

Availability And Utilization Of Multimedia At Higher Secondary School Level In Pakistan And Its Impact On Students' Academic Achievement

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Abstract

There is extensive use of multimedia in educational institutions to make and improve the teaching-learning process more effective and interesting. In this regard, the researcher focused on the availability and utilization of multimedia at the GHSS level in Pakistan. The design of the study was a survey (descriptive) in nature. The population of the study consisted of (N = 2356) respondents including (14 Principals, 197 Teachers, and 2145 Students) out of which the total numbers of (n = 141) respondents i.e. 14 Principals, 20 Teachers, and 107 students were taken as samples of the study by applying John Curry sample size rule of thumb. Data were collected through a self-developed questionnaire on a 5-points Likert scale. Quantitative research was preferred by using inferential statistics. Pilot testing was ensured. Data were delimited to boys' Higher Secondary Schools in district Lakki Marwat. The collected data were statistically analyzed through SPSS by using regression and Chi-Square. Regression was used to know the influence of ICT on student academic achievement whereas Chi-Square was used to check the effect of ICT resources on learners' behavior. Findings, results and conclusions were drawn by revealing that the availability and utilization of Multimedia in GHSS of district Lakki Marwat were approximately equal. Recommendations were suggested that the availability and utilization of multimedia are very important and essential at the school level to promote and develop the education system in which the government, education department, Education Officials, and educationists may play their special roles as well.

Keywords: Multimedia, Availability, Utilization, Higher Secondary Schools, Students, Academic Achievements, Pakistan.

Introduction

Wu & Chen (2018) described that a teacher can better deliver his/her lecture via multimedia in which he/she can use images, text, graphs, videos, maps, animations, conceptual framework etc. Wang, Fang & Gu (2020) asserted that

multimedia is effective and easy access to knowledge through the latest technology for making the teaching-learning process better and productive, interesting and practical in this modern world. Alemdag & Cagiltay (2018) stated that multimedia is one of the best and most

interactive ways or channels of communication by creating, storing, and transmitting textual, auditory networks of info and graphics etc.

Shoufan (2019), and Al-Ajmi and Aljazzaf (2020) revealed that multimedia is comprised of some important features such as it is computer controlled, it's integrated, represents digital information and is the best tool for presentation through which all educational activities can be easily and technologically performed in the best way. Shah & Khan (2015), and Barzegar, Farjad & Hosseini (2012) narrated that multimedia is one of the key resources of educational technology to enhance student learning, and teachers' teaching and promote the interest of its users in schools, colleges and universities. Putra (2018) highlighted that students become unable to take interest in learning due to multimedia and the teachers' interest is also highly developed towards better teaching while using multimedia.

Ocepek et al., (2013) explained that teachers and students can use multimedia for their educational facilities by utilizing text, files, audio, videos, pictures, archives, databases, notes, courses, website links, research engines, and the internet. Molina et al., (2018) explained that quality of education can be developed and promoted through various types of multimedia communication including computer hardware, software, slides, cassettes, audiotapes, cassette recorders etc. Milovanovic, Obradovic & Milajic (2013) described that lectures and presentations through multimedia become more effective, interactive, interesting, and innovative etc. Manca & Ranieri (2016) cited that teachers and learners utilize multimedia for the enhancement and promotion of quality education in which they use CD-ROM, internet, video, floppy disks, and other software by creating, transmitting and storing teaching-learning materials and data.

Literature Review

Kapi et al., (2017), and Akinoso (2018) found that teachers can convey their lectures in the best way to students' by taking help from multimedia through using images, conceptual and theoretical frameworks, graphs, videos, pictures, audio and the internet etc. Mayer (2008) stated that students are highly motivated toward learning, and they actively participate in their teachers' lectures when they are taught through multimedia. Karel & Tomas (2015) described that students' learning capabilities are developed when they learn through multimedia with the help of text, files, audio, videos etc. Jian-hua & Hong (2012) narrated that multimedia is given special and first priority in all advanced schools, colleges, universities and other higher educational institutions by using all such devices that are already connected with the internet and other software used for educational purposes.

Ilhan & Oruc (2016) cited that government emphasizes education departments to implement the use of multimedia as the best channels or tools of communication like computer software, hardware, slides, public address system, projector, cassettes, videos, pictures, audiotapes, and images etc. Guan, Song & Li (2018) explained that multimedia is very effective in making the teaching-learning process better and more advanced. Davies & Cormican (2013) stated multimedia is used for multi-purposes including knowledge sharing, public administration, search engine, business, and social activities in which multimedia is also one of the key technology tools used for educational improvement. Dalacosta et al., (2009) said that multimedia is very significant and effective for students who are suffering from vision problems.

