CRITICAL ANALYSIS OF THE ROLE OF ICT IN THE EDUCATION OF PAKISTANI YOUTH

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It is certified that thesis submitted by Mr. Hasnain Falak Reg. No.141-FSS/MSSOC/S13 titled ***"CRITICAL ANALYSIS OF THE ROLE OF ICT IN THE EDUCATION OF PAKISTANI YOUTH"*** has been evaluated by the following viva voce committee and found that thesis has sufficient material and meets the prescribed standard for the award of **MS** degree of in the discipline of Sociology.

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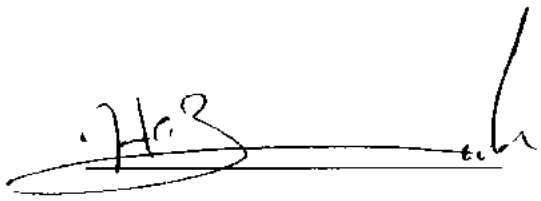

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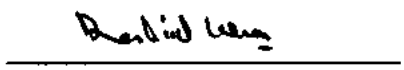

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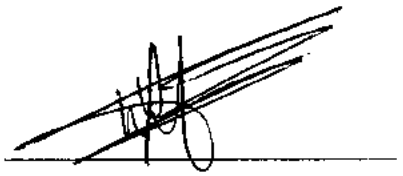

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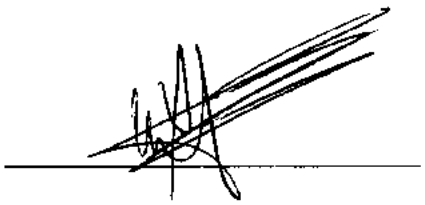

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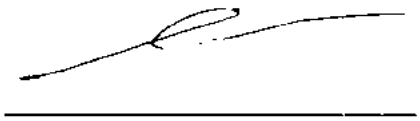

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ABSTRACT

This thesis analyzed the role of ICTs in the education of Pakistani youth. The main objective of the study was to understand how ICTs are used in the educational environment in Pakistan. It focused on how teacher and learners at the university level use ICTs and benefit from these technologies. The study was carried out by employing qualitative research methods. A total of 80 (20 Teacher & 60 Students) respondents were selected from five universities (International Islamic University, Bahria University, Qaid-e-Azam University, Shaheed Zulfiqar Ali Bhutto Institute of Science & Technology (SZABIST) and National University of Computer & Emerging Sciences (FAST) in Islamabad. The selection of universe was made with help of purposive sampling technique. Two separate interview guides for students and teachers were employed. The interview guide comprised of mixture of structure and unstructured questions with open ended and few closed ended questions. The study is informed by social constructionist of technology, technological and pedagogical and contents knowledge. The study findings revealed that ICTs are widely used by teachers in teaching and research. Nevertheless, teachers expressed strong apprehension that students, particularly undergraduate students, do not use ICTs for their academic development and studies. The study also revealed that postgraduate students used ICTs for their academic and research purposes as compared to undergraduate students. It is important to point out here that students need education, training and motivation for the effective use of ICTs.

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CHAPTER 1

1.1 Introduction

This study examined the role of Information and Communication Technology (ICT) in the education of Pakistani youth. ICT refers to all those technologies use for processing information and communication of messages such as mobile phones, internet, computer (hardware and software), multimedia (video projector), radio and television etc. (Anderson, 2008). ICTs are being used in education for almost 50 years. Technological advancements are continuously happening so its role is changing in education in intriguing ways. There is ample amount of research on use of ICT in education. Students and teachers are two pillars of education in society, but induction of ICTs have saturated it into a complex process. However, the world is moving very rapidly into digital media and information, the role of ICT in education is becoming more and more important. This study, thus aims to see the role of ICT in the education of Pakistani youth.

Since the implementation of ICT policy in 1998 in Pakistan, its potential for education, in lower and higher level has been recognized by educationists, researchers, policy makers and practitioners. Since structural implementation of ICT is underway but the opinion from beneficiary of these technologies are less likely to find in published archives. Thus, this sociological study is to highlight the issues and challenges faced by teachers and learners at tertiary level. Their understandings of ICT in education in terms of internet use and multimedia in classroom is questioned and critiqued analytically. Multimedia is another aspect of this study which have changed the classroom environment from traditional level to a modern era. These questions led this study to discover the insights of teacher and learner as if technology is a challenge in education or it is helping them grasp it. Furthermore, this study helped to find out the blank spaces in theory and practice of technology integration in education.

1.2 Statement of the Problem

ICT is an important area of research in sociology. It has been researched intensively in western academia (see Pritchett & Viarengo, 2008). The Western scholars have written and published on the role of ICT in education in western context (Kazuma, 2014 see review of literature chapter in this study). It is also getting attention of academia and researchers in Pakistan. Nevertheless, it has not yet received serious academic attention in the domain of research, especially in sociology. This study, therefore, is an attempt to study the role of ICT in the context of Pakistan educational institutions. The study mainly aims to examine the role of ICT in the education of Pakistani youth. This study is an attempt to explore the views of educationists and students regarding the role of ICT in education. The views of students and teachers are very important component of any educational institution.

1.3 The study's objectives

ICTs in education have been lengthily research in western world but its context in Pakistani institutions is not comprehended entirely. Keeping in view the importance of ICT in education, this study is carried out with the following objectives:

a) To examine the role of ICT in pedagogy.

b) To study learners' point of view on the introduction of multimedia in classroom.

c) To know the role of internet in the knowledge acquisition of the students.

d) To suggest some policy measures for the effective use of ICT in Pakistani educational institutions.

1.4 Research Questions

Focusing on the role of ICT in the education of Pakistani youth, this research sought answers to the following research questions:

a) What are the implications of ICT in the education of youth?

b) How do educationists think and perceive ICT?

c) How do learners think of the role of ICT in their education?

1.5 Significance of the Study

ICTs have steered the educational sector around the globe and changed its traditional ways. These changes can be seen in terms of learning, teaching, administration, resources or libraries and research etc. However, in Pakistani context these developments have not researched to a great level as compared to western educational system. This study was an attempt to know the educationists and student perception of ICTs in education of the youths. The findings of this study contribute new knowledge to the existing stock of knowledge in the field of sociology of education. It also starts a new debate and research in context of Pakistan. At the practical side, the findings of the study are of great significance for educational policy makers.

1.6 Organization of the study

This study has been organized into five chapters, for making it reader friendly and coherent. ***Chapter one*** constitutes introduction to the thesis. It encompasses statement of the problem, aims and objectives of the study, research questions and significance of the study.

Chapter two furnishes a detailed description of the theoretical over all empirical literature. Literature review covers the relevant theoretical and empirical review of literature on the role of ICTs in education. It also incorporates sociological literature on the student's and teacher's perception about multimedia in their classroom. Further it covers the different strategies to incorporate ICTs into education. It aids how students utilize the utility of internet in their particular subjects and researches. The overall literature review provides concepts used as theoretical framework of this study. This chapter helped in developing a theoretical framework for this study and provides an understanding of the ICTs role in education.

Chapter three highlights methods as well as journey of the current research in point. In its initial phase, it keeps an eye on the sociological background of the study and also exert light on the research design adopted. It underscores the standard for choosing of research locale, and the methods of sampling carried out. This chapter also imparts information regarding the data collection method applied, and that how the data was examined. Detailed report is furnished on the course of my field work. A short debate of my posture as research also underscored.

Chapter four is divided into two parts. Part one represents the teacher's responses whereas part two represent student's opinion on the role of ICT in education. The main focus in the chapter is to examine the perception of educationists regarding ICTs? and lastly how do learners think of the role of ICT. It also sought opinion regarding the role of ICT in their education. Careful analysis of field data demonstrates various reasons teachers support or regret ICTs in their practice. Their thoughts about use of internet in their educational development and how they use ICTs in their classrooms to carry out their activities. Likewise, student's point of view about ICTs in their educational domain. This chapter also shows student's and teacher's thinking of possible educational development with internet and how their institutions should incorporate ICTs to give them benefit at most.

Chapter five sums up the study. It has debated and discussed various themes that have been derived from chapter four. The discussion is linked with the theory and literature in the field of Sociology of Education.

CHAPTER 2

Literature Review

2.1 Introduction

This chapter reviews literature and describes the term ICT (Information Communication Technology) with multiple perspectives. Starting from its basic definition all of its component are defined eloquently. How ICTs are influencing our society's different institutions, among many, education is our focus in this study? How the innovative quality of ICTs consumed its place in the domain of education? Moreover, how teachers and students, the direct beneficiary of technological advancement, are carrying their educational activities in ICT environment? How they are coping with Multimedia in their classroom lessons? Further, ICTs integration in higher education is discussed with detail and referring academicians and researchers adequately.

2.2 What is ICT?

Information Communication Technology is shortened into ICT. Formerly known as simply IT (Information Technology), comprehensively this term specifies the role of combined communication in any form. Unified Telecommunication like telephone lines and wireless signals that is activated with computers and required software, storing capacity and audio or visual systems. This telecommunication grants us to access wide array of information worldwide. This information can be utilized, stored or transferred and it can be manipulated for personal benefits. ICTs have empowered our social bonds through different ways. Organizations of all sorts, political, financial, governmental and educational, have infused its usage into their processes.

ICT has no concise definition. The notions, methods and uses involved in ICT are constantly progressing on an almost regular basis (Zuppo, 2012). ICT can be express like an umbrella that

covers any device or application that is used for communication i.e. radio, television, cellular phones (mobile phones or telephones), computer, intra or inter networks, satellite systems, software, hardware and so on, as well as the numerous uses of aforementioned devices and relevant services associated (Abouzeedan & Busler, 2006). ICT is a mishmash of the terminologies of information technology and communication technology. Rogers (1986) clarify communication technology (CT) as the integration of hardware tools or equipment, organizational mechanism and values by which each person exchange collect and process, information with other individuals (Rogers, 1986). According to Abouzeedan and Busler, ICT contains computer and associated technologies by which database, events, other matters could be recorded or communicated (Abouzeedan & Busler, 2006). ICTs are frequently considered in a precise setting, such as ICTs in libraries, health care, public facilities and education. ICTs have inculcated these institutions of our society to a new level. Technology in society have evolved the social systems and created a new era i.e. technological era. An inclusive society, where technology is used to solved social problems tend to offer better lives for all e.g. for poor, for remote area and better education. This research aims at examining the roles of ICT in the education of Pakistani youth.

2.3 What are included in ICT?

Three words are the emphasis of ICT i.e. information, technology and communication. Information is the need of organization of every sort. ICT covers all those products that allow us to send or receive, store or operate information i.e. computers, digital television, emails or robots.

Basic element of ICT is computer. Computer can be defined as an electronic machine that have the capacity to receives any input and stores it for a specific period of time, further this machine operates according to a definite set of instructions or applications that gives results termed as output. Computer converts data into information (Stonier, 2012).

First digital computers, that made an impact in society, were used in 1940s, World War II. Those computers had huge size that filled the entire room, and their speed was slower if competed to contemporary computers, it was few thousands calculations per second. With this definition it used to take hours to perform intricate operation (Bailey, 1997). That same computer was later evolved into desktop computer in 1970 and then laptop in 1990 that gave way for its extensive use for business, personal and academic purposes. Presently computer is used universally, it is connected through internet and it operate nearly every function.

Internet is a stream where Information is able to travel with help of technology which we call as communication. Internet is the global system of interconnected computer networks where different devices worldwide are interlinked. These interlinking of devices allow the information to flow for communication. In other words, traditional communication media including telephony and television are older form of internet. Where Television shows visual or audio programs, internet displays websites, videos, animation, pictures, published books etc.

Skype is latest version of telephone, where we can see to whom we are talking. It is not only used in one to one conversation and conferences. Even official meetings are arranged through it making to run organization more feasible. It is still evolving.

Multimedia is newer version of Video Projector. It is being used for decades in cinema theatre. But further advancements progressed its' structure whereas we can use it for personal and business purposes. In an academic environment, Multimedia shows a series of information as text, images, videos, graphs, models, mind-maps and different colors. Multimedia depict the computer screen onto the wall. Possible to be seen by large number of people allowing them to discuss it openly.

2.4 Why ICT in Education?

ICT have the capability to be used in multiple practices. Teaching and learning have incorporated it as well. Mainly, its aim is to build new ways to expand teaching and improve learning processes. As we speak of this, ICTs have revolutionized education in a phenomenal speed. A whole new generation of people who were ascribed to computers and other ICT devices from their environment, who start using these devices frequently since their adolescent. This particular generation, in academic research, are called 'Digital Natives'. Born after the year 1985, are generally those who received computer devices from their environment. Before that the youth were merely fond of television or magazines that did not change them as drastically as Digital Natives (Facer, Furlong, Furlong, & Sutherland, 2003; Haddad & Draxler, 2002). As technology with its power of creativity, overwhelmed the whole generation of people, it took other social institutions into its power, among others education was one of principal undertaking (Haddad & Draxler, 2002). Researchers and academicians have worked for decades to produce greater benefit with ICT.

Hawkridge (1989) introduced three rationales that drives ICT integration in the domain of education with elaboration and clear understanding. He gave three reasons to represent his perspective of legitimacy to introduce ICT in education (Hawkridge, 1989).

Future needs of the present students as described by Hawkridge (1990) to have the skill and work force to solve the market and social problems. Bearing this purpose, ICT must be part of education. Hawkridge (1990) termed it 'Economic Rationale' This also include industrial development or make innovative products for future markets. ICT allows to virtually operate an experiment on mathematical grounds. Running the simulations for airplanes pilots training is not a new thing anymore. ICT enhanced education is easy to spread in remote areas where teachers face difficulties. Thus it is cost effective as a Radio or TV broadcast can save

expenditures and resources. Similar programs are actively functional in many countries including Pakistan.

Social rationale is to make students well informed and responsible citizens with the help of ICT devices i.e. computers, mobile phone and internet. These ICTs boost collaborations among individuals. Students could be able to discuss the study matter outside of class and prepare better assignments. Even the students with disabilities can fulfill their desire of education with specially designed books and exams.

Educational Rationale; that ICTs have highly supportive characteristics for teaching and learning to improve. ICT have this capability to be used in all subject. It can be used by teacher to explain his/her topic more elaborately for his/her students. Practical possibilities are open with help of ICT. If any educational phenomenon is required to be seen or to be done by students, different technologies are helping to fulfil this need e.g. multimedia, hologram and tutorials. Thus ICT enhances learning environments.

2.5 How ICT is used in Education?

ICTs in Education have made a remarkable 'big leap forward' in many parts of the world since its induction in 1990s. ICTs are now utilized for various reasons in educational organizations from top to down all levels, from administrative decision taking system to evaluation and assessment schemes (Stensaker, Maassen, Borgan, Oftebro, & Karseth, 2007).

Teaching and learning are principal parts where greatest concerns can be found in terms of ICT in education (Bates 2000). Here it is pertinent to clarify the peculiarity between the use of ICT in the environment of traditional teaching for likewise students, and other advance uses of ICTs. Various variation in education; part-time, interactive, distance learning schemes have brought tremendous developments. The growing internationalization and commercialization of higher education is the result of rising use of new ICTs (Pedro, 2001).

ICTs have created many expectations, among many, its growing use in education, researchers highlight it as it will lead to more broadening, offering to include new and non-traditional student groups, and inducing increasing international mobility (Stensaker, et al., 2007). ICTs in education is offering new opportunities at all levels, school, college and universities. Study programs that is adapting new technologies foresee the consequences in better future (see also Eriksen 2001).

2.6 ICT Incorporation in Education

Many studies have analyzed different strategies for integration of ICT in education (Svenkerud 1990; Tvermo 1992; Bates 2000; Fallshaw 2000). A Normative categorization of steps have been devised to develop a check list of important factors that would yield in successful outcome.

