IMPLEMENTATION OF 21ST CENTURY SKILLS: A CASE STUDY OF HIGHER EDUCATION IN PAKISTAN

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A thesis submitted in partial fulfilment of the requirement for the degree of PhD in Education

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Approval Sheet

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The thesis entitled "Implementation of 21st Century Skills: A Case Study of Higher Education in Pakistan." submitted by Hayat Khan, Registration No. 113-FSS/PHDEDU/F13 for the requirements of degree "Doctor of Philosophy in Education" has been completed under my guidance and supervision. I am satisfied with the quality of student's research work and allow him to submit this thesis for the award of degree.

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AUTHOR'S DECLARATION

I, Hayat Khan Regd. No. 113-FSS/PHDEDU/F13 as a student of PhD in Education at International Islamic University, Islamabad do hereby declare that the thesis entitled "Implementation of 21st Century Skills: A Case Study of Higher Education in Pakistan", submitted for the partial fulfilment of PhD in Education is my original work, except where otherwise acknowledged in the text and has not been submitted or published earlier and shall not in future, be submitted by researchers for obtaining and degree from this or any other university or institutions.

Date: _____

Hayat Khan

DEDICATIONS

To my father in law & wife, who have supported me a lot morally in the completion of my thesis and they have frequently and spontaneously prayed for my success

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Abstract

The emergence of the global economy has changed the demands of citizenship and employment in the new millennium of 21st century. The world is shifting from an industrial economy to knowledge based economy. Keeping in view these challenges, 21st century society and work sphere (employer) require individuals equipped with 21st century competencies and skills. Therefore, the present study was designed to examine the implementation of 21st century skills in higher education institutions (universities) of Pakistan. Objectives of the study were; (i) To examine the existing programs and practices at the universities and their relation with 21st century skills; (ii) To evaluate the potential of Pakistan universities regarding the implementation of 21st century skills; (iii) To highlight the challenges being faced by universities regarding the implementation of 21st century skills; (iv) To explore practicable strategies for implementation of 21st century skills in Pakistan universities. The study was delimited to two departments (Department of Education and Department of Management Sciences) of nine general public sector universities of Khyber Pakhtunkhwa. The population of the study constituted 40 NCRC members, 18 HoDs, 578 students of BS programs and 206 universities teachers. Sample of study included 146 teachers, 251 students, 18 HoDs and 40 NCRC members. Samples of teachers and students were selected through proportionate stratified random sampling technique while samples of HoDs and NCRC members were selected through universal sampling technique. Surveys and interview guide were used as research instruments for data collection. Quantitative data was analyzed with the help of statistical tools including mean, percentage and chi-square goodness of fit test while qualitative data was analyzed with the help of "Creswell's six steps model of qualitative data analysis". The problem was further analyzed through significant and relevant material in "review of literature" of the study wherein all the developmental initiatives, taken for the betterment of higher education through education policies, conferences and commission were thoroughly discussed, reported and analyzed. Moreover, all these departmental initiative in higher education since the inception of Pakistan were further linked with the development of 21st century skills in universities. Findings of the study showed that all the mentioned skills in the framework were not fully developed in most of the student in universities due to different impediments. It was found that (i) Critical thinking and problem solving skills; and communication skills were developed in majority of the students; however creativity and collaboration skills were not developed in majority of the students in universities; (ii) Information, Media and Technology (IMT) skills were not developed in most of the students in universities; (iii) Adaptability and flexibility skills, initiative and self-direction skills, productivity and accountability skills were taught to majority of the students in universities; however cross-cultural Skills, and leadership and responsibility skills were not developed in most of the students in universities. At the end of the study, a plan of action has been suggested to HEC for implementation of 21st century skills in universities of Pakistan.

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LIST OF ABBREVIATIONS

ACRL	Association of College and Research Libraries
ACMA	Australian Communications and Media Authority
ANZIIL	Australian and New Zealand Institute for Information Literacy
BS	Bachelor of Science
CAUL	Council of Australian University Librarians
DeSeCo	Definition and Selection of Competencies
HoDs	Head of Departments
ICT	Information and Communication Technologies
IMT	Information, media and technological
LEAP	Liberal Education and America's Promise
MTDF-I	Medium Term Development Framework-I
MTDF-II	Medium Term Development Framework-II
NATCE	National Accreditation Council for Teacher Education
NCRC	National Curriculum Review Committee
NCREL	North Central Regional Education Laboratory
OECD	Organization for Economic Co-operation and Development.
P21	Partnership for 21st Century Skills
PISA	Program for International Student Assessment
PPRC	Pacific Policy Research Centre
QAA	Quality Assurance Agency
QEC	Quality Enhancement Cell
UNESCO	United Nations Educational Scientific Cooperation Organization

CHAPTER 1

INTRODUCTION

1.1 Rationale of the Study

Globalization and technological advancement in the new millennium of the 21st century have created new demands and challenges for people, organizations, societies and countries to contribute, compete, and innovate in the global economy. In this regard Wager (2008) argued that today`s world has been dramatically changed since last two twenty years, where the concept of economy in the world that was linked with the industrial revolution is now driven by knowledge, information, and innovation.

The 20th century differs considerably from twenty first century because of the required skills and competencies for learners to compete and survive globally and to be successful in their personal, economic and socio-political lives (Dede, 2009). ICT has created new challenges for students' educators and employers. Working Priorities in the global market of 21st century have forced the countries, organizations, and individuals to change the way they work, the way they collaborate and contribute to the society, economy and to other individuals.

The concept of labor market in today`s world has changed to global market which means that highly qualified people in rich countries compete for jobs with individuals having the same qualifications in lower wage countries, while twenty years ago, employments used to be localized and only individual in the home country were competitors for getting those jobs (OECD, 2010). Kay and Greenhill (2011) pointed out that over 80% of the jobs in the world have been shifted from the manufacturing

industry to the service industry, which demands for employees equipped with essential skills of 21st century.

The world has become borderless where individuals must develop collaborative skill and share knowledge at right time without regard to their location. Many types of the middle class jobs that were specialized in specific tasks such as data analysis and accounting which have been now replaced by technology or outsourced to another country. New skills and competencies in 21st century are not limited to specific tasks, rather individuals have to be capable of thinking critically, collaborating, and communicating orally as well as in writing. Individuals working as member of 21st century workforce must be literate in technology and must be able to adapt themselves in a changing environment. Keeping in view the working demands and priorities of 21st century workforce, our educators, organizations and employers must acknowledge the importance of 21st century skills to (i) satisfy the demands of employability; (ii) integrate and participate successfully in today's society; and (iii) to contribute positively to the wellbeing of the country (OECD, 2011).

Hilman (2012) acknowledged that technological progress in last twenty years has reshaped this world into a global village with a huge interconnectedness. The existing issues in the world are no more local or international rather they have become global or borderless. In order to understand the issues of this globalized world, individuals must need to develop new skills so that they may collaborate and survive in this global era. As a result of this interconnectedness, the globalized world has become more mutually dependent.

Nussbaum (2010) admitted that globalization is one of the major rationales for developing 21st century skills because the existing world has become a global community. Globalization includes immigration, technological advancements e.g. the

internet, use of digital tools as well as the emergence of global market places. These events force individuals to acquire innovative modes of communication and collaboration in the prevailing global setting. Similarly Kay (2010) supported the statement that individuals must learn 21st century skills and competencies to resolve problems, collaborate and contribute efficiently throughout their lives.

The Asia Society (2012) discussed three rationale i.e. economic, civic and global rationales that have forced the system of education to develop students' 21st century skills. The first rationale i.e. economic rationale means that the concept of demand and supply in today's world has not been limited to a particular nation, country or region, rather it has become global. The second rationale for developing student's 21st century skills is civic. It is a fact that learners need a strong foundation of some basic civic skills i.e. knowledge (rote learning) and recitation of facts, however it is insufficient way to stimulate civic engagement. Beside these basic skills, learners also need to think critically, analyze things, and identify biasness and proper use of ballot in an educated way. They also need to be skillful in solving routine problems so that they may take part in making policies to deal with social challenges. They also need to work with team members having the skill of effective communication so that they may contribute their feelings with public and may defend their rights in society.

Globalization is the third rationale for developing students' 21st century skills. The existing technology and fast communication, the internet, massive global migration, interdependent global markets, climate of instability, world-wide wars and other factors have contracted the world to global village where economy, ecosystem, and political network have been globally interconnected. This interconnectedness have compelled students to learn and develop 21st century skills. Thus these three rationales encourage the teachers and student for developing 21stcentury skills. These skills do not

oppose each other rather, they overlap each other. Furthermore, without learning of 21st century skills, people cannot use their privileges and responsibilities in society.

Keeping in view the above discussion it may be concluded that world`s economy is shifting from industrial economy to service economy and labor market is shifting to global market. This major shift of today`s world, demands for the achievement of new skills so that the individuals may contribute well to the global economy in a rapidly changing world. Therefore, it is need of the day to equip our graduates with specialized skills to compete and survive in present global world. This can be done by equipping students in general and graduates of higher education in particular with essential skills and knowledge of 21st century to fulfil the demands of knowledge based economy in the contemporary global society.

1.2 Models of Twenty First Century Skills

There are different models or frameworks of 21st century skills given by different organizations at world level. These organizations include: (a) The Partnership for 21st Century skills (P21); (ii) the North Central Regional Education Laboratory (NCREL); (iii) The Organization for Economic Co-operation and Development (OECD); (iv) The National Leadership Council for Liberal Education and America's Promise (LEAP) (v) The Asia Society; (vi) Definition and Selection of Competencies (DeSeCo).

All the above mentioned organizations have given different models or frameworks for teaching of 21st century skills. All these frameworks have the same conceptual ideas but the "way to present these ideas" is deferent. The major categories (skills) in one model/framework has been pointed out as sub-categories in other models. Similarly one model has emphasized one type of skills while the other model emphasized other type of skills. But the skills which are common in all these models

are; (a) learning and thinking skills (critical thinking and problem solving skills, creativity and innovation skills, communication skills, collaboration skills and contextual learning skills); (b) ICT literacy (Information, Communication and Technology), (c) Global Awareness and Intercultural skills. (Bashir, 2013; Hillman, 2012; Velez, 2012)

All these models promote and advocate the necessary skills and competencies for success in the global world of 21st century but the "Framework for 21st Century Learning" given by the organization of P21 is more comprehensive and detailed framework for teaching of 21st century skills. Furthermore, it is the most widely cited and adopted framework in the field of education (McLachlan, 2012; Hilman, 2012; Bashir, 2013). Therefore, the said framework was used as theoretical model or framework for the present study.

The Partnership for 21st Century Skills (P21) emerged as one of the leading advocacy organizations for 21st century skills in 2002. This organization emphasized on infusing and integration of 21st century skills into the field of education. It also showed concerns for not preparing of 21st century graduates and developed a unified, collective vision for 21st learning. The P21organization provides opportunities to educational leaders, business community and policymakers for defining an integrated vision of 21st century education so that every individual may contribute well to the society as a global citizen and as a worker in the 21st century. The framework of P21 encourages institutions, administrators as well as educators for the implementation of 21st century skills in educational institutions (P21, 2008).

1.3 P21 Framework for 21st Century Learning

The framework was emerged as one of the prominent advocacy organizations for 21st century skills in 2002. This organization emphasized on infusing and integration

of 21st century skills into the field of education. The P21 organization provides opportunities to educational leaders, business community and policymakers for defining an integrated vision of 21st century education so that every individual may contribute well to the society as a global citizen and as a worker in the 21st century. It encourages institutions, administrators as well as educators for the implementation of 21st century skills in educational institutions (P21, 2008). P21 also showed concerns for not preparing of 21st century graduates and resultantly presented an integrated and collective vision for learning known as "The Framework for 21st Century Learning" also recognized as P21 framework. This Framework portrays the essential skills and abilities that individual must learn to be successful in work as well as in life. Furthermore, P21 framework is a combination of skills, knowledge, expertise, and literacy.

P21 (2009) summarized the essential skills and abilities for 21st century students in the following figure. The figure consists of 21st century student outcomes (shown by the rainbow arches), support systems (shown by light blue pools at the bottom) and 21st century themes and academic content (at the center of the figure represented by the green arch).

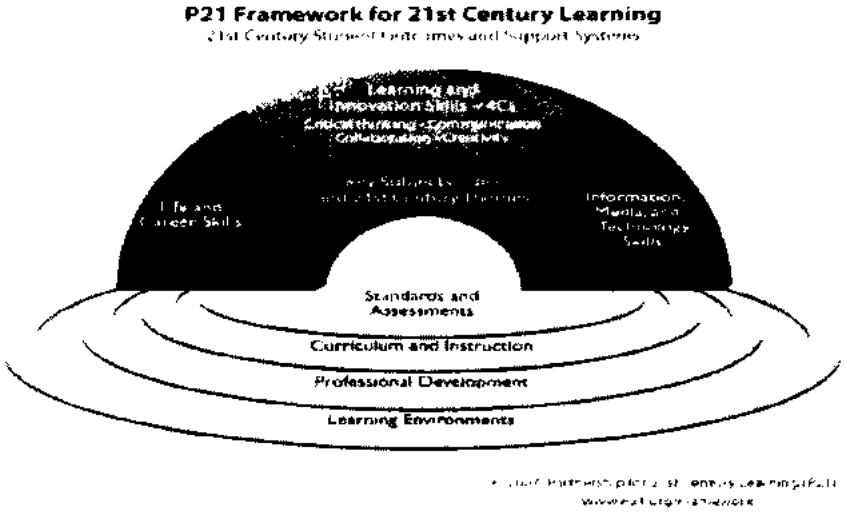

Figure 1.1 P21 Frameworks for 21st century learning

Three set of skills in the above figure were considered as "21st Century Skills" and these skills are;

a) **Learning and Innovation Skills (also called 4C's):** These skills have been categorized in the following competencies; (i) Creativity and Innovation; (ii) Critical thinking and problem solving; (iii) Communication; (iv) Collaboration.

b) **Information, Media and Technology Skills:** These competencies have been divided in the following; (i) Information Literacy; (ii) Media Literacy; (iii) ICT (Information, Communications and Technology) Literacy.

c) **Life and Career Skills:** Life and career skills have been categorized as under; (i) Flexibility and Adaptability; (ii) Initiative and Self-Direction; (iii) Social and Cross-Cultural Skills; (iv) Productivity and Accountability; (v) Leadership and Responsibility.

These three set of skills given by the "Partnership for 21st Century Learning" were taken as 21st century skills in the present study which tried to find out to what extent these skills were being implemented in the universities of Pakistan.

1.4 HEC Policy in Relation to 21st Century Skills

The mission of the HEC is "to assist and encourage the higher education institutions for working as engine of growth to develop the country socio-economically". HEC is confronted with three crucial challenges (a) Quality (b) Access and (c) Relevance. Since the establishment of Higher Education Commission in 2002, it has given the right direction to the higher education sector in the country for achieving and setting strategic goals. HEC is playing its significant role for bridging the gap between the industries and institutions of higher education in the country, with a specific focus on the development of programmes pertaining to education and research in the higher education institutions (Mahmood, 2016).

For this purpose, the HEC has assumed a well-organized process for enactment five-year plans to bring reforms in the system higher education. They are charted as Medium Term Development Frameworks (MTDFs). The first MTDF (2005-10) was presented in 2005, this framework acknowledged that the crucial challenges for the system of higher education in the country were "access, quality and relevance". The interventions given by the HEC in its MTDF-I were remained much successful by experiencing extraordinary expansion with regard to opening of new institutions, programmes of studies as well as uplifting the quality of research in the institutions with effect from 2005 to 2010. During the period (2005- 2010) MTDF-I worked to develop the institutions or universities internally so that to make them as world class centers for learning and research. MTDF-II stated the vision of HEC in the following words: "Higher education institutions must perform a key role for the training and preparing of innovative, enterprising, skilled, and knowledgeable workers. These institutions need to support research programmes, particularly on issues pertaining to

the development of socio-economic status of the country and to frame the economy on the basis commercialization of novel ideas, processes and products".

From the above discussion, it is concluded that Higher Education Commission has not provided a clear cut policy for developing of 21st Century Skills in higher education institutions in Pakistan. However, it has given a roadmap for linking the internal development of higher education institutions with society and industry and supported these institutions for playing a crucial role to produce and prepare of innovative, skilled, and enterprising knowledgeable workforce. Universities were further advised to conduct research, particularly on problems pertaining and linking to the development of socio-economic status of the country and to frame the economy of the country, must be based on the commercialization of new ideas, processes as well as products. The universities must apply their research and knowledge to the issues and challenges which pertain to the industrial and social community.

1.5 Statement of the Problem

As we have already entered in the new millennium of 21st century wherein the concepts of employment and citizenship have been totally changed due to the emerging priorities of global economy. It has created new challenges for people, societies, organizations and countries to compete and survive in the global world. Therefore, it is indispensable for the higher education institutions of Pakistan to equip our students in general and graduates in particular with the essential skills and competencies so that they may compete, participate and collaborate in the global economy of the new millennium of 21st century.