Chen & Xia (2012) asserted that in advanced and developed countries like the USA, UK, France, Japan, etc. multimedia is used for quality teaching-learning activities in all educational institutions. Al-Hariri & Al-Hattami (2017)

revealed that multimedia is a very vital facet of ICT dealing with the presentation of any material with the help of other digital resources like video, audio, and text etc. Multimedia plays a significant role in the teaching-learning process, especially in science classes, social science classes, Mathematics, physics, physiology and education classes etc. According to Armenteros et al., (2013), multimedia is a rich source through which a teacher explains and simplifies his lecture with the help of images, symbols, animations, video and audio to enhance and promote students' memorization and understanding. Multimedia enables students to develop their comprehension and expression power or capabilities.

Almara'beh, Amer & Sulieman (2015) asserted that multimedia is the digital or technological learning resource that helps students in better conceptual and intellectual representation through audio, video, graphs, images, text, animations etc. Students' demonstration power is highly developed via more use of multimedia in all educational activities. Stark, Brünken & Park (2018) described that multimedia is very useful and effective in turning abstract conceptions into concrete. Like teacher or student presents detailed information in a short span with no effort or limited efforts. Multimedia has a key role in stimulating the interest of students in learning. Multimedia is the only technology and digital source through which teachers easily get their teaching objectives and learners

Conceptual Framework

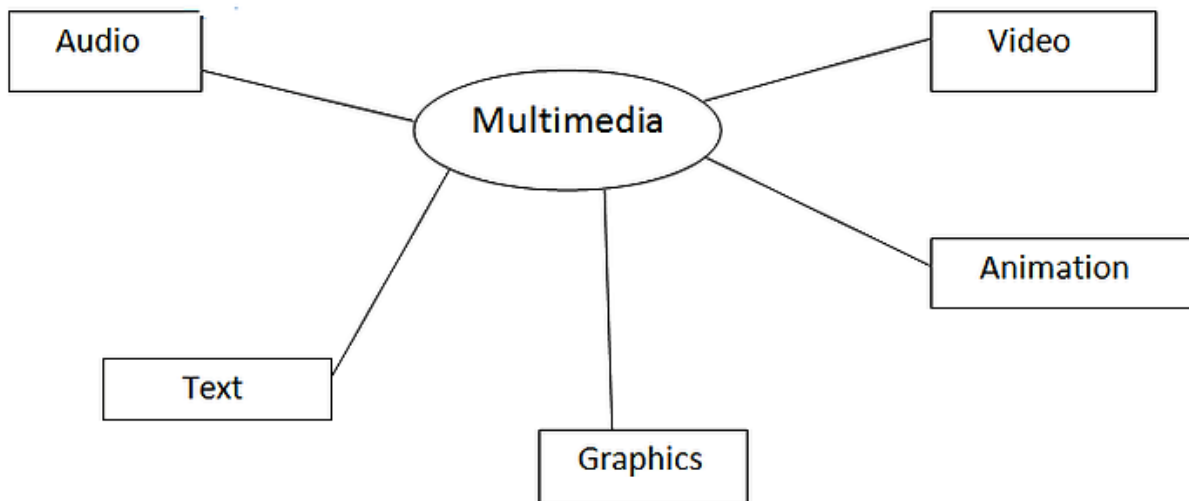


Figure 1: Conceptual Framework of Multimedia

Objectives of the Study

1. To find out the availability of Multimedia in Higher Secondary Schools of District Lakki Marwat.
2. To examine the utilization of Multimedia in Higher Secondary Schools of District Lakki Marwat.

3. To know the impact of Multimedia on academic achievements of Higher Secondary school students in district Lakki Marwat.

Research Questions of the Study

1. Was the Multimedia facility available in Higher Secondary Schools of District Lakki Marwat?

2. Was the Multimedia facility utilized in Higher Secondary Schools of District Lakki Marwat?
3. Is there any impact of multimedia on students' academic achievements at the Higher Secondary schools level in district Lakki Marwat?

Research Hypothesis of the Study

H₀: There was no impact of Multimedia on the academic achievements of Higher Secondary school students in district Lakki Marwat.

