Impact of Multimedia on Teaching – Learning Process at Public Sector Primary Schools (grade 5th) in Quetta, Balochistan

*Alia Ayub, Associate Professor, Department of Education, Sardar Bahadur Khan Women University, Quetta, Pakistan
Abdul-Nasir Kiazai, Assistant Professor, Institute of Education and Research, University of Balochistan, Quetta, Pakistan

*Corresponding author’s email address: aliaaslam54@yahoo.com

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ABSTRACT

Purpose: This era is the era of technology, rapid increase in the knowledge needs technology for its effective communication. This research focused on the use of multimedia and its impact on teaching-learning process.

Methodology: The pre-test and post-test experimental design was used in this study. The results of the screening tests and the test scores of the assessed and investigated class were verified to determine the learning outcomes reached between the two groups. Sample of the study was 200. 100 male and 100 female students from 5th grade were selected as sample of this study. Multimedia was used in Pakistan Studies’ teaching. Different difficult topics e.g. map, rivers and their locations, land and its types, etc. were taught by the use of multimedia, which supports the videos and graphical colorful images. The data was analyzed by using statistical package, paired sample t-test.

Findings: The results highlights the use of multimedia as powerful agent in enhancing the teaching-learning process and motivating the students towards learning.

Implication: Policy makers should emphsized on usage of multimedia in Govt. primary schools. Its a technology should be used as essential part of the teaching as It make the learning not only joyful but also provide in-depth understandings of the difficult concepts.

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Introduction
In 21st Century the images and content have become more important, because of this strategies the individual understand the content re-easily and can fulfil the social services with great understandings. Images are also merged in writing, which supports the writing as it there is smooth flow of data, it again increase the understanding of the writing content. Images make the writings more logical (Mayer, 2009). The main focus of merging the images to
teaching-learning content is actually to make the content as visual representation, especially through the use of media. (Carney and Levin, 2002).

Mayer (2005b), develop an interactive media messaging plan with his partners. This plan highly impact the specific terms, sight, mixed media and sound learning. There is another term which is known as the ‘hybrid media’. Hybrid media refers to the Merging of spoken and printed words, activities, videos, images and photographs. The main focus is on communicating the words with the illustrations. This makes the learning dynamic and interactive. Mayer and his partners set out the proposal and many educational standards for effective learning. Their learning by plans are supported by multimedia. Whenever images and content are presented at the same time, it enhanced the learning. (Low and Sweller, 2005). Multimedia provide the opportunity to the students that they learn through vision and sound which make the content a best content. (Fletcher and Tobias, 2005). This study was conducted to search about the impacts of multimedia on students, achievements. The results of the study supports the policy makers to revise the education plan in the light of the highlighted factors.

Objectives of the Study
Study was conducted to achieve the following objectives:
1. To explore the teachers’ perception about the use of the multimedia at primary level.
2. To find out the impact of multimedia on students’ academic scores

Research Questions
1. How teachers perceive the multimedia use in primary classrooms?
2. What is the overall impact of Multimedia on students’ academic scores?

Review of the Literature
In this century, 21st century, the classrooms are equipped many technologies e.g. monitor, speaker, DLD projector, voice enhancing tools, Pixie Wall controller etc. All these technology provide the internet approaching just on a finger touch (Cleary, 2009). ICT innovations also promotes the E-Learning (Mayer, 2005c). These technological innovations support in the improvement of the Assets for learning and assessment procedures (Feinstein, 2007).

Multimedia
Webster Dictionary (2019) defines multimedia as the media which use a number of different media to communicate the messages, e.g. text, video and audio media

Historical Background on the Use of Multimedia
To identify the exact date of multimedia use is difficult, but Nolan Bushnell in 1972, developed Pong, which was a video game. This is known as 1st multimedia. (Solomon 2004). In 1976 Steve Wozniak and Steve J. develop a company of ‘Apple Computer’, in 1981 the first PC, IBMs was developed, and in 1984 the first version of computer with graphical user interface was developed. (Shuman 2002). In 1988 the Macromedia was invented for the multimedia presentations. Macromedia resulted in multimedia advancement (Vaughan, 2001). With the passage of time multimedia presentations are becoming more and more interactive.