Keeping in view the emerging priorities and challenges in the existing global world, the present study was conducted to investigate that how and to what extent these essential skills i.e. 21st century skills are being taught to the students in higher education

institution (universities) of Pakistan. Hence the present study was conducted under the title "Implementation of 21st Century skills: A Case Study in Higher Education of Pakistan".

1.6 Objectives

Objectives of the study were to:

(1) Examine the existing programs and practices at the universities and their relation with 21st century skills.

(2) Investigate the potential of Pakistan universities regarding the implementation of 21st century skills

(3) Highlight the challenges being faced by universities regarding the implementation of 21st century skills

(4) Explore practicable strategies for implementation of 21st century skills in Pakistan universities

1.7 Research Questions

Following were the key questions that guided this research study:

(1) To what extent do universities implement 21st century skills?

(2) To what extent do instructional practices develop 21st century skills in universities?

(3) To what extent the existing curriculum in university is helpful in implementation 21st century skills?

(4) What is the strength of universities regarding the implementation of 21st century skills in Pakistan?

(5) What are the current challenges faced by universities regarding the implementation of 21st century skills in Pakistan?

(6) How 21st century skills can be effectively embedded in the higher education system of Pakistan?

1.8 Significance of the Study

It is an important study because our graduates have to compete and survive in the present era of technology and media-driven environment characterized by abundance of information. Keeping in view the ongoing rapid changes in technological tools and the ability to navigate the complex life and work environments, our educational institutions in general and universities in particular must equip graduates with 21st century skills and competencies. In this scenario, it is the top most responsibility of teachers, educational leaders, curriculum planners, higher education commission and planning commission to equip learners with essential skills of 21st century. Hence the beneficiaries of this study include students, teachers, educational leaders, higher education commission, national curriculum revision committee and ministry of planning commissions so that they may guide higher education to meet the current and future demands of the global economy. Ultimately, our society will benefit from the findings of the study as it will highlight the essential skills needed for students to be skillful and competent in the 21st century.

1.9 Limitation of the Study

Identification of limitation of the study is very much important to minimize threats to internal validity of the study. In this regard, Creswell (1998) stated that potential limitations occur in every types of research study. Similarly the present study also has some limitations. These limitation are in the following;

i. First limitation of the study is the use of "P21 framework for 21st Century learning" as there are various other frameworks or models for 21st century skills

which have been given by different organizations of the world, but I used the P21 framework for 21st century learning which is more comprehensive and widely cited framework at world level.

ii. Second limitation of the study was regarding the employers (business community), who were not included in the population of the study and an important question may arise that why employers were not included in the population of the study? which seems to be a mismatch in the present study between what we teach in our universities and what the employer expect. In response to this question, it is mandatory to clarify here that the present study was conducted to the extent of teaching practices in universities for investigating that to what extent the existing teaching practices were aligned with developing of 21st century skills in students. Due to this reason the employers were not included in the present study.

iii. Third limitation of the study pertains to gender diversity. As the main venture of the study was to examine the ongoing teaching practices in universities that whether these practices were aligned with the development of 21st century skills or otherwise. In this regard, the present study was made genderless and sample of the study was selected irrespective of the characteristics (gender) that whether the respondents were male or female.

iv. Forth limitation of the study pertains to the methods of data collection in the study. Survey method and interview guide were used as methods of data collection from the respondents, however observation method could not utilize due to diversity or universe of the population.

1.10 Delimitation of the Study

The present study was delimited to;

- General public sector universities of Khyber Pakhtunkhwa.
- BS program in two departments (Department of Education and Department of Management Sciences) of nine general public sector universities of Khyber Pakhtunkhwa.

1.11 Method of the Study

The present study was descriptive in nature. Moreover, it was a mixed method research study to measure, analyze and examine multiple perspectives of universities' teachers, educational leaders (HoDs), students and NCRC members about the implementation of 21st century skills in the universities of Pakistan. A concurrent embedded mixed methods research design was adopted in this study, where the quantitative and qualitative research strategies were used simultaneously. The primary focus of the study was made on quantitative research method while the secondary focus of the study was made on qualitative research method. Quantitative research method included three surveys for university teachers, students and NCRC members while qualitative research method included individual interviews with educational leaders (HoDs). The secondary method (individual interviews) was embedded or nested into the primary method (survey).

1.11.1 Population of the Study

Population of the study constituted of

i. Forty members of NCRC committee for the subjects of education and management sciences.

ii. Eighteen head of departments, 206 teachers and 578 BS students in the departments of education and management sciences of nine general public sector universities (University of Peshawar, Abdul Wali Khan University

Mardan, University of Malakand, University of Swat, Hazara University, Kohat University of Science and Technology, University of Science and Technology Bannu, University of Haripur and Gomal University D. I. Khan) of Khyber Pakhtunkhwa.

1.11.2 Sample of the Study

Sample of the study consisted of NCRC members (for the subject of education and management sciences) HoDs, university teachers and students (of BS programme) in the departments of education and of management Sciences of nine general public sector universities of Khyber Pakhtunkhwa. Description of Sample has given in the following table:

Table 1.1: *Description of sample*

Sample	Populations size	Sample size and percentage of population	Sampling technique
NCRC members	40	40	Universal sampling
HoDs	18	18	Universal sampling
Teachers	206	135 (65%)	Proportionate stratified random sampling
Students	578	231(40%)	Proportionate stratified random sampling

1.11.3 Research Instruments

Questionnaires and interview guide were used as research instruments in this mixed methods research study. Two online questionnaires (for teachers and NCRC members), one paper based questionnaire (for students) and one interview guide (for HoDs) were developed to collect the data from the concerned respondents. All three

questionnaires were based on five point Likert scales with the options: (i) always, (ii) usually, (iii) sometimes, (iv) rarely and (v) never. In other words, the survey questions offered five choices, from a high of 5 to a low of 1. In this regard, Patton (2002) pointed out that the use of multiple tools allows the researcher to check consistencies and inconsistencies. For the pilot testing of the research instruments, three universities i.e. Islamia Collage University Peshawar, Bacha Khan University Charsadda and Banazir Bhattu University Sheringal were selected. Research tools for teachers and students were administered among 18 teacher and 24 BS students respectively in the department of education and management sciences of above mentioned universities while questionnaire for the NCRC members were emailed to five members of NCRC committee. Interview was conducted with 06 heads of two departments (Department of Education and Management Sciences) of the above mentioned three universities. In the light of feedback and responses of the respondents, amendment were made in research tools with regard to the nature, language and scope of the questions asked in questionnaires.

1.11.4 Data Collection

In the present study, multiple strategies were used for the purpose of data collection. Three different questionnaires were administered to university teachers, students and NCRC members. In order to increase the rate of participation, student's survey was made paper-based for which the researcher personally visited to the selected universities and invited BS students for filling out the given questionnaire. On the other hand surveys for NCRC members and university teachers were made online. Respondents were motivated for giving feedbacks by ensuring confidentiality for their responses. To get maximum feedback or responses, reminder e- mails were sent to the respondents from time to time. Interviews guide was another research tools which was

used for the heads of departments. In interview guide, open-ended questions were asked. To keep the discussion focused and aligned with 21st century skills, a handout on 21st century skills based on the framework of "Partnership for 21st Century Learning" was provided to the interviewees prior to the interview. Furthermore, all interviews were recorded with the consent of the participants while some of them were noted on paper. Each interview session was lasted from thirty to forty minutes.

1.11.5 Data Analysis

Quantitative data gathered from university teachers, students and NCRC members were analyzed separately. "Statistical Package for the Social Sciences" software version 20 was used for the purpose of analysis. Multiple descriptive and statistical tools including mean, percentage and chi-square test goodness of fit were used for analyze the data. On the other hand, qualitative data collected from heads of departments was analyzed and interpreted by making multiple themes of the responses of the interviewees. As concurrent embedded mixed methods research approach was adopted in the present study, both the data (quantitative and qualitative) were first analyzed separately and then the findings of qualitative data analysis were embedded or nested into the findings of quantitative data analysis.

1.12 Operational Definitions of Major Terms

For the purpose of this study the important terms were defined as under:

Twenty first century skills: The 21st century skills include: (a) Critical thinking and problem solving, (b) Communication, (c) Collaboration, and (d) Creativity and Innovation as suggested by "Partnership for 21st century learning" organization. Improvisation

Critical Thinking: Critical thinking is the ability of an individual to analyze, interpret, summarize, and evaluate information.

Communication: Ability to exchange ideas effectively using different modes of communication – verbal, written, face-to-face, directly or indirectly

Collaboration: The ability of individuals to collaborate with peers in order to identify, analyze and solve problems.

Information Literacy: Information literacy is the efficient access, critical evaluation and effective use of information to solve problem

Media Literacy: Media literacy is the ability of learners to question, analyzes, interpret, evaluate and create media messages

ICT Literacy: The ability of learners to use tools of ICT technology for locating, evaluating, and creating information.

Educational leaders: Educational leaders refer to Heads of Departments (HoDs). These officers have direct influence over instructional practices in the departments of universities i.e. HoDs

CHAPTER 02

REVIEW OF LITERATURE

2.1 Definition of 21st Century Skills

The term "21st century skills" refers to some core competencies that institutions require to teach in order to prepare individuals to become global citizens in the new millennium of 21st century. According to Casner and Barrington (2006) the term 21st century skills are usually refers to an organized set of skills which are not only significant but also vital for sustainable living and learning in the 21st century. Bashir (2013) stated that educators have identified 21st century skills as crucial and essential in this globalized world however, it does not mean that all these skills and competencies have been generated in the 21st century rather most of them such as collaboration and creativity have already been existed in 20th century.

2.2 Importance of 21st Century Skills in Higher Education, Global Trends and Opportunities

Higher education has close link with the economic development and prosperity of the nations in today's world of globalization and knowledge driven economy. Institutions of higher education not only have the responsibility of generating and creating new knowledge but also to equip the new generation with the advanced competencies and skills required for the survival in the new millennium of 21st century. It is higher education that uplifts and enhances the social, scientific, economic and technological improvement of a country.

Barnet (1990) argued that today higher education is considered as capital investment and indispensable for social and economic development of any country. Similarly Mughal and Manzoor (1999) stated that the primary duty of institution for higher education is to equip the learners with conceptual knowledge and expertise required for the key positions in the government as well as in other professions. According to Moore and Farris (1991) the purpose and function of higher education institutions is not just to impart knowledge in certain branches rather the purpose is more deeper and multidimensional i.e. personal, social, cultural and economic. The role of tertiary education in society was further elaborated by Best (1994). He pointed out that education in general and higher education in particular cannot be separated from its social values. Different values including religious, moral and cultural values are transmitted to the new generations through the structure of the educational system of a country. Haider (2008) suggested that institutions of higher education must be responsive to the demands of society and challenges in the present global world. Furthermore, these institutions should fulfil the growing demands of the rising students of higher education.

The existing economic system is driven by information and communication technologies (ICT) which is a drastic change from the economy of the 20th century. Twenty first century economy of leading countries is based on innovation, manufacturing and production of products and services, instead of the manufacturing of only material goods (Friedman, 2007). Thus higher education is playing a multidimensional role in achieving the targets of the new millennium.

In this regard Velez (2012) argued that the world continues to shift from an industrial economy to knowledge based economy and cultivating 21st century skills which is indispensable for the economic success of this global world. Higher education

is facing severe challenges e.g., social, moral, political, and economic challenges, and its future depends on people's response to these challenges (Rao, 2003). According to Zhao (2009) knowledge and skills that were considered vital in the 20th Century are no more applicable in the 21st century. Instead "conceptual and critical thinking" are the essential skills for the 21st Century. Wagner (2008) advised that those (educators and institutions) who do not train learners for the demands of 21st century would be held accountable for placing the nation at threat or risk.

To conclude the importance of 21st century skills in higher education in imparting and developing essential skills and competencies in 21st century generation, World Conference on Higher Education (1998) acknowledged that:

> "On the eve of the new millennium of 21st century, there is an unprecedented demand for vast diversification in higher education in the global world. Higher education has a vital importance for economic and socio-cultural development as well as for building the future of 21st century generations which need to be equipped them with new skills and competencies called 21st century skills."

Now the question is "what these new skills and competencies are?" and "to what extent these skills competencies are being implemented in higher education institutions of Pakistan?" To respond these questions, the present research study was conducted to find out that; to what extent these skills and competencies were being implemented in the universities of Pakistan.

Globalization and emerging ICT in the new millennium of the 21st century have created new demands and challenges for people, societies, organizations, and countries to compete, and innovate in the global economy. Information and Communication Technology has totally changed the way we live, the way we work, and even the way

we think. It has directly affected every aspect of our personal, social, educational, industrial, and economic lives. Keeping in view the changing priorities in the global world, OECD (2010) acknowledges that the concept of labor market in today's world has changed to global market which means that highly qualified people in rich countries compete for jobs with individuals having the same qualifications in lower wage countries, while twenty years ago, employments used to be localized and only individual in the home country were competitors for getting those jobs.

According to Fox (2011), global economy, the rapidly changing priorities in ICT, discoveries in how individuals learn and adoption of E-learning, have completely changed the concept of education. The new "openness" to information and knowledge has increased students' freedom, creativity and innovation, and participation. Teachers, who were considered as "gatekeepers" of knowledge in 20th century education, no longer have the power to control access to information and knowledge in 21st century education. Toffler (2009) referred to this shift as "power shift" away from the traditional structure of education to a more "open" system with more "democratic" approach to education and work. Similarly, Gardner (2006) highlighted two basic reasons for the change in the existing educational practices: First, the ongoing practices do not contribute well; and second, changes in the global world are making ongoing educational processes invalid.

So keeping in view the rapidly changing priorities in the global world, our system of education in general and higher education in particular should be ready for preparing young generation for life after college and university education. For this purpose we will have to embed 21st century skills and competencies in the existing traditional discipline areas; because we do not need an education system that helps learners merely remember facts and figures, rather we need them to be critical

consumers of knowledge and information. Furthermore, our system of education must provide opportunities for producing information and knowledge; to create information (Facebook, blogs, wikis, YouTube etc.) and to organize that information to help others. Thus it is concluded that if we do not make efforts for embedding new skills and competencies into the education system of technologically driven world, we will be held responsible for placing our nations at risk.

2.3 Conceptual Framework of the Study

The term "21st century skills" refers to some core competencies that institutions require to teach in order to prepare individuals to become citizens of global world in 21st century. According to Casner and Barrington (2006) the term 21st century skills are usually refers to an organized set of skills which are not only significant but also vital for sustainable living and learning in the 21st century. Wagner (2008) advised that those (educators and institutions) who do not train learners for the demands of 21st Century would be held accountable for placing the nation at threat or risk. For this purpose we will have to embed 21st century skills and competencies in the existing traditional discipline areas; because we do not need an education system that helps learners merely for remembering of facts and figures, rather we need them to be critical consumers of knowledge and information.

Keeping in view the rapidly changing priorities in the global world, our system of education in general and higher education in particular should be ready for preparing young generation for life after college and university education. Therefore, the present study has been conducted to analyses the implementation of 21st century skills in universities.