Research Methodology

The design of the study was a survey (descriptive) in nature. The population of the study comprised all Higher Secondary Schools in district Lakki Marwat in which (N = 2356) respondents (14

principals, 197 teachers, and 2145 students) were the target population of the study (See table 1). The total numbers of (n = 141) respondents i.e. 14 Principals, 20 teachers, and 107 students were taken as samples of the study through simple random and disproportionate sampling techniques by applying the John Curry sample size rule of thumb (See table 2). Data were collected through a self-developed questionnaire on a 5-points Likert scale with options Strongly Agree to Strongly Disagree carrying values 1, 2, 3, 4, and 5. Pilot testing including validity and reliability was ensured. Chronbach's Alpha value was used to calculate the internal consistency of the research instrument was .96 falling in the best category as per statistical rules. The collected data were statistically analyzed through SPSS by using Mean, Standard Deviation and Regression.

Table 1 The population of the Study

		Respondents		Population
Principals	Teachers	Students		
14	197	2145		2356

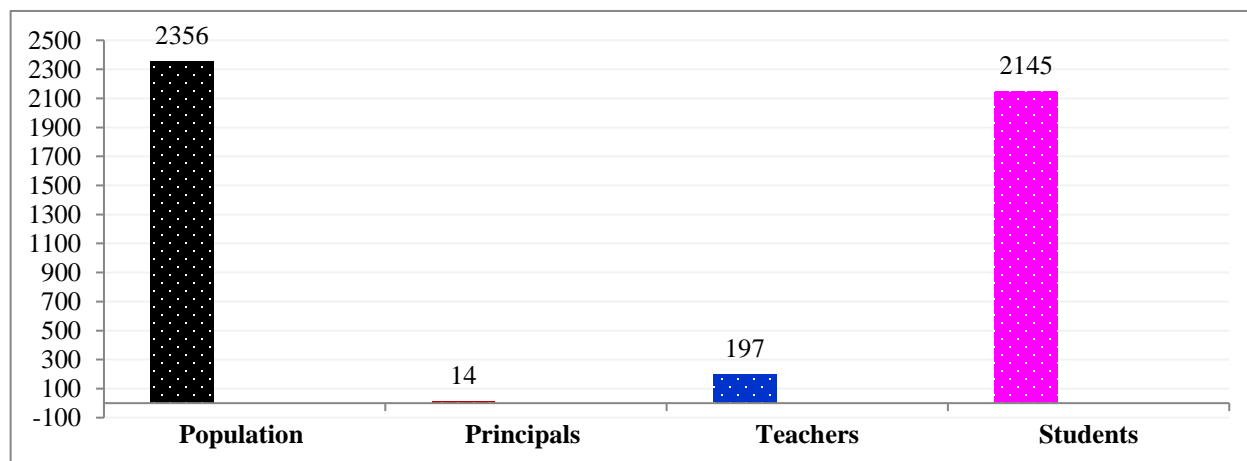


Figure 2: (Source: District Education Office Lakki Marwat (Male))

