.00 % cases; it implies that **teachers accept in 83.30 % cases with the fact that Better understanding is possible when children are exposed to Cartoon Based approach**

2.6.2 Teachers are 'Agreed' in 80.00 % cases & 'Partially Agreed' in 20.00 % cases; it implies that **teachers accept in 100 % cases with the fact that Children enjoys with the application of Cartoon Based approach**

2.6.3 Teachers are 'Agreed' in 73.3 % cases & 'Partially Agreed' in 26.7 % cases; it implies that **teachers accept in 100 % cases with the fact that Classroom environment be conducive with the application of Cartoon Based approach.**

2.6.4 Teachers are 'Agreed' in 80.00 % cases & 'Partially Agreed' in 20.00 % cases; it implies that **teachers accept in 100 % cases with the fact that using text may be boring in teaching but Cartoon is always funny**.

2.6.5 Teachers are 'Agreed' in 80.00 % cases & 'Partially Agreed' in 20.00 % cases; it implies that **teachers accept in 100 % cases with the fact that Children take lot of interest with the application of Cartoon Based approach.**

2.7 Teachers are 'Agreed' in 58.33 % cases & 'Partially Agreed' in 30.00 % cases; it implies that teachers accept in 98.66 % cases with the fact that 'Logical Thinking & Creativity' develops in the children during classroom processes when they are exposed to Cartoon Based approach.

2.7.1 Teachers are 'Agreed' in 66.7 % cases & 'Partially Agreed' in 26.7 % cases; it implies that **teachers accept in 93.4 % cases with the fact that imagination develops when children are exposed to Cartoon Based approach**

2.7.2 Teachers are ‘Agreed’ in 53.3 % cases & ‘Partially Agreed’ in 33.3 % cases; it implies that **teachers accept in 86.6 % cases with the fact that Children feels encouraged and creative when they are exposed to Cartoon Based approach**

2.7.3 Teachers are ‘Agreed’ in 53.3 % cases & ‘Partially Agreed’ in 33.3 % cases; it implies that **teachers accept in 86.6 % cases with the fact that Children thinking level be high when they are exposed to Cartoon Based approach**

2.7.4 Teachers are ‘Agreed’ in 60 % cases & ‘Partially Agreed’ in 26.7 % cases; it implies that **teachers accept in 86.7 % cases with the fact that Problem solving ability and logical thinking develops when children are exposed to Cartoon Based approach**

2.8 Teachers are ‘Agreed’ in 66.67 % cases & ‘Partially Agreed’ in 28.87 % cases; it implies that teachers accept in 95.54 % cases with the fact that ‘Participation in Teaching-Learning Process’ increases when students are exposed to Cartoon Based approach.

2.8.1 Teachers are ‘Agreed’ in 60 % cases & ‘Partially Agreed’ in 33.3 % cases; it implies that **teachers accept in 93.3 % cases with the fact that ‘Children are encouraged to ask questions’ when they are exposed to Cartoon Based approach.**

2.8.2 Teachers are ‘Agreed’ in 60 % cases & ‘Partially Agreed’ in 33.3 % cases; it implies that **teachers accept in 93.3 % cases with the fact that ‘the communication skill develops when children are exposed to Cartoon Based approach.**

2.8.3 Teachers are ‘Agreed’ in 60 % cases & ‘Partially Agreed’ in 33.3 % cases; it implies that **teachers accept in 93.3 % cases with the fact that ‘the participation level of children is high in teaching learning process when they are exposed to Cartoon Based approach**.

4.2 Suggestions:

The benefit perceived from the use of cartoons are very different in different situations and applying relevant resources so the cartoons based approach in teaching should be applied in a very precisely manner.

The following are some suggestions for 'Use of Cartoons Based Approach in Teaching-Learning Process:

- Cartoons for support teaching should be applied for constructive learning, and contextual learning of children.
- Cartoons based approach should be applied for developing social skills, collaborative learning and critical thinking among children.
- The contents related to different subjects /topics should be developed very carefully for teaching through Cartoons based approach.
- Cartoons based approach should be applied in learning of small group of children.
- The use of cartoons in class should be done to prevent children's destructive behaviors,
- In order to ease boredom and the increasing amount of interest and connection, the Cartoons based approach should be applied
- Cartoons and comics should be used for helping children to build a positive learning environment for them.
- *The Cartoon based animated programs* through television and short films should be used *for entertainment and education purposes for children.*
- Cartoons and comics should be used for the *learning and development of other cognitive skills.*
- The use of cartoons in class should be encouraged to *help children's* characteristic, development of values, etc.
- Children should be given sufficient time to think and reflect during teaching-learning processes when they are exposed to cartoons based approach.
- Cartoons and comics should be used for increasing the 'Problem Solving Capacity' of children related to different subject contents.