Interactive Media
When different media sources were combined, interactive media was originated. Animation, content, designs, video and sounds are the example of interactive multimedia. (Harris and Cannon, 1995). Sound and vision were originated by combining the educational capital, single operating framework controlled it. (Harris and West, 1993). Media may also be defined as “different concrete modalities combined the many mechanical sources and the result is spoken data Riding and Grimley (1999).

Lu, Y., and Gordon (2009) conducted a research in some of the high schools. In these schools the counselling was used along with the instructional lessons. Researchers used videos and
printed letters for the understanding of the case. Reflection level of the students was measured after introducing the printed letters and videos, the achievement scores were very high after these interventions.

**Value of Multimedia in Teaching – Learning Process**

In classrooms the teaching – learning process involved relationship between teacher and the students, but this relationship may be excellent because of many factors. One of the factor is communicating the knowledge with the help of effective means. Multimedia use computer integrated software e.g. power point presentations. (Bester and Brand, 2013). Teacher should planned a variety of interesting presentation which increase the experience of the students. (Davis, 2004). Multimedia as an informational and communicacional technology unfold the hidden creative skills of the students by providing the 3-D images (Wang, 2012). Teaching – learning process which is supported by the use of multimedia enhance the students perceptive and cognitive abilities. Multimedia provides architectural design of communication between the teacher and the students. (Ikenna, 2016). If instructor do not aware about the effective use of multimedia, it will result in little development of students’ cognition and perception. (Rabee Reffat, 2007).

Multimedia provides instruction in a sensory mode with the computer based assistance (Clark, 2005). It incorporate text, sound graphics etc. to enhance the teaching – learning process. (Graham and Hussain, 2006). Multimedia presentations are supported by videos, animation, and voice recordings etc. which highly impact the students' cognitive and perceptive level. (Smith, 2002; Mintorogo, 2004). Multimedia speeds up the communication process and provide visual literacy (Mergendollar, 1997). Multimedia make the presentation more exciting by merging the texts, pictures, audio and video (Andrewartha and Wilmot, 2001). It creates the in-depth understanding of the information by integrating the words, maps, graphs etc. (Milovanovic, et al., 2016).

**Research Methodology**

**Research Design**

Mixed method approach was used for data collection. Qualitative data was collected about the teachers' perception and Pre-test and post-test experimental research design was used to collect the quantitative data. This research design was chosen for finding out the use and impact of the multimedia on students’ academic achievements.

**Population**

All the students enrolled in the primary schools in Quetta city were the population of this study.

**Sample and Sampling Technique**

Data was collected from 20 public sector primary schools in Quetta city. 10 male and 10 female schools were the sample. 200 students were randomly selected as a sample (100 male and 100 female students) for this study.

**Research Instruments**

Mix method approach was used to conduct this research. Following tools were used for data collection:

Interview: interview was administered to the primary school teachers to find out their perceptions about the use of multimedia. For the collection of quantitative data the pre-test and post-test experimental design was used.

**Pre-test:** It was developed from Pakistan study textbook (5th grade) based on the topics, that were taught to the students through traditional teaching methods.
Post-test
It was developed from Pakistan study textbook (5\textsuperscript{th} grade) based on the topics that were taught to the students through the use of multimedia

Procedure of Data Collection
After taking the consent from the principal of the schools the researcher went to the schools on decided date. The researcher herself conducted the classes. Before teaching the Pakistan Studies the pre-test was developed, which cover the topics which were taught through traditional teaching method. After that the course of Pakistan Studies were taught by using multimedia. Multimedia lessons were developed with lot of care. Videos were also used in different lessons. 10 lessons were taught this technique. After completing the lessons, a post test was administered.

<p>| Table 1: Distribution of Items in Pre – Test &amp; Post- Test |</p>
<table>
<thead>
<tr>
<th>Level</th>
<th>No of items</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Comprehension</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Application</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Analysis</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

Results and findings
Data was quantitative and qualitative in nature. Interview was taken to know the perceptions of teachers and collected qualitative data was analyzed through thematic analysis and quantitative data which was collected through pre – test and post – test was analyzed by applying paired sample t-test to observe whether there were statistically significant differences in academic achievements scores.