- An ICT strategy that has well defined goals and objectives
- The process of the organization is based on professional ICTs.
- Top management is committed to institutional Integration in ICTs
- Organizational initiatives need to linked to ICT for development
- ICT should be part of human resource management activities
- To prevail ICT process, comprehensive and relevant documentation should be improved.
- Financial resources should be available.
- Technical support and skills should be available.

A top-down check-lists as given above can be related to deliberate changes in the process of educational institutions to modern learning methods from traditional way of teaching. This also include the organizational structure of the institution to organize to ICT level (Stensaker, et al., 2007). In Pakistan's context, educational institutions have installed computer lab, Multimedia

and internet open for students. Beside this organizational structure is updated to ICTs however it is not completely established.

2.7 What is the role of ICT in pedagogy?

'Pedagogy' literally means the art and science of teaching pupils (Knowles, 1973). It is an art of "how" the teaching and learning occurs. Teachers use an array of teaching strategies to transmit the knowledge about any particular discipline to the pupils. Different combinations of knowledge of different needs of teachings are employed to pursue to have right learning of pupil. Some certain strategies are rightly suited to teach specific skills or fields of knowledge than others. Some approaches are more well-matched to certain students' backgrounds and learning capabilities.

ICT provides range of resources appropriate for the subject under study by students and teachers. A suitable ICT resource, MOOC (Massive Open Online Courses), tutorials, E-books, encyclopedias, scholarly articles etc. is helping to grasp learning objectives which include subject specific software. ICT resources are contributing to pupil's skill of presenting their area of subject and inspiring to challenge the traditional thinking skills that is extending in learning that subject. These resources have made available more information and ideas with range of historical backgrounds that could be going beyond the limit of pupils understanding.

Pupil's engagement to subject and its learning are varied after ICT infusion in education. Subjects lose the hurdles when animations, images and graphs are aided in its teaching. For instance, the Biology student is learning 'How two cell are formed from one with process of Mitosis?'; traditionally it can be explained by drawing it on black/white board but its actual video or animated image would appeal enriched understanding in pupils' mind. Different simulation and modeling are advancing rapidly to demonstrate each concept of educational world, such as chemistry or physics etc. Word Processing (MS Word) is helpful in learning

English literacy and understanding documents formatting. It has benefits for both students and teachers while the education level is raising on national level due to ICT influx in the industry.

Pupils' understanding expanding with ICT created new challenges for teachers while preparing lessons for class sessions. Knowing the fact that pupils are aware of the resources of knowledge put teacher in position to be more creative and effective to explain his/her subject matter. One way of class organization is by dividing students in groups, assigning them topics and allow them to learn on their own is always considered an effective way for whole class teaching. But depending on the subject matter of the lesson individual learning is also applicable. Moreover, persuading pupils to discuss the phenomenon and talk what they know about it, is effective to eradicate any doubts in pupils' mind.

Assessment of students is one the most important part of their education in present ICT age but it is difficult at the same time (for example see Black and Wiliam, 1998). Keeping records of pupil's activities in accordance to the bulk of ICT resources surrounding is a challenging task. Teachers are often asked to summarize the pupil's capability in relation to the subject and his/her presentation of subject matter. Learning objectives are defined by teachers of every pupil after carefully analyzing his/her role and behaviors while his/her understandings about subject. Many factors are involved to justify a student's fair assessment i.e. students' ethical behavior, team work qualities, creativity, understandings reading & writing skills and critical thinking skills.

Broadly, ICTs in education covers the practices of teachers, learners, assessments of learners and their goal to adapt advance technology in future. Understanding the market needs and social problems is vital to realize to students. If the school environment is not apt to society's level of development, education is not fully served.

2.8 ICT in Higher Education

Over the past 20-25 years, a significant social change has occurred with computers, internet and social media. ICTs have influenced higher education throughout the world. Major areas in higher education where ICT have influenced to a greater degree is teaching, learning, research and administration (Kirkwood, 2013). Administration provides fluent access to technology. It can be in different ways. Some of universities provide computer labs for students to access ICT equipment or internet connection. Others require computers for certain courses but not for all. In some institutions, students bring their own computers. Each of these cases have has cost and support consequences for the institutions, its staff and students.

Since 1990s, ICT adoption in education have increased phenomenally. The term 'Technology Enhanced Learning' (TEL) is progressively used for it. Where ICT tools are used along with traditional education to expand the learning experience of pupils and allow them to innovate for social benefits. TEL generally implies that technology use is increased in order to improve the environment where educational activities are undertaken. Improving the practices of teaching is its one category and students' learning outcome is enhanced qualitatively or quantitatively.

2.8.1 Learning

A term 'Net Generation' or 'Digital Native' have been used for young people who have been living with digital technologies since their early lives and supposed to have greater understanding with wide array of ICTs. Learning Management System (LMS) is introduced for higher education learning in many parts of the world. LMS is using technologies for delivering tracking and managing training and education. For instance, electronic attendances, tasks on time and student progress for better assessment. Announcements, grade assignment, checking course activity and participate in class discussions and directing student guidance.

Learning can be turned digitized by submitting their work electronically, while taking quizzes for discussion questions. LMS range from managing educational records to issuing courses through internet and offering online collaboration. This involves student's individual use as well as collaborative use for further understanding. Shared folders on internet e.g. Google Drive are distributed to reach required files jointly.

2.8.2 Assessment and Plagiarism

Being exposed to greater environment of large pool of knowledge in education as well as in the wider society, students are demanded of proficient skills, knowledge and competencies from the courses they are doing in universities. They are provided greater learning opportunities sources. They are participating in this expanded networked society with interpersonal communication and digital resources. Assessment of these students are carried out with greater expectation. Their reports bear more references to scholarly work.

Although plagiarism is unethical but it is considered a normal practice among 'Digital Natives'. Students' potentials have been increased with ICT growth. The 'copy and paste' materials from one course to another to compile assignments have facilitated students, furthermore, search engines have made it easier to locate relevant sources from around the globe. Mainly, plagiarism have two forms. To intentionally deliver the work of someone else's as if it is their own is first form of plagiarism. This practice is witnessed when students provide their assignments that have been written, to some degree, by someone else. Besides that, in the second form of plagiarism the aim is not directly deliberate. Other sources' materials are included in student's work but the intentions was not to falsely claim it their own but because they could not acknowledge academic practices while referring other's work.

To minimize the plagiarism activities, two major approaches are brought into practice. First, to include software use that detect real sources of copied materials. Secondly, students' awareness

is increased by what is expected from them. That would increase their involvement in course reproduction from text and resources available (Carroll, 2007).

2.8.3 Teaching

ICTs provide a great sea of information and knowledge but keeping in view the understanding of level of students, teachers creates a particular context that suits the lesson underway. Teachers take out most appropriate and authentic version of information for learner. In order to perfectly correct play this role teacher utilize ICTs in different ways. Some teachers follow the established institutional ways of operating ICT in pedagogical manner. It is conducted as guided by curriculum. While others independently adopt the innovation and present a unique picture in their lesson.

Higher educational institutions plan their way to induce ICT tools in their programs very carefully, it matters for their procedures and purposes in long term professional development of their students. It also reflects the type of teaching practices followed by lower institutions of university. Presently, successful use of technology in higher education is the demand of twenty first century, a teacher along with university settings re-appraise his/her methods and prepare better learners.

When we consider about ICT use to support higher education, some of teachers have a notion solely about content or materials. They see capacity of ICT, how it is capable to store and deliver teaching resources, or its prospective role in searching and recovering dispersed materials. Others think of ICT chiefly for communication that it has the capacity to enhance and facilitate the process of dialogue in an education environment. These two perspectives are linked to a normal conception in higher education where teaching is seen as a process concerned with knowledge transmission or facilitation of learning, one is teacher centered another is learner centered (Kember and Kwan, 2000)

2.9 ICT in Classroom

Classrooms have changed drastically over past two decades with ICTs all over the world. It has provided more options and opportunities for teacher in classroom with increasing variety of technology. ICTs in classroom include various devices e.g. computers, calculators, multimedia, internet connection and audio/video aids. Computer devices have developed from different forms. Once they were huge to set on desk, they were called Desktop, they have minimized with time that fit in our palms of our hands. Internet connects all these devices and connects students to each other in class room through the educational institutions and around the world.

According to Toffler (1991), "The illiterate of the 21st century, will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn" *(Toffler, 1990, p.7)*. Jategaonkar and Jategaonkar and Babu (1995) highlighted that technology proposes an amazing opportunity for better instructional styles. There should be basic education, core work skills and lifelong learning available for all. These are the basic educational and training necessities in latest global economy as defined by the International Labor Organization (Jategaonkar & Babu, 1995).

Universities all over the Pakistan (with few exceptions) are operating with new technologies in their classrooms. Multimedia projector is used by teachers in classrooms. Computer labs connected with internet are now part of the teaching and learning context. Students after classes use computer labs to assist their study.

Higher Education Commission (HEC) of Pakistan had directed all universities to include adequate ICT tools in their structure. Recently HEC have distributed nearly one million laptops among university students. They were also provided education educational software and online membership in Microsoft Office enterprise.

Communication in student's sphere is evolving with technology. New ideas in many forms are available for them. That need more efficiency and collaboration skill to understand and work in groups to understand different experiences. Unique ways of learning are possible due to different types of media.

ICTs connect students to form an online group network, not only from one classroom but from around the world. They are linked and collaborate with each other. This has resulted in a new learning experience along with traditional classrooms. Students in ICTs rich environment are offered different experiences affording individual learners. Schools and universities have offered web portals on their websites reachable for their affiliated students offering positive activities i.e. volunteering, competitions, polls or opinions and magazines. This way teachers and parents can see student's participation and their interests based on their direction. It also helps to evaluate them.

Haddad and Draxler (2002) recognized five levels of technology use in classroom e.g. exhibition or presentation, demonstration, practice, interaction, and collaboration. Different devices comprising ICTs i.e. print, audio/video cassettes, radio and TV broadcasts, computers or the internet, are capable to be used for presentation and demonstration, that is basic of the five levels. Drill and practice may be achieved using wide array of other technologies. TV and Video cassette player have been replaced by multimedia. On the same token, connected computers and the Internet are part of ICTs that enable collaborating learning at its finest; their full capacity in education will stay unexplored if they are used merely for presentation or demo (Haddad & Draxler, 2002).

2.10 How Teachers Perceive the Use of ICT in Classroom?

Integrating new technologies into the practice of teaching is evolving it to a complex level challenging the profession of a teacher and making it a pivotal point. In teacher's profession

ICT integration is again an important issue. Teacher's practice must incorporate both knowledge and contents, and professional and pedagogical proficiencies for better output. There must be strong relation between these two as they are not separate fields. Knowledge and pedagogy must be integrated in order to build the professional ability of a future teacher. Teachers' practice any educational institutions e.g. school, college or university is founded on theoretical and academic training. Again, these two components of teacher education are not independent, but must interact, must be fed one by the other. It is again a matter of integration.

Teachers reproduce the way they are taught. So in teachers' education, the methods and the pedagogical strategies which are used are at least as important as the content. These pedagogical strategies must meet the demand of technology driven practices. In teacher education, the first thing that is needed is not courses or contents about the use of new technologies, rather the new technologies must be part of their training.

Teachers are required to apprehend and acquire something new through ICTs, to have the experience that ICTs brought them something that was impossible otherwise. It is therefore absolutely necessary to integrate new technologies from the moment when teachers start their training to teach. This depend upon the government policy which are carried out by teachers' education institutions.

A teacher is teaching in an information society, i.e. an environment where ICT tools will be routine part of every individual's life (Papert, 2006). The computer oriented pupils or 'Digital Natives' are entering the educational institutions. To make the new educational system more appealing and active ICT plays a substantial role. Paradigms of education are changing. Teachers need to become accustomed to this change, to act as "change agents" and help shaping educational cultures. They are required to be confident users of ICT to empower students' learning, but also recognize uses of ICT, which can empower learning.

Bernard Cornu (1995) have given a conceptual framework for teacher development explaining how come a teacher can meet the needs for future information society. How the working practices are occurring in teachers training that could alter the process and organization in their institution? He stated his idea by giving goals, methods, tools and roles for teacher to adopt for this purpose. Goals of a future teachers are building a coherent and consistent professional culture for using ICT in their practice. ICT should become a natural component ICT uses for learning purposes and to design appropriate ICT solutions for practical cases (Bernard Cornu, 1995).

2.11 How Students Think and Perceive Multimedia in the Classroom?

The implantation of Information Communication Technology (ICT) and innovation into training has made a huge effect on the instructional substance advancement and the techniques for conveying information to learners. This prompts to produce new concepts and generate refining strategies in the direction of learning procedure, thus altering the traditional way educators instruct and pupils learn. This evolving scene of training spotlights on adapting educational modules and guideline. It tries to make an era of learners whose learning is characterized as the potential to hold, orchestrate, and apply skillfully mind confusing data in significant ways (Lambert and McCombs, 1998). It also empowers better understudy learning through the learning targets of task based learning, or learning by doing practically (Schank, Berman and Macpherson, 1999), and to empower critical thinking, examination, innovativeness and correspondence to occur in the classroom (Bates, 2000). Notwithstanding, these sight and sound innovation has been appeared to influence understudies' inspiration also, self-regard levels, and in addition permit them to end up imaginative and self-coordinated masterminds (Agnew, Kellerman & Meyer, 1996).

In Pakistan, the traditional mode of learning is still used in higher education. However, in the context of introducing technology and multimedia in learning, the Pakistani Government is

echoing to transform its education system with modern methods. There is a strong need in our learners to have a solid grip over communications, analytical, critical and creativity skills that are significantly lacking in graduates these days. These skills should be the goals of our new education system where it takes helps from technology or continue with traditional setup. Some teachers use technological innovations to assist their lesson and simplify it for learners. While other institutions enforce new ways of the modern world and allow learners to experiment their cognitive skills to grasp more complex form of knowledge. Multimedia is a constructive tool in modern education setup, it promotes teaching and learning experience in every context.

Wilson (1995) highlighted a constructivist environment that is fruitful for leaners, a place where learners work on anything jointly using a variety of ICT resources and they pursue their goals while facing the challenge jointly (Wilson 1995). It is a situation that takes into consideration learner-focused exercises to happen where the instructor furnishes the student with experience that permit them to create critical thinking, basic intuition and inventive abilities, and apply them in a significant way. Here a learner work cooperatively to decide their learning objectives, set their learning ways to achieve their learning goals and screen their own advancement. The instructor is no longer seen as the sole command, however as the facilitator of learning, controlling and supporting learners all the while of developing information. Constructivism involves an in number conviction that learning is an individual translation of the world; and that learners make elucidations of the world in view of their past and current encounters and elucidations (Wilson, 1995; Jonassen 1994; Duffy and Cunningham, 1996; Jonassen and Henning, 1999). Amid constructivist taking in, the accentuation is on learning and on the understudy driven the learning environment. Pupils ended up dynamic members in their own learning procedures furthermore figure out how to take care of issues and work cooperatively.

College classrooms have been tried many times to be decorated with multimedia and applauded its use for more creative factors but among others teacher's preparations, same textual approach, lack of integration with active examples, and above all electricity outage are reasons that restraining a product of multimedia education system (Doering, Hughes, and Huffman, 2003). No doubt, studies from western countries have confirmed that, student expectations regarding increased use of interactive multimedia experiences have increased as the characteristics of learners have changed with internet usage (Tapscott, 1998).

Students are generally much more aware of utilizing computerized media than the teachers who are instructing them. Classroom procedures does not meet learner's expectations particularly in the territory of coordination and utilization of Multimedia (Coupal, 2002).

