

# The Effects of Multi-media Technology on Learning Achievement and Perception of Eighth Grade Students of Kamji Central School Towards History Subject.

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## Abstract

History is one of the subjects in the Bhutanese curriculum learnt by our children. Learning History provides insight into our culture, human behaviour, evolution, society, future generation, science and technology. It also enhances critical thinking resulting to intellectual growth. In gist, History teaches trust and values. History cannot be taught as one subject but correlates with other subjects like Geography, English, Civics and Economics. Despite its significance, teaching History had been found to be challenging because of employing traditional mode of teaching. The purpose of this study was to compare learning achievement and investigate perception of eighth grade students towards History subject by using a multi-media technology. The study was an experimental research and used two groups pre-test post-test design. This study was conducted at Kamji Central School under Chhuka district in Bhutan. A cluster random sampling was used to select two sections out of three with 45 students each in experimental and controlled group. The quantitative data was analyzed using mean and standard deviation while students' reflective journal was analyzed using coding system.

The findings of the study showed a significant difference in the post-test. The mean for control group was 13.6 and 17.73 for the experiment group with a mean difference of 4.13. This indicated that the learning achievement of students in the experimental group was higher than student's in the controlled group. At the same length, student's reflective journals revealed that the use of multi-media technology was interesting and captivating. Students also said that they gained adequate information, achieved better understanding, enhanced long-term retention power and active participation in the class.

**Key words:** Multi-media technology, Learning achievement, Perception, History.

## 1. Background

Learning History has become part and parcel in the Bhutanese education system. The concept of history has been imbibed by the students from the primary classes when they studied Social Studies. It is crucial to learn history because it covers wide spectrum of issues related to social, cultural, political, tradition and etiquette of the country. The Bhutanese History textbook has touched many lives because of its contents covering developmental activities, leadership, unity, hardship that forefathers had faced as well as about the farsighted monarchs. With introduction of many other subjects, History must remain as an integral subject because it represents Bhutanese as a whole.

However teaching and learning history has been considered challenging due to the problems associated with the nature of the subject. Firstly learning History is considered monotonous because of lecture method of teaching generally used by

teachers. Secondly, students seem to be least interested in the subject as History is a narration of stories through text. Inadequate availability of concrete evidences such as video clips and pictures and no use of hands-on learning have been causing boredom in students learning approach. Thirdly the vividness of pictorial sketch and maps are either out-dated or lacks updated information. All these aforementioned factors strongly affect the learning achievement of the students. For instance, the press release from Department of School Education, Ministry of Education [MOE], Bhutan (2017) on BCSE (X) held in December 2016, revealed that the overall mean marks for regular candidates in history subject was only 62.76%.

Through the BCSE result analysis of history, it depicts the average score cautioning the educators to bring changes in teaching strategy. The mediocre performance in history is mostly because of ineffective classroom learning and teaching strategy limited to traditional mode mainly lecturing. Therefore, to enhance learning achievement strategies such as field trip, project based, inquiry based and use of multi-media technology should be incorporated.

According to Ilhan and Oruç (2016), multi-media technology is very effective in education as it is the fastest mode of learning whereby students can learn new information within short period of time. Owing to the importance of Information and Communication Technology (ICT) in Bhutanese education system, the Ministry of Education has drafted its Education ICT Master Plan in 2014. Its objectives are to have effective teaching and learning environment, efficient educational administrative systems and to motivate lifelong learners for the 21st century (as cited in Education ICT Master Plan, MoE, 2014-2018). Similarly, Patel (2013) argued that multimedia courseware can offer the students with abundant information; more plentiful than textbooks and help them to get of displays vivid cultural background, rich content and true-to-life language materials, which are much natural and closer to life (p.118). The importance of multi-media technology was further supported by Sousa (2017) who argued that the nature of social science can be effective or unique when various combination of multi-media technology is being used.

Further researchers have found the use of multi-media technology effective in History lesson. For instance, Ilhan and Oruç (2016), Patel (2013) and Ni (2012) claimed that the use of multi-media technology is considered as one of the techniques to improve the students' learning and their interest in history lesson. Similarly, Adesote (2013) also pointed out that the appropriate use of ICT can influence and change traditional methods of teaching and learning of history thereby ensuring quality education. According to Iqbal and Muhammad (2015), multi-media- aided teaching helps to develop higher order cognitive skills and appeal the students' psyche towards learning.



## 2. Objectives

Since not many studies were carried out in the Bhutanese context using multi-media technology, this study was designed to evaluate the effects of multi-media technology on learning achievement and perception of eighth grade students towards history. Therefore the main objectives were:

- 1) To compare the learning achievement in History of eighth grade students who were taught using multi-media technology and students taught in a traditional way.
- 2) To investigate eighth grade students perception towards History lesson by incorporating multi-media technology.