- The cartoons based approach should be applied in a precisely manner to affect the retention of the knowledge of children learned in a positive way.
- Teachers should be provided In-Service Training to apply cartoons based approach in their teaching.
- Taking advantages of cartoons in education should be sufficiently preferred and encouraged in today context; no tool can make teaching as interesting as a cartoon.
- The cartoons based approach should be frequently used in teaching as Students' perspective for cartoon are different that brings a wealth of ideas.
- Teaching the subjects with cartoons should be used for preventing children from getting bored and to provide the focus on lesson for a long time.
- Children's attention span should be enhanced with the induction of cartoon based approach in teaching of various subjects.
- Drawing cartoon in the classroom should be encouraged to help the students who are interested in cartoon and have the capable for cartoon to emerge.
- Teachers should be told not to overuse cartoons in their teaching as their effect may be diminished if not lost. In fact, it is suggested that other types of media should also be used along with cartoons.
- Cartoon based approach in teaching of various subjects should be precisely used to increase discussion in the group and finding the most accurate results together.

4.3 Conclusion:

The cartoons based approach in selected contents in the subjects 'Hindi' and 'Environment Science' have been used in present research study. It was assumed that with the induction of cartoons based situation leads to an increase in students' academic achievement. Students can understand almost everything easily; if any subject is presented to them in a form which they can understand. With this assumption, researchers undertook the research study:

"A Study on Effects of Teaching through Cartoon /Comics and Traditional Method on Learning Outcomes of the Students"

In this study which is researched the effect of use of cartoon in the teaching of various topics on the student achievement, the experimental and control groups are equivalent prior to use of teaching in traditional or experimental group.

We observed that the students' academic achievement that there have been significant increases in both the experimental and the control group. When the students' achievement scores in the experimental group which teaching is done by using the cartoon and the students' achievement scores in the control group which teaching is done without using the cartoon are compared, it has been found that academic achievement scores of students in the experimental group are higher. These results suggest that the teaching supported by cartoon is more effective the teaching based on traditional methods.

One of the aims of this study was to gain information about the potential use of cartoons to inquire into aspects of student learning. The data reveal that overall the students responded positively to the use of the cartoons under experimental group. Researchers and teachers will need to be mindful of discussions about the term 'cartoon' based approach when using in teaching of any subject.

A challenge for teachers lies in supporting students to come to an understanding and appreciation of the expectations of practices within the classroom. Careful consideration must occur to ensure that teachers are not just transmitting information about these expectations but providing opportunities for students to reflect upon and understand these expectations and 'ways of working'.

Generally, feedback from students on the use of cartoons as a teaching strategy has been found consistently favorable. However, like any teaching strategy, one has to be careful not to overuse cartoons; their effects could be diminished if not lost. In fact, it is suggested that other types of media should also be used along with cartoons.

.

4.4 Suggestions for Further Research

It has been discussed in earlier chapters of this research study report that Cartoons are the tools that draw students' attention and ensure the continuity of this attention and create a more comfortable learning environment. Cartoons are effective tools which can be easily detected by children. Cartoons are methods that can be used to support teaching in class or outside of class which might support teaching in constructive learning, contextual learning, social skills, collaborative learning, critical thinking and small group learning.

There are extremely broad scope for assessment on use of cartoons & comics in teaching learning processes. Some of the suggestive further research studies have been described below:

1. The effects of cartoons and comics on development of values (responsibility, Cooperation, fairness, trust, sharing, etc.) in children.
2. Impact of cartoons and comics on development of cognitive skills in children.
3. Study on use of Cartoons for preventing students' destructive behaviors in learning.
4. Effects of using cartoons for eliminating the contradiction between perception and reality with reference to teaching of any subject.
5. Assessment on use of Cartoons in the world of science, mathematics, and technology.
6. Effects of using animated cartoons and gag cartoons through television programs and short films aimed at children's learning.
7. Study on use of Cartoons for developing social skills, collaborative learning, critical thinking and small group learning.
8. A study on parent's perception towards children viewing cartoon channels
9. The influence of violent TV cartoons watched by school children.
10. A comparative study on Effects of the cartoons and comics in different age group children (may be small children and teen age or adolescent children) on development of cognitive skills.