Computer-based multimedia learning environments comprising of pictures or graphs and text offer a potentially powerful venue for refining student's potential (Mayer & Moreno, 2002). How can we use words and pictures to help students understand the process of complex scientific systems, such as making of lightning storm, operations in human respiratory system, or how a bicycle tire pump works? Multimedia comprises four components: a computer, a projector, a software and the display panel made of white cloth or a spotless wall. The computer images are displayed on the whiteboard by the digital projector and all applications on the computer can be controlled via touching the board, either with your finger, or with an electronic pen/stylus. In addition to that, the touch-sensitive screen captures everything written or drawn on its surface in real-time (Cutrim, 2008). It provides a seamless access to multimedia resources, such as digital video and audio files, CD ROMs, Power-Point slides, websites, in combination with the facility to highlight, annotate, drag & drop and cover displaying parts (Gray, Hagger-Vaughan, Pilkington, & Tomkins, 2005; Hall & Higgins, 2005; Moss et al., 2007).

Explaining student's perspective in a multimedia environment Mayer (2001) have stated that learner goes through verbal and visual material in a multimedia classroom. He gave three postulations that the dual channel (visual and verbal) assumptions suggest that visual and verbal information is processed in separate channels, student do not have unlimited capacity to absorb information from both channels, that is why he argues that meaningful learning can take place if conscious efforts are made in selecting, organizing new information with existing set of knowledge (Mayer, 2005).

Plass, Chun, Mayer, and Leutner (2003) worked on multimedia assisted learning and identified that student's limited working memory that possibly can impact learning behavior negatively in multimedia learning process (Plass, Chun, Mayer, & Leutner, 2003). For instance, some researchers have highlighted that developing a mental image of a subject in pupil's mind with multimedia enhance environment, is a complex cognitive task. It is a demanding process specifically for learners with lower level of prior knowledge about the subject (Seufert, 2003).

Seufert (2003) conducted a study where three groups of university students had to learn a single subject but different topic such as complex chemistry, using six different procedures of representation such as texts vs. animated images or graphs. She presented her conclusion that students' sound knowledge construction is based on their prior subject material knowledge that can steer the meaningful use of multi modal representations in multimedia use. If student comprise a smaller amount of knowledge of subject matter, their focus is limited to only one representation. These findings from Seufert are in line with the cognitive theory of multimedia learning as presented by Mayer (2001), which postulates that adding interesting but unimportant material which is related to the subject but not supportive of educational goals may cause the learner to face problems in using limited cognitive resources on incidental processing, leaving less cognitive capacity for essential processing. Here we have two types of

claims that multimedia is not always useful as the dual channel of information confuse the cognition of pupil, while multi-sensory capacity is increased by multimedia is second claim Seufert (2003). Pupils in Levy's study (2002) identified concerns like it can be perplexing for students and it is intricate to take in.

Beeland (2002) says that ICTs in classroom make lessons more enjoyable leading learners to be more motivated towards lessons, further they have increased attention and behavior (Beeland 2002). According to Levy (2002) pupils experienced more fun and exciting. This is not only attributed to ICTs in classrooms but their quality representations are a vital factor. When large images and valid animation are added to a lesson for students who are already part of these advance technologies (Glover & Miller 2002; Beeland 2002). Teacher involvements to higher level influence pupil perception (Cogil 2002). Levy (2002) studied that when multimedia was added to classroom, students were feeling interests and keenness. Similarly, teachers in Miller and Glover's (2002) study felt that pupils' enthusiasm for learning was boosted by the components of multimedia and its multimodal depictions. The opportunity to use the multimedia to present and discuss student's work increase involvement that improve attention of students and engage them in learning process (Bell 2001; Burden 2002; Miller & Glover 2002; Becta 2003).

Multimedia is claimed to promote multi-sensory capacity (Smith, Higgins, Wall, & Miller, 2005). The visual images enhance student's recall after the lesson is finished (Burden 2002). Science students stated that multimedia helped them remember more from the lesson while experimenting in lab (Damcott et al. 2000). Then text and images or animation are played to realize any idea, it increases the understanding of the subject matter and ultimately making it more striking (Thomas 2003). Moreover, Multimedia facilitate information as showing it in colors or shades, it also annotates and manipulate the data for viewers. For instance, move and

zoom or focus on figures in a pictures, including text, is helping to augment the process of learning (Damcott et al. 2000; Bell 2002; Levy 2002; Thomas 2003). For example, handling colors in visual and images are tend to simplify an understanding of statistical data that is shown in graphs, fractions and percentages in relation to colored squares or bars in a shape, the measurement of specific angles, and the changing of pie graphs (Edwards et al. 2002). The capacity to present a range of information through multimedia devices efficiently is argued to help pupils. There are many reasons, among other, more additional information at hand that support ideas and concepts in the subject making them tangible for students, easier for them to grasp (Levy 2002).

2.12 How ICT Is Integrated into The Classroom of Higher Education?

ICT integration in higher education is at the heart of numerous studies in the ICT integration literature (e.g. Afshari *et al.*, 2009, Meneses *et al.*, 2012 and Tondeur *et al.*, 2007). ICT integration means that ICT is used in education to foster teaching and learning processes while the administration is also run by advance technological ways. It's changing nature in classroom is insisted for the use of ICT as a control for instructional change (Vanderlinde & van Braak, 2010; Watson, 2006). Baylor and Ritchie (2002) state that many researchers operationalise ICT use in terms of a basic dichotomy whereby ICT is either used as the subject of study or as an instructional tool to teach other content. Niederhauser and Stoddart (2001) stress on the use of software in teaching, drawing a line between skill-based knowledge transmission and open-ended constructivist practice. Nowadays, academicians are not using ICTs for monolithic purposes alone but emphasise its multi-pronged integration in classroom. Thus we can claim that ICTs are a complex phenomenon concerning its various use in classroom. Following this discourse, Tondeur *et al.* (2007) categorized three types of computer use: (1) ICT use as information tool, (2) as a learning tool, and (3) learning ICTs skills. Beside this, Baylor and Ritchie (2002) distinctively described ICT use in education sphere that include; ICT use for

subject matter, for collaboration and obtaining higher order skills. Discussing ICT integration in classroom have created a huge discourse in academia and research tradition (Kozma, 2003). This is spread on various degreed e.g. student, teacher, school, and policy but the ultimate beneficiary is teaching and learning (Cox, 2008).

Teachers play an integral part to assimilate ICT in their activities. Different researchers have agreed upon that teachers' attitudes towards ICT is either a significant enabler or barrier to its introduction to educational institutions (see Afshari, Bakar, SuLuan, Samah, & Say, 2009; Cox & Marshall, 2007; and Jones, 2004; for a wider discussion). Many studies have made substantially efforts to analyze the role that perceptions of ICT and, particularly, the precise attitudes towards ICT utility as an educational tool, play to enhance teaching and learning processes (Bullock, 2004; Salleh, 2005; Sang, Valcke, van Braak, & Tondeur, 2010; Tondeur, 2007). Moreover, studies conducted by Albirini (2006), van Braak *et al.* (2004), Sadik (2006), and Wozney, Venkatesh, and Abrami (2006) provided a better understanding of the different elements that organize these attitudes i.e., computer confidence, computer anxiety, and computer liking as well as the processes concerning its formation and change.

Vertical Integration (Yeomans *at al*, 1995; Stevenson, 2000) is another term used for ICT usage in school, college or university. It is also called Discrete ICT (Crawford, 2001), or add-on or addition of ICT (Cornu, 1995; Runyon and Lund 2002), It is the first model of ICT integration, in which ICT is taught as a separate special subject. In this vertical ICT integration model, separate textbook or guidelines are developed according to pupils' level and then the courses are added to the curricula (Cornu, 1995). For this purpose, a computer room or lab is additionally established in institution, and a time is allocated to use it further (Crawford, 2001). Another is Horizontal Integration, Crawford (2001) defined it as teaching ICT as compulsory part of other core subjects, like pure sciences, or art etc. (Stevenson, 2000; Yeomans et al., 1995). This model does not require separate time allocation or computer lab rather ICT tools

are part of lessons in classrooms. In this model it is consider that ICT integration will take place entirely in National Curriculum subjects (Crawford, 2001). Crawford (2001) describes the hybrid ICT integration model, as the combination of vertical and horizontal ICT integration models. The hybrid model, due to its applicable characteristics, is the most common model to regulate educational institutions (OTA, 1995; Yeomans et al., 1995; DfEE, 1998). McCoy (1999) highlighted that to educate teachers to use ICT, it must be integrated in all of teacher education programs (McCoy, 1999). Besides this, there are many studies shows that ICT skills of student and teacher improved as they used its resources in their courses (Duran, 2001).

Meneses et al. (2012) speak about professional use, highlighting the distinction between 'supportive' uses and 'management use' of ICT in education. The first is linked to classroom preparation activities like finding supplementary information for lessons. s. Management use is related to teachers' general duties in functioning of schools as organizations (e.g. performing administrative tasks, communicating with colleagues, interaction with parents and students).

2.13 How teacher think of multimedia in the classroom?

Multimedia has been researched in multiple reports concerning teachers, they find out that Multimedia has a dynamic flexibility that make it to be adopted anywhere and in different age groups in various situations (e.g. Austin 2003; Jamerson 2002), from grassroots level (Wood 2001; Lee & Boyle 2003) to tertiary education (Malavet 1998; Damcott et al. 2000; Ekhaml 2002) and even distance education that include vocational education as well (Abrams & Haefner 1998; Bell 2002). This adaptability extends its limits to the content and mode of lessons and activities taking place in educational institutions. Smith (2005) highlighted the benefits of using a package of images and animation to support all kinds of pupils' skills where it helps them notify any idea and discuss the subject under discussion. Similarly, multimedia help teacher to rigorously explain ideas and concepts. If a teacher wants to start a focus group discussion among pupils, these ICT tools can aid him efficiently. Smooth transition between

activities within a lesson going to verbal lecture and playing a video or animation all are possible simultaneously for a teacher in multimedia setting. Pupils having less knowledge regarding topic under study are able to talk when the ideas are described more eloquently, deep learning is possible in whole-class discussion, furthermore it leads the classroom to share their thoughts ideas and theories. Teachers also report that multimedia extends the possibility to beyond the traditional level and provide what is mandatory in lesson. Miller and Glover (2002) described a teacher's approach as he used to split the multimedia display into three parallel longitudinal screens. What is about to be taught would be on middle, preceding text on first and third screen shows texts already discussed or taught. This method allows pupils to stay on the track by connected to what goes on and goes by. This is helpful for groups with lower ability and weaker background in technology (Smith, et al., 2005).

The range of materials and the facility to manipulate them is reported as a major benefit of multimedia in classroom. Levy's (2002) interviewed teachers and he found out that teachers' capabilities were extended beyond traditional practices. They were able to draw new approached in classroom lessons with multimedia. Morrison (2003) describes his experience of using multimedia and said that he can bring a history class to life with multimedia. He further added that using 360 panoramic views he can bring his pupils to First World War by enabling the same sounds and evoking same smells of the warfare battle. In the same manner, Evans reported that using multimedia for images of historical importance, written information and diagrams are creating the environment of discussions alongside PowerPoint representations. (Virtual Learning 2003). Similarly, Johnson (2002) have endorsed the use of multimedia to boost literacy in classroom.

Although multimedia using takes time in the beginning due to its technicalities and lesson preparation (Glover & Miller 2001; Greenwell 2002; Levy 2002; Ball 2003), but teachers have emphasized that with the facility of multimedia, planning time is reduced. The major reason is

that the lesson material can be save, share and re-use many times (e.g. Lee & Boyle 2003). For instance, a teacher interviewed by Levy (2002) said that it is an investment when an additional amount of time is spent on lesson preparation. The resources that he created are still under used and the work as become easier. Another group teacher interviewed by Glover and Miller stressed that the contents develop for multimedia is used again and again. Further they said, these materials are improved before every use thus improving and developing the teaching practice. In some of universities these contents prepared for multimedia are shares across the campus via inter or intra net (Boyle 2002; Levy 2002). One of teacher in Miller and Glover's (2002) study that this kind of practice is beneficial in saving time and money altogether. This also save the resources that could be used more efficiently. Although longitudinal studies need to be carried out to study the benefits of multimedia but the outcome at hand is not a minute thing (DfES 2004).

2.13.1 Problems and Issues with Multimedia

Multimedia required proper setting for and it is most frequent concern highlighted by teachers and students; a broad white sheet, setup of multimedia projector before every class that consume considerable amount of time. This happen in old institutions where the multimedia is not yet installed in classrooms rather it is brought to classroom in every lesson because the rooms are not protected enough to secure any valuable item in it. These hurdles are literary disrupting the lesson for teachers. Some researchers have highlighted that even when a teacher aims to use multimedia as a pedagogic scholastic tool, lack of practical training can impede and frustrate such aims (Malavet 1998; Greiffenhagen 2000; Burden, 2002). One more practical issue that is faced by teachers in Pakistan is the electricity problem. Government have a load-shedding policy that means electricity is cut off for a significant amount of time in 24 hours. It is not easy to carry on the lesson if it's being prepared for a multimedia but electricity is keeping you behind. Beside these technical problems other still sustain for instance

networking problems, slow internet, or angle settings of multimedia projector. Sunlight or lights in the room are also affecting to visualize the view of display. Additional accessories have to purchase in order to notify any point on the screen. Different concerns are raised in various studies regarding health and safety of the wires needed for multimedia and its affiliated tools (Bell 2001; Smith 2001; Tameside MBC 2003).

2.14 Theoretical Framework

With an insight from the literature review some key concepts are engaged here to come up with a theoretical framework for the informed analysis of my data. Theory of Technological Pedagogical and Content Knowledge (TPACK) by Matthew J. Koehler and Punya Mishra (2009); Cognitive Theory of Multimedia Learning by Mayer (1997); Cognitive Load Theory (CLT) by Sweller, Van Merriendboer, & Paas (1998); and Social Construction of Technology (SCOT) by Pinch and Bijker (1987) provide good theoretical base for the analysis of my data.

Theory of Technological Pedagogical and Content Knowledge (TPACK) gives a framework for teacher to effectively integrate technology into the complex practices of teaching (2009). It covers the content and technology as well as the actors (teacher and learner) involved in the educational processes. It is important to mention here that technological advancements have created new challenges in education, including teaching. This theory focuses on how all these components can be effectively used for the sake of learners. I have sought the opinions of the teachers and learners to see how technology is used in teaching learning in Pakistan. How ICTs are integrated to classroom practices? How they (teachers) use ICTs to create effective teaching and learning environment.

Cognitive Theory of Multimedia Learning highlights how information (images, videos, graphs and colors) presented on multimedia are advantageous to learners. It points out that excessive multimedia learning brings cognitive load on learners' minds. If learners have prior information

about the topic/lesson, the load will be less while a new topic or subject will cause confusion which in turn minimize the leaning. This theory is very pertinent to acknowledge the learners' understanding in multimedia environment. Drawing on this theory I have sought to know the perspective of students. The aim here is to know how learners experience multimedia and non-multimedia classroom teaching.

Social Construction of Technology (SCOT) challenges technological determinism (see Bijker, 2009). Social construction of technology explains how people control, influence and use technology for their benefits. It emphasizes explains how society molds technology for its own purpose. It highlights the interpretive flexibility of technological artifacts that takes a new form in specific social settings. It does not focus on impact of technology on society rather the changing nature of technology is considered to be observed. When society sees any scholarship in any technology it molds it as per its requirements. In the framework of SCOT, it is attempted to know how ICTs are controlled, influenced and used by teachers and learners in the academic environment of Pakistan.