## 3. Research Question

Based on the objectives the following questions were asked:

- 1) Does the learning achievement of eighth grade students who were taught by incorporating multi-media technology show higher result than the students taught in a traditional way?
- 2) What are the perceptions of eighth grade students towards multi-media technology in teaching a History lesson?

## 4. Literature review

### 4.1 Multi-media technology

Multi-media technology is computer-based techniques of text, images, audio, video, graphics, animation, and any other medium where every type of information can be represented, processed, stored, transmitted, produced and presented digitally (Wikipedia, n.d). According to Rose and Fernlund (1997) as cited in Acikalin and Duru (2005), it is a process of blending information with the use of sounds, graphics, texts and images. The use of multi-media technology has become very important in the education system as it provides fast hand information which cannot be generated at any means. Teaching and learning in the school system has changed over the years so are the teaching strategies that teachers use in the classrooms on daily basis. With this rise, it has provided a better platform for teachers to make use of its benefits and

use it as a teaching technique in order to enhance the learning achievement of students.

#### **4.2 The role of multimedia technology in teaching a History subject**

History is one of the school subjects that narrate the stories that had happened in the past through pictures, videos, and textbook. Due to the nature of the subject, it entails explanation as well as evidences with video clips or pictures to support the story. As such, the use of multi-media technology has become one of the tools that can accomplish the hassles of the History subject.

According to Adesote and Fatoki (2013), the role of ICT in the teaching and learning of History in the 21st century can be seen in four major angles, namely, the impact on teacher, learner and the image of History as a discipline. Similarly, Flecknoe, 2002; Mc Cormick and Scrimshaw, 2001 and Wagner, 2001 (as cited in Adesote & Fatoki 2013) argued that ICTs can play a number of roles in education such as developing the kind of graduates and citizens required in an information society; improving educational outcomes, enhancing and improving the quality of teaching and learning” (p. 2155). Sousa, Richter and Nel (2017) also stated that using multi-media is the only avenue to showcase interaction, animation to present concepts, sound cues, and incorporating visual and auditory effects which stimulates learning History concepts. Multi-media as a technology has also been found to be helping learners in self-exploration, team work and active participation.

#### **4.3 Advantages of multi-media technology in teaching a history lesson**

The fundamental role of multi-media technology in education is to have effective teaching and learning by using ICT as per the needs of 21st century. Many researchers had carried out studies in History subject by using multi-media technology to enhance the learning and students’ attitude towards history subject and revealed awesome results. As argued by Adesote and Fatoki (2013) the proper utilization of ICT can influence and substitute conventional methods of teaching and learning resulting in quality education. Similarly, the study conducted by Ilhan and Oruc (2016) revealed that multi-media technique increased the academic success of students in social studies lesson compared to the traditional classroom. On the other hand, Hii and Fong (2010) also investigated on the effects of multi-media redundancy in History learning among ‘Deep and Surface’ students and found that cognitive load in multi-media-based learning can be minimized and the pace of learning is under the



learners' control.

Nevertheless, Acikalin and Duru (2005) also found that preferring to use multi-media has helped to solve the mental models of problem by viewing visually. At the same length, Adesote and Fatoki (2013) found that the use of ICT not only discourages the traditional means of teaching and learning, but also heightens the quality education with sophisticated use of multi-media. Use of multi-media in classroom will provide opportunity for interacting with diverse texts that give students a solid background as relevance of history in the school curriculum. Andresen and Brink (2013) supported that multi-media is very helpful and fruitful in education due to its characteristics of inter activity, flexibility, and the integration of different media that can support learning, take into account individual differences among learners and increase their motivation.

## **5. Research process**

After the acceptance of action research proposal from policy and planning division under Ministry of Education, the researchers obtained an approval from the principal of Kamji Central School, Chhukha to conduct the research. The researchers then prepared instruments and conducted the study for three months.

## **6. Research methodology**

Research methodology of this study is a mixed method study. In the quantitative approach, the researcher used pre-test and post-test to collect the data while students' journal was used to collect the data for the qualitative approach.

### **6.1 Population and Sample**

Total population comprised of 135 students from 3 sections of eighth grade students at Kamji central school under Chhukha district, Bhutan. Each section had 45 students and consisted of mixed gender and mixed ability students. The researcher used cluster random sampling to select two sections as a sample for this study. One section was used as control group and other sections as the experiment group.

### **6.1.1 Research Instruments**

Two instruments were used to collect the data. The quantitative data was collected from pre-test and post-test administered to experiment and control group while qualitative data was collected from the students' reflective journals.