<p>| Table 2: Paired Samples Statistics |</p>
<table>
<thead>
<tr>
<th>N</th>
<th>M</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1 pretest</td>
<td>200</td>
<td>30.27</td>
</tr>
<tr>
<td>Post-test</td>
<td>200</td>
<td>32.07</td>
</tr>
</tbody>
</table>

<p>| Table 3: Paired Sample Correlation |</p>
<table>
<thead>
<tr>
<th>N</th>
<th>Correlation</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td>pretest &amp; posttest</td>
<td>200</td>
</tr>
</tbody>
</table>

Above results indicates that there was positive correlation and this correlation was strong. The students score high marks in pretest, also score high marks in posttest. Moreover there was significant difference in their marks in first and second attempts.
Above data indicates that overall there was significant difference in pre-test and post-test results. Academic achievement of the students was also measured in relation to gender. The analysis is shown in the following figure.

![Graph showing the relationships between achievement and gender.

Above results indicates that the multimedia has more impact on academic achievements of the females ($M = 22.56$, $F = 20$) as compared to the males.

## Analysis of Qualitative Data

Qualitative data was analyzed by finding out the emerging themes. Following major themes were identified about the perceptions of teachers for use of multimedia in primary classrooms:

### Theme 1. No supply of multimedia

All of the teachers responded that there is no multimedia is provided to their schools. Some of them said:

“They will use their level best if their schools are provided multimedia and teachers are allowed to use in their classrooms”

### Theme 2. Lack of technological skills

Majority of the teachers responded that they have no computer skills to prepare their presentations. They asked that “there is greater need to train them for handling the multimedia and equipped them with the skills which support them for effective use of multimedia”.

### Theme 3. Shortage of electric supply

All primary teachers shared the issue of shortage of electrical supply, they said that “if the electric supply made continuous in morning time to the schools, it will enhance the teaching-learning process, this will not only facilitate technological based teaching but also make the environment suitable and easy for students to learn”.

### Theme 4. Overburden on teachers

Some of the teachers responded that “they are overburdened, they not only have the workload of teaching but also they are engaged in different activities in schools, e.g. discipline, preparation of students for different competitions, managing and organizing different school functions. So it will be difficult for them to make multimedia presentations for the students”.

## Discussion

This study was focused on engaging the students in joyful learning through the use of multimedia. Results of the study showed significant differences between the pre-test scores and post-test scores. Which reflects that when difficult concepts of the subject Pakistan Studies were taught through multimedia which supports the videos and colorful graphical images, photographs etc. the results of the study highlights the attitudes towards self-improvement and also showed that the learning outcomes were improved.
The comparison of data of post-test scores between male and females were also made. The results of this analysis showed that the mean scores of the females were higher than males but difference was not significant. As the mean scores of females were 22.56 while the mean scores of males were 20.

The thematic analysis of the qualitative data showed that the teachers show positive attitude towards the use of multimedia in classroom teaching, but they lack the technological skills in using the multimedia and preparing the multimedia presentations.

Conclusion
From the results of the study it is concluded that multimedia should be used in classroom teaching, even at primary level. Multimedia attract the students’ attitudes towards teaching. It make the learning not only joyful but also provide in-depth understandings of the difficult concepts.

Recommendations
Pakistan studies sis very important subject to make the students to be aware with their country. This will create a sense of love and knowledge of Pakistan. So its effective teaching is very important in this regard. Following actions should be taken to improve Pakistan Studies teaching:
1. To introduce the land and other important geographical topics with the help of multimedia.
2. Multimedia must be the part of basic education, as at this level the students’ educational experiences are little, multimedia which use words and images will enhance the educational experience to the students.
3. Our primary schools are not equipped with technology, so it is strictly recommended that provide multimedia to each and every primary school, for making the teaching-learning process a fruitful process.
4. Multimedia also supports to communicate the knowledge by merging the sound to the words. It also merge images to the text, so it attracts the motivation of the students. It is recommended that make the use of multimedia in classrooms on regular basis.
5. Multimedia brings the abstract concepts to reality. For the primary students the understanding of abstract material is very difficult, use of multimedia make it easy to understand. So the abstract concepts always be teach through multimedia.
6. Teachers should be provided trainings for the effective use of multimedia.
7. Training programs also emphasized on teaching pedagogies in relation to the use of multimedia
8. The results showed that the teachers feel high level of difficulty in preparing the presentations and using the multimedia. So there is greater need to appoint an expert to each school who can manage this issue and guide the teachers in this regard
9. As all of us know there is great issue of load shedding. Even in schools it occurred in morning times. So a UPS or any other alternative system should be provided to the schools for continuous supply of electricity.

References