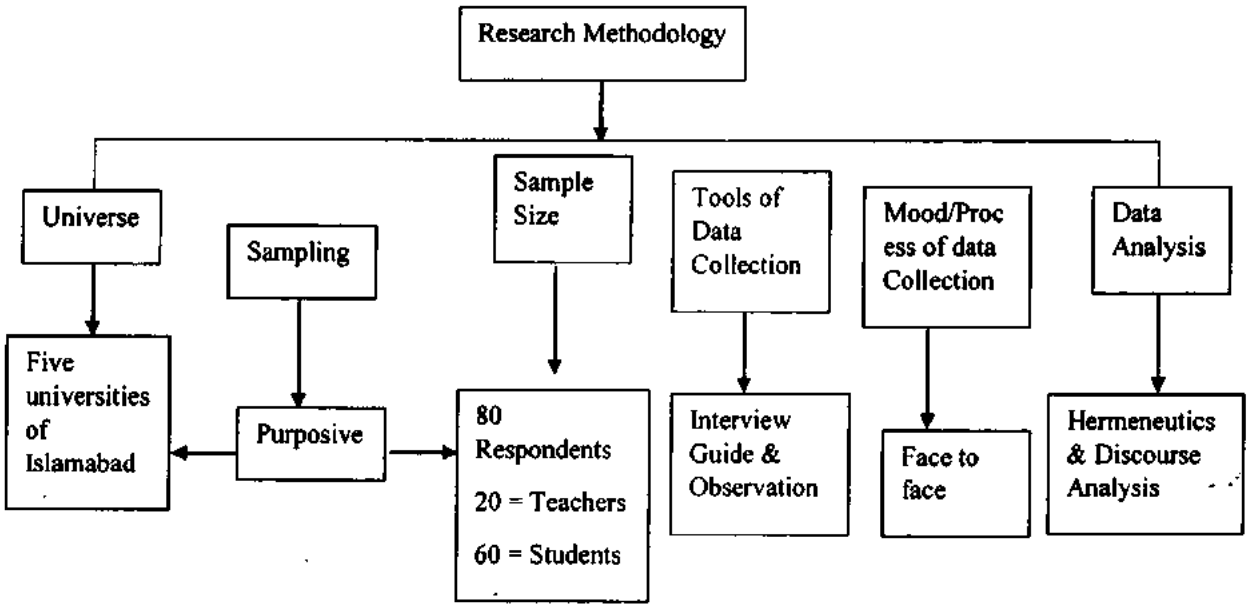
CHAPTER 3

Methodology

3.1 Introduction

Chapter two present a comprehensive review of literature pertaining to ICTs in education. The chapter has attempted to engage various terms that are presently under used in education and ICTs. This chapter explains the methodological steps taken for conducting this research. The chapter provides a detail discussion of methods and processes through which the data was collected and analyzed. It is important to mention here that the research was carried out under the umbrella of qualitative paradigm. The aim of the study was to understand the underlying effects of different types of ICTs in the education of Pakistani youth. It was attempted to examined the effects of multimedia, internet and other ICTs on teacher and students simultaneously. The decision of qualitative research was an informed decision as it grants deeper insight and detailed understanding of the topic under consideration.

The methodological steps taken in this study are diagrammatically presented in figure,



3.2 The Study Universe

The study was carried out in five universities in the Federal Capital of Islamabad. These universities include; International Islamic University, Islamabad; Bahria University Islamabad; Qaid-e-Azam University Islamabad; Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology; Islamabad and National University of Computer & Emerging Sciences Islamabad (FAST). The key reason for selecting above mentioned institutions for study was that they have strong ICTs setup for teachers, students and administration. Secondly, these universities focus on advance studies appropriate for critical market and social development of Pakistani society. Thirdly, student's and teacher's perspective about the role of ICT in environment is my understudy phenomenon. Their perspective and opinions are not thoroughly studied by researchers and academicians. Thus there is a lack of information about challenges and issues in our educational system relevant to ICTs. Moreover, to study a fundamental idea appropriate universe is very much important along with good research strategy and design (see Leary, 2004).

I also deem it important to mention here that the selection of public and private sector universities was not meant to make a comparative analysis, but was to enhance the study area and number of respondents. The reason was also to get more rich data and multiplicity of perspectives.

3.3 Sampling and Sample Size

3.3.1 Sampling

Bearing in mind the aims and objectives of this study; I employed purposive sampling technique for selecting study respondents. In purposive sampling respondents are selected with the aim that they have close relevancy to the study (Sarantakos, 2005). The respondents are

selected in accordance with the objective of the study. Their knowledge and expertise of bear great importance to the study (ibid). I employed purposive sampling, both selecting university and respondents. 60 students and 20 teachers were selected from the selected universities. The following table gives a detail amount of the respondents.

Table 3.1 Details of respondents with respect to universities

Sr #	University Name	Students Selected	Teachers Selected
01	International Islamic University Islamabad,	12	4
02	Qaid-e-Azam University Islamabad	12	4
03	Bahria University Islamabad	12	4
04	Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology; Islamabad.	12	4
05	National University of Computer & Emerging Sciences Islamabad (FAST).	12	4
	Total Respondents	60	20

3.3.2 Sample Size

In qualitative research, a large sample size like quantitative research may not be required. Qualitative research emphasizes the appropriateness of sample size that offer rich and pertinent data. Thus, unlike quantitative research, qualitative research does not believe on large number of respondents but rich and detail information/data (Lamneck, 1988). Keeping this in view, I selected 80 respondents from five different universities, (20 teachers and 60 students) 5 teacher and 12 student respondents as sample size from each university. Drawing on Bryman (2004), my decision of sample size was based on time and resources available. As explained early that this research is qualitative and qualitative researchers typically aim to conduct in-depth interview, relying on relatively small sample (Patton, 1990). It is valid to mention that I gave

equal consideration to both male and female. Thus female gender in teacher constituted 25% while in students 33.3 %. Both the gender were subjects of my study because the study objective was to the role of ICTs in the education of youth.

In selecting sample of respondents, I gave due consideration to whom and how many should be selected for participating in the study (see Creswell, 2007). It is repeated here that in qualitative research, the sample size depends on what the researcher wants to know, the purpose of the study, what will be useful, and how much time and resources are available (Patton, 1990).

3.4 Data Collection

Data Collection is one of the most important step in social research. The data for this research was collected in face to face interviews using interviews guide. In addition to interviews, field observation was used to enrich the data. Following discussion is made to elaborate the data collection method, tool and processes.

3.4.1 Tools of Data Collection

I used interview guide for collecting relevant data for this study. In qualitative research the use of interview guide enables the researcher to get detail information from the study respondents. It also helped in getting reliable data, which turned in analysis (see Miles and Huberman, 1994). Two different interview guides were used for teachers and students. Teachers' interview guide comprises 15 questions while student's interview guide consists of 19 questions. Both open and closed ended questions have been used in these interview guides (see annexure). The aim of open ended questions was to get deep insight of the phenomena under study. In addition to interview guide, I used observation as method of data collection. This approach (observation) helped me to understand and interpret the responses in the context of universities in the capital city of Pakistan, Islamabad. Understanding responses in the local context is important for qualitative research setting (see Ullah, 2013; Robson, 2002; Creswell, 2007).

3.4.2 Procedure of Data Collection

Discussing the drawbacks of ICTs facilities in respondents' institutions was not easy to carry further and retrieve actual detail. Seeking the convenience of respondents and realizing the complete confidentiality from researcher is all discussed here as a token of originality of this research.

At the very outset of data collection, the universities that were chosen for data collection, I visited them, pursuing my own contacts in there for help. My supervisor gave me a letter to be showed to the respondent when needed. Students were busy in their study as their terminal exam was due but they happened to give time for my short interview.

I assured them that their identity would remain in secrecy. I was writing down the answers as they were speaking.

In some universities, I interviewed students first while in other teachers were first. Different opinions were recorded about one issue. Each answer was different from another and giving me insights into ICTs role in education of youth. I was collecting answers until the process of data collection was finished.

3.4.3 Data Analysis

The gathered data was analyzed in line with qualitative analysis. As mention earlier, the data for this study came from interviews and observation. Data analysis means making sense of relevant data gathered from sources such as interviews, observation and documents. The data was analyzed as per following details.

I assigned numbers to similar responses. This enabled me to identify similarity and differences in respondents' point of views regarding the role of ICTs in the education of Pakistani youth. Doing further analysis, I clubbed similar responses together and derived themes from them.

this led me to develop similar themes from the responses. These themes have been presented and discussed in chapter 4th. The responses, after transcribing, were treated as text. The text was deconstructed and interpreted in the light of theoretical and methodological insights gained from hermeneutics and discourse analysis in sociology.

Hermeneutics is a tool used for text interpretation. The central point of this approach is to identify the understanding of the text. It does not focus on *what* to understand, rather on *how*. It is about how we understand the social world, the process, the rules, the pattern, the implicit conditions, and the ways in which explanation and understandings are transmitted to people from generation to generation.

Discourse analysis deconstruct social rules, norms or convention. It generates the inner meaning of these phenomena. Discourse analysis deals with language but it is more than words and sentences.

CHAPTER 4

4.1 Introduction

This chapter is divided into two parts, first part consists of teacher's ideas about ICTs in education while the second one describes the perspective of students about it. In the light of literature given in chapter two and methodological steps adopted in this study (see chapter three), this chapter presents the study's findings and discussion. First part of the chapter consists of teachers' opinion and perspective while student's answers are noted down in second part. On behalf of teachers, this chapter describes how multimedia and internet with all other ICTs are helpful in their practices and students' academic development. Further, students' opinion about internet' influence in their educational development is inquired. This chapter reveals how an educational institution should integrate ICTs for better results. The analysis of data, following key themes were derived and discussed. The constant analysis of data generates the following discussions.

4.2 The Use of Multimedia Save Teachers' Time

Like other fields of social life, technology has immensely affected teaching-learning process within and outside classroom. Unlike traditional methods and tools of teaching (such as blackboard and whiteboard), multimedia is widely used in modern classroom teaching. It shows the images and animation on the wall or white sheet spread on the wall. Visual aid offers many potential learning gains for students that can facilitate inquiry approaches during discussion. Above all it gives independence from space and time. It shifts the center of learning from the teachers to the students (Georgiou, Dimitropoulos, & Manitsaris, 2007). Multimedia facilitates teachers to explain intricate ideas in the classroom that are not easy to portray

otherwise. During my field study, several universities' teachers agreed that multimedia help them in their teaching and save their time. One of the respondent said,

> *No doubt, it (multimedia) is effective in teaching. It makes teaching easier for a teacher. It saves time. Things are not needed to be written on the board which takes a great deal of time. If those things are already written with you in the form of Power Point slides, then the remaining time can be utilized in explaining concepts and communication with students. So first thing is time, secondly it is effective if effectively used. I think it is very useful in classroom.*

This quote shows that teachers brings pre-written contents, showed it to students in class and utilized the time in discussion. Further, he considered it useful for his way of teaching. Another respondent asserted almost similar idea as mentioned in the above quote,

> *Multimedia save my time, it shows a flow of images and animation (that are) easy to understand by student.*

It is very helpful and save time provided that it is used effectively. Databases of Power Point slides have the benefit to improve the quality of student feedback on a particular theme (Selwood, 2005). Moreover, another respondent identified the same quality of multimedia when we asked her opinion, she added,

> *Of course, the most suitable way of teaching for me is multimedia. It saves time and allows me to engage students in discussion. It gives me more time to teach better.*

Another respondent asserted,

> *I believe multimedia is useful for classroom teaching, it allows to save time and give teacher edge to spend more time with students. It provides more material for better understanding of the students.*

The above excerpt stresses the importance of multimedia. It asserted that multimedia saves times due to its effectivity in presenting the lesson contents in class and continuing the discussion with students. Alev's (2003) study also rewarded almost the same stress on multimedia in classroom. The cited study revealed that multimedia helped students with difficulty (Alev, 2003).

It has gain serious concerns in educational research that their excessive workload has become a key negative factor in quality assurance (Selwood & Pilkington, 2005). ICT can be used to directly support teachers in their profession to reduce their workload to some degree, that include the preparation of teaching materials of a higher quality than would be reuse for future purpose thus in a way reducing preparation time (Selwood, 2005).

The discourse formed here in my discussion with our respondents highlighted a particular phase of their occupation. They found ICTs moderately facilitative in performing their tasks. Their workload is extensively heavy as mentioned above, ICTs provide a better chance to smoothly deliver their lessons and save time, which can be utilized in research and guidance of the students.

4.3 Enhancement of Teaching Quality Through ICTs

Teaching is thriving with new technology with growing demands in classroom to give lesson in excellent ways. In the ecosystem of education, ICTs have a wider influence. Hardware that give connectivity and change pedagogy that further make way for content suitable for modern challenges advances teaching and learning in our society. Either simpler ICT, it aids teachers in their respective environment. It is enhancing the experience of lesson giving methodologies. In a standard classroom capable to produce digital literacy is both challenging and productive. Respondents opinions about multimedia use in their teaching are quoted below,

Multimedia helps me to show and teach concepts practically. It helps to build the gap between theory and practical.

This excerpt asserts that it is now possible with the help of multimedia to combine theory and practice. It can exemplify the mechanical practices that can only be shown in a factory or where they are manufactured. Nevertheless, it is now possible to show these practices in a classrooms seeing through multimedia. Furthermore, similar thoughts were given by another teacher respondent,

Multimedia is effective in variety of ways. In my subject – Plant Breeding and Genomics, the most effective communicative method is pictorial demonstration. Using simple projector, it is not possible as it carries with many problems such as; colors and you cannot draw most of the stuff on board. Multimedia gives the liberty to use the complex pictures and diagrams in classroom teaching.

ICT is an effective tool in supporting teaching. Many of the respondents in this study highlighted that pictorial demonstration is the best way to explain the subject matter in classroom lesson. Multimedia helps in fencing complex concepts and thus improve quality of teaching. One of the respondents very forcefully claimed that multimedia facilitates the teaching,

Multimedia is good for showing concepts and ideas in pictorial way. It is very effective and good for it.

Technology have opened new genres where the use of multimedia is compulsory due to its subject matter. For example, Software Engineering is a discipline where all students in class need to see live when the instructor is developing a code. A teacher respondent from the same academic discipline argued,

Without multimedia it becomes difficult to finish my lesson effectively. It is compulsory in software engineering.

Another respondent from the social sciences experienced and viewed as,

I think multimedia is very effective in classroom teaching, because teaching is learning twice. Through multimedia, we can show various videos, images and presentations to our students. We should always keep pace with innovative methods that are going on in the world. My parents used to say that we study in religious school (Madrassa) sitting on Taat (locally made rug) but I can't even imagine having schooling like that. But I did have my education with multimedia. Students are almost always connected with technology like social media (Facebook). Being aware of many things I ask my students that whenever you present any presentation to me, it should comprise Local, National and international examples about that or topic. Which can be taken from websites (internet). I encourage them to add videos and audio material in their work.

In the above quote the respondents considered the use of Multimedia as a default tool in classroom lesson. Multimedia can effectively duplicate the objective nature of things by various kinds of media such as images, signs, animations, symbols and words which make a categorical map in students' minds and they feel right on the scene. Multimedia application create interactive teaching environment where the figures, colors and animations are placed and reproduced both by teachers and students. This, generates interest and desire for knowledge. Another respondent from Natural Sciences recognized the importance of multimedia in her teaching as,

Yes, it is useful a lot. It has a lot of benefits in my subject. I use it for presentations, using images, videos, tutorials. It is important to mention here that one image is worth

thousands words and one video is worth thousand images. So I support multimedia's role in the education of youth and effective teaching.

ICTs have various characteristics utilized by teachers according to their needs. Positive attitude of ICTs is an essential part of a lifelong interest in learning. My respondents also perceived the use of ICT as offering new stimuli, receiving learner's response and providing systematic and steady feedback and allowing them to connect it to the ongoing context. They argued that it molds the learner's experience into a sequence and provides access to rich source of knowledge.