## **7. Quantitative Data Collection Instrument**

### **7.1 Learning Achievement test**

Twenty multiple choice questions were prepared from chapter five from history course book for class eight Bhutan History with a weighting 20%. Firstly pre-test was conducted for both the groups. After that, normal teaching was done for controlled group while experimental group was taught by incorporating multi-media technology to conduct the post-test. Finally, post-test was conducted for both the controlled and experiment group with the same question. The very purpose of the pre-test and post-test was to compare the learning achievement in the experiment and controlled group before and after the intervention.

#### **7.1.1 Qualitative Data Collection Instruments**

##### **7.1.2 Student journal**

The participants in the experiment group were asked to write a reflective journal about what they have learned and their perception towards History lesson when taught using multi-media technology. The guidelines on how to write reflective journal was given beforehand. The students' journal was to examine their learning perception towards History lesson after incorporating multi-media technology.

## **8. Data analysis**

The data obtained from pre-test and post test scores of both the groups were compared in terms of mean ( $\bar{x}$ ) and standard deviation (SD). Further, the data collected from student's reflective journal was analyzed by using a coding system (open, axial, and selective) based on the Grounded Theory of Strauss and Corbin (1998).



### 1: Analysis of Learning Achievement Test

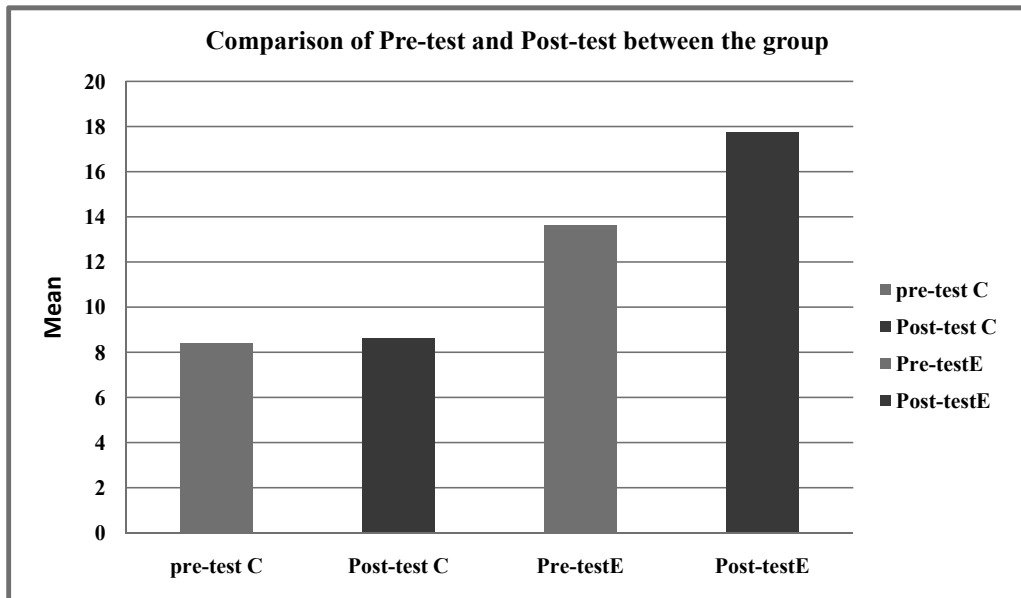


Figure 1: Comparison of pre-test and post-test between the groups.

Figure 1 shows comparative analysis of mean scores between the two groups before and after giving the intervention. It is clearly depicted that the learners in the experiment group who were intervened with multi-media technology showed higher level of learning achievement when compared to learners in the controlled group who were taught in a traditional method. It is clearly explained as shown in Table 1.

Table 1

*Comparison of Pre-test and Post-test Between the Groups.*

Test	Group	Mean	Mean difference	Standard Deviation
Pre-test	Control	8.38	0.26	3.200
	Experiment	8.64		2.577
Post-test	Control	13.6	4.13	3.21
	Experiment	17.73		2.54

The mean for pre-test of the controlled and experiment group was 8.38 and 8.64 respectively with a mean difference of 0.26 as indicated in Table 1. This showed that the participants in both the groups had equal learning ability at the beginning. However, the mean for the post-test of the controlled group and experiment group was 13.6 and 17.73 respectively with a mean difference of 4.13. This indicated that the test scores in the post-test of both controlled and experimental groups were statistically significant. The post-test score of the experimental group is significantly greater than post-test score of the controlled group.