In this regard, 21st century skills given by the "P21 Framework for 21st century learning" as discussed earlier, have been included in the conceptual framework for the present study. Detail of the conceptual framework for the present study is given below:

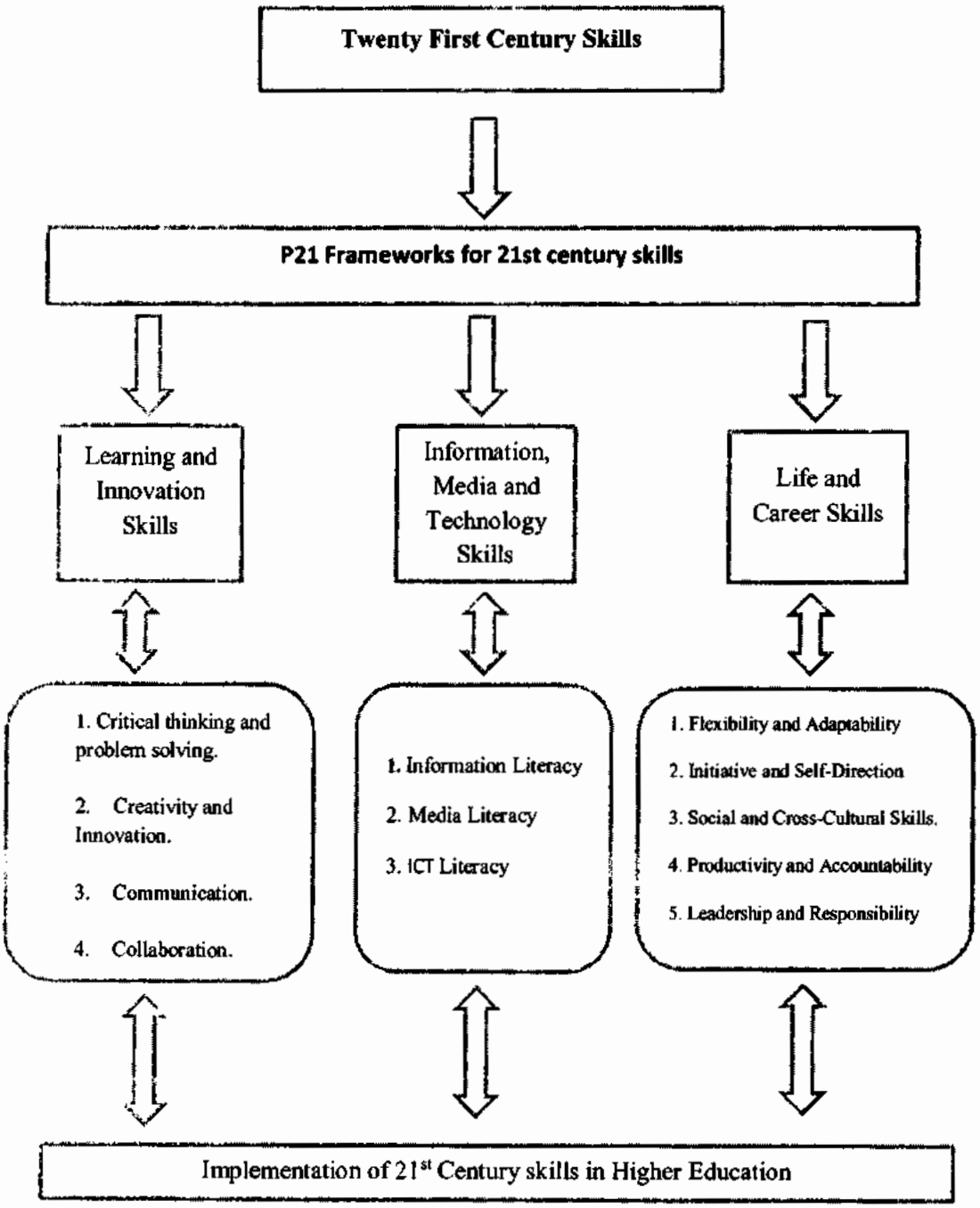

Figure 2.1 Conceptual Framework

The main focus of the study was to examine and analyze the implementation of 21st century skill in universities of Pakistan and to look into the matter that to what extent the existing program and practices in universities were aligned with the teaching of 21st century skills. For this purpose "P21 framework for 21st century learning" was adopted in the present study wherein 21st century skills has been categorized into main three categories which were further categorized into 12 twenty first century skills. They are: (i) Critical thinking and problem solving; (ii) Creativity and Innovation; (iii) Communication; (iv) Collaboration; (v) Information Literacy; (vi) Media Literacy; (vii) ICT Literacy; (viii) Flexibility and Adaptability; (ix) Initiative and Self-Direction; (x) Social and Cross-Cultural Skills; (xi) Productivity and Accountability; (xii) Leadership and Responsibility. Multiple research tools were developed in the light of the literature pertains to these skills and then these tools were administered among the respondents of the study to achieve the objectives of the study. Findings and conclusion of the study were reported in the last chapter of the thesis.

2.4 Learning and Innovation Skills (4Cs)

Kay and Greenhill (2011) argued that 4Cs skills are taken as the heart and soul of the framework of P21. These skills are more recognizable in those individuals who are in post-secondary education and career settings. The domain of "Learning and Innovations Skills" consist of four elements. Each of the four skills (elements) begins with the letter C and hence these elements also refer to as "4Cs" skills. These 4Cs skills are (i) Critical thinking and problem solving, (ii) Communication, (iii) Collaboration, and (iv) Creativity and innovation (P21, 2011). In this section we briefly discuss these four specific skills one by one.

2.4.1 Critical Thinking and Problem Solving

According to Trilling and Fadel (2017) critical thinking as the capability of an individual to analyze, interpret, and evaluate information. Dobozy, Bryer and Smith (2018) acknowledged that the process of critical thinking is to evaluate the authenticity of ideas and opinions in the light of available evidences. If the available evidences lack to support the opinions then critical thinking would terminate it as generally incorrect. Critical thinking is inborn ability of individuals and cannot be developed naturally. It is a learned ability and must be transmitted to students during teaching learning process. Most learners do not learn this ability. The ability of critical thinking cannot be transmitted to the learners by their peers as well as by most of their parents. Well trained and knowledgeable teachers are indispensable for the transmission of critical thinking skill to the students (Schafersman, 1991). Different people defined critical thinking in different ways. Similarly the National Council for Excellence in Critical Thinking (California) defined that it is an intellectual process of conceptualizing, evaluating, analyzing, and synthesizing the gathered information from observation, reasoning, experience, and reflection (NCECT, 2014). It was reported that these skills enable the graduates to;(i) reason effectively;(ii) ask conceptual questions and solve problems; (iii) to analyse, interpret and assess alternative points of view, and (iv) to reflect on decisions and processes (Pacific Policy Research Centre, 2015)

Halpern, (2015) stated that critical thinking is not limited to our understanding based on common sense and individual ideas because it is the subjective ways of knowing and studying something. Critical thinking is to classify and analyze objective data that further support the given phenomenon

P21 (2010) defines critical thinking as the aptitude of individual to think deeply and investigate the problems. Hatcher and Spencer (2005) stated that critical thinking

is the capability of an individual to analyze and assess information. It enables the individual to point out and formulate essential questions, collect and assess significant and relevant information, utilizing abstract ideas and communicate efficiently with others. On the other hand passive thinkers suffer from a limited world view. The skill of critical thinking is important and crucial because it can be used in the workplace; it also helps the individual to deal with spiritual and mental questions. Furthermore, it can be used to evaluate people, institutions, and policies to avoid social problems. In this regard Berliner (2010) criticized the existing system of standardized tests and argued that standardized tests of the current era are incompatible with the needs of 21st century education and critical thinking.

2.4.2 Creativity

In today's environment where students interact with the existing media and technologies in day to day experiences. Creativity and innovation skills have gained an important role in contemporary society for creation of new knowledge. Robinson (2017) elaborated that the skill of creativity enables the individuals to think at their own, identify and solve crucial problems. He further added that the Jobs of the 21st century will need such workers who have the ability of flexibility, adaptability, innovation and creativity.

The concept of creativity varies from disciplines to disincline. In the field education its meaning is "innovation"; in the field of business it is taken as "entrepreneurship"; in the discipline of mathematics it is equated with "problem-solving", and in the discipline of music it is considered as "composition" (Reid & Petocz, 2014). P21 (2006) defined creativity as the ability of individuals to create novel and valuable ideas or thoughts, and to analyze, polish, and assess their own or existing ideas to increase creative efforts. Similarly Perkins (2008) defined the creative person

as the individual who fairly and routinely produces creative results. According to Gardner (2006) "Creative person is one who asks questions of status quo and does not afraid of failure when challenges the accepted ideas. This is because; many of the famous creators of the world did not like the school activities, they did not want to act upon someone else` tune. Ombati and Stephen (2015) argued that creativity and innovation are becoming significant for the development of prevailing 21st century society. They further highlighted that education is to be considered as an instrument for enhancing creative and innovative skills of students. It stresses the need to encourage the development of creative and innovative potential of students. There are three different types of creativity and they are outlined by MacKinnon (2005). Out of these three, the first kind of creativity is artistic creativity and it includes the creative person`s inner perceptions, needs as well as inspirations. The next (second one) is called scientific creativity or technological creativity and it deals with the novel solution of problems of the environment but demonstrates little personality of the creator. The third type of creativity is known as hybrid creativity and it is found in the fields of architecture that demonstrates novel solution of the problem as well as personality of the creator

2.4.2.1 Creativity and Intelligence. Intelligence is the ability of individuals to attain and utilize knowledge while creativity is the ability to come up with novel ideas by connecting the prevailing concepts. After defining these two terms, a question arises that whether creativity and intelligence are correlated? To answer this question Gomes (2007) highlighted that there are multiple conflicting studies since the late 1960s which have been made the relationship between creativity and intelligence as controversial. For example, a similar study was conducted by Hasan and Butcher (1996) and they found that creativity and intelligence were greatly correlated and to

some extend were indistinguishable. Another study was conducted by Getzels and Jackson (1992) regarding the relationship between creativity and intelligence. In this study they found that creativity and intelligence were mostly independent traits and one does not affect other.

Keeping in view the above controversial relationship between creativity and intelligence, Gomes (2007) highlighted the present view regarding the said relationship. He said that a minimum level of intelligence is needed for mastery of creativity; furthermore intelligence provides no guarantee for the increase in creativity. In this regard, he stated that the idea that "an intelligent person is said to be creative person" is misleading one and thus one does not affect other to a large extend. Furthermore, he quoted the views of Reeves and Clark that "all existing tests of creativity propose that there is merely no association between creativity and intelligence and one does not contribute to other."

2.4.2.2 Factors of Creativity. There are some factors that affect the term creativity and they are; (a) Convergent and divergent thinking; (b) Environmental factor; (c) Computer technology; (d) Reflective thinking and evaluation of thoughts (Gomes, 2007). Now we are going to discuss these factors in the following one by one.

a) **Convergent and divergent thinking.** There are multiple ways of thinking and they are: (a) convergent thinking and (b) divergent thinking. Convergent thinking emphasizes on the reproduction of well-known ideas and to adapt known responses to a novel situations in a logical way while divergent thinking is determined by originality and flexibility in the creation of new ideas (Copley, 1998). Kneller (2005) stated that creative idea is that which causes new insight to a given situation. He further said that creativity enables a person to change his or her approach to the solution of a problem, to create novel ideas that are

both appropriate and unusual. Samuels (2004) referred to the prevailing myth that deals with the creative and brilliant individuals, their creative skills develops naturally and resultantly creativity comes with ease. However, the prevailing evidences show that the activity of creativity occurs after substantial energy and time, utilized in completion of project. To wind up the discussion regarding the convergent and divergent thinking, we refer to the arguments of Parnes and Harding (2001) who stated that the work of creativity occurs abruptly which is short lived. Furthermore, he said that it is created in the right side of the human brain. However, this instant of insight generally creates after an elongated period of probing, sometimes consisting of even months or years of search and observation.

b) **Environmental factor**. Responsive environment is one the important factors which affects the term creativity. It also has been acknowledged for a long time that students need a responsive environment in order to exercise creativity. Reid and Petocz (2004) stated that the process of creativity can be stimulated in all types of instructional activities. Teaching of creativity means, a learning environment that motivates students for the essence and detail of the subject, to recognize the links and inter-relation among different areas, to take in and respond to new ideas, to solve problems, and to observe the elements of surprise in their work. Gomez (2007) pointed out that for long time, educationists have considered that creative thinking could be taken on individual basis. He referred to the presently widely known Synetics Education Systems Laboratory of Massachusetts and Cambridge which is devoted exclusively to classroom practises. He further argued that like all learning attributes, the skill of creativity can be easily established through carefully selected classroom experiences.

Though there are multiple approaches to solution of problems but individualized instruction is more significant. To solve problem (through creativity) in a well-organized group of individuals and circumstances, is not only valuable, but also it is economical with respect to time. Even though the process of creativity is individualistic in nature, however it is frequently reproduced and developed in a situation of group settings, as when instructors use the method of brainstorming in classroom activities. In many cases, teachers do not fully exploit creativity because of the unawareness of the factors that may be liable to block the process of creativity. Although individuals express their high esteem and admiration for creativity and for the people who demonstrate it. However, learners who exhibit the attribute of creativity in the classroom are declared as nonconformist by their class teachers (Tuckman, 2001). To support the argument of Tuckman (2001), Copley (1998) gave the example of Thomas A. Edison. He said that Thomas A. Edison was one of the world's greatest inventors. This young and creative minded student was professed mentally "deficient" by one of his early instructors. Resultantly, he was withdrawn from school by his mother and decided to teach him herself. Edison contributed many inventions even when his age was about eighty years.

To wind up the discussion regarding the environmental factor of creativity it is important to note that environment or class experiences matter a lot to inculcate the skill of creativity to the learners. However, class activities or group activities, although helpful for the skill of creativity, should be used with great care. In this regard Hillmann (2006) pointed out that over-emphasis or misuse of cooperative learning could cause generation of student`s creation, production, and imagination; and it could also decline intrinsic motivation,

impede the development of skills to solve problem and hinder personal liberty to be creative.

c) **Computer technology**.Technology explosion in the new millennium of 21st century has already increased creativity without educator. Clements and Sarama (2003) highlighted the importance of computer technology regarding the development of creativity. They said that computer technologies have facilitated and supported the learners with regard to their learning, writing or attaining knowledge and intuition into science subjects or other areas and to learn content in a new medium. Hollenbeck and Hollenbeck (2006) argued that research and several studies have proved that the use of multimedia in classroom enhances the capabilities of problem-solving, creativity, innovation, and the skill of communication between people. Similarly Marsh II (2002) acknowledged that multimedia responds to all learning senses and excites high curiosity, attracting the interest of to both students and teachers. He further said that the existing computer technology including the World Wide Web has revolutionized access speed to information and assisted in problem solving. Marsh II (2001) referred to the futuristic view of computer technology and stated that in the near future every student of higher education will have a database of knowledge and available information and perhaps they will have a personal intelligent agent that consults, advises and tutors.

d) **Reflective thinking and evaluation of thoughts**. It is very mandatory for the process of creativity. Generally, ideas are appraised in order to facilitate the process of problem-solving at every stage. However, continuous evaluation restricts the creation of ideas. Now a day's emphasis moves from the validity of a phenomenon to its practicality in making new arrangements or designs.

Withholding judgment assists an idea to persist long enough to create other ideas and enables those individuals who might have beneficial input, but are nervous to describe their views for fear of being wrong. This type of practice can be used in multiple ways in the classroom teaching (University of Maryland University College, 2000).

2.4.2.3 Basic Attributes of Highly Creative Students. Creative individuals have some basic characteristics. These characteristics make them" prominent" among their peers and can be boosted through multiple ways including ICT and hypermedia. Ability of learners to use graphics is more helpful and important than text to enhance these characteristics (Marsh II, 2002). Some of these characteristics are:

a) **Originality**. It is aptitude of learners to create novel ideas as well as to solve crucial daily life problems in a new way and to utilize available resources or situations in an innovative way. The term "originality" is sometime defined as uncommonness of reply or the ability of an individual to make indirect or remote connections. Creative learners, who are to be incredulous of conventional thoughts, are preferred to take the intellectual risks linking with the creative discovery. However originality alone, is not enough to develop sufficient creativity, because there are other factors which are to be combined with originality to develop creativity, such as a the presence of strong cultural norms, the attainment of certain professional skills such as writing, the contribution of lucid trains of thought, architecture, engineering, music or painting and even phenomenological and emotional wonder (Cannatella, 2004).

b) **Persistence.** Creative learners are generally persistent people who are eager, if needed, take much time to accomplish a project and to work under unfavorable conditions. Furthermore, creative individuals are people of strong nerves who

are willing to face unwanted situation. Creative people cannot be discouraged by frustration but it motivates them for further efforts (McKinnon, 2005).

c) **Independence**. Creative learners think independently and search for the unusual, novel and the unexplored events. Such people observe and study the things in such a way that other people cannot, for example textures, colors, and personal reactions. One of the main differences between creative thinker i.e. independent thinkers and nonconformists is that nonconformists flout convention and feel that compulsion is to be different while independent thinkers try to keep a balance between conformity and nonconformity. Unlike to the conformists, creative individuals are eager to get experience and to be self-confident in the value of their ideas (Samuels, 2004).

d) **Involvement and Detachment**. Once a problematic situation is identified, creative learners fully engage their self in solution to the problem. First, they try to know that how others people have tried to solve the problem. Through this, they come to know about the existing difficulties and complexities in the process. This involvement of the creative individuals, give way to their own creation. Thus creative people become disconnected sufficiently to study the task in its overall perspective (Schell, 2004).

e) **Deferment and Immediacy**. Creative learners do not like the tendency to appraise or judge too rapidly. Such creative individuals do not believe in the first solution of the given problem rather they wait for the multiple solutions and accept the one which is reliable. This type of tendency i.e. deferment of judgment refer to as the attribute of a progressive minded person who do not believe in premature decision (Hillman, 2006).

f) **Incubation**. After making numerous of irritated attempts, creative learners may sometimes unexpectedly solve a problem. This unexpected flash of wisdom is the result of unconscious internal tensions. It might be the powers of association that are improved or enhanced when the unconscious mind works freely on its own. This flash of insight generally arises after a specific period of incubation, when the learners are not actively following the problem. A Japanese inventor states that the majority of his creative ideas occur when he pushes himself to dive in the swimming pool until and unless his lungs run out of oxygen (Reeves & Clark, 2000).

g) **Verification**. As illumination gives the basic thrust and direction for solving a given problem, however the solution of the given problem needs to be verified with the help of conventional objective procedures. Correct judgment should complete the task as imagined. By activating the process of imagination in solving a given problem, intellect would be linked with the deeper thinking of the psyche and hence would arouse constructive feelings of well-being (Clarkson, 2005).