One of the teacher who was not using multimedia for teaching but she expressed her purpose very positive,

Yes, it is helpful, but we are not given the opportunity to use multimedia because there is only one multimedia available in whole faculty. But I think it is very effective to use multimedia in classroom teaching.

One of the respondents referred to his early days when he was student and was learning with the old version of multimedia and compared that with his current practice of using multimedia. He argued,

When we used to study, there was an old version of multimedia, we used to put the page on the glass and it was being shown on the white cloth on the wall, we liked it very much, we thought of our teachers as up-to-date, using technology. Now we use projector which is compulsory. So there is no other way to teach without it.

This excerpt makes projector or multimedia an indispensable part of teaching. This gives an essential position to multimedia - no teaching is possible without it. Multiple studies have observed the reason that why teachers choose to use ICT. They represent the use of ICT in

educational ecosystem as being inherently advantageous (Hennessy, Harrison, & Wamakote, 2010).

4.4 Multimedia cum Traditional Pedagogical Practices

Pedagogical practices are being ushered by computer and multimedia technology. Much scholarship has been published on it. The body of such literature is greatly developed on two key factors: socio-economic changes in world order or to say globalization and increasing use of technology in daily social life (Hass, 1996; Hawisher & Selfe, 2000; Murray, 2000; New London Group, 1996; Warschauer & Kern, 2000). Parks, Huot, Hamers, and Lemonnier, (2003) observed and highlighted other studies (Murphy, 2000; Sandholz, Ringstaff, & Dywer, 1997; Shetzer & Warschauer, 2000; Warschauer, 1999, 2000) that have suggested that constructivist/socio-constructivist approaches to learning are particularly auspicious to more progressive uses of ICTs (Parks, Huot, Hamers, & Lemonnier, 2003).

Reflecting on these alteration, Pakistani educational scenario was changed, adopting new ICTs but it is not prospering and integrated as it is in western developed countries. Government of Pakistan is investing to introduce new technologies in educational institutions. However, it has not grown to its epic. That's why many students who have not obtain their education with new technology aided tools, they are not comfortable with wholesome multimedia assisted lessons in class. One of my respondent held the same views.

> *I believe multimedia is an aid to classroom teaching. But it depends upon the subject of the teacher. In my case it is an advantage. Because all my lessons involve discussion and multimedia presentation help me out in it. My duration of multimedia usage in class is about 70% along with rest of traditional practice.*

Another respondent had the same opinions about technology aided lessons,

Multimedia is helpful. However, board should also be used in classroom teaching. Both should be used, because students background is not habitual with multimedia.

Some of the teachers believed that a combination of multimedia and traditional pedagogical practices are best way of classroom teaching, one of the respondents argued,

Multimedia is just a tool to make things clear. Both multimedia and board should be used so that students can be involved in the classroom interaction.

Multimedia was declared an effective tool for teachers, if properly and effectively used by the teacher. The following quotes from the data stresses on the effective use of multimedia in classroom teaching. However, it is important to know how it should be used.

Effective use depends on the skills of the teachers and adjusting their students with multimedia.

For a long time, teaching in Pakistan has been in a "chalk and talk" manner. Students' engagement in class was not strong. Similarly, the teaching effect was not in ideal state (Chun-hui & Fu, 2015). Multimedia presence in classroom is capable to deal with and show various forms of information, it has the ability that can effectively match process and features of human cognitive thinking (Guo, 2009). Multimedia is ubiquitously considered an important tool in classroom teaching keeping in view its multiple benefits to the teachers. However, many of my respondents argued that they use it as per their need. Traditional pedagogical methods and multimedia use are combined in lectures by some teachers.

4.5 Teachers' Opinion About Student's Use of Internet for Their Academic Purpose

The current generation of youth have started to use internet and other technological innovations as soon as they are able to hold technological tools in their hands. This generation is

conceptualized as "Digital Natives" (Prensky, 2006). Digital Natives refers to the generation that are born when ICT was flourishing already.

I inquire the opinions of teachers who are in contact with these students. They assess students on their ability to understand how they connect with new developments in the world. These developments they can come to know easily with internet. But my responses from these teachers and facilitators were very diverse. One of the teacher respondent openly claimed that students are not using it productively. He opined,

> *I have studied abroad. When I compare that to Pakistan it is very disappointing, and I have seen that our students are not using internet for productive purposes. Mostly, students copy projects and assignments. They are using internet as helping hand but not quite taking the help from it. They don't examine the material provided online and they do not discuss or make argument about it. While making any assignment they don't justify it and they don't give any justifications about. They lack critical analysis in their assignments in their topics.*

Students use of internet is only to fulfil the formality of submitting the assignments. These tasks lack the real meaning of going through a critical process: reviving literature for preparing a piece of writing with their own argument. This is what internet can be used in an educational environment in Pakistan. Where the local challenges in any market area can be seen with global understanding to prove a better solution. These are obligations of a successful student, to be a better practitioner in his/her field.

In relation to this discourse, my data reveals contrasting results about disagreement to student use of internet in a positive way, one of my respondent had something similar to add to it,

> *Most of them are using it for pictures/selfies and social media purposes.*

While another said that,

Students use ICTs and I would say that students spend a considerable amount of their time with ICT. Nevertheless, they rarely use it for their academic purpose.

Another respondent said,

I think, very low number of students are using it for their academic development.

Social media is another aspect of internet where the internet users posts their pictures, videos or any web page, other users comments or write their opinions on those posts. Beside posting pictures or videos, some of them write a statement to justify their status of being, happy, sad, excited, meeting someone or show their presence at some special place etc. Social media is extremely popular in youth in Pakistan. My respondents stated that majority of students are diverted by Social Media instead of using internet for their academic development.

Contrary to the above discussion, one of the respondents expressed different opinion about social media and its use by youth in their education. He opined,

Internet use among students for their academic purposes is not clear. Some of them use it for their academic purpose while other do not. This laptop distribution (by government) has made students' use of internet negatively. Majority of the students do not use laptops for the purpose of their academic development. M.Phil. and Ph.D. students do use it for academic development - class assignments, reports and thesis. However, majority of M.Sc. or Undergrad level students do not use it for their academic improvement.

The above quotes suggest that actual use of laptop and internet is different from what policy makers intends for higher education. Students use of internet becomes wiser when students advance in their education. In other words, students from M.Phil. and Ph.D. focus on research and relevant literature as it is requirement of their field. Here we are not excluding them from

using Social Media but their academic challenges are on the priority when working online. Another respondent argued almost in the same fashion,

> *I think majority of students are using it for social networking and other entertainments. Nevertheless, some students use their laptops and internet facilities for their academic development.*

One of the senior teacher viewed laptops and internet as less effective in students' educational development,

> *I think very few students use their laptops and internet for their academic development.*

These excerpts suggest that positive internet usage among students is relatively low. Use of ICTs for constructive purposes is low. The findings, however, suggest which in turn means that student at higher level have more use of ICT and internet for academic tenacities.

Most of the respondents argues that students nowadays are not using internet for their academic development. Their priority is to use it for recreational purposes.

4.6 Internet as Counter Productive in Students' Education

Counterproductive behavior in the workplace of any domain consists of unwanted behaviors whose consequences are usually considered negative or adverse (Hollinger & Clark, 1982). ICTs should provide a solution to defy this undesirable behavior. However, these forms of counterproductive behaviors remained an understudied phenomenon (Weatherbee & Kelloway, 2006). The misuse of ICT in organizational settings is quite broad, as are the associated outcomes (Kesar & Rogerson, 1998). In the locale of this study, counterproductive use of technology ranges from behaviors such as Internet surfing for social media purposes during work hours, to more serious activities with significant harm doing including: fraud, identity theft or hacking, sexual harassment, or interpersonal aggression (Towns & Johnson,

2003; Fertell, 2003; Weatherbee, 2007; Weatherbee & Kelloway, 2006; Lim, 2002; Trembly, 2004).

Counter productivity in technology in the domain of a student works in different ways, showbiz industry has adopted new ways to attract viewers on internet and youth are their major target. Beside this social media provides unlimited number of videos, short and long, in different languages, funny or morally degraded or positive. All sorts of genre can be find online that is a quite lucrative distraction to avoid once a young student goes online. Beside this people of all ages are posting articles, pictures, presentations slides and other written materials. These things depict a kind of opinion of somebody. Everyone is allowed to post anything online that is what they like to post. Each of this opinion has its own worth with regards to its context. An internet user picks only those that suits his/her purpose. The space of internet is so exhaustively huge that to learn and see through all of internet data is not possible in one life-time. Digital Natives of this generation are spending most of their time online. Relating to this discourse one of my respondent said,

> *When I see student with internet, it is counter-productive. They get ready made articles which they download and convert to their assignment.*

Another senior teacher opined about the status of ICTs in student's education,

> *I am not in favor of ICTs at all. I think its unnatural. Students should use their mind and probe into present problems to solve it. They just copy the assignment from online sources. They use their phones even during my lectures. They are unethical in their behaviors.*

This discourse locates the evil in ICT. Not in the use of it. The respondents failed to highlight the problem that we have in using ICT. Another respondent expressed the same opinion,

I am not satisfied with the way student use internet. They only do chatting on Social Media.

The above quotes assert that student do not use internet and for their educational development. It is considered counterproductive for students due to use of internet and ICT as social media only. Students' ethics were also questioned giving the reason of their inconsiderate behavior towards teacher' presence in classroom for instance, looking at mobile phone during class lesson. In addition to it, their inefficiency to properly present their home assignments at post graduate level. It was reported by my respondents that majority of students copy the already written material from internet onto their project work. Beside this, number of respondents ponder that institutional trend and culture are the reasons for students' negative use of internet. An extract from the majority respondents' opinion explain the phenomena as under,

Students use internet for their academic development, but not efficiently. The reason behind this dilemma is that we don't have institutional rules or culture to use it positively. Student use most of their time is on Social Media.

Ravasi and Schultz (2006) explained that institutional culture is a set of shared traditions that lead the ongoing happenings in an organization. It defined appropriate behavior for various situations in the course of any particular institution (Ravasi & Schultz, 2006). My respondents endorse to explain this specific deficiency in our educational environment. Although students have access to ICT, however, they do not use it for the educational development.

4.7 Internet Use and Student Academic Development

Internet is host to accommodate the scientific progresses underway in any field. Journals and books are available online. The theses and dissertations written and published by scholars around the world are available. A book, after being published, takes considerable amount of time to reach libraries in Pakistan. However, internet provides the same book or journal for

researchers instantly. Students acquire these book through multiple ways. Online free libraries, social media groups or other online groups where one can request any particular published material to download. These are available all over the world mitigating the excuse of unavailability. In context of Pakistan, Higher Education Commission have provided universities with the access to numerous publishing companies, like Jstore, Elsevier, Science Direct etc. where students can easily download their required research paper or read it online. To know whether students use internet for their academic development or not, my respondents opined,

> *Students do use internet for their educational development, I have seen students finding out information about an issue very quick. They get help from internet preparing their assignments and literature review. My students are capable to find out all the work given to them and come up with the answers.*

Explaining the constructive use of internet in their education others gave a similar response,

> *I am teaching at higher classes, where students are using internet for their development and research. They do complete all the assignments in time. They are reading research articles and online books as per my recommendations.*

These quotes attest that students do use internet for the completion of their assignments and research work.

4.8 ICT Integration in Pakistani Universities

Installation of ICTs in higher education institutions have started since 1999. ICTs - computer labs, with computers connected internet and multimedia in classrooms have been established. Besides this an autonomous organization under the federal education ministry, Higher Education Commission (HEC) was established in 2005 that is facilitating universities for

quality education. It also regulates universities to follow a basic set of rules to conform a quality course. Beside that HEC provides universities to access to international journals and online books. International ICT ranking of Pakistan is among least connected countries. Universities play vital role to promote ICT led culture in our society. I, in my field study, have conducted a detail interview with teachers to know their opinion about ICT richness in their universities. I received different opinions about it. One of the teachers said,

> *Here in History Department, there is no computer lab, and no multimedia. so I am not very much satisfied.*

Another respondent,

> *I 'm not satisfied. The computers are very slow and old generation. We need more sophisticated PCs that could run new APPs (Applications-computer programs) and Language Programs. There should be Wi-Fi all over the campus.*

Another respondent in same fashion,

> *We have, in fact, low level of integration, because teaching is ICT based but assessment is not ICT based.*

My respondents highlighted that they have no other option but to work manually and follow the same century old traditional way of teaching. Multimedia was not available in some classrooms while others have no computer to run programs or applications. Furthermore, Wi-Fi was also not fixed in their institutions which could allow them to work anywhere with students in university premises. Beside this, if a teacher is giving lesson with ICTs then the assessment is done with same traditional manner. The study findings suggest that ICTs should be the medium to conduct assessments. Students should also be familiarized with modern technology.

Beside, Pakistani government not only endorse relative departments to provide ICTs for students, it also includes to structurally modernize the operations in universities. Administration should be run on up-to-date computers that are interconnected and every administrative staff member coordinate through advanced ways. My respondents had opined regarding these structural flaws. One of my respondents replied,

> *ICT in our university should be improved. Many things are manually done i.e. attendance, result are displayed on wall. Noticeboard are not effective. Results and attendance should base on ICTs.*

Another respondent highlighted some issues that he faced in his work place. He said,

> *There is huge gap between students and teachers. Once a multimedia was stolen, so the new one was fixed to the wall permanently, and they locked the room, and ultimately it's not openly accessible all the time for teacher to use it for lesson.*

Administration is a part of university that guide and supervise the operations. These operations need to be based on modern structure, where every short coming is being covered. Administration of the university control all the classes, teachers and student's activities. Providing that university is not capable to run the whole system effectually how else the educational purpose will survive in the long run. According to my respondents their administration was not able to provide security for the valuable ICT tools, so they have to restricted the use of it after the irresponsible management. It was only used when direly needed for some presentation by students once or twice a year.

The argument is that education is vital part of society, it can function well to serve its purpose, providing that its structure is based on scientific regulations. Many educators advocate the enhancement of learning with technology (O'Bannon & Puckett, 2007)

4.9 ICT Integration in Institutions in Best Condition

Qiyun Wang (2008) conducted a study on ICT integrating into educational spheres with generic model, his conclusion of best form of ICT integration has three components that is pedagogical affordances, social affordances and technological affordances. These three elements of an institutions depicts effective way of ICT in an institution (Wang, 2008). My field study gathered some of best results regarding ICT integration in terms of hardware affordance and pedagogical affordances in their universities. My respondents gave satisfied response regarding their ICT environment that had sufficient and quality computers, multimedia and other connectivity facilities (Wi-Fi). They were gratified with ICTs in their organization. One of my respondent explained her environment,

> *We are dealing with students on emails. Students have their account on university website. Web portal are made by university administration that are used by students with the help of their registration number for their grades and other information. Teachers and administration upload their records about students and themselves to that particular web portal. That web portal is accessed by students and teachers.*

Similar responses were expressed by another respondent,

> *Our university is highly efficient in ICTs. Multimedia is available, university website provides web portal where teacher and student can convey mutual messages. Students are able to learn through this web portal if any changes occurred in schedule.*

The qualities that my respondents have enlightened are model integration of ICT in education institutions. Administration have provided digital coordination system for teachers and students. In the meantime, administration is also in contact with both through ICT. Students are provided with online access of Web Portal where they are notified about any changes and their annual projects are preserved there. Their sole medium is carried out with help of ICTs.

It can be accessed by Registration numbers of student's ID number of teachers or other relative staff. Another of respondent has showed same level of satisfaction in university as it is said,

I am satisfied here, everything is in good shape. We have multimedia in all classes.

Another most similar argument was made by another respondent,

I think our university have adopted ICTs to a sustainable level. Nevertheless, we need to improve it further.

Another respondent asserted,

I think university is providing ICTs to students and teachers.