Table 2 Sample of the Study

		Respondents		Population
Principals	Teachers	Students		
14	20	107		141

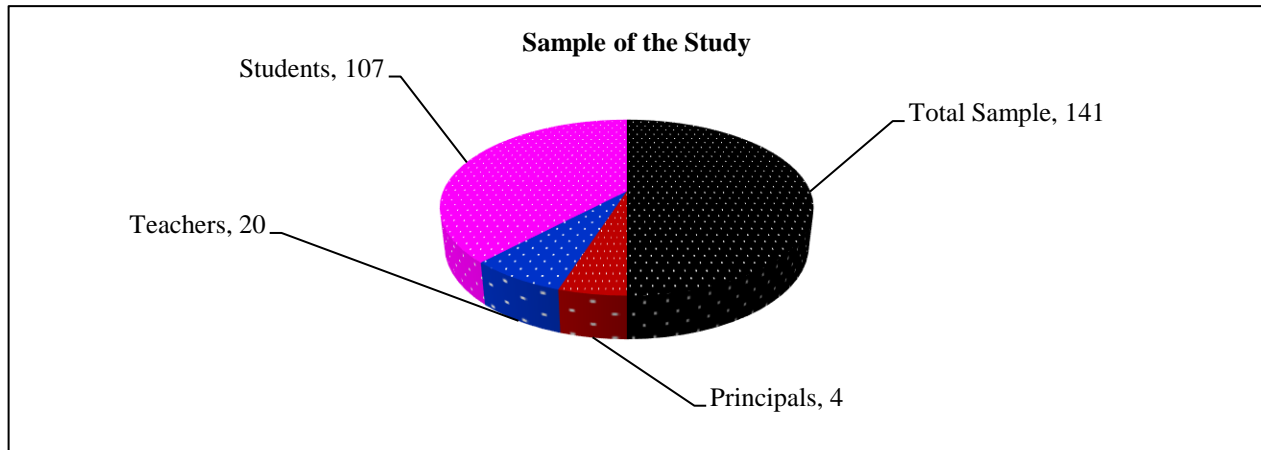


Figure 3: Sample of the Study

John Curry Sample Size Rule of Thumb

01-100	100%
101-1000	10%
1001-5000	5%
5001-10000	3%
10000 +	1%

Delimitation of the Study

The study was delimited to Male Higher Secondary Schools in District Lakki Marwat.

Results of the Study

Table 3 Availability and Utilization of Multimedia at Higher Secondary Schools Level in District Lakki Marwat

Items	Availability and Utilization	Statistics	Scale Used					Mean	Standard Deviation
			Never	Rarely	To Some Extent	Often	Always		
Multimedia	Available	Frequency	31	6	17	80	7	3.184	1.291
		Percentage	22.0	4.3	12.1	56.7	5.0		
	Utilized	Frequency	0	3	65	66	7	3.546	0.627
		Percentage	0	2.1	46.1	46.8	5.0		

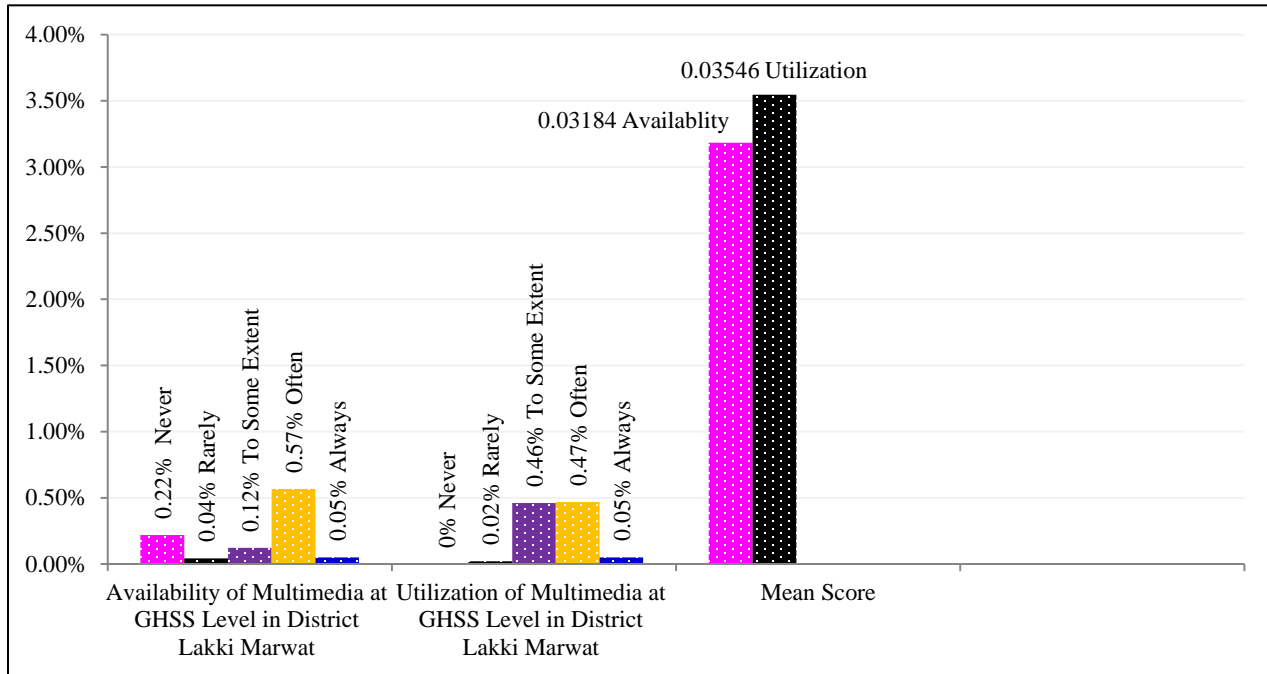


Figure 4: Availability and Utilization of Multimedia in GHSS Schools of District Lakki Marwat

Table 3 along with the graph shows the availability and utilization of multimedia in Higher Secondary Schools of district Lakki Marwat. Out of (n = 141) respondents, 31 (22.0%) respondents responded that multimedia facility was never available in Higher Secondary Schools whereas 6 (4.3%) respondents urged the rare availability of multimedia in Higher Secondary Schools while the responses of the respondents regarding the availability of multimedia facility in Higher Secondary Schools were noted 17(12.1%) to some extent, 80(56.7%) often, and 7(5.0%) respondents stated that multimedia facility was available in Higher Secondary Schools of district Lakki Marwat.