h) **Discovers problems**. Most of the studies on creativity have concentrated on the creative behavior regarding problem solving ability. Studies have shown that both the divergent thinker and convergent thinker solve problems differently. Now the question is that how the divergent thinker i.e. creative person, discovers problems? Is the process involves new solution to already existing problem? Or is this more probable to be searching a novel solution to an emerging problem? Getzels and Csikszentmihalyi (2001) argue that the procedure with which a creative individual determines problems, is the real soul of the whole process. They further pointed out three different problem based conditions which are

given to the student and they are; (i) In the first situation both the problem and method are given to student, e.g. the student is questioned to find out the area of the given rectangle, in this case the student is required to multiply side "a" by side "b". (ii) In the 2nd situation, only a problem is given to the learner for solution. For example the student is asked to calculate the area of the given rectangle. In this case, the student is engaged in thinking process and analyze the problem in order to solve it. (iii) In the third situation the individual is given neither a task or nor a method for its solution. For example, the learners are motivated for asking a large number of important questions about a rectangle. In this important phase of problem based situation, the learner who is going to solve a problem needs to be a true problem finder. So once problems have been formulated, solution to the problems must be search out. Furthermore, a lot of potentially creative individuals prefer to solve those problems that they have discovered. In contrast, other learners may be found more comfortable in the structured type situations. However, it is a harsh reality that creative learners (problem finders) generally, have been deeply ignored in our institutions.

i) **Generates alternatives**. Alternatives mean to view or study multiple ways to solve a given problem. In convergent thinking, the practice of probing for alternatives generally stop after a few methods or ways and one approach is taken as the ultimate solution of given problem. All irrational approaches are rejected. On the other hand, in case of creative thinking, the learner intentionally searches out for multiple approaches as possible. An expected solution to problem, already proposed in the process is recognized and put as sideways for later reference. During the process generation of other alternatives are continued. Unreasonable alternatives are tentatively acknowledged without

appraisal that is done later. Actually, its objective is to slow down an ultimate decision by relaxing up structured patterns of thinking. Multiple ways can be used to solve problem. The logical thinking may be considered as ideal one, but there is no assurance that the solution of the problem would be best one. Alternatives allows the individuals to consider other approaches that appear undesirable at first (Osborn, 2000). deBono (1990) worked on creativity in children of elementary school and acknowledged that the geometric figures are ideal regarding the generation of alternatives, as they can be established in unambiguous forms. The leaner are just required to produce different approaches to describe the figure. Pictures offer another good approach to generate alternatives. Learners are asked to label what they see in the picture or image. The diverse explanations are made to reveal alternative approaches of the seen things.

j) **Challenges basic assumptions**. During problems solving activity, the individual must take initiatives with some core assumptions i.e. ideas and principle. These basic assumptions provide a foundation for the process of problem solving. If one or more basic assumptions are not correct, this will lead to the incorrect solution of the given problem. Abundant of assumptions are handed down by customs. To challenge these basic assumptions, the action or attempt may be considered as sacrilegious and unfair. There are certain demonstrable fake assumptions that have been occurred as suspicion since long period of time, for example, in the past, the tomato was considered toxic (Williams, 2001). For many years, scientists were frustrated in their efforts to know and learn the nature of human body as it was recognized as sacrilegious to study cadaver (Scholl & Inglis, 2001). Similarly the restrictions imposed on

problem solving results in faulty conclusions. These restrictions which are mostly self-imposed are hardly ever challenged. This is because the said restrictions symbolize a natural and structural development of human intellect. If somebody violates the limits or restrictions to solve the problem, the said individual is considered to be working unfairly even though the limits are randomly imposed (Scholl & Inglis, 2001). Eble (1996) argued that while challenging the core assumptions, both the restrictions and rationality of concepts (of the individual) must be examined for the purpose of reformation of known configurations of thinking. This leads to altered but occasionally better results. Teachers most often oppose creativity by stressing the student's mistake on written exercises. A reliable procedure for teaching the skill of creativity to students is to give attention to what the students have done and then to discuss the causes of difficulty, leaving the learner to discover the exact mistakes at their own. The student can then work again on certain assignments for recognition.

2.4.3 Communication

It enables the individuals to articulate and convey ideas by using oral, written, as well as non-verbal languages. In this regard, Greenhill (2010) pointed out that dealing with the multicultural population in the diverse and globalized world, communication is playing a very crucial role for working together across the world. The communication skill must be taught on priority base in the system of education before entering to the work place. Effective communication of important ideas between the colleagues and co-workers can be integrated into core courses of the institutions. Multiculturalism and diversity of the world demand for the usefulness and effectiveness of the communicative and collaborative skills.

The P21 (2009) described communication skill in term of five multiple essential skills. They are; (i) the ability of individuals to articulate thoughts effectively; (ii) the ability of individuals to articulate ideas orally as well as nonverbally; (iii) the capability of individuals to listen and then build sense of what is being said; (iv) the ability to communicate effectively and to use a wide scope of media and interrelated technologies; (v) the ability to communicate effectively and efficiently in diverse settings (including multi-lingual). Gay (2002) revealed that the importance of being able to communicate within a multicultural context and to communicate different ideas with in the diverse populations in a variety of ways and settings is indispensable for the survival in this world. Furthermore, allowing learners to integrate their knowledge and skills of multiculturalism into group projects in an educational setting is the way to contribute to the overall accomplishment of communication and collaboration skills essential for post-secondary education and life careers.

2.4.4 Collaboration

In the present era, technology has drastically changed the way of learning. Presently, the collaboration no longer refers to a skill to be developed, but an essential prerequisite of the new millennium of 21st century. Collaboration is a key element and indispensable for career or professional success in the 21st century and it consists of the articulation of thoughts, effective listening as well as teamwork (Trilling & Fadel, 2017).

P21 (2006) defined collaboration as the aptitude of learners to work efficiently in diverse teams, making essential compromises to achieve a common goal, implement shared obligation for collaborative task, and acknowledge the individual assistances made by each and every member of the team. Diblasi (2011) proposed that collaboration contribute well to the leaning of individuals through team work activities.

The individuals must know the importance of teamwork so that they may develop and promote essential learning skills. Beside face-to-face student's interactions, learners also used electronic or ICT resources e.g. e-mail, video conferencing, and social media so that they may involve in team work.

P21(2006) advocated that collaboration is a very essential skill in the new millennium of 21st century and it can be attained through working in groups of individuals in well-planned programs and tasks (Warschauer, 2012). Fox (2011) argued that there is no degree (qualification) in any particular area of the study that guarantee for job employment, however, it is the collaborative work or team work that enables the individual to discover and solve problems. So collaboration is the indispensable condition for the 21st Century workforce. Furthermore, the development of Web 2.0 has generated an innovative world of collaboration with the help of social networks.

2.5 Teaching Strategies for Learning and Innovation Skills

As we discussed earlier that the domain of learning and innovation skills has been categorised into four elements. These elements are: (i) Critical thinking and problem solving, (ii) Communication, (iii) Collaboration, and (iv) Creativity and innovation. In this section we will discuss briefly different strategies and techniques for teaching of these skills. Therefore these teaching strategies and techniques are given in the following.

2.5.1 Teaching Strategies for Critical Thinking

After highlighting the conceptual framework and meaning of critical thinking the next step is to discuss "how to teach the skill of critical thinking effectively in 21st century classrooms? "One of the barriers (in the existing system of education) in transmission of critical thinking skill to learners is on the part of teachers and that was

highlighted by Schafersman (1991). He stated that teaching-learning process can be used to transmit two different things to the learners: (i) the subject matter ("what to think"), and (ii) the right way for understanding and evaluation of this subject matter ("how to think"). Normally we (as teachers) do a tremendous job of transmitting the content or subject matter of our academic disciplines, but many times we fail to teach the learners how to think efficiently about the subject matter i.e. how to understand and evaluate the course of content. This ability is termed as critical thinking. All academic disciplines have the problem of conveying critical thinking skills. He further said that our students never develop the skill of critical thinking. There are different reasons for not developing the skill of critical thinking. Unfortunately our instructors and students only concentrate on the first goal of education "what to think" rather than second goal of education, "how to think" or critical thinking.

Kivunja (2014) stated that training of critical thinking should include students` meta-cognition which helps the individual to deliberately ask question about observations or thoughts regarding personal thinking. He further stated that individuals should be taught how to differentiate between the fact and speculation or fiction. Effective teaching helps the individuals to draw inferences and conclusions, think critically about relationships i.e. cause and effect, and test whether the relationship is aligned with the available evidences or not, and whether the said relationship is generalizable or specific.

Moore (2009) recommended different strategies which can be used for teaching of critical thinking skills to students. It can be achieved by giving them (students) training for changing their thoughts from preferring to evaluating, from guessing to estimating, from grouping to classifying, from inferring to inferring logically, from believing to assuming, from connecting ideas to grasping principles, from supposing

to hypothesizing, from observing relationships to observing relationships among relationships, from giving views with no reason to giving views with reasons, and from giving decisions without criteria to decisions with criteria. He further emphasized that critical thinking needs higher order cognitive levels of Bloom's (1956) revised taxonomy i.e. analysing, evaluating, and creating. He also proposed multiple meta-cognitive strategies for teaching of critical thinking skills. These strategies include:(i) to identify what the students already know; (ii) to determine how performance will be appraised; (iii) to estimate the time needed for completing a task; (iv) to plane time duration of study into their timetable and formulate priorities; (vii) to make a check list of commitments to be happened; (viii) to organize materials; (ix) to take important steps for students learning by using strategies e.g. outlining, mnemonics, and diagrams, etc.; (x) to monitor learning through questioning as well as self-testing; (xi) to provide their own responses or feedback and; and (xii) to keep concentration and motivation.

Trilling and Fadel (2009) suggested some approaches for the teaching of skills regarding critical thinking to students and they are: (i) to train the students in such a way that they may reason effectively and it includes engaging of students in reasoning (inductive or deductive) so that they may become skilful in understanding of the issues; (ii) to engage the learners in the practice of system thinking. System thinking is an attitude developed by Senge (1999) in what he called as developing "Mental Models in Systems Thinking". It involves an inquiry of how different components of a whole work together so as to function as a cohesive whole; (iii) to teach students how to make cogent judgments. This helps the students, not only how to analyse but also how to evaluate the existing evidences and making decision. In this way, learners try to understand how to get the available data from various resources and then to make relationships among the bits observed; (iv) the fourth and last strategy for teaching critical thinking is to

train the learners in such a way that they may think deeply and search for all available alternatives so that they may be capable to solve usual problems in multiple ways.

Similarly Schafersman (1991) suggested some techniques and strategies for teaching the skill of critical thinking. These techniques and strategies are briefly discussed in following.

a) **Classroom questioning**. Ask the students' conceptual questions at different stages of classroom instruction, so that it may encourage the learner to think, understand and analyze the material critically. Also encourage questions from learners. Questions from learner during instruction mean they are thinking critically about what teachers are delivering in the class. To do this, it is necessary for the teachers to adopt proper techniques for classroom questioning.

b) **Homework assignment.** One of the best ways to teach critical thinking is to write homework assignment. Writing through assignments enables the students to organize their thoughts and evaluate their data in a logical manner. The skill of good writing is the essence of critical thinking.

c) **Problem solving activities.** To engage students in solving mathematical and quantitative problems is to improve critical thinking skill of students which further leads to solve everyday problems. This thing obviously develops the skill of critical thinking. Courses such as physics, chemistry and mathematics etc. need the solution of different mathematical problems and when students solve these problems, it means they are improving their skill of critical thinking, whether they recognize it or not.

To wind up the discussion regarding the strategies for teaching critical thinking in classroom Waugh et al. (2006) presented a framework called "5-step framework" that could be used at any level of instructional process and to make students critical

thinker and to provide active learning environment that would have a pleasant effect on teaching learning process. This framework consists of 5-steps which are to be implemented by the class teacher in classroom. Each step has own importance and when they are all implemented in the classroom, it causes critical thinking of students in learning. The framework is given in the following;

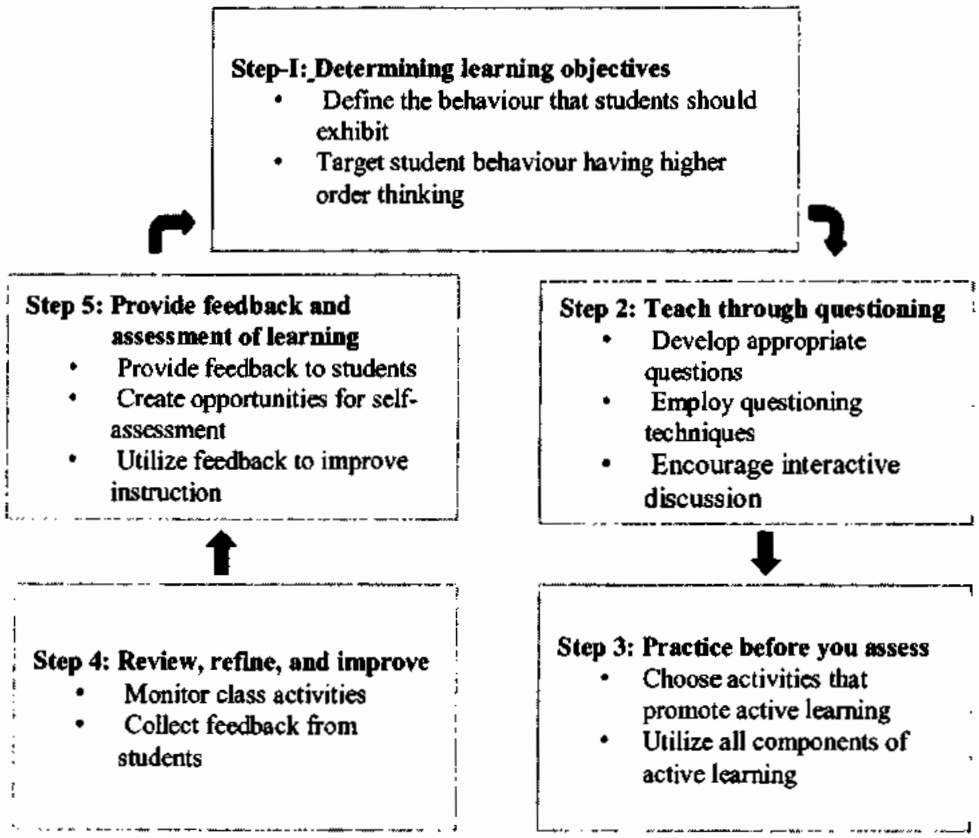

Figure 2.2: *Five step model for critical thinking; adapted from Waugh et al 2006*

2.5.2 Teaching Strategies for Creativity

The next phase is how to teach and develop the skill of creativity in the learners. In this regard Lancaster (2000) proposed that the teacher should provide students with such opportunities where they are forced to search out the information for themselves. Entwistle and Hounsell (2005) suggested that students should be motivated for working on projects and making mistakes at their own. They in turn, should be stimulated to

appraise for themselves the output of such endeavors. It is curiosity that inspires the learner for analyzing problems that others people have taken for granted. By asking questions such as "What would happen if...?" causes to increase curiosity. In this connection Osborn (2000) suggests some of the strategies that various creative people have considered to be beneficial for the learners. These guidelines are:

a) **Make a start:** to make a start in solving a problem or working on a project is one of the important phases for increasing the skill of creativity. It gives confidence to students and direction to the process. There is no alternative for getting started. So the student should be helped and encouraged for make a start or taking initiative in process of problem solving.

b) **Taking notes:** teacher should encourage the students for taking notes during classroom activities. This strategy is very beneficial and meaningful for developing the skill of creativity. Gomez (2007) argued that most of the creative learners have a pen and note pad all the times. Whenever they are passing through any learning experience, they attend a lecture or meeting with the learned people, they take notes.

c) **Setting of deadlines: s**etting of deadlines during a process causes a form of self-control. Deadlines strengthen individuals emotionally to complete a task. It pressurizes and forces the individuals to expedite the process and to make them efficient in carrying out the routines tasks.

d) **Fixing a time and place**: Thinking up ideas is time consuming. This type of activity would take superiority over routine tasks. By fixing a time and a particular place for such type of cognitive process, one may "lure the muse." Gomes (2007) stated that some people develop ideas by doing napping, sitting calmly in a dark corner or listening to soft music. He further said that sudden or

abrupt illumination can be produce at any instant of time, even in the middle of the night. This type of activity also needs a pencil and note pad for retaining of learned ideas.

Thus the teacher must guide the learners for getting the skill of creativity. Most often, our teachers focus on less motivated learners at the cost of the really creative learners. Furthermore, innovation and creative thoughts are the attributes and virtues of individuals, however, they can be substantially increased through guidance and training like any other area of education. In this connection Sternberg and Williams (1996) suggested 4-step teaching strategies that would enhance the skill of creativity in the class. They suggested 4-steps teaching strategies are given in the following:

i. Step 1 - A safe and comfortable classroom environment, where students feel no worry about making mistakes.
ii. Step 2 - Teacher should focus on asking conceptual questions.
iii. Step 3 - Learners should learn to test their assumptions.
iv. Step 4 - Learners should be motivated for reflecting their decisions.