Accessibility is an initial requirement for an effective learning environment. In addition, web portal for students and teachers provides human–computer interface design that is crucial as it regulates the usability of learning environment based on technology. The interface design of a computer program ought to focus on ease of learning, ease of use and aesthetics. Ease of learning is critical as I highlighted it will be clarified in lateral paragraphs how technology is creating issues for youth. However, technology use becomes more vital while users gain experience over time. Certainly, ICTs must be efficiently up-to-date so that it can motivate and engage learners (Wang, 2008). According to my respondents their environment is fully synchronized with manual coordination and their structure is working online. Students, teachers and other staff members are coordinated through online mails.

4.10 'ICTs' A Tool to Keep the Teaching Up-To-Date

ICT tools has revolutionized the teaching experience. Teachers have been increasingly attracted towards rapid development and integration of ICTs but its' effect of the conception of teaching and learning is relatively little. ICTs in pedagogical practices is not simply to 'use equipment', rather than taking it in instructional approach to plan, design, execute and

instruction. Without taking into account this shift into pedagogy and its future is only operating courseware and classroom amusement (Means, Roschelle, Penuel, Sabelli, & Haertel, 2003).

Teachers are required to plan thoughtfully before they start ICT incorporation into their profession i.e. the correct ICT tools that fit their context and fulfil their objective. Student centered learning required teachers to decide scaffolding strategies in line with the environment. Multimedia enhance the influence of theory with practical illustrations and digital audio or video reaching all the participants in class, with connected computer devices like tablet or smart phones are new way of teaching. One of my respondent very strongly argued,

> *ICT make the teaching more attractive for me because I rely more on internet myself and ask students to do and practice it. I mean I keep them up-to-date with internet. I use many types of case studies with relation to my subject. For example, Harvard Review's case studies are very important in my teaching. Online notes are helpful in my course. I also give assignments to my students to find online data in my subject or the subject they getting specialization in.*

The above quote shows respondents' strategy of using internet in their lesson to motivate students towards its positive use. Referring the Harvard case studies to his students by my respondent, a study conducted by Harvard Graduate School of Education that explored the impact of ICT on the professional education of architects. Researchers of this study Wiske, Eddy Spicer, Joo, and Moore (2001) investigated and reported on the ways how three professors in Harvard Graduate School of Design are incorporating ICT into their teaching practice. Theoretical and practical benefits were recounted in their experiences with ICT to deliver professional courses for architectural students (Wiske, Eddy Spicer, Joo, & Moore, 2001). Another respondent endorsed ICTs with these words,

It is helping me in different ways. Other than that on spot internet searches help students about any topic and idea during classroom discussion.

This kind of response was expressed by many respondents. One of respondents argued,

I ask students to present their argument in video, because I think one image worth thousand words but one video is worth thousand images. If one thing is taught through image or video, that is always remembered by students.

The pedagogical methods described in above statement shows us how efficiently ICTs work in their lessons. Internet usage on smart phone is useful in classroom discussion and making creative videos and images. ICTs allow students to learn many skills and things. Teachers are consciously using ICTs to familiarize their students with the rising market needs. The knowledge of all disciplines is evolving day by day and a skillful teacher should be conscious of all the new changes and teach the same to student. Internet helps in this regard. New market studies are available in online journals from different publishers. These studies address emerging challenges that are unique to developed world but students have to be known of new issues. In this context, one of my respondent said,

My course is changing on very rapidly. So student of project management should always be aware of the changes happening in the discipline of project management.

In some of the disciplines ICTs have become the default media to teach in class. Teacher of Engineering, for example, where teacher cannot continue his/her lesson without it. One of my respondent said that,

Since I am teaching software so all of our work is on ICTs. We don't have any other choice.

The environment of my respondents is based on ICTs that is mandatory for teacher and student alike. Student understanding of the subject is aided by the ICT tools that involve different perspectives of the discipline. Here the requirement of ICTs is not only mandatory but high quality computers are needed.

4.11 Email Coordination Between Students and Teachers

ICTs deliver the flexibility in learning system. Students can continue their education from their own space with ICTs help. Although classes must be attended by students or teacher but dissertations or theses have moved from teacher center to student centered to technology centered. Learning new technologies should allow greater flexibility in learners and teachers in supporting and enhancing learning experience (Lin, Ho, Sadiq, & Orlowska, 2001).

Dissertation is a part of higher education where students work on a relative issue to solve it and make a report of it. The report consists of particular set of parts that identifies the problem, any published literature about it and thus the suggested solution about it. It is based on ground study based on student's theoretical information. It is supervised by an experienced teacher and student follow his instruction in his project work. That is dissertation work. Student and teacher coordinate among themselves on regular basis via meeting or email. The establishment of a successful technology-enhanced learning environment involves a solid understanding of each of its elements in its own context (Li, 2007). Technology led confidence between student and teacher support quality assurance of the dissertation and mitigating the chance of faulty issues in thesis. I asked my respondents about their preferred media of coordination with their students regarding thesis work. One of my respondent said,

My sole media of communication with students is Email.

Another of respondent had different way of dealing with student on internet, she said,

I also use Facebook with them like I give one word on my Facebook account and ask them to give one sentence below them in comments. I get more than 54 comments comprising different sentences made of one word.

Online Learning Environments (OLEs), ICTs and social media Internet technologies provides various forms of new communications allowing students and professors to interchange information and ideas on different forums. These new forums include discussion boards, weblogs, wiki, Q&A (Questions and Answers)using mobile phones, synchronous chat environment, email, instant messaging, and Twitter, among others (e.g., Connell, 2006, Farmer, 2004, Fichter, 2005 and Richardson, 2008). Technologies like Facebook and Twitter empower us and provide a sense of connectedness between students and teachers. All these forums pertaining to ICTs are providing us to solve additional challenges in the process of teaching learning.

Responses in my study show successful use of internet and email use with student for their academic activities. Not only email is being used but Social media is also the part of the coordination between student and teacher. Another of my respondent was making it compulsory to use it. He said,

I do (use email) and email should be used for communication and appointments of meetings.

Beside teacher stress on the use of internet or email with their student, administrative regulations are also part of their coordination. Some institutions have made email coordination mandatory for students. One of the respondent said,

Students are bound to submit a weekly report of their research work that is directly corresponded to their supervisors. So yes we use it.

Another respondent had similar response,

As soon as student start their research work, they are bound to correspond their weekly report to me through email.

Student weekly report is part of their work. Their progress on daily intervals are sent to their supervisors who will keep the track of how the students are taking each step towards the goal of effective project completion.

There were some problems stated by my teacher respondents when they were coordinating with their students. One of the respondent stated,

In fact, our problem is not ICT, our problem is that when we allow students to contact us on email than their demands are very ridiculous, not academic. They would be asking me to upload that file which I have already uploaded it online. Further they would say I cannot come tomorrow to class, please mark my attendance. I won't like to answer these types of queries. It becomes fun for them.

Students behavior is once again the question here. In my respondent's view students do not take teacher's email as serious as they should be. Their queries are not related to their academia rather it concerns other least important stuff. According to Keys and Bryan (2001), teachers have complex types of attitudes and beliefs with student demands, other than that their bureaucratic work load restricts students to cross any formal line. This behavior also effect more or less every aspect of their profession, including defining and selecting instructional tasks, knowledge attainment, choices of assessment, and interpreting course content (Keys & Bryan, 2001). Student's non serious behavior is not easy for teacher to bear along with other official labors.

Those institutions where there was no compulsion by administrative regulation to use email between students, their teacher had different ways to deal with student's project and dissertations. One of the respondent said,

I do use email, but not much, emails (reading and replying) needs time, hard copy (of dissertations) is easy to read.

My respondent preferred to read printed form of dissertation rather than digital. Another of my respondent said,

There are so many activities that restrain us to find any time for emails correspondents. And it depends on number of students, if you have many students in one class, it affects negatively the quality of teaching.

Another respondent indicated,

I do use emails with students, but not much. I endorse printed material.

Number of students in classroom have negative impact on respondent behavior, according to our respondent, if students are more in numbers than it is difficult to check their projects related work on email, so eventually teacher prefer printed work. Similarly, another respondent had preferred to see printed material. Several researchers have argued that new kind literacy is swiftly taking place as new technologies are entering into education and the learning environments (Coiro, Knobel, Lankshear, & Leu, 2008; diSessa, 2000; Dresang & McClelland, 1999; Spiro, DeSchryver, Hagerman, Morsink, & Thompson, 2015; Tyner, 2014; Singer, Alexander 2016). In last 10 years the new digital forms of books (Kindle, PDF, iPad, Tablet) have presented new form of possibilities for readers. They portray non-linear medium of digital space allowing to display colorful multi options graphs and texts that could not be possible with printed material. However, this trend has not been successfully integrated in Pakistani educational domain.

Almost half of the respondents said that they are not using email to correspond with student regarding thesis work. They preferred to see printed form of given work.

Half of respondents used email with their students while the other half preferred printed material.

4.12 Ethics, Behavior, Productivity and Quality of Students First & ICT Second

Availability of ICTs for youth have provided leisure in their education. They can find all their materials easily from online sources where already it is published. They have access to social media where they can watch videos of different kinds, movies, songs and pictures. In fact, that is a never ending entertainment. It causes addiction that lead to use internet for longer hours which was unusual a decade ago. Teacher see this type of behavior unacceptable and they have objection on internet use among youth in present age. Teachers are enthusiastic about technology usage in their profession but they believe that students basic skills should be first priority. My field study revealed that our students culture should be changed. Focus of the education should not be provision of ICTs for youth but equip them with better understanding skills and theoretical concepts. One of my respondent specified,

> *Formal writing, formal thinking and formal speaking is declining in students because of ICTs. These tools have changed the learning behavior of youth. Yes, do bring more and more advance computers for them but the main purpose is not to give them facility rather to increase the productivity and quality.*

Discussing the culture of ICTs in students, another teacher respondent said,

> *Infrastructure of the ICT is not my focus. It's just the driving force, we need to work on the driver of ICT. Thinking and psyche should be target to tell them how to use ICT.*

Material culture should not be emphasis of our educational system rather producing a fruitful thinking process should be the target. According to our respondent, integrating technology into

their learning environment have resulted in negative manner. Jung (2009) concluded that since reading from printed materials is difficult, internet is easy for copy and paste material onto their assignments i.e. plagiarism is taking place widespread. There should be ethical understanding in students' mind while using internet, copyright and intellectual property laws, and standards for citing Internet sources (Jung, 2009). Moreover, students should be analytical and critical in writing their piece of work. Another of my respondent had an opinion about students,

> *Students are given all the facilities but they need to use them positively and integrate it in their education.*

Another similar response was,

> *Students behaviors need to be changed regarding education. They are less productive and fruitful. So there should be training for them.*

Provision of fruitful ways for students should be part of teacher's job, according to one teacher respondent,

> *I would say that resources and facilities are available but students need to use it themselves. We don't have culture and trend of these things, that's why little number of students are using it. To motivate them, we need to put them more on internet work so that they can finish all the assignments that would enforce them to use these resources. For example, we can provide several websites for a certain assignment that will allow student to finish it and gain knowledge with help of same resources that he was ignoring.*

Cultural norms and values play a role in better usage of ICT among students (Jung, 2009). Students are less experienced with massive impact of technology in their lives that's why some undesirable results are yielding. Ethical and moral development should be the focus of teacher's lessons rather than using ICTs in their class. Manual way of teaching should be part

of classroom teaching so that he interacts more actively with students. Because nowadays presence of everything on internet has allow them to speak in ill manners and less respectful in class. A study of 943 sophomores (a second-year university or high-school student) in the UK found that, laziness, eagerness to achieve a higher grade, the assumption that 'everyone does it', and helping the friends were all reasons described for over use of social media and plagiarism (Jung, 2009). One of respondents arguing about student's activities about plagiarism, said,

> *Plagiarism should be discouraged that would increase burden for teacher as if he would collect assignments and then test its plagiarism in order to see it further.*

The argument here is that new form of ethical dilemma has risen. ICTs are tools to boost creativity and understanding however it has not been seen. Capurro (2006) argues ethical issues about ICT should focus on practical issues such as plagiarism. Plagiarism was a factor found in my respondents answers that causes undesirable views. Plagiarism happen in different ways (Capurro, 2006). Ercegovac and Richardson (2004) conducted a study, their findings regarding plagiarism highlighted, 86% of faculty suspected that plagiarism had occurred, and 65% had found evidence of it occurring in their classes. This was primary explanations for academic dishonesty (Ercegovac & Richardson, 2004).

Different kinds of ethical issues were highlighted by teachers regarding ICTs in students' possession, mainly, plagiarism, not focusing towards lecturer in class and wasting precious time on social media.

4.13 No Technology in Class

Different academics referred technology in different ways. They argued according to their experiences in their profession. Teachers teaching lower class in university per say under-graduation, had discouraged technological tool for their students. Few of respondents argued,

I think new technology is overwhelming the teacher and student relationship. There should be manual way of giving lesson and ICT should be used only if required. Teacher should focus on his/her student. On his ethical moral development rather than only knowledge transmission.

A similar response was asserted by another respondent,

For me multimedia not effective, I use manual way of giving lesson. (if I use multimedia then) Student think that teacher have copied the content (that's why) they don't take interest. And they don't study by themselves.

The above excerpts show different reason by respondents to disallow ICTs in their classrooms. Technology 'overwhelmed' students. It indicated that students come under immense influence of internet and the content present on it. It ultimately tends to forget their reality about their education and their real goals. Students' focus from learning skills and expertise is diverted to the less important things. Manual way of teaching student keeps them focus on the subject contents. They are actively involved with teacher about the topic under discussion thus increase their understanding about the subject. Likewise, another respondent had mentioned the students' perception about teachers' competence in subject. If multimedia is being used, students tend to question teacher's grasp on the subject. Thus another reason to discourage ICTs in their profession. Another important aspect that teacher mentioned is the ethical issues on the rise with these ICT tools.

4.14 Structural Changes for Students

To equip student with better ICT skill is mandatory in education. They should be aware of new technology that will enhance their learning experience. Moreover, that technology is basis of present market to grow. If market demands them to be aware of latest trends and inclinations, they must be equipped of them. Our educational structure, at least at higher level is meeting

those demands to some extent. Looking for teacher's opinions about prepare students with ICTs, their opinions were of different degrees. Some of them referred to government for providing trainings program at basic level i.e. school. Workshops from time to time should be organized, provision of internet to access online books and journals were included in their suggestion. One of the respondent from a university where ICTs were strong, said,

> *There should be trainings for students, since our students have everything but they are not using it properly. The time and opportunity they are not focusing on properly.*

Another of such respondent opined that,

> *There's always need to improvement for students in terms of ICT usage. As research papers are concerned, they don't know how to write one. Writing report, they don't know how to do it.*

Some of them had referred courses and trainings for students that should be arranged by government, as they said,

> *There should be courses devised specifically for students to teach them ICT use effectively. Most of them don't know how to use at least MS Word.*

Another respondent said,

> *This should be done at very grassroots level i.e. F.A/F.Sc (higher secondary school).*

The argument arose here among different respondent is the lack of skill to carry on with technology to utilize its core for maximum advantage. The skill to use computer proficiently should be known to every graduate. ICTs are available but students have the shortage of ability even to follow the format of a standards research papers. It shows what they need the most. Each respondent had this suggestion that for the sake of successful educational development government need to provide trainings and workshops for youth at very basic level.

Part Two

4.15 Internet Use Among Students for Study purposes

Second group of my respondent comprised of students from the same universities where teachers were studied. The respondents were from different disciplines i.e. Marketing, Software Engineering, Sociology, Bio-Technology, Chemistry, Mathematics and Management Studies. Students are considered to be the beneficiaries of technology. They are the main subject of the education system that is focused on. From school level to university, students are provided with best possible facilities to be adaptive of contemporary knowledge required for future society. If students are well equipped with the obligatory skills, the need for expertise can be fulfilled.