Likewise, no response was shown regarding the utilization of multimedia in Higher Secondary Schools. Moreover, 3(2.1%) respondents narrated that multimedia was utilized at the Higher Secondary Schools level in district Lakki Marwat; 65 (46.1%) respondents responded that multimedia facility was to some extent utilized in Higher Secondary Schools whereas the responses of respondents regarding often utilization of multimedia in Higher Secondary Schools were noted as 66 (46.8%) and always 7(5.0%) accordingly.

Table 4 Linear Regression Analysis of Multimedia with Students’ Academic Achievements at Higher Secondary School Level in District Lakki Marwat

Dependent Variable	Predictor	R	R Square	df	F-Value	Beta Score	p-value
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Student's academic achievement.	Multimedia	0.534	0.285	1	55.433	0.936	0.000
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Table 4 shows that the R-square value (0.285) indicated that 28% of the variance in students' academic performance was found due to the effect of multimedia. Likewise, the F-value was 55.433, the Beta score (was-0.936), and the p-value was (0.000) which was $<$ alpha value (0.5) representing that there was an extremely significant relationship between students' academic achievements and utilization of Multimedia.

Discussion

The results of the current study indicated that in the light of Mean values about Multimedia, it was noted that the availability and utilization of Multimedia in Higher Secondary Schools of district Lakki Marwat were approximately equal i.e. The Mean score about availability of Multimedia was 3.184 with Standard Deviation 1.291; and the Mean score about the utilization of Multimedia facility at Higher Secondary Schools level in district Lakki Marwat was 3.546 with Standard Deviation 0.627 respectively but utilization of multimedia was statistically found better according to the Mean score in table 3. As p-value was $0.000 < 0.5$ indicating that there was an extremely significant relationship between student's academic achievements and the availability and utilization of Multimedia. The results of the current study revealed that 22% of the respondents were of the views that there was no multimedia facility at Higher Secondary School level in District Lakki Marwat whereas the responses of 4.3% respondents were about rare availability of multimedia facility in Higher Secondary Schools of District Lakki Marwat; 12.1% respondents noted that multimedia resource was to some extent available; 56.6% respondents were found to say multimedia facility was often available in the Higher Secondary schools of multimedia; 5%

respondents urged that multimedia facility was always available in the GHSS Lakki Marwat etc. In the light of the above results, it was obviously and clearly revealed that multimedia facility was often available in Higher Secondary Schools of District Lakki Marwat. The results of the current study indicated that although very limited people utilize multimedia at the school level in Pakistan due to so many reasons including poor quality of education, poverty, low technological skills and expertise but the concept of using multimedia developing day by day to promote the quality of education.

According to the previous studies by Chen & Liu (2008), teaching-learning activities through multimedia play a significant role in the development of students' higher Order thinking abilities by providing fast delivery and access to course materials, tutorials, quizzes, presentations, tests and assignments to them to compete for the modern world. Aloraini (2012) asserted that students learn without their teachers at home through multimedia and save their time. Zin et al., (2013) found that multimedia improves students' communication and they easily attain their learning objectives within a short time. Students are motivated towards learning through multimedia lectures in their classrooms.

Conclusions

The researchers concluded in the light of the results and objectives of the study that the Multimedia facility was equally available and utilized in Higher Secondary Schools of district Lakki Marwat but utilization was found better in the light of statistical results. The researcher revealed that the utilization of Multimedia was given higher priority and importance at the Higher Secondary School level in district Lakki Marwat, Khyber Pakhtunkhwa, Pakistan for the

purpose to improve and enhance the teaching-learning process via the use of the latest technology i.e. Multimedia so that students may compete for the advanced world of the day through quality education by taking help from the latest technology in which Multimedia also one of its very important and significant resources due to which quality of teaching and learning is improved.

Declarations

Authors' Contribution Statement

The authors listed in this article have significant contributions to the enhancement and writing of this manuscript.

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Competing Interest Statement

The authors declare no conflict of interest.

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