Lichtenburg et al., (2008) stated that the skill of creativity is the demand of the new century workforce; furthermore, this skill will be developed through the studies like arts and communication. According to Tucker, (2007) "both the education and business must enhance the skill of communication and to develop a better understanding that what type of graduates are needed for the future. If education fails to produce individuals having creative and innovative skills, the competition of that nation in the globalized world will be diminished.

2.5.3 Strategies for Teaching of Communication Skill

Trilling and Fadel (2017) recommended the following strategies for effective teaching of 21st century communication skills; (i) teacher should teach the students

how to express ideas by using written, verbal and nonverbal skills of communication. This must be done in a wide range of contexts, which further make the individuals flexible and competent for communication; (ii) teacher should engage the students in active listening activities. These activities would help the individuals to comprehend the sense and meaning within the communication, keeping in view individuals` cultural backgrounds, attitudes, norms and values, and; (iii) teachers should teach the students that how the mode of communication should be used for different drives. For example, the purpose of communication is simply to apprise clients, to motivate students, to instruct people, or to persuade potential customers; (vi) learners should be motivated for the use of wide range of media technologies and help them to understand and analyze the effectiveness of different media as well as media technologies so that they may capable to evaluate the possible impacts of the said technologies; (v) finally, learners must be taught to communicate in multicultural environments,.

2.5.4 Strategies for Teaching of Collaboration Skill

P21 (2009) argued that collaboration skills can be learned by using various methods (e.g., problem-based learning, project-based learning etc.). Research on teaching collaboration and communication skills inspires both direct and intermediated communication, working with team members on projects, assessment and performance-oriented learning. Camplese and McDonald (2010) pointed out that educators must provide opportunities for learners to develop collaborative type learning communities by integrating the different tools including laptops, internet connections as well as social environments, and these are the important ways to collaborate and engage the learners.

2.6 Information, Media and Technology Skills

According to P21 (2011) "Today we are living in the era of technology and media-based environment. In this era, easy accesses to plenty of information and rapid changes in technological tools have made contributions and collaboration of the people on an unprecedented scale. The framework of P21 summarizes information or digital literacy in a very clear and concise way, so that it may allow the educators to implement instruction and assessment. After getting the applicable data, individual must be able to analyze the data for accuracy and relevance, so that it can be easily transformed into serviceable information. Furthermore, the learners must know that how to utilize the information effectively so that it can be turned into beneficial and effective knowledge and skill. Kay and Greenhill, (2011) pointed out that information or digital literacy demands the learners for finding data and then assign meaning to it.

P21 (2009) categorized these skills as information literacy, media literacy and information, ICT literacy. Stambler (2013) argued that these three literacy skills - facilitate the learner to create knowledge through writing, media and technology. To shed light on the concept and scope of these sets of skills, these three types of literacy skills are discussed in the following.

2.6.1 Information Literacy

It provides strong foundation for lifelong learning. This literacy can be applied to all types of disciplines and different level of education. This literacy enables the individuals to be self-directed and self-learners. In order to survive in the prevailing environment of digital economy, it is necessary for the learners to have digital age proficiencies. Keeping in view the emergence of digital age economy, it is imperative for the system of education and educational leaders to make comparable modifications

in order to achieve its mission in the prevailing society i.e. to prepare learners for the world outside the classroom (Pacific Policy Research Centre, 2010).

Information skills (also called information literacy) have been defined by different scholars and institutions in different ways. Association of College and Research Libraries (ACRL, 2000) stated that these skills enable the individuals to know and understand that: (i) what type of information is needed; (ii) when the information is needed; (iii) from which source it can be found; (iv) evaluate its value critically; (v) use the information effectively for particular purposes e.g. learning, solving problems and generating new ideas as well as creating new knowledge. Similarly UNESCO (2002) acknowledged that those people who are well equipped with information skills, have the capabilities to know that when and from where they need information. Furthermore, they can classify, locate, organize, appraise, and efficiently use the available information to handle the problem.

Bundy (2014) referred to the twelve attributes of the people who have information skills. These attributes are given by the Australian and New Zealand Institute for Information Literacy (ANZIIL) and the Council of Australian University Librarians (CAUL). These attributes are: (i) to acknowledge a want for information; (ii) to find out the amount of information required (iii) to have an easy access to information (iv) to appraise information and its resource critically (v) to organize, manipulate and store the collected information (vi) to incorporate the selected or obtained information into their knowledge base (vii) to use the available information for creating new knowledge (viii) to resolve problems and make judgment (ix) to comprehend economic, social, legal, cultural and political issues in the use of information (x) to take into account ethical and legal issues during application of information (xi) to take into

consideration social responsibility and citizenship (xii) considering information literacy as part of lifelong learning.

Bundy (2014) stated four principles that describe those people who have information skills. The above stated attributes of information literate individuals can be embedded into these principles. The principles are; (i) to engage the learners in independent learning i.e. learning through creating novel meaning, understanding and knowledge; (ii) Getting satisfaction and personal achievement through proper use of information; (iii) search for information individually and collectively and making decision and solving problem in order to deal with personal, societal and professional issues; (iv) to exhibit social compulsion through devotion and assurance toward lifelong learning of citizens.

The P21 (2011) classified the skill of information into two big categories. The first category includes the skills of access and evaluation of various types of information. The second category consists of the ability to utilize and manage information. The first category creates efficient information i.e. access of information when it is required and effective i.e. information that is significant to the assignment on hand. The second category bounds the individuals to apply information correctly and creatively to solve problems.

Andretta (2005) highlighted essential skills regarding information literacy and they are: an easy access of information, critical appraisal of information and proper use of information. This type of literacy forms the foundation for long lasting learning. It enables the learners to: (a) determine the require amount of information; (b) effective and efficient access of information; (c) appraisal of the collected information as well as its sources; (d) incorporate the obtained information into someone's knowledge base; (e) effective use of information to achieve a definite purpose; (f) know the economic,

social issues and legal status of information. He further pointed out that huge amount of available information has offered diverse and abundant information choices for teachers, students and other stakeholders. Additionally, information reaches to individuals in unrefined formats which affect its genuineness, reliability and validity. The doubtful quality and amount of information create challenges for the efficient use of significant information.

Only large amount of information would not be enough for the creation of informed citizenry but it is a related set of capabilities that is necessary for the use of information effectively (LearnHigher, 2006). Amudhavalli (2008) stated that information literacy comes through libraries, extraordinary interest of organizations, community resources, media, and internet. But it is a fact that the information which the individuals receive is not refined which causing questions about its genuineness, reliability and validity. Information comes through different types of media i.e. graphical, aural and textual. These multiple type of media poses novel challenges for individuals in order to evaluate and understand it. Similarly the unreliable worth and amount of information produce big challenges for the people as well. Thus the existing modes of information would not create in itself a well-informed community without some essential skills necessary for the effective use of information.

2.6.2 Media Literacy

Twenty first century learners are confronted with a huge amount of media resources in all their walks of life. Stambler (2013) defined media literacy as "the ability of individual to ask question, analyze, and evaluate media messages". P21 (2009) argued that there are two main sets of media literacy which are indispensable for success in 21st century learning. The first set comprises the abilities of individuals to analyze media and they are outlined as: (a) to know how and for what purpose media

messages or constructed; (b) to examine how people interpret media messages in a different way and how media can affect people's thinking and behaviors; (c) to understand the moral and legal concerns regarding the easy access and proper use of media. The second set consists of the abilities of individuals to create media products. Two set of skills were identified by P21 regarding the abilities of this category and they are: (a) to understand and utilize the most suitable tools of media, characteristics as well as conventions; (b) to understand and effective use of suitable expressions and elucidation in the existing diverse and multicultural environments.

P21 quoted the statement of Professor Peter Senge regarding the present media environment that "students (children) understand more about the existing activities rather than their class teachers, and this is due to media based environment, where they grow up in a media driven environment of all types of stuff". In the existing media based environment, learners have various important media tools for communication and learning e.g. instant messaging, chatting (online), email, cell phone conversations, video games, webcams, Web sites, digital media audio podcasts, other networks and (Levin, Arafeh, Lenhart & Rainie, 2002).

Keeping in view the above discussion regarding the media literacy, its need of the day, to equip our students with media literacy so that the learners may be enable to understand, access and utilize 21st century media and in what way to use them for multifaceted learning, creative tasks, critical thinking and effective communication at institutions and work field etc.

2.6.3 ICT Literacy

The Program for International Student Assessment (PISA, 2003), defined ICT literacy as "the capability of learners to use suitable digital technology and other tools of communication to access, integrate, evaluate, create and communicate information

to others in order to contribute efficiently in the society". Stambler (2013) defined digital or ICT literacy as "the capability of individuals to use and understand technology and tools of communication, to evaluate, use, and generate information".

According to P21 (2009) technology literacy can be defined as "the ability of individuals to use tools of technology as well as to develop content knowledge and skills required in the context of 21st century". Furthermore, this set of skills can be categorized in three broad categories; namely: (a) use of technology for the purpose to evaluate, communicate and organize information; (b) use of digital technologies i.e. computers, GPS, etc. for communication, social networking so that the individuals may be able to manage, evaluate, integrate and create information successfully to work in a knowledge based economy, (c) having awareness for legal/ethical issues regarding access and proper use of information technologies.

Thus, through this set of skills, the individuals may have the abilities, not only to capture, systematize and share information, but also to examine its effectiveness and appropriateness for a specific purpose, under the legal and ethical framework. From education point of view, these skills concentrate on such technologies that are helpful toward educational activities e.g. teaching-learning process, assessment and curriculum development. The existing modern classroom demands for technological skills, having the ability to work with the system of hardware including interactive whiteboards, flash drives and computers; mobile devices, software, e.g. word processors, databases, web browsers, email and learning games for several subjects comprising math, language and science; and the Internet i.e. search engines, blogs, sites of social bookmarking, wikis, podcasts, social media, video conferencing, and video streaming (Churchill et al., 2013).

2.7 Teaching Strategies for IMT skills

Teaching of these skills in the existing "new learning paradigm" of 21st century have become indispensable. This is because, in today` society, learning is not limited to specific institutions or organizations rather it has become global. In this regard Gee (2007) said that "the existing culture in the world is seemed to be more multipart than ever and in some learning circumstances, it seems that young audiences (learners) are learning in more modern and innovative ways outside of school than inside the school". Similarly Trilling and Fadel (2009) clearly stated that to survive and contest in the global world of 21st century, the individual is required some essential skills to suitably access, manage, evaluate and add to the assets of media, which presently they have at their fingertips. P21 (2014) emphasized on the use of essential tools for everyday life as well as workplace productivity. Furthermore, in the present digital world, learners need to learn as well as utilize these essential tools. For such type of learning, the learner should not be left at their own rather they should be taught well the capabilities and aptitude of the IMTS domain e.g. individuals need to be conscious about the significant difference between the sources of primary data and secondary data as well as they should have the capabilities to understand how to evaluate the trustworthiness of online information by utilizing supporting evidence from different reliable resources.

Students must be taught that how to collaborate with their colleagues by using multiple digital tools or equipment such as ePals, Blogs Social bookmarks, Podcasts, Wikis etc. Teachers should motivate the students for setting up peer networks for learning, a base for interconnected learning communities. Twenty first century learners pick up latest gadgets very quickly and work out how to exercise these gadgets. It is the natural environment of the Net Generation (Tapscott, 2009). Johnston (2014) pointed out that learner must be given such a learning environment so that they may make

mistakes at their own and may ask questions from members peers of the learning networks so that they may help them by answering their questions through cooperative or mutual learning driven by technologies to promote deeper learning.

To discuss the best pedagogical practice for teaching of Information, Media and technology skills, Prensky (2010) stated that direct instruction method of teaching is out dated method to teach these skills. Students do not give much attention in this method of teaching. Willingham (2009) pointed out that learners may not be prepared for the information rich, technologies driven and media fueled workplace, only by telling them knowledge or bits of information, rather it happens by giving them problems to explore and challenge their curiosity when they investigate for answers to these questions. This view was further confirmed by study conducted at the National Training Laboratories in Bethel Maine, where "The Learning Pyramid" was developed, and has given in the following Figure 2.3. It shows that individual learn and remember information in a better way, when these individuals are taught with participating instruction strategies i.e. group discussions, learning by doing and to teach others, rather than direct teaching strategies i.e. demonstration, lecturing and reading etc.

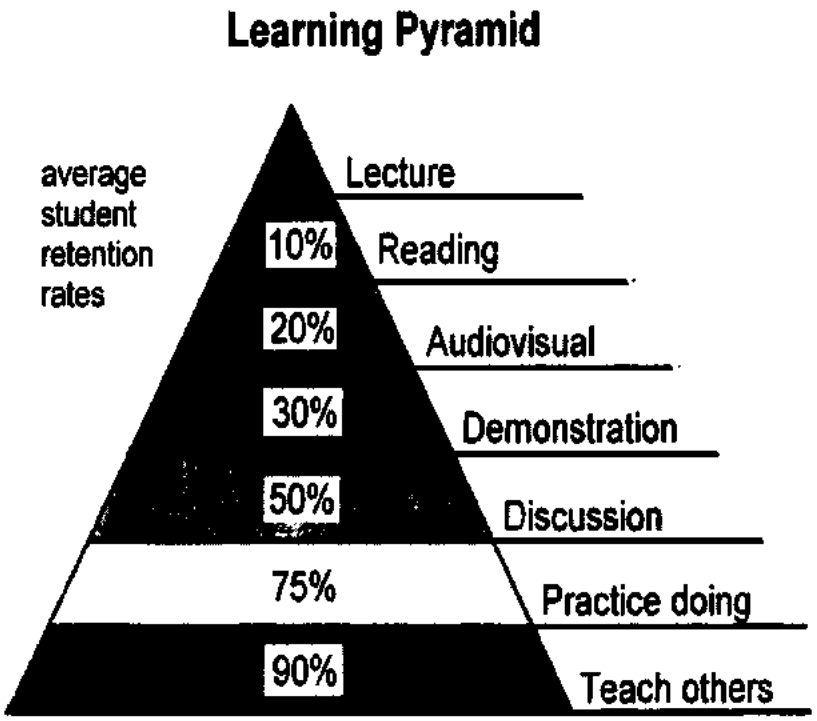

Figure 2.3: Learning Pyramid

This learning pyramid illustrates that participator teaching methods results in high retention rates i.e. 90% while direct instruction (lecturing) results only a 5% retention rate. This Pyramid provides a clear message for the pedagogues regarding different strategies. There are some guidelines for teachers to motivate the learners for developing deeper skills of the IMTS domain and they are: (i) while using these digital tools, educators must understand the learners how to utilize them; (ii) educators should motivate the students to bring these digital equipment to classroom so that they may know how to use these technologies for solving different academic problems independently; (iii) educators may provide opportunities for learners to dialogue and communicate with each other by IMT technologies, so that they may improve their learning collaboratively. These initiatives represent a "paradigm shift" which is

necessary for successful implementation of IMTS domain of the "New Learning Paradigm". The implementation of IMTS domain has become a big challenge about which Wagner, Gagne, Goals and Keller (2005) admonished that the unpredictable up gradation of digital technologies have basically changed the learning environment of students i.e. when, where and what individuals learn. Technology is causing a positive change in educational organizations by creating new challenges for trainers, learners, parents and training developers. They have to analyze the ongoing different approach to learning, training and education to know that how technology can improve these areas. The principle of student-centricity given by Vygotsky (1978) stated that people learn well when they are involved in learning activities proactively and enthusiastically. They further highlighted that when teachers are equipped with the digital tools of IMTS domain, they will have the opportunities to take initiatives in using these digital technologies for the purpose of their students` learning.

In today`s technology rich environment, it has become indispensable for the learners to master the skills of IMTS domain in general and digital skills in particular. It demands for new teaching methodologies which help the learners to master these skills of the IMTS domain. In this regard Speranza (2014) recommended the use of Google Apps for both teachers and students. He further stated that Google has designed these Apps to help both the teachers and students for working together effectively. Google Apps include Google Drive in the shape of online documents, presentations, spreadsheets, drawings and forms, Gmail, Google Sites (website creator); Google Calendar. Other services of these Apps include Hangouts, Blogger and YouTube. Kivunja (2015) referred to the work of luminaries that how students learn. For example, Dunn & Dunn (1978) stated that there are important dissimilarities in the way people learn; people understand well if they are taught on individual bases. Among these

luminaries, Hartman's (1995) work illustrates that technology can enhance the learning priorities of students. Although direct method of teaching (direct instruction) that transmit the same message to all learners instantaneously but still it has room to be used effectively for enhancement of learning (Binder & Watkins, 1990). Teaching with the current IMT tools provide teachers with opportunities to let each learner personalize or prioritize their way of learning. Generally, their preferred way of learning would include peer interconnected learning based on internet. This type learning is not only taken place in the same school and class, but also with peers from all over the World i.e. World Wide Web (WWW) on all timeframe i.e. 24/7. Teachers should be flexible and compassionate while students using information media and technological tools and allow the students to learn in their own way. To explain further this approach Dobozy et al. (2012) pointed out that teaching community are normally sympathetic towards their students; they try to show kindness and real concern for their pupils' well-being and concentrate on pupil academic problems and issues. Teachers can get this approach by simply undertaking the individual' viewpoint on a particular situation. At the same time they ask themselves, that if I were the learner here then, what would I want? What would I be searching for? Therefore it is very crucial for teachers to teach in ways that IMT technologies may be integrated into the existing curricula so as to enhance and pupils' interest and motivation by using these technological tools for the purpose of students` learning and assessment.