This study has asked different question to gauge students expertise to self-study their subject with the help of modern technology i.e. ICTs. The answers from students portray the other dimension of the central idea of this thesis e.g. the ICTs role in education system. Students were asked about the internet use and 100% (60) *had* replied that they do use internet. Moreover, 92% (55) said they use internet everyday while 8% (5) respondents said they use internet once or twice a week.

Table 2. Use of internet among students

Sr#	Statement	(N)	(%)
1	Every day	55	92%
2	Once or Twice a week	5	8%
	Total	**60**	**100**

More than half of respondents 58% (35) had mentioned using internet 'almost all the time'. This may be their subject demand from them to search for study stuff through mobile, tablet or/and laptop.

Table 3. Ratio of internet use among students

Sr#	Statement	(N)	(%)
1	2 – 3 Hours	15	25
2	3 – 4 Hours	10	17
3	Longer than 4 hours	35	58
	Total	**60**	**100**

Those respondents who use Internet for '2-3 hours' constituted 25% (15), and 16% (10) were using internet for '3-4 hours'.

Use of internet for study purpose was asked from respondents and most of them had different response. Its use for study and recreational purpose was found equally among my respondents. One of the respondents asserted,

> *Our work is to be connected to the internet and know more about the development going on in our subject area, marketing and organizational development and other subjects, so mostly I use my internet for the same purpose.*

Internet is used by post graduate scholars for their research. The above response show how they are taking advantage from internet in their subjects.

Similar opinions were expressed by another respondent,

> *Most of the time (I use internet for my studies),*

Similar response was recorded from another respondent,

> *Being a PhD student I need to use internet for many hours.*

The findings from the above quotes show that the internet was their media to obtain information in their subject area. Later in this text, it will be revealed that how they were using the internet for their study.

Some students, particularly the undergraduate students revealed that they use internet very selectively. One of the respondent argued,

> *I use internet for writing my assignments.*

Almost similar opinion was expressed by another respondent,

> *It depends upon my assignments; I use internet when I need to write my assignments for my class.*

Describing their work, another of the respondent gave a similar response,

> *If any assignment is required than I need to work (on internet) for longer than usual.*

Two types of findings may be derived from above responses. One group is using internet for longer hours while another had limited its use to their particular need. They also mentioned, their internet use for academic purposes was due to their teacher asserting for assignment preparation. Almost half of them were using internet for study and later half was using it for study as well as recreational purposes.

4.16 Access to online Lecturer and Tutorials

Online lessons, practical tutorials, research article and books are available on the internet for all. Universities provides ICTs for students. ICT is a gateway to access published material. Institutions show their students how to access and utilize these resources. Every discipline is developing with rapid research, ICTs helps both teacher and student to be aware about these developments. As mentioned in the beginning of this section, my respondents belonged to

various disciplines i.e. social sciences, natural sciences and management sciences. Most of the students said that they used internet for online sources,

I consider to see research articles and online books.

Another respondent argued,

I look for theory. Also practice of my subject on internet.

Their responses tell us how much importance they give to their subject and how much they use internet for their academic development.

My question further comprised that how they take help from internet in their studies. In other words, if they are using internet for their subject what type of materiel do they see online. Their responses were almost equally divided among Images, Text, Tutorials (videos) and published articles. A great number of my respondents from subject of Management said,

I look for International journals, articles in magazines

My another group' responses were almost the same,

International journals, articles, and case studies.

International journals are published after careful reviews and calculation. They portray society's status with regard to any phenomena i.e. poverty, population or consumerism. Case studies are another type of articles where market analysis are published. Challenges faced by market are studied judiciously and written down categorically. These case studies are at macro level or micro, both are valuable to students. Students, having learned the skill in their education, study these published articles and case studies to further furnish their knowledge. Magazines are part of showbiz. However, its diversity has gone beyond its traditional grounds. Its popularity in academics is equal to fashion and designing. For, the new development and

professional's views are written down in a fluent way, that is easy to understand by an amateur student as well as a professional.

Another group of respondents belonging to applied sciences (Chemistry, Biology and Microbiology) said,

I search for videos of my experiments, to see how to perform it properly.

Number of students from other fields asserted a similar response.

Watching videos about our field is very helpful to learn the core of our course.

Applied sciences where students work in laboratories are likely to look for practical help. Videos produced by international universities for their students are available online. Tutorials are being produced in almost every field. Class lectures are also recorded and posted online to be viewed by others around the world. They are watched by professionals and learners alike. Along with instructor and professors these videos also viewed by students to aid their concepts and practice. The excerpt given above are revealing my respondents' argument about their use of internet in their subject.

4.17 Keeping Up to Date with Technology in Education

Educational disciplines never stay at same state, new researches are advancing every subject materiel by new discoveries and encounters on challenges. New developments rose when new issues appear or any researcher(s) find solutions to any perplexing problem in their particular disciplines. These solutions give rise to further developments in other respective fields. Although the basic structure of the discipline remains the same that is in the textbooks, but its widespread practical implication has to be known to a student. Albeit students in order to get the fruit from their education, has to be aware of these expansions. In my field study I

interviewed students regarding their strategy to be up to date about their subject. A student of Computer Sciences argued,

> *We need to do a lot of efforts to be updated about our subjects and internet is required for this. Books from Computer Sciences are generally available 10 years after it publication but through internet I get it right after its release.*

In addition to above idea, similar response was given by a Social Sciences student,

> *Research-Gate is a website that is giving us updates about what kind of thesis or research paper are being uploaded. It also gives us information about the researcher. Twitter, Facebook, googles codes, magazines, monthly reports of big companies that makes apps is also in domain of my work.*

The findings from above responses show that students have a greater tendency to learn and be up to date about their subjects. If any advancement is underway, ICTs helps them to be aware of it. Internet connects us to everything. If a new book is about to launch, it can be accessed right after its release, otherwise would be available in next few years in Pakistan. Moreover, other services like Research Gate© is a social networking websites among researchers. Students and professors get together and upload their research projects. It is instantly reachable to all the users of the website. Besides this, Research Gate © is a discussion forum; a question can initiate a debate that further enlighten the students about that particular subject. Another fundamental benefit of this social networking website is the Research Gate© Score; it means how much one published article is being cited and read by other users. Along with this particular website Facebook© and twitter© are also being used by students to be aware of new developments. Because all the companies and big publishers are part of these social networking websites who are posting about their updates there, and students can easily see what is in contemporary.

Beside them, another group of respondents had different understanding of being up to date in their education. They were unclear about their lessons going on in their class so they were utilizing the resources of internet to clarify their concepts. Few of them responded as,

> *Internet helps me to be up to date in a very useful way. When I am incapable to understand any class lesson, I use internet to clarify my concepts. Same goes for my textbook, I use internet to better understand my course work.*

These students were from diverse backgrounds. Some of them had good schooling based on advanced education, while contrary to them, others had endured in rural education where they were not ascribed to ICTs. Their definition of "being up to date" can be described, in other words, 'to have complete understanding of the lessons of their subjects in the curriculum only'. Their limitations were only their subjects and lessons in class.

Some of the learners are more focused on its practical implications of their subject. Working on the lessons in class they study its industry in parallel manner. It helps them tomorrow when they step in to the market. Great number of students from Management and Marketing argued,

> *Reading magazines about successful managers in business and their achievements.*

Another similar response was argued by a number of students.

> *I follow business tycoons. I study their professional actions they take to tackle any challenge.*

Similar response was asserted by Computer Science student.

> *I prefer to read profile of researchers from my field.*

It shows that they not only study their subject but they also look for successful professionals in their subjects. 'Professional Managers' or 'Tycoons' in above statement means those successful professional who had become inspiration for students of Management Studies or

any other relevant field. Their studies were being read in magazines by these students. In these magazines, successful professionals and entrepreneurs are debated autobiographically, discussing their life, how they or their companies gone through difficult market challenges. These stories throw light on their professional success which is helpful in lifting students' morale.

Students opined for different ways of being up to date in their domain. Social media is considered for entertainment for most of people but according to my respondents, Facebook and Twitter are also used for academic purposes. Great number of the respondents argued,

> *I have joined social group on Facebook, where relevant research articles, new and old are uploaded. They help me to read them in a context. I also discuss it with other people online.*

Another similar response from huge numbers of respondents,

> *I have joined groups on Facebook and Twitter were I find online books and research articles about my subject.*

Others social networks were asserted by number of students.

> *Yahoo groups and Reddit discussion forum helps me take to find scholarly articles other relevant literature.*

Online libraries and journals are sources for students where they find newly published work from around the world. Research articles and magazines stories are a useful form of finding out information about any subject. These are supportive for students to know more about their subject. Beside Research Gate© and other social networking sites, there are some more online discussion forum that are used by students for being up to dated. As these were mentioned by students. Yahoo© and Reddit© are online discussion forums used by millions of people around

the world. It has multiple discussion groups including entertainment and academics. Users share files and documents from their fields among themselves that keep them up to date of their new developments (Braun & Schmidt, 2006; Brown, 2000; Dillon, 2006; Prensky, 2001; Oblinger and Oblinger, 2005)

Students from software engineering had almost same response. They tend to spend most of their time online searching information to make some new and useful computer or mobile App. Many of students responded,

> *We work on Googles codes, (coding) magazines, monthly reports of big companies that makes application.*

Googles codes is an online resource that facilitate computer programmers. Google Code is software development tools, application programming interfaces (APIs), and technical resources. It also includes discussion groups and blogs for developers using Google's developer products. Students take helps from it to learn new programs.

The above statements highlight the various ways student adopts to be up to date regarding their subjects. They indicated how they are connected with mainstream information domains that helps them in their subjects. Internet is a great approach to connect to world beyond any limit. Studies conducted by Clouder and Deepwell (2004), De Laat, Lally, Simons, and Wenger (2006), Light, Nesbitt, Light, and Burns, (2000), Strijbos (2004) and Vonderwell (2003) provide ample amount of evidence that students are keenly involved in co-creating their e-learning milieus. This indicates how students with their technical tools, involves their skill and provide a new opportunity that restructure and organize their own learning experiences.

4.18 Multimedia Effectiveness in Classroom in Student's opinion

Use of multimedia provides an edge in lesson delivering. Its technical name is Video Projector. It portrays images, animations and videos onto a screen. Present multimedia is the newer version of older projectors, where it was only showing images of slides on the screen. It was being used in movie theatres to play movies. That type of multimedia was not suitable to use in education due to its massive size but later development made it possible for its use in corporate sector since 1990 to 2000. Thus its use was incorporated in other segment of society i.e. education.

Applications of multimedia have significantly influenced education. It gives teachers an excellent means to exhibit and visualize the subject matter that is more clear and comprehensible. Beside this, it enables teachers to prepare material for students optimizes their study habits (Milková, 2015).

I asked students from different disciplines about their opinions regarding multimedia in classroom or there should be no multimedia. A great majority of respondents said,

> *I prefer teacher using multimedia.*

Some of them added few more words and said,

> *I like teacher delivering lecture with multimedia. With multimedia many senses are involved e.g. visual and listening. Both manual and multimedia should be used by teacher. I think multimedia is good to focus students.*

Student respondents had specified that teacher delivering lesson with multimedia is preferred over teacher who is not utilizing multimedia in his lesson. As pointed out by students it is more interactive.

Other than that some of the student respondent had different opinion. They said that knowledge transmission is not up to use of multimedia, it is dependent upon the teacher. Lesson deliverance is not impossible with multimedia. They also opined that when multimedia is being used, teacher don't involve students in lesson. They called it "*one-man show*", there only one person is talking. As the respondents stated,

> *I don't think multimedia can make a teacher better or worse. A teacher needs to be a keen observer who is able to teach student according to student level and make things easier for them even if using multimedia or not.*

The above excerpt shows my respondent's views about whole teaching and learning scenario. The respondents argued that multimedia is not bringing any difference in teaching, it is just a tool which is an aid in classroom. If teacher is skilled, he/she is not required to use multimedia. Although the respondent preferred a teacher without multimedia. Another of my respondent had similar response,

> *Multimedia is good in class. I believe teacher should involve student with him/her in discussion which is not possible with multimedia.*

Teacher involvement, according to our respondent, is done more accurately without multimedia in class. Teacher should focus on student and involve them in the discussion and lesson. Another similar response was recorded by number of students,

> *(I prefer teacher) without multimedia, with multimedia it is more like one-man show.*

Students have not appreciated the use of multimedia in class as it deprived them of involvement in the lesson. With multimedia, only teacher continues to talk until the lesson is finished. They pointed out that their part in class is missing because of multimedia. A similar response was recorded from another respondent,

I prefer teacher without multimedia, who is involving the student in the lesson. Writing on board and delivering lecture is more likely to understand the lesson easily.

Another respondent asserted similar response,

I like teacher giving lecture without multimedia. Because teacher don't make much effort and totally rely on multimedia. He then only recites from the screen.

A similar response was asserted another respondent,

I have seen many teacher giving lectures with and without multimedia but particularly I prefer without multimedia.

Student respondents were endorsing their point again that teacher's practice of student involvement in class should be encouraged.

There was another group of student respondents who were not even considering the use of multimedia in classroom lesson. Their responses suggested that multimedia has no role in our subject and only white board is the singular source in lesson delivering.

We don't use multimedia in mathematics, only board is being used.

They were satisfied with their condition on only using white board in classroom lesson. It was more due to the nature of subject as Mathematics, Statistics, or Philosophy. These subjects need continuous discussion and writing on board where need of multimedia seldom arise. Apart from them, students from same discipline were interviewed they were not using multimedia but they considered its benefit. Few of students stated,

We don't use multimedia in mathematics We only use white-board. But I think multimedia should be used, as it will allow us to save time and discuss it in class.

The greatest benefit of multimedia is "time saving" which is reflected by students as well as teachers. It allows students to serve their energies on discussions and engage teacher on subject.

Multimedia effectiveness has not been endorsed by all of the respondents. They have reasoned the use of multimedia in classroom and argued that teacher is not dependable on multimedia. Goodness and badness is independent characteristics sole related to teacher. They argued,

> *ICT tools are bringing modernity in our learning but according to my views it is not bringing any change in teacher 's way of teaching.*

Beside other benefits of multimedia discussed by majority of respondents earlier in this part, some of respondents have not considered the influence of multimedia. Although they have termed it helpful but true teaching is not dependable on multimedia.

Above quotes are giving a varied picture of the responses of our respondents. More than half of them admire the use of multimedia in classroom. Giving various benefits of multimedia in classroom. Other respondents had different opinions. Some disapprove its use in classroom giving multiple reason.

4.19 Internet Usage on Smart Phone, Tablet and Laptop

Once simple mobile phones are now known as smart phones, powerful, portable form of 'microcomputers' capable to run growing number of instruction applications (apps). Cell phones and tablets have obtained increasing amount of attention in literature of education (Cummins, Johnson, & Adams, 2012; Daher, 2010; Faure & Orthober, 2011) It is more accessible with high functionality and reduced cost has resulted in increased cellphone ownership, especially among students. These technologies have allowed everyone to access internet from anywhere due to advance connectivity technologies that can be used be laptops as well. I studied my student respondents about their accessories they use for internet, greater

majority (91%) of them were using internet on Laptops, more than half of them (61%) were using internet on smart phone while tablet was being used by few of them (3%).