## **2: Analysis of the participant's reflective journal**

The second objective of this study was to investigate eighth grade student's perception in History lesson when taught using multi-media technology. The data collected from participants' reflective journal was analyzed by using a coding system (open, axial, and selective) based on the Grounded Theory of Strauss and Corbin (1998). Firstly in the open coding, the data from participants' reflective journal was organized systematically. Then the data was identified and categorized using axial coding. Finally selective coding (see Appendix A for codes) was used to categorize and interpret the data collected from the participants. The researchers used five following core themes from the participant's reflective journal as explained below:

- i. Interesting and captivating (IAC)
- ii. Gained adequate information (GAI)
- iii. Better understanding with evidences (BUE)
- iv. Ensure Long term retention power (ELR)
- v. Enhanced active participation (EAP)

### **1. Interesting and captivating.**

The participants were of the opinion that use of multi-media in teaching History was interesting and captivating because they were engaged vividly with the pictures, videos and documentaries. They were enthusiastic about learning new concepts and ideas broadening knowledge beyond the horizon. Participants shared their opinion of learning through fun and remained alert. For instance, the extracts from students' journals revealed:

The lesson was very interesting with full of pictorial evidences from the Google and we were able to link the topic with the retrieved pictures (IACSRJ4)

We were very excited to explore and learn more from the Internet and other form of technology which made us interesting. (IACSRJ7)





## 2. Gained adequate information.

Those participants claimed that using of multi- media helped to gain adequate information because Internet provided infinite platform in gaining information. Students could explore for any sort of information from the web. Students could avail diverse information from different source which helped the participants to analyze the best information as expressed below:

We could generate lots of information from the Internet other than the ones reflected in the textbook (GAISRJ1)

We could compare and analyze on the information given in the text and information derived from other sources (GAISRJ9)

## 3. Better understanding with evidences.

The participants were in favour of using multi-media to teach History lessons as it enhanced better understanding of concepts with concrete evidences like the use of power point presentation, time line in chronological order, videos, and pictorial facts that had ultimately boosted better understanding than lessons taught in the traditional setting with the use of text book. Nevertheless, the use of multi-media had provided diverse information when compared to the information given in the textbook. As evidenced from Journal # 3 and 10:

Some of the topics about the world wars were better understood by going through the picture and video clips (BUESRJ3)

The Power Point presentations helped us understand more with picture as well as explanation by the teacher (BUESRJ10)

## 4. Ensure Long-term retention power.

Use of multi-media had enhanced long term retention memory power because the evidences, statistics and images had given a forum for participants to see, analyze, interpret and comprehend about the realistic things happening with context to the content being taught which ultimately helped them remember the information in the long run resulting better performances in the exam or test. Use of ICT has enabled students engage visually and auditory as indicated below:

Explanation of each topic with the help of pictorial evidences and time line helped us remember the particular topic for longer period of time" (ELRSRJ27)

By watching videos of World War I and II, I can remember what kind of incidents were occurred during the cause of the war (ELRSRJ31)

## **5. Enhanced active participation.**

The participants discovered that use of multi-media had enhanced active participation because when they were engaged in Internet browsing, students were bound to participate, discuss and ask questions related to the context resulting to effective learning. Further students had felt that they do not feel bored and monotonous as the nature of using multi-media kept them curious and active. Moreover, this new style of teaching method best fitted the learners of 21st century. Even low achiever students who were reluctant in opening their opinions were found to be interactive and energized when placed in groups for discussion and learning as expressed in Journals 1 and 13.

I got an opportunity to actively participate in this lesson because we were given each topic in a group to discuss by exploring from the website (EAPSRJ1)

I can see most of my friends contributing for their group work sincerely. They were very much happy to learn from the Internet than from the text which is more of lecture (EAPSRJ13)

## **9. Conclusion**

The aim of this study was to compare the learning achievement and investigate student's perception on multimedia technology in teaching a History subject. The findings from this study showed that the use of multi-media technology enhanced academic achievements of students in history lesson. The learners when taught by incorporating multi-media technology showed higher level of interest in history lesson. The result supported the findings of Aloraini (2012); Hii and Fong (2010); Ni (2012) and Ilhan and Oruc (2016) and who conducted a similar studies using multi-media technology and found that multi-media technology serves as an alternative teaching strategy to achieve the learning outcome of the students in History subject.

Therefore, one must play proactive role to create innovative teaching approaches to achieve the academic excellence in students to encourage them to be a lifelong learner in the 21st century. Teachers cannot escape from the realities of 21st century where the world has become information rich society and it is imperative that they use multi-media technologies for enhancing teaching learning process.

## **10. Recommendations**

It was found that the use of multi-media technology had greater impact on learning achievement in History lesson and boosted students' interest. In this regard, based on the findings the following recommendations have been made;



- 1) History teachers in Bhutan can use multi-media technology while teaching a history lesson in order to achieve academic excellence and to boost students' interest in history subject.
- 2) History can be taught using multi-media as it gives an opportunity for students to explore more information from internet than the prescribed text books.
- 3) Multi-media technology can also be used in other subjects as it creates platform for the learners as well as the teachers.

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