Sometime the use of digital technologies is criticized by some individuals and it is believed that the use of these technologies does not encourage the learners to think deeply. It is because with the help of these technologies individuals simply click, click and go ahead and they have no concern for developing critical thinking (Roschelle, Courey, Patton & Murray, 2013). Kivunja (2015) responded to such type of criticism

and argued that when teachers teach the use of media and technological tools, it does not simply mean to tell students that just click and get the information, but it raises multiple issues and problems to be solved as they discover appropriate information on the internet or Web. Evidences were found in the study of Kivunja's (2015) that individuals takes initiative to search novel learning material or resources and then they shared these novel learning resources with their colleagues to train them or to assist them learn.

Individuals can now have an easy access to huge amounts of information, by just clicking a laptop`s button, smart phone or eTablet. But for teachers the case is different, they have to train and understand the students to contextualize the available data. It is a fact that without proper training, counselling and guidance, we as teachers cannot expect that students would correctly differentiate between social conversation and academic dialogue. In the present era, access to information is very simple; it may be mechanical or simply electronic. But the thing which is more important is to train our students, so that they may be able to line up information for achieving the target outcomes. As said earlier, when teachers teach the students that how to use and apply these innovative technologies, they need not only to show flexibility but also high esteem for their students' discoveries from the Web. Normally teachers teach the students, how to use these technological tools but they may also be trained to learn from his or her students. There will be no doubt that by suing digital technological tools, learner in a class may know and use new app before the class teachers do. In situation like this, teachers need to be alert, to learn from his or her students and should appreciate such initiatives made by the students. Through this practice, students are promptly align their views or thinking with their peers rather than with their teachers (Kivunja & Power, 2006).

In adapting the capabilities of IMTS domain, the instructor can no longer be what Professor Alison King (1993) expressed as "sage on a stage" with all types of information to be conveyed to learners. Rather the teacher can be described as "guide on the side" (King, 1993) to assist the learner by making sense of information that the students discover it by themselves. The information which is easily obtainable, teaching process would provide direction from the side-line to facilitate students in making sense of it for themselves, with their colleagues, or through peer's social exchanges.

Gagne et al. (2005) suggested that in 21st century classrooms the students must be more dynamic and independent and the teacher must be working as a consultant rather than a lecturer. P21 (2014) acknowledged that today's learners live in the global world, where they have easy access to almost unlimited and abundance of information, confront with enormous opportunity and difficult choices. To survive and compete in the global world, teachers should generate a 21st century perspective for students learning by bringing the world based activities and information into the classroom and taking learners out into the global world. But how? P21 responded to this question as, "Bring of the world based activities and information into the classroom and taking learner out into the global world is possible through use of proper technology." P21 further argued that it is indispensable for teachers to train the learner that how to be connected with technological tools i.e. smart phones and eTablets etc. to their class work and with their learning communities. It was further elaborated by Roschelle and Pea (2002) and stated that teaching to learners in this way would help to overcome the dilemma between the conventional, highly centralized approaches for teaching-learning and extremely diversified (multi-cultural) approaches which provide individuals with learning opportunities and understanding with a high position of sovereignty as well as self-direction.

Resnick (2002) suggested that the existing curricula must be updated on regularly bases so that it may provide learners with the essential skills and competencies of digital age. The learners may also allow working with computer simulations so that they may explore that how systems work. According to him "the existing curricula need to be revised so that it may emphasize less on content to understand and give more focus on instructional approaches for learning the content that students don't know". It means, education system must prepare our students as "strategic learners" so that they may utilize the enormous resources of the internet to understand the things they are learning, rather than rote learning. In 20th century, text was considered as the major mode for access of information. On the other hand, mode and method for access of information for learning in 21st century is totally different i.e. multimodal approach. To teach the abilities of the IMTS domain in 21st century, multimodal approach is to be used to develop essential skills in a broader area i.e. ability to follow moving images, listening and ability to read graphs and other multitasking activities. It is because the multimodal delivery system (MDS) of the Internet provides chance for and the utilization and stimulation of numerous types of stimuli. To develop essential skills of learners in said areas, planning is extremely important. This planning was elaborated by Churchill et al., (2013) and proposed that enough computers must be there for all learners to make them busy during the class lesson, scheduling to allow each learner for suitable time to be working with the computer, and to ensure that the objectives of the lesson are very much clear to all learners. It must also be ensured that you have well equipped the learner so that they have the essential skills and competencies to solve different tasks with computers. Also make a plan for necessary technical support to be provided to students regarding computers and software. Articulate the rules regarding the use of the computers very clearly so the students may know their limitation while

working on computers, and let learners have a go without unnecessary disturbance from you. This "letting go" should avoid traditional instructional approach i.e. the one size fits all, and would allow the learners to personalize their learning approaches so that they might move ahead through the learning projects as per their individual learning styles (Dunn & Dunn, 1978).

ACMA (2013) discussed one of the important matters regarding use of digital technologies and stated that learners should be encouraged to personalize their learning while they use these technologies. It is also very much significant for the teachers to educates and train their students regarding the development and protection of their personal digital identity. Teachers should also encourage their students for making their private profiles rather than public and not disclosing their passwords. Students should have awareness about the potential threats so that they may protect or secure their personal information while working on internet. It was observed that "a large ratio of young individuals have shared passwords of their mobile or computer with someone else". This issue was further highlighted by Tapscott (2009) and noted, "Normally Net makes serious mistake and majority of them don't realize it. These Net Geners share their personal (private) information on social networks or somewhere else and in this way they undermine their personal or future privacy".

2.8 Life and Career Skills

P21 proposed that life and work place in the new millennium of 21st century have become so complex and competitive that individuals need some new skills i.e. 21st century skills rather than the skill of only thinking and learning of content knowledge. Furthermore, "the present era of digital technologies requires students to make efforts for developing balanced life and career skills" (P21, 2009).

P21 (2011) categorized these skills into five components skills. These components skills are: (i) Flexibility and adaptability skills; (ii) Initiative and self-direction skills; (iii) Social and cross-cultural skills; (iv) Productivity and accountability skills; and (v) Leadership and responsibility skills. In this section we will briefly discuss each component skills of life and career skills domain. We will further discuss that how these skills can be effectively taught in educational institutions so that the students may be prepared for future life in the "Digital Economy" in which the learners are about to enter.

2.8.1 Flexibility and Adaptability Skills

Workplace and working condition in the global world of 21st century are changing very rapidly. To compete and survive in such environment, the employers and business community actively seek out individuals that not only have the attributes of resourcefulness and adaptability, but also they are to be flexible. Such individuals may have the capabilities to adapt to the changing environments and circumstances, accept novel ideas, and new ways of solving of problems. These skills ensures success whereas in the prevailing technology based environment, lack of these skills lead to failure and stagnation (Kivunja, 2014).

P21 (2009) stressed on the two crucial aspects of the flexibility and adaptability skills i.e. adapt to change and being flexible. P21 further elaborated the meaning of adaptability and flexibility and stated that "Adapting to change means that an employee or individual has the ability to adapt to various job and context based responsibilities. Learner must be able to work effectively and efficiently in an environment of changing priorities. A person is said to be adaptable when he or she can handle and manage unanticipated happenings without protest or getting disturb. It shows that if a person's role is abruptly altered, even then he or she can quickly and easily adjust himself or

herself to the new priorities, and execute his or her role efficiently. In contrast, a person is said to be flexible when he or she has the capability to "incorporate the given feedback efficiently, tackle positively with setbacks, praise, negotiate, understand and mange varied interpretations and principles to reach at practicable results" (P21, 2009).

According to Trilling and Fadel (2009) "we people are living in a time of great change. These skills (flexibility and adaptability) are crucial for learning, working, and for becoming good citizenship in the 21st century". They further added that, strategies for adjusting and adapting to a new and rapidly changing environment is a very important "flex-ability" that every individual must develop in an environment of changing priorities.

2.8.2 Initiative and Self-Direction Skills

Kivunja (2015) stated that educational institutions should assist the students to equip with some essential skills that are indispensable for achievement in the workplace of 21st century; individuals cannot depend on the skills they learn for their achievement at workplace. Because the prevailing working priorities of technology based Economy in 21st century are changing rapidly. It means the workers in 21st century Digital Economy must be more productive, and this is only possible when they are wiling for taking initiative, learning novel and practicable ideas to maximize their competencies and success. Self-direction does not mean to handle with the existing change only, but it also improves productivity and effectiveness of organizations. That is why this skill has become very important for future success and continual employability in the workforce of 21st century.

In the 20th century "Industrial Age workplace" was meant that an individual could perform a particular responsibility in which he or she had expertise and thus contributed to their organization's total physical product. As they continued to perform

their job, they got some kind of equilibrium i.e. equilibrium at which they worked well but there was neither a call for change nor emphasis for taking initiative. If necessary changes to the practices would desire, it was considered to be done by the manager, boss or the person who just implemented it. On the other hand, in the 21st century workplace, there is completely innovative ball game, so to speak. Employers of 21st century are searching for individuals who are not only well inspired and enthused but "equipped with essential skills for taking initiatives and to be highly self-reliant" (Trilling & Fadel, 2009).

2.8.3 Social and Cross Cultural Skills

These skills are very important for achievement in the 21st century workplace. To develop these skills, participants need to have the ability to interact effectively with other people at the workplace or with the people who come in contact with them. Furthermore, such individuals may work effectively and efficiently in multicultural environment, of "Digital Economy". The oppression of distance and division of economies that sluggish the economic, political, and social cross-fertilization in the 20th century "Industrial Age" has been reduced by computers, and Internet etc. These things have contracted the world of Digital Economy into what McLachlan (2012) called the global village. The social and cultural boundaries of this global village (based on Digital Economy) become have become limited. One nation is adopting the social-cultural ways of other nations, for example languages (other than English) has been appeared as one of the essential skills for achievement. Therefore to get success in the present era of Information Age workplace, it is very important for graduates to be equipped with these skills. This will enable the individuals to collaborate with others from diverse cultures, religion and changing lifestyles, in an essence of trust, mutual esteem and transparency. The significance of cross-cultural and important skills for

social interaction in the society have been well acknowledged by the United Nations which has established "TeachUNICEF" whose purpose is to train and prepare young generation as professionals along with desirable resources that would help them "to support and prepare up-to-date citizens who recognize interconnectedness and have the capability to behave in an evocative ways" (UNICEF, 2014).

2.8.4 Productivity and Accountability Skills

Theses kills concentrate on three interconnected elements i.e. effectiveness, efficiency, and high quality of services and goods. These skills were also stated by Trilling and Fadel (2009), they called them as "producing results". According to Balasko (1988), the term "Efficiency" has its origin from the principle of economics, called the principle of Pareto Efficiency, this principle states that the large amount of services or goods that can be produced as output from the available resources as input, this types of production occurs at the minimum possible rate (cost per unit produced). And hence the process of production is considered to be effective because the process produces maximum production per unit of used reserves and minimizes the rate (cost) per unit of production. It is also called the point of economic equilibrium. At this point, input resources are being assigned (allocated) for the purpose production in the most useful way. This allocation of resources is also called the optimal allocation of resources. When Pareto Efficiency is occurred, it signifies the optimal level of production. Then the firm must try to maintain that level of production because any attempt to raise the output beyond the level of Pareto Efficiency, it would cause for increase in costs per unit produced than to profits. So, efficiency is linked with the goods or services produced per unit resource utilized and it is usually taken as productivity. The term effectiveness is purely a measure of whether an organization or a business firm is doing what it is believed to be doing or "Is a particular firm or

organization accomplishing its objectives, mission or goals?" Or "does a particular firm manage tasks to accomplish the anticipated result? [Does it] set and achieve goals, even in the presence of impediments and competing pressures?" (P21, 2009).

2.8.5 Leadership and Responsibility Skills

It is not simple to define the term leadership, an essential skill in 21st century. According to Bass (1990), there are different descriptions and definition of the term "leadership" as there are individuals who have defined the notion of leadership. However, many of the given description and definitions are vague". Bennis (1959) had the same approach regarding the concept of the term "leadership" and stated that "the notion of leadership dodge us or to tease us, again with its ambiguousness and obscurity. Therefore, we have developed an unending propagation of terms to deal with it ... and up till now its concept or notion is not perfectly defined". What appears to be harmony among the many research scholars and they have defined it as "The term of leadership is a matter of personality; it is the aptitude and capability of an individual to induce compliance by his or her subordinates, a form of persuasion, the exercise of influence, an gadget to achieve goals and an effective interactions among individuals" (Bass, 1990).

2.9 Teaching Strategies for Life and Career Skills

As we have discussed earlier that life and career skills have been categorized into five components skills. In this section we will briefly discuss that how these components skills can be effectively taught in educational institutions. Thus we are going to discuss different teaching strategies for these components skills one by one.

2.9.1 Strategies for teaching Adaptability and Flexibility Skills

P21 (2008) outlined a number of teaching approaches for students so that after graduation they may have the competencies of flexibility and adaptability and to exercise these competencies in the workplace of 21st century. Among these teaching strategies, one is to impart learners how to strengthen feedback as well as how to reply to it in an optimistic way. This is one of the best teaching strategies and has been supported by many experts in the field of "life and career skills domain" including Askew (2000), Peter Senge (1999) as well as Connor and McDermott (1997). In this regard Connor and McDermott (1997) responded that feedback comprises of loops, it is because that the outcomes of what is done, is brought back to the person, and new significances which effect individual`s next strategy. Accordingly feedback loop can be considered as a way of returning of information which has an effect on the next step to achieve the desire target. Therefore, it is an excellent way to teach learners the skills of flexibility and adaptability in two different ways. Firstly, individuals learn to utilize feedback to strengthen what they are teaching so as to increase efficiency or outcomes through discovering novel and better ways for the accomplishment of task as shown by the feedback. This type of feedback is named as "reinforcing" of feedback loop (Connor & McDermott, 1997). Secondly, learners can utilize the feedback as a "balancing strategy". In the case of balancing strategy, information obtained from the feedback can be used by the students to see, where they have made mistakes and try to rectify these mistakes so as to enhance efficiency (output) and effectiveness. This feedback loop is named as "balancing feedback loop" (Connor & McDermott, 1997). These two types of feedback loops for teaching flexibility and adaptability are illustrated in the following figure.

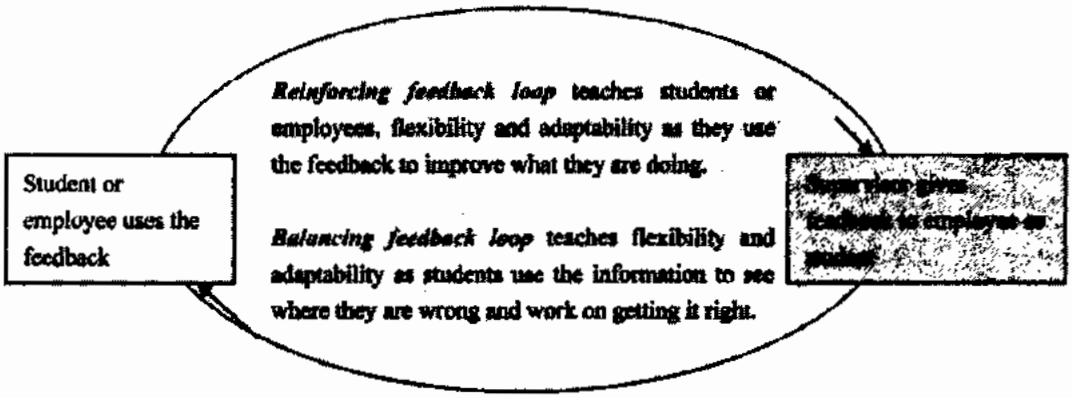

Figure 3.4: Teaching flexibility and adaptability through feedback loops

Kivunja (2014) stated that there are many educationists, who have expertise in the area of life and career kills domain, for example Hargreaves, McCallum and Gipps (2000), Black and Wiliam (1998), Angelo and Cross (1993), they have pointed out a multiple ways of teaching strategies for effective use feedback. These strategies include:

- To decide that the feedback will be formal or informal, general or specific and formative or summative.
- Consider feedback as continuing or formative process, which provides students with opportunities to examine their academic progress, accept accountability for learning and reflecting on their work and how learners can make better it as given by the feedback loop.
- Showing approval of a learner's work or disapproval either orally or non-verbally forms such as making eye contact, nodding, or in writing.
- Showing clearly whether the given response was correct or wrong, student has learned or not, how the response was right or wrong; and then signifying that what the leaner needs to get it correct or enhance it.