Their sole purpose of using these ICT tools, according to majority to our student respondents, was connecting with other through social media and emails. As they said,

> *(I use it for) Emails and WhatsApp and other social apps.*

At present social apps are part of our youth culture. It allows them to send text messages, pictures and voice messages as well. It has the advantage of extending the limit of just sending text message to new ways. Other students had a different response, in addition to use of social apps they were using their ICT tools for their educational purposes as well, as they said,

> *I use my laptop and smartphone for Emails, WhatsApp and other social apps, connecting with business related articles reading, twitter using to see for updates in my subject (marketing, programming, psychology, journalistic articles, research articles).*

Their subject was prat of their internet surfing routine. Smart-phones use has advantage for student. It optimizes their need to see any development in their subject area. Marketing student are looking for new advertisements, the techniques and methodology that interests marketing student are easily accessible through smart-phone. Newspapers in electronic form are available to read for all. Journalism student can access it too. Blogs can be read and created with it. Blogs are available online where everyone is posting articles of their interests. Blogs can be journalistic or it can be a review about anything e.g. a movie, book or any other article. Furthermore, same is for psychology students and research articles as well that is accessible for all.

4.20 ICT Integration in University in Student's Perspective

The term ICT-integration encompasses the wide range of hardware and software into an educational institution; hardware includes desktop and portable computers, projection technology, calculators, data-logging, and digital-recording equipment, software applications comprises of generic software, multimedia resources, and information systems that constitute Intranet, Internet.

Students views regarding ICT integration is an important aspect for a successful strategy in educational development program. Students are the consumers of technology. They have the working practice of the rapidly changing technologies. They have the uptake to provide the results of technology providers and users. Students expectations of ICT integration into university may not be aligned with those of university and assumption of increased use of ICT for educational development may differ between student and their teachers.

Universities all over the Pakistan have adopted ICTs to some extant to provide quality education for students. However, ICTs integration into university is a costly business. It is not always fulfilling the expectations of students thus creating a gap in academic development. I studied student's opinion about university strategy in ICTs. Most of them argued that.

> *Wi-Fi should be provided in university premises at least. Computers in computer lab should be new or at least in working state. These computers should be connected to internet and more online resources should be provided by university.*

Expressing their views about the quality of internet connection few respondents asserted

> *Internet access in our university is not good; one file takes a lot of time to download. Labs computer are not good. Internet quality is not satisfactory.*

Another similar response was,

Multimedia should be provided in every class in our university.

Basic ICTs tools were emphasized by respondents to be provided for them. These tools are required at every university faculty where students can employ them in their education. If these structural ICTs are not available in any educational proximity than it cannot be considered as ICT integrated university.

Hostels are normally situated in university area. Students continue their work at their hostel rooms, but the internet service provided there is not supported to access international journals. This was a major plea of students was allocating an internet service that access all journals. As they said,

> *Research article can't be downloaded from hostel internet; this problem should be solved.*

Administrative solutions were demanded by students for them. Beside ICTs in university they had asked for a common place where internet is available and they could bring their laptops to work for longer hours in ease. As they said,

> *A place should be provided for student to sit and discuss among themselves. Internet connection is provided in that place. I don't think internet is suitable for it. Because there is too much noise of students, no rules are followed by student, and management are not effective to keep everyone in order.*

Libraries are also part of educational system where books are placed in an order but it is also a place for work and study. Nowadays libraries are facilitated with internet connection used by students. But as student reported in my study they were not satisfied with these services in terms of library rules and regulations. They suggested a building having a hall or multiple rooms, where students can unite and discuss their educational practices.

For a better operating of libraries ICTs are required at its best. Beside books libraries also host all the projects and research dissertations of the university. A group of students online resources in the libraries and they argued,

> *Online resources should be improved in libraries.*

Another similar response was asserted by another respondent,

> *An online repository should be built where all our projects are uploaded. Our online library should be developed specially for software developers.*

A similar response was received as,

> *Our projects/thesis should be stored online in a repository so that we could read them and learn more.*

Libraries role has gone beyond assimilating books and journals, it has to store and provide online resources that include research projects, dissertations and reports of the university. These material should be available for students and staff equally for their guidance in their relative work. Most of the universities have already available all these amenities but their internal overhauling is not conducted thus leading to malfunctions and student altogether reject them.

Apart from these demands, students told me about the indulging activities that would be positive in our academic development in ICT context. They said universities should hold seminars on our subjects. Where new challenging issues would be discussed leading to motivate students in their field. They argued,

> *Should have seminars about our subject and successful entrepreneurs should be invited for talk to tell us about their work.*

When successful professional talk about their self or their work, it motivates the younger generations to gain more. Reading about them in magazines is different than listening to them. This opportunity is provided by these academic seminars. University administrations should work on this aspect of modernization as well.

Our interviews from students gathered diverse answers to inculcate students with help with ICTs to fight new century challenges and grow a faster market leading towards prosperity. But few of our respondents from undergraduate classes said that excessive ICT tools are not healthy for learning environment. Students purpose should be armed with new skills like our older fellows. As they argued,

> *There should be nothing more than multimedia, because than distraction for student would be produced.*

Student with internet on smart phone in his/her hand is not effective as student who use his/her brain to find out the solution in his subject. New information can be found easily but to view its worth is possible with an aware brain. New ideas and practices can be learned from internet but as long as they are not performed they are useless. According to our respondents our subject should be part of thinking and analyzing the society around us. Which is not easily possible if we are distracted with these ICT tools.

Part two of this chapter concludes the remarks from students about ICTs in education. Majorly, all of the students were using internet regularly. Students were utilizing different resources online to be aware of their subjects, mainly, research articles, books and tutorials. Majority of the students approved the usage of multimedia while the rest considered it not suitable for lower classes. Majority of students were possessing laptops and smart-phones, that was used to connect with others and do their research work. Moreover, broad spectrum of suggestions were given by respondents to integrate ICTs in their universities.

CHAPTER 5

FINDINGS AND DISCUSSIONS

5.1 Introduction

In this chapter I am going to sum up the whole study. Wrapping the study, it is pertinent to mention that this study examined the role of ICTs in the education of Pakistani youth. This study encompasses the opinions of teachers and universities students (see Chapter 3). Drawing on chapter 4, the chapter explains how ICTs is understood and experienced by teachers and how it is experienced by students in their daily educational process. It is asserted that the study's findings identified to focus on the student's personal development and his/her capabilities should prioritize in order to achieve a strong individual for future. In the light of literature review and theoretical concepts, the study unpacked a numbers of factors which can be claimed as new insights that has not been highlighted in previous studies in Pakistan. These new insights from the study findings are presented in the forthcoming section. The findings have been abridged into few powerful themes that have been discussed in the light of theoretical framework as under.

5.2 Engagement of Student Through Multimedia: Multimedia have solved many challenges faced by teachers in classroom. Multimedia facilities have driven the practice of lesson from rewriting the material to display it with effective methods. These displays involve colors, graphs, animation and videos. A teachers' role to explain any phenomenon has been confined to a minimum level due to multimedia technology, that is utilized extensively in classroom practice. This study revealed that majority of teachers agreed that the use of multimedia saves time in class. A considerable number of respondents argued that multimedia save their time during class which they utilize in engaging students in discussion. The following

extract substantiate the argument. "*It (multimedia) makes teaching easier for teacher, it saves time from the things you need to write on board which takes a great deal of time*".

This extract shows that lesser time on lessons allow students to engage in discussion and clarify their understanding of concepts and class lectures. One of the respondents asserted that the use of multimedia saves my time and allow me to engage student in discussion. This reinforce the formulated discussion that multimedia enhances classroom engagement and enriching learners experience of classroom learning. They said, "*It saves time and allows me to engage students in discussion*". Multimedia have the tendency to enhance teaching and learning process due to its multifaceted benefits in classroom environment. Student's grasp on the lesson is improved when he/she speaks the question in his mind. This is now possible with multimedia.

5.3 Field Example Through Multimedia: Depiction through multimedia is easier to demonstrate any practical occurrence i.e. cell division in biology, engine's operation in mechanical engineering or showing any experiment for lab workers. Multimedia display is the bigger version of computer screen that is not only easy to grasp for students. It also provides them to manipulate the display materiel for their understanding. One of the respondents in this study findings claimed that, "*Multimedia is good for showing concepts and ideas in pictorial way*". The basics of the subjects that has been altered and re-altered in order to create an industrial item can be exactly shown to in classroom. According to the study's findings multimedia is an excellent way to connect classroom to industry. It helps the learners that how the subject of classroom actually operate in industry, can be validated to students through ICTs. Multimedia exemplify an up to date model of the subject.

5.4 Young Leaners and ICTs: An important trend in contemporary education is the introduction of ICTs into our educational environment. It is important to mention here that our

universities are well equipped with ICTs. however, ICTs are not used for the academic progress and development by student.

This reflect what Mathew J. Kohler and Punya Mishra (2009) argued that technological pedagogical content knowledge enable teacher to integrate technology effectively into complex process of the classroom learning. A great number of teachers said that, *"Students are given all the facilities but they need guidance how to use them positively and integrate it in their education"*.

The above quote asserts that providing advance tools for student is not solving the challenge of educational development, rather an urge for going beyond have to be created in order to make these tools fruitful. The opportunities stored in ICTs can never be explored if students do not connect it to their education. Teachers believed and asserted that students need proper training for the effectiveness of ICTs for educational achievement and progress. Majority of teachers believed that, *"Students should be trained in ICTs."*

5.5 Differential Use of ICTs by Different Grade Learners: This study's findings revealed that ICTs are not used for academic development by all university level students. The study findings unpacked that undergraduate student engage with ICTs as social media tools nevertheless, the postgraduate level student do use ICTs for the academic progress development. Maximum numbers of the teacher's argued that, "*Majority of students are using (ICTs) for social media and other entertainments*". On the contrary, teachers' opinion about higher classes was different. They claimed, "*M.Phil. and Ph.D. students do use (ICTs) for academic development - class assignments, reports and thesis*". This contradiction between opinions highlight the purpose of ICTs in students' life. Lower classes use ICTs as it as an aid in their practice while students of higher studies need it as a medium for their research. Higher studies students have no other option but to be serious with the use of ICTs. The point to be

noted here is that ICTs determined the educational lives of undergraduates. This means that ICTs have merged intelligent forces that are out of the undergraduate control. On the other hand, for postgraduate students, technology is nothing more than a cart and the educational culture as a horse which control and drag the cart.

5.6 ICT Drawback and Discouraging ICTs: Students are enthusiastic about technology; they use it in every aspect of their life. But its abundance has impasse the personal and professional development of youth. The study findings showed that excessive usage of internet on mobile phones and computer have overwhelmed the minds of youth. It is mostly used for social media and entertainment purposes. Several of respondents highlighted that, "*I am not satisfied with the way students use internet. They only do chatting on Social Media*". Further the findings explore the ethical issues of students. Great number of respondents said, "*Formal writing, formal thinking and formal speaking is declining in students because of ICTs*". Students were mentioned as less focused on their skills, given the reason, they plagiarize their assignments and class work. They lack critical reflection and understandings of their subjects. The findings of this study reveals as, "*Mostly students copy projects and assignments*". Due to these ins and outs, several of my respondents discouraged any ICTs for youth in classroom. They focused on upbringing of personal behavior and critical skills of students. As several of respondents said, "*I am not in favor of ICTs at all. I think it is unnatural. Students should use their mind*". Internet and computer have solved the critical challenged for students and he/she don't ponder about it anymore provided that online materiel helped him/her in every manner. The findings from this study highlighted those issues which are not kept in mind when policy for educational development is conducted.

5.7 ICTs Enrichment in Students Perspective: This study inquired the ideas about university enrichment in ICTs from teachers and students altogether. The findings from both

type of respondents were different. Teachers mentioned that their university need ICT equipment as well as trainings for their students. The other findings that originated from this study are dissimilar to teachers. Most of students asserted on ICT tools for them in their university. They declared Wi-Fi should be extensively available in university campus. Most of students did not recommend any orientation or workshop that would train them for better ICT use.

5.8 Multimedia Causes Cognitive Load on Learners' Mind: The study findings reveal that student are not comfortable with multimedia presentation in the classroom. Further the finding shows that multimedia presentation brings more cognitive burden and load to the learner mind. A great number of respondents asserted that they understand the lecture more easily and without getting tired when teacher use the board instead of multimedia. *"Without multimedia, writing on board and delivering lecture is more likely to understand the lesson easily"*. A great members of respondents asserted that they understand the lecture more easily and without getting tired when teacher uses white board instead of multimedia.

5.9 Youth, Social Media and Learning: It is important to mention here that multimedia is not effective in the educational environment where learners are not adopted with ICTs and also when they do not have prior knowledge of the topic of discussion in the class (see Mayer, 1997). The findings revealed that students formed numerous groups in which they discuss and share different educational topics, articles, video chats, conferences calling and uploading questions which are answered by any member of the group. These interactive groups allow the learner to share articles which are otherwise available after online payment. One of the respondents asserted, *"Yahoo groups and Reddit discussion forum helps me take to find scholarly articles and other relevant literature"*.

5.10 Conclusion

This study revealed conflicting perspectives on the use of ICTs in the education of Pakistan youth. Teachers believe that a well-designed lecture with relevant and connected contents, integrated with the real and genuine classroom learning needs engagement of student through multimedia. Teacher believe that multimedia save time as ready text, pictures and videos are taken into the class which enable the teacher to make genuine learning environment for student.

Despite the fact that ICTs promise significant improvement in the overall process of teaching-learning, our educational environment and culture continue to struggle for the effective use of ICTs. So despite their proliferation in our educational institutions, ICTs have Yet to change teaching and learning in any fundamental sense or even to replace the traditional practices. It is important to mention here that we should not look to ICTs to solve many of the problems that plague our education. We should accept that many of the problems in our education of youth education have their roots in the larger society and broader educational culture locally and globally.

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Critical Analysis of the Role of ICT in the Education of Pakistani Youth

Interview Guide (Teachers)

What is ICT?

Any communication device or application such as cellular phones, computer and network hardware and software, satellite systems Multimedia and so on.

1. Designation.....
2. Subject.....
3. University.....
4. Level of Teaching.....
5. Gender; (a) Male (b) Female
6. Do you think Multimedia is effective in classroom teaching?
7. Do you think students use internet for their academic development?
8. If yes, how?.....
9. Are you satisfied with ICT integration in your University?
10. Do you think the use of ICT helps you in classroom teaching and interaction with students? (a) Yes (b) No
11. If yes, how? .....
12. If no, why not? .....
13. Do you encourage email correspondence with you students regarding thesis work? (a) Yes (b) No
14. What support services university needs to put in plan to improve student capacity to use ICT for their educational development?
15. What do you suggest to equip students at higher education level to effectively use ICT in their education?

Critical Analysis of the Role of ICT in the Education of Pakistani Youth

Interview Guide (Students)

What is ICT?

Any communication device or application such as cellular phones, computer and network hardware and software, satellite systems Multimedia and so on.

1. University.....
2. Subject.....
3. Level of Degree.....
4. Gender; (a) Male (b) Female
5. Do you have access to Internet?
6. If yes, where? a) home, b) university c) other place.....
7. Do you use internet

   Yes No
8. If yes, what is the frequency?

   ☐ Daily

   ☐ Weekly
9. How long do you use internet?

   (g) 30 minutes (b)1 hour (c)2 hour (d) 3 hour (e) 4 hour (f)Longer than that.
10. How much do you use internet for your studies?
11. Which particular subject(s) do you study more with internet help?
12. What help do you take from internet for your studies?

    (a) Text (b) Images (c) Tutorials (d) Published Articles (e) other.....
13. How well do you keep yourself up-to-date with your subjects with help of internet?
14. Who is the most effective teacher in your classroom?

    (a) Teacher using multimedia

    (b) Teacher giving lecture without multimedia.
15. Do you have internet on your smart phone/ tablet/ laptop?
16. If yes, how do you use it in a day.....
17. What are you using it for?.....
18. Do you think that mobile phone/ tablet distracts you during your studies?
19. What other ICT integration do you think can improve your studies in addition to multimedia in classroom and computer labs in university?