References

Cevat Eker & Oğuzhan Karadeniz (2014), The Effects of Educational Practice with Cartoons on Learning Outcomes, *International Journal of Humanities and Social Science Vol. 4, No. 14;*

Clare Lavery, Using Cartoons and Comic Strips

Esra ÖZAY KÖSE (2013; EFFECTS OF CARTOONS ON STUDENTS' ACHIEVEMENT AND ATTITUDES IN BIOLOGY TEACHING (ENDOCRINE SYSTEM); *Vol:21 No:3 Kastamonu Education Journal*

Micheal M. van Wyk (2011) The Use of Cartoons as a Teaching Tool to Enhance Student Learning in Economics Education, *Department of Curriculum Studies, Faculty of Education, University of the Free State, Bloemfontein, South Africa*

Matthew Sexton, Using Concept Cartoons to Access Student Beliefs about Preferred Approaches to Mathematics Learning and Teaching, *Australian Catholic University*

Normaliza Abd Rahim1, Hazlina Abdul Halim1 & Roslina Mamat1(2014) Learning via Television Cartoon, Published by Canadian Center of Science and Education, Asian Social Science; Vol. 10, No. 15

Rachel Williams, Teaching with Cartoons

Singh, Yogesh Kumar (2006), Fundamental of Research Methodology & Statistics NEW AGE INTERNATIONAL (P) LIMITED, PUBLISHERS

Taher Bahrani* Rahmatollah Soltani & Akengin, H., & İbrahimoğlu, Z. (2010). The pedagogical values of cartoons, Research on Humanities and Social Sciences www.iiste.org; ISSN 2224-5766(Paper) ISSN 2225 0484(Online) Vol.1, No.4.

Text Book (2018-19): Subject: Hindi, Published by State Council of Educational Research & Training (SCERT) Chhattisgarh

Text Book (2018-19): Subject: Environment Science, Published by State Council of Educational Research & Training (SCERT) Chhattisgarh

Websites:

www.ucomics.com/comics/

www.comedyorama.com/index.html

http://learnenglishkids.britishcouncil.org/en/make-your-own/comic-strip-maker

www.bitstrips.com/create/comic (Allows making own comic strip)

Annexure

शोध अध्ययन प्रश्नावली
(कार्टून आधारित शिक्षण तकनीक के अनुप्रयोग के संबंध में)

क्र.	कथन	अभिमत		
		सहमत	आंशिक सहमत	असहमत
1	कार्टून के माध्यम से विषयवस्तु की बेहतर समझ संभव है।			
2	कार्टून आधारित शिक्षण प्रविधि के प्रयोग से बच्चे विषयवस्तु के अध्ययन में आनंद का अनुभव करते हैं।			
3	कार्टून के सीखने में उपयोग से कक्षा का वातावरण धनात्मक होता है।			
4	बच्चे अधिक प्रश्न करते हैं जब कार्टून–कामिक्स का शिक्षण में प्रयोग किया जाता है।			
5	बच्चों में कार्टून के माध्यम से शिक्षण करने में अधिक कल्पनाशीलता का विकास होता है।			
6	कार्टून के प्रयोग से बच्चों में सृजनात्मकता के विकास हेतु प्रोत्साहन प्राप्त होता है।			
7	कार्टून आधारित शिक्षण से बच्चों में सम्प्रेषण कौशल का विकास होता है।			
8	पुस्तक में विषयवस्तु (Text) उबाऊ होता है जबकि कार्टून/चित्र मजेदार होता है।			
9	कार्टून के अधिक प्रयोग से बच्चों का चिंतन उच्चस्तरीय होता है।			
10	कार्टून आधारित विषयवस्तु के अनुप्रयोग से बच्चों का मूल्याँकन/उपलब्धि बेहतर होती है।			
11	कार्टून आधारित शिक्षण का प्रयोग अधिकतर विषयों में किया जा सकता है।			
12	कार्टून के अनुप्रयोग से शिक्षक को विषय–वस्तु का अध्यापन सरलीकृत रूप में करना संभव होता है।			
13	कार्टून आधारित शिक्षण में बच्चे बहुत अधिक रूचि लेते हैं।			
14	कार्टून आधारित शिक्षण में कक्षा में बच्चों की सहभागिता का स्तर उच्चस्तरीय होता है।			
15	कार्टून आधारित शिक्षण में समस्या समाधान योग्यता एवं तर्क शक्ति का विकास संभव है।			