- Including useful comments that would provide students with opportunities for improving their performance.
- Classifying common weaknesses about the learners' responses, and then making a short summary of the comments to address the common confusions. The teacher may then utilize this summary to inform all the students of the class, what they required to know to address the appropriate criteria for enhancing their performance on a parallel task.
- Preparing example of realistic responses, and then sharing these examples with the participants before the activity of assessment and then their assessment feedback. This type of strategy provides opportunities to students with to realize that how various types of criteria are applied to complete the given tasks by utilizing this type of feedback formatively.
- Appreciating learners on their accomplishment. However, admiration and praise must be used carefully because research illustrates that it might have bad effects on student`s attitude and work if it remarks on the learner's self-esteem. If teacher is going to use admiration during the assessment feedback, he or she must target the individual's behavior and not the individual itself.
- Teacher must be specific and precise in how he or she words the feedback so that students may comprehend how they may enhance their work through feedback.
- In case of feedback, comments are superior to marks. So teacher should use comments rather marks. It is because remarks can guide the learners in trouble-shooting their own work and behavior to improve or correct it. This thing enhances the skills flexibility and adaptability while marks alone cannot.

- When teachers observe that students do right and wrong, he or she provides the suitable feedback i.e. balancing or reinforcing immediately. This would encourage learners for flexibility because it assists the learners to concentrate on what they need to accomplish the task on hand properly and expedites their performance to economize time and avoid annoyance for completing the task when they do wrong.
- During feedback, some conceptual questions may be asked that would motivate students to think critically rather than give comments.
- Teacher should involve the learners in decision-making during feedback and ask them to choose an area of their interest for quality feedback. This influences learners and inspires them for taking interest and to accept greater accountability for the assessment and to concentrate on the feedback based remarks seriously.
- When learners reflect on the given feedback, teacher should ask the students to resubmit the feedback for re-grading in order to improve it. This activity encourages the skill of flexibility because it provides opportunity to learners to use the given feedback in a specific area and to apply it when and where it has the utmost impact.
- At the end of an assessment task, teacher should ask the learners to analyze the feedback they have written on their tasks and to enlist three to five things on which they work as per the direction given in the feedback. This activity imparts them the skill of adaptability and flexibility.
- It is necessary to ensure that teacher comments should consist of specific guidance on exactly where the development is desired. This demands for a very clear feedback so that it may enable the learners to 'bridge the gap' between

their existing stat and status the required level of attainment in the activity of feedback.

- Teacher should try at their best to close the feedback loop. This can be done by returning the feedback and giving opportunity to students for their learning. As Sadler (1998) pointed out that feedback results in learning if some kind of responses are made in order to complete the feedback loop. Similarly, according to Boud and Feletti (1996), "Unless and until learners are capable to use feedback to complete the improved work, though, e.g. re-doing the same task.

2.9.2 Strategies for Teaching of Initiative and Self-Direction Skills

These skills are very important skills for the workplace in 21st century Digital Economy. It is because the employers of 21st century demands for individuals having the skills of initiative and self-direction. So the important thing is how to teach these skills to students. In this regard P21 (2011) argued that there are three strategies with which these skills can be easily taught to students. These strategies are:

a) **Management of goals skills and how to teach them**. It begins with learning of "how to set goals". To set goals is an important phase of teaching strategy. In this connection Kivunja (2015) discussed the teaching strategy which was proposed by Drucker (2001), who was an outstanding Austrian-American management consultant in *The Practice of Management*. This strategy consists of five steps which can be easily memorized with the acronym SMART. It stands for Specific, Measurable, Achievable, Realistic, and Timely.

To set Specific goals means that students should describe their goals accurately and precisely. Measurable goals mean objectives or a measure which students can use as concrete evidence as to whether they have attained what they set out to do or not. Achievable goals mean that learners should be trained for setting

such types of goals that are not beyond their existing capabilities. Realistic goals mean that students should be trained for achieving significant outcomes rather than to complete the tasks. Teaching of "Timely" goals means that learners should be trained to achieve the given task within a given timeframe i.e. agreed time or deadline. The last step can be further explained with the help of Parkinson's Law of Time Management. According to this law, "Work expands to fill the time available for its completion" (Parkinson, 1955). It is very much important to make the students vigilant about the said law because it shows that if individuals are incapable to set deadlines for completion of task, they would not be able to accomplish the given tasks on time. These are the Deadlines which build up pressure on students to complete the given asks on time. Furthermore, without setting deadlines, tasks would take longer time to be completed or never be completed. Keeping in view the importance of setting deadlines for learners, it is very essential for teachers to train them, so that they may complete the given tasks at the set times. Parkinson's Law further states that shorter the deadlines set for a given assignment the greater the probability to complete it on time. It is because that short time allocated to the given task pressurized the individual to complete the task within the timeframe.

b) **Working independently skills and how to teach them.** To work autonomously in the workplace of 21st century is extremely valued because it shows the abilities to take initiative or to handle situation that may arise or occur, without depending on supervisors or on other personnel. This is very important in the workplace of 21st century because the "Information Economy" flourishes on change. In such changing environment, workers most probably cannot wait for the instruction of their administrator or manager that to cope

with changing circumstances. The employees must have the capabilities to respond to the desired change when it occurs. These types of capabilities include personal initiatives or independent responses to the changing working conditions. Thus the attribute of "working independently" is extremely cherished because it is the spirit of handling changing environment. It also shows worker's self-motivation. To teach learners that how to work autonomously in 21st century workplace, they must be guided to point out important projects to be accomplished, without waiting for someone else to them in accomplishment of these projects. They must be aware about the ongoing changes and to make a decision by themselves to respond these ongoing changes. They must be trained, to be flexible in the prevailing changing environment, so that they may quickly turn their concentration to the newly changed environment with least or no supervisory instruction. They must be trained to be encouraged for assigning responsibility, monitoring and analyzing their own progress as they respond to the changing environment. They should be further trained that they must not wait for instruction of their supervisor or manager that what to do and what not to do. Rather they must come up with their proposals independently and also justify that their suggestions or schemes are decent for the firm's achievement (Kivunja, 2014).

c) **Becoming self-directed learners**. Administrators and managers can still play a very much important role in the working environment of 21st century by advising mentoring and scaffolding the workers. However, workers who have the above skills, they not only pursue and guide but they also use the scaffolding to develop new configurations for the growth and expansion of the firm. In this regard P21 (2009) argued that student self-directed learners: (i) learn more than

just mastery of abilities and/or content to discover and enlarge one's own knowledge to become skillful. (ii) Exhibit initiatives to higher professional level. (iii) Exhibit devotion toward lifelong learning. (iv) Exhibit the ability to base future progress on past experiences (P21, 2009).

It is imperative for teacher to understand the students that the skill of self-direction results in making mistakes and even some time results in failure but they are required to be determined and flexible and must try for taking initiatives, because at the end, they would get self-confidence. Students must be trained that the practice of trial and error are important component of self-directed learning and these students would never be depressed by occasional disappointment. They should be ready to adopt novel ways of doing things. Thus teaching of initiative and self-direction to student, is not merely guiding them what to do in case of completing a task. Rather, it provides opportunities for students to create higher-order thinking skills and further enable them to be proactive rather than only reactive to change (Bruner, 1966).

2.9.3 Strategies for Teaching Social and Cross Cultural Skills

Already we have discussed that the existing rapid technologies and fast communications have shifted world into "global village". So, social and cross-cultural skills have become very essential for the people to survive in the global village. Now the question is that how these skills can be taught to student? In this connection Kivunja (2014) argued that teacher should take into account the following two areas in order to teach social and cultural skill to students. They are:

i. How to interact efficiently with people, and

ii. How to work professionally in diverse team.

Now we are going to discuss these two areas of skills in detail as well as explain that how these skills can be taught to students.

a) **Skills for learning, how to interact effectively with others and how to teach them**. Kagan (1994) who is a world renown expert and professional in cooperative learning, pointed out that social skills are vital for harmonious cohabitation among human beings in general and particularly in the area of workplace. According to him "It is difficult for an individual to imagine a task today which does not include some supportive interaction with other people. The most recurrent reason for people who are fired from a task is not the lack of task associated skills, but rather it happens due to lack of necessary interpersonal skills" Teacher must teach social skills to students so that they may communicate well with their peers as well as interact with them through non-verbal ways e.g. facial expression, gestures and body language. In his influential book, Cooperative Learning, Kagan (1994) has prudently designed over 250 strategies or structures, to be used for the teaching of social skills. Effective interaction with others, requires the capability of learners to decide when to talk to the people and when to listen to the people. Individual having this ability is called an active listener, he or she can easily judge when to talk, and when to pay attention without interfering the speaker. Kagan's (1994) Strategies or structures that can be applied during teaching to learners to make them active listeners are; give one-get one, team interview, relay review, three step interview, listen right, listen triads, who am I, match mine, envoys, and round table. These strategies would enable the students to interact effectively with their peers and others and to honor their point of view as well as respect themselves.

b) **Working effectively in diverse teams.** One of the important requirements of 21st century skills is to work effectively and efficiently with team members. Working with diverse team extends the scope beyond the working with some individuals in a particular group that may be a homogeneous group with individuals having different social and cultural backgrounds. On the other hand, in the present electronically linked Digital Economy, the concept of workplaces have been changed i.e. from homogenous to global, and employees in one country or region often have to interact with employees from far away countries or regions, even though they haven't meet face-to-face but they want to understand and honor beliefs, religions, social and cultural backgrounds of the people from other countries and regions. This proximity has become need of the day and has shrunk the commercial world into the global village.

Teachers must teach the students how to adjust themselves and how to behave in the fast changing conditions of the global village with different ideas, values, social and cultural backgrounds. They must be trained that their own opinions and values are not essentially superior to other people to whom they interact, whether they belong to poor countries or otherwise. They must be trained to realize that the people from different social and cultural backgrounds generates occasions for learning new ideas, opinions as well as markets; and these all are indispensable for success in the existing "Information Age" of 21st century (Kivunja, 2014).

2.9.4 Strategies for Teaching Productivity and Accountability Skills

To enhance productivity and efficiency, students should be taught to prioritize the projects they have to accomplish, to set goals or objectives i.e. SMART which has been discussed earlier and to design strategy, allocate and manage time as per the

requirement of the assignment to be completed. If individuals learn and apply these abilities, they would become excellent in running the projects.

Trilling and Fadel (2009) pointed out that students must be taught the skills of productivity and accountability in such a way that they may produce high quality products. Teacher must teach them how to:

i. Work positively and decently
ii. Plan the projects efficiently
iii. Respond work on multitask
iv. Participate vigorously and to be consistent and punctual
v. Present oneself skillfully and with appropriate decorum
vi. Cooperate with teams members effectively
vii. Admire and respect team diversity; and
viii. Be responsible for results (Trilling & Fadel, 2009).

2.9.5 Teaching Strategies for Leadership and Responsibility Skills

From the above discussion we conclude that the skill of leadership entails an extraordinary level of interpersonal skills which can be used to inspire the behaviors and actions of other people. These skills consist of the ability to encourage followers for working hard and accomplishment of goals in the organization, to persuade the people's collaborations and relationships that put up the values of the organization, to solve the emerging issues that happen in the working place, and above all, to exhibit foresight, determination, idea, integrity and ethical behavior during the act of influence and power (P21, 2009).

Leadership skills cannot be taken as innate or hereditary capabilities of individuals. Many experts in the field have described a large number of strategies for teaching these skills. Among these, some strategies is discussed in following:

- They should be trained that how to help and conduct the activities of other students for the attainment of stated goals (Hemphill & Coons, 1957).
- They can be trained and guide for maintaining progress.
- They can be understand that how to apply psychological methods to stimulate others people and to engaged them in organizational activities (Burns, 1978).
- They should be understand that how to state and explain clearly what other individuals are supposed to do (Richards & Engle, 1986).
- They can be guided that how to work and step outside a particular norm or values, and move with the changed procedures that result in improved organizational performance (Schein, 1992).
- They can be equipped with different strategies to solve problem.
- They can be trained that how other people might be motivated toward accomplishment of a common goal (Trilling & Fadel, 2009).
- They can be made skillful to articulate missions, visions as well as organizational standards so as to make organizational atmosphere fit for workers to be happy to complete the routine tasks (Richards & Engle, 1986).
- They can be trained that how to work with responsibility taking into account the interests and happiness of workers, of the organization, and of the overall community (Trilling & Fadel, 2009).

2.10 Twenty First Century Core Subjects and Themes

P21 (2009) highlighted that mastery of essential subjects and 21st century themes are very vital for graduates in the new millennium of 21st century. These essential subjects consist of English, arts, Geography, Economics, History, Civics and Science etc. Twenty first century skills and competencies should be merged into all

content areas. Furthermore, the important thing is to get knowledge of the interdisciplinary nature of learning among the core subjects. Thus in addition to the area of core subjects, 21st century interdisciplinary themes are also vital to promote learning of students regarding the academic content at higher levels. These 21st century themes include:

a) **Civic literacy**: Civic literacy enables the individuals to understand and influence and to make civic decision. It also makes the individuals up-to-dated about governmental processes, which enable them to contribute to civic life, and to recognize the local and global implication of civic decisions.

   Pacific Policy Research Centre (2010) referred to the Donald Lazare's recent text, Reading and Writing for Civic Literacy: The Critical Citizen's Guide to Argumentative Rhetoric (2005) concentrated on a documented need for individuals to improve critical thinking skills as well reading and writing skills, and for taking part in civic society. Lazare provided a large number of lessons and other classroom activities for instructors to help learners to realize the ideological position as well as rhetorical patterns that inspire contrasting standpoints in existing political debates.

b) **Global awareness:** The existing advanced technology and rapid communication have become the world as a "global village" where students work with other individuals from different cultures, religions, ideologies, and lifestyles. Also they work with peers collaboratively in the environment of global world. To understand the existing global issues as well as to work in diverse learning communities, 21st century theme i.e. global awareness has become indispensable. This is because the theme of global awareness enables the individual to work with peers from diverse communities. Gragert (2001)

argued that activities of global collaboration for problem solving are very helpful for learners. He further pointed out that those individuals who worked as a team member in international collaborative e-learning assignments demonstrated high enthusiasm in class, enhanced reading-writing skills, and improved engagement.

c) **Financial literacy**: Financial literacy enables the individuals to be informed about the economic decisions. Hopley (2003) defined financial literacy as knowledge and skills that helps the individual in making sound, informed financial decisions. According to Ledward, and Hirata (2011) research findings indicate that there is substantial insufficiency in financial literacy among individuals. It further referred to the survey conducted by Certified Financial Planners (CFP). The survey revealed that the problem of financial literacy becomes very significant when individual make financial decisions. Similarly other studies findings indicated that that low-income consumers (having with less education) also have below-average scores for financial literacy. Through financial education individuals only to improve their knowledge, but also has long-term positive effect on their financial behaviors. As the role of schools is to train individuals to be efficient workers having financial competency e.g. allocating money, using credit wisely, knowing banking, insurance and taxes, understanding homeownership and investing, and knowing the consequences of consumer fraud) is very essential curricular objective to be considered.

d) **Health literacy**: Health literacy provides the individuals with high quality of health information and services; it also enables them for preventive health issues. Safeer and Keenan (2005) stated that insufficient health literacy may

cause in poor access to health care, insufficient of guidelines from a physician, and improper taking of medication.

e) **Environmental literacy.** Schneider (2008) defined it as the ability for a circumstantial and complete understanding issues and about environment in order to enable the individuals to analyze, synthesize, evaluate, and ultimately to make comprehensive and well-versed decision at a citizen's level. It shows that "environmentally literate" individual will have sufficient information, skills, and understanding to suitably deal with environmental issues and problems, and to take the environment as one of the important reflections in their everyday life activities. He further stated that it is related to activities, practices, and feelings and sound knowledge. As reading skills become second mode to those people are literate, similarly interpretation of environment turns as the second mode to the persons who are environmentally literate. This literacy also enables the individuals to learn and use the language of the environment, and reply to its literature and rhetoric. It includes the awareness of value systems, principles, and cultural, emotional, and ethical reactions that the environment invokes (Ledward, and Hirata. 2011).

f) **Visual literacy.** The existing technology i.e. smart phones, graphics packages, digital cameras, etc. have enabled the individuals to use visual imagery for communication of thoughts. Researchers have found that young leaners in 21stcentury prefer image-based learning over documented content. Many authors argued that students should possess as kill of visualization i.e. visual literacy in order to decipher, interpret and communicate ideas by using visual imagery (PPRC, 2010).

Burmark (2002) claimed that teaching of visual literacy (learn to See, See to learn) can improve classroom learning and also enhance students' caliber in the workplace. He further argued that easy access to image based curriculum, and internet websites can make the learning more rapidly and conceptually than traditional text based student' work and oral instruction. Some authors have also supported textual content in comparison of image-based learning, however many others including Riddle (2009) acknowledged that preference for text-based content reproduced has lessened the access to web-based content.

2.11 Support Systems

To implement 21st century skills in educational organizations, it is the prime responsibility of the institutions to develop the institutional goals i.e. vision, mission, and values for 21st century learning work. Once the institutional goals developed, the education leaders try to line up them with their teaching strategies, plans, and responsibility systems. Support system helps the teachers and education leaders in implementation of 21st century skills in the educational institutions. Support system has been categorized by P21(2009) in the following categories: (i) 21st Century standards and assessments Skills (ii) Curriculum and Instruction (iii) Professional Development (iv) Learning Environments. These elements should be aligned with 21st century outcomes for today's learners. They are discussed briefly in the following.

2.11.1 Twenty First Century Standards

- Focusing on content knowledge and proficiency in 21st century skills
- Building of understanding about 21st century essential subjects as well as interdisciplinary themes among these core subjects
- Stress on meaningful learning rather than superficial knowledge

- Engage learners with the concrete world problems because students learn well when they are vigorously engaged in solving important problems.

2.11.2 Assessment of 21st Century Skills

- It includes quality based standardized testing as well as formative and summative assessments in classroom
- Focusing on valuable feedback on learner's performance that is inserted into daily learning activities.
- Stress on the use technology-based assessments that measure learner mastery of 21st century skills
- Portfolios of learners` work that would exhibit mastery of 21st century skills to teachers and prospective workers
- Encourage a proper portfolio to assess the effectiveness of educational system regarding extraordinary levels of learner competencies in 21st century skills

2.11.3 Curriculum and Instruction

- Emphasize on teaching of essential skills in perspective of 21st century core subjects and interdisciplinary themes
- Provide opportunities to the learners for implementation of 21st century skills through competency based approach toward students learning
- Introduces modern learning methods that incorporate the use of ICT and problem based learning approaches as well as higher level thinking skills
- Supports the use of community resources outside the school premises.

2.11.4 Professional Development

- Allows the teachers for integration of 21st century skills, teaching strategies and other supporting tools into their teaching practices.

- Balances direct method of instruction with project-based teaching methods
- Sensitizes 21st century teacher's communities to prioritize those kinds of classroom learning which promotes essential skills for21st century.
- Promotes teachers' capability to recognize individuals' specific learning styles, strengths, weaknesses and intelligences.
- Supports teachers to be skillful in using various assessment strategies to identify diverse students and generate suitable environments of differentiated teaching-learning process.

2.12 Evolution of Higher Education in Pakistan

Pakistan got independence as a sovereign Islamic state of the world from over a century of British colonial rule on 14th August, 1947. The colonial period of British rule made some progress in the field of education. But, this progress was largely limited to the areas where Hindus were dominated. The regions, where Muslims were dominated, were comparatively poor in all respects, including in the field of education. At the time of independence, 85% of the population was uneducated and most of this ratio was recorded in less developed areas of the country e.g. Baluchistan (Bengali, 1999).

The condition of higher education was very uncertain at the time of independence. For population of about 35 million, Pakistan inherited only one functioning university in 1947 that was the University of Punjab, established in 1882. Punjab University was established on the pattern of the Indian universities i.e. University of Calcutta, Madras and Bombay, while Indian universities were founded in 1857 on the model of University of London. University of Sindh was founded in 1946 just one year earlier to independence but it was not fully functional when Pakistan came into being. However,

a few collages were there in the territory of Pakistan and majority of them were situated in Lahore (Khwaja, 1996)

Higher education in Pakistan begins from above grade 12 and normally corresponds to age group 17 to 23 years. The system of higher education in our country is categorized into two major sectors (i) universities and (ii) affiliated Colleges. The HEC is an autonomous body whose function is to distribute public funds among universities/ Degree Awarding Institutes. While affiliated colleges are subsidized and controlled by provincial governments, however these collages are bound to teach the curriculum of the HEC funded universities/ Degree Awarding Institutes with which they are affiliated. HEC primarily provides financial assistance to public sector universities. However, recently it has planned a limited number of avenues for providing resources to private universities for the development of research and infrastructure.

After independence, a newly born country with a fragile system of education was thrown into the field of competition with the rest of the world. It was a big challenge for Pakistan to meet with this competition with available skills and manpower. In this regard, numerous initiatives were taken by various governments in Pakistan from time to time to make the education system in accordance with national, ideological, social needs and economic. To achieve this, a number of policies and commission were constituted by the governments in Pakistan for last sixty nine years. We are going to discuss and highlight the major initiatives that have been taken by different governments for the development of education, especially in field of higher education.

2.12.1 Pakistan Educational Conference 1947

The conference was held from 27 November to 1st December, 1947. The Quaid-e-Azam, in his message to the Conferences said:

"The importance of education and the type of education cannot be over-emphasized. there is no doubt that the future of our State will and must greatly depend upon the type of education we give to our children, and the way in which we bring them up as future citizens of Pakistan ... we should not forget that we have to compete with the world which is moving very fast in this direction."

As this educational conference was the first effort in the history of Pakistan for uplifting the system of education in the country. So the major emphasis was given on primary and secondary education of the country. Different committees were formed in the conference. Committee for primary and secondary education emphasized that national education system of the country must be established on the durable bases of free and compulsory primary education. It proposed separate stages for pre-primary and primary education for children having ages 3 to 6 and 6 to 11 respectively. The Committee on Adult Education acknowledged that illiteracy was as high as 85 percent. To cope with this heavy illiteracy rate, the following stages were recommended to be executed for adult education. The period first 5 years would be used for planning, recruitment of teachers and their training. In the next (sixth) year, about 0.5 million people would be made literate along with an annual increase of 300,000 subsequently. It was also recognized that illiteracy was not limited to the rural areas but a big ratio of the urban areas were also illiterate. It also took into account the problems of teacher training, medium of instruction, physical education, etc. (Bengali, 1999).

It was recommended in the conference that "Advisory Board of Education" would be formed. This advisory Board would work and examine all educational matters as well as provide informative and effective link for both the government and the public on educational issues. System of education would be based on Islamic Ideology. Urdu must be taught as compulsory language. It was proposed that council of technical

education would be established. Physical training at the school level would be made compulsory such as scouting, military drill, and swimming. Universities and colleges were directed for the provision of military training (Isani, 2001).

2.12.2 Commission on National Education 1959

This commission was another struggle for making the education system of the country in accordance with the ideological, economic and social need for a sovereign state. The Commission on National Education was approved by a resolution approved by the Government of Pakistan on 30th December, 1959. The main aim of the commission was to develop the system of education on strong foundations based on moral, spiritual and cultural values of a sovereign and Islamic state.

The role of higher education in meeting the challenges of the emerging needs of the nation was highly acknowledged by the Commission. The Commission recognized importance of higher education by stating that "No nation has ever been capable to make quick progress without durable system of higher education". Keeping in view the significance of higher education, the Commission suggested a series of reforms and recommendation for uplifting the status of higher education system of Pakistan, some of the major recommendations pertaining to development higher education are given in the following (Govt. of Pakistan, 1959).

i. Intermediate classes would be shifted from universities to Board of Secondary Education.
ii. Bachelor Degree courses would be drawn-out from two to three years.
iii. To develop higher education on sound foundations, University Grant Commission would be established in coming two to three years.
iv. A programme of guidance and counseling would be established.
v. Learners should not be allowed to participate in political activities.

vi. Research qualified experienced individuals would be allowed to teach at the Honors, Master`s and Doctorate levels.

vii. Higher education institutions i.e. universities should have strict rules regarding affiliation of colleges.

Professional Education: The Commission gave various types of recommendation regarding different fields in professional education. These fields include Engineering, Agriculture, Medical, Legal and commerce. Some of the major recommendations are given below:

(a) Engineering Education

i. For getting admission in engineering, the individual should have a certificate intermediate science along with passing of aptitude tests. These tests would supplement the examination result of the individuals.

ii. The minimum duration for engineering degree in all institution would be four years.

iii. Curricula must include 15% (of total subject matters) courses from social studies and humanities.

iv. Practical training and field work would be pre-requisite to the award of degrees.

v. University would conduct final comprehensive examinations, in which 75% weightage should be given to the record of periodical tests of the individual and 25% weightage would be given to class work/ activities.

vi. Post graduate courses would be launched in engineering collages on priority bases.

vii. Foreign teaching staff would be recruited, for which agentive/salary would be raised. Promising staff members would be sent to abroad for the purpose of higher study on study leave after completing a service of 5 to 7 years.

viii. Engineering collages would be detached or separated from the departmental control, so that both the teaching and research may be conducted at the same time in universities.

b) Agriculture Education

i. It was realized that Pakistan is an agricultural country. So it is imperative to bring positive reforms in this field.

ii. Course duration in agriculture would be five years after matriculation.

iii. Duration for M.Sc. courses should be two years and collages would start Ph.D. courses after a minimum period of two years after M.Sc. degree.

iv. Priority would be given to research and all teaching staff would be bound to conduct or supervise research. For this purpose, a Council of Agriculture Research would be established so that it may develop and coordinate programmes of research. Higher education institutions i.e. universities would be closely connected with the work of this council.

v. Agriculture University would be established in both East and West Pakistan.

c) Legal Education.

i. Minimum qualification for getting admission in Law Colleges would be Bachelor's degree from any faculty.

ii. L.L.B. course duration would be extended from 2 to three years.

iii. Provision would be made for innovative courses leading to two years master's degree and three years doctorate in at least one university in each Wing of Pakistan.

d) Commercial Education

i. Course work of Bachelor's degree should persist for three years while Master's degree course should be extended for a period of two years.

ii. Board of commercial examinations would be conducted in Karachi, East and West Pakistan with the assignment to frame curricula conduct examination and coordinate with professional organizations.

iii. At least one Commercial Institute would be established in East and West Pakistan in order to train teachers in commercial courses.

e) Medical Education

i. Admission in Medical colleges would be granted to individuals who complete 12 years education successfully. Weightage should be given to both H.S.C. result and aptitude tests.

ii. Syllabus of pre-medical courses would be reviewed and more emphases would be given to certain subjects such as Bio- chemistry.

iii. Efforts would be made for uplifting the standard of existing medical institutions and provisions would be made for conducting post-graduate training of specialists of premier standards.

Before the formulation of Commission report, a very comprehensive exercise was carried out; people from all walks of life were engaged in it. Resultantly, a complete report was succumbed to the government on August 26, 1959, with the intentions to restructure the existing education system in the light of recommendation made by the Commission. All the recommendation/suggestions were approved by the government on April 6, 1960. The next phase was to bring the recommendation into practice. All the recommendations made by the Commission were not implemented and majority of them were ignored, either due to unavailability of funds, unrealistic targets, lack of

suitable implementing machinery, huge population growth, lack of political support or lack of national commitment and determination in achieving the targets. However, some of the recommendations were implemented.

2.12.3 The New Education Policy 1970

The New Education Policy 1970 was approved by the cabinet on March 26, 1970. Reforms were suggested in the following major areas: (a) the function of education in the protection and transmission of Islamic values; (b) re-orientation of educational programmes as per the needs of society; (c) education of as a tool of social development; (d) significance of quality of education and performance of teacher in uplifting the quality of education; (e) devolution of educational administration, predominantly at higher level.

The "New Educational Policy 1970" deeply stressed on universal enrolment up to class V, by 1980. It was suggested to devolve the institutional administration so that community participation in the educational matters may be encouraged. For this purpose it was suggested that provinces should have an autonomous or independent district schools authorities, college authorities and educational services boards. The major suggestions of this policy explicit to higher education were as under:

i. Teaching research at post-graduate level would be highly strengthened. To do this university must develop Centre of Excellence in carefully selected disciplines.
ii. A National Research Fellowship Scheme was established. It was also advised to announce a scheme of national professorship and would be sponsored by central government.
iii. An instantaneous restructuring of curricula should be undertaken as per the national needs.

iv. New universities would be established in various regions of the country with careful planning.

v. A central university would be established in East Pakistan like Islamabad University.

vi. To meet the growing needs of higher education, new colleges would be established in all regions of the country.

vii. University must continue to associate colleges; however collages having long tradition of excellence must become autonomous institutions and in special cases, may be allowed by the parent university to lay down course of study. Such colleges should also be allowed to conduct own examination on the behalf of the parent university. Some nominated colleges would be permitted to open post-graduate departments, if needed.

viii. To uplift the quality of higher education in the country, teacher would be facilitated by improving their pay scale and service conditions. To improve educational and professional development, higher pay scale would be linked with qualification and research output.

The declaration of the New Education policy 1970 emerged with political unpredictability in the country. Uncertainty in political will did not even permit the Fourth Five Years Plan (1970-75) to be applied and resultantly the policy was failed to achieve the goals and targets. A new education policy was emerged as "Education policy 1972-80" under the new administration in the country.

2.12.4 The Education Policy (1972-80)

This policy made similar recommendation like Education policy 1970, but its distinction was the nationalization of the privately administered institutions. The

implementation of nationalization results in severe restriction on national exchequer. Recommendation related to higher education are given below:

i. Enrollment in arts would be increased to 5% per annum while in science it would be increased to 10% per annum.
ii. New institution i.e. universities at Multan, Sukkur and Saidu Sharif would be established.
iii. Jamia Islamia Bahawalpur would be upgraded to full-fledged university.
iv. University Grant Commission would be established, it would act like a buffer between the government and university administration.
v. Centers of excellence would be established in universities in the field of Chemistry, Mathematics, Physics, Irrigation, oil and Gas, etc.
vi. Institute of National Research Fellowship at universities and other suitable institutions would be sponsored, so that they may provide different facilities to the outstanding scholars. (Govt. of Pakistan, 72)

The Education Policy (1972-80) was implemented to some extent. The recommendation about the nationalization of private institutions was implemented. Enrolments were increased by 56% at university level. New six universities were established; it increased the total number of universities from 6 to 12. Campus colleges of engineering at Taxila and Nawabshah were also established (Isani, 2001).

2.12.5 National Education Policy 1979

The National Education Policy 1979 was presented on February 1979. The main purpose of this policy was the synchronization of education in Pakistan in accordance with the Islam and ideology of Pakistan. The important distinction of this policy was to introduce the "National Language" as medium of instruction in educational institutions so that the ideological foundation of the nation may be further

strengthened. Recommendations of National Education Policy 1979 specific to higher education are given below:

i. Degree colleges would consist of class XIII, XIV, XV and XVI.

ii. City or Towns, where there was more than one collage, teaching of science subjects would be merged in those collages.

iii. Co-curricular activities and cultural events would be encouraged at higher education institutions.

iv. Already existing Centre of Excellence at universities would be strengthened and five more Centre of Excellence would be established in the important declines.

v. Departments having the potentialities in research would be upgraded to Centre of Advance Studies for doctorate and post-doctorate.

vi. The curricula at graduate level would be revised and modified by the UGC as per the future needs and demands.

vii. The libraries of the universities would be well equipped.

viii. For admission in higher education institutions, a national testing system would be organized and launch.

ix. National Academy of Higher Education at UGC would conduct pre-service and in-service training for teachers.

x. Universities teacher would be permitted to condense advice-giving services to other agencies and organizations.

xi. A collaborative environment would be set up between engineering institution and their employer. For this purpose the Advisory Committee and Syndicates of the Engineering Universities would have representative from the industrial sector.

xii. On-job training would be vital for agriculture and engineering graduates.

As per the recommendations of the policy, Urdu was implemented as medium of instruction in government schools. On the other hand this policy encouraged the community for opening private schools and this reversed the policy of nationalization. At the same time these private institution were permitted to use English based of instruction. The purpose of this initiative was to train the individuals for foreign examinations. It created two different system of education in the Pakistan, one system of education for the elite classes while the other for rest of the nation. The planners of this education policy remained unaware that they have given birth to differential system of education in the same country (Isani, 2001).

2.12.6 National Education Policy 1992

National Education Policy 1992 was another attempt to design and restructure the system of education on modern lines after the comprehensive documents on education presented in 1959, 1972 and 1979. This document was presented in December, 1992 by the then Minister of Education, Syed Fakhar Imam. The main recommendations of policy specific to Higher Education Sector are as under:

i. Information retrieval centers would be established in all higher education institutions i.e. universities and these centers would be linked with the University Grant Commission.
ii. Special budget would be given for research.
iii. Many departments of universities would be upgraded to centers of advance studies in new discipline.
iv. Good university departments would be linked with the international institutions.

v. The performance of Pakistan Study Centers, Area Study Centers and Centers of Excellence would be reviewed in order to expedite M.Phil and PhD programmes.

vi. Centers of research on issues and problems of the community development would be established in universities.

vii. Teacher would be permitted to take part in international conferences and constraints of NOC in this matter would be lifted.

viii. More budget would be reserved for individuals to participate as university researchers in international conferences.

ix. All curricula would be reviewed and modernized so that new knowledge and new discipline may be accommodated.

x. Research allowances would be granted to university teachers supervising M.Phil and Ph.D. students

xi. On the basis of performance evaluation of teachers, reward and punishment will be granted through review boards already.

xii. Degree level education would be rationalized and expanded by announcing such course in three-year Honor's degree programme which may increase employment opportunities.

xiii. A National Council of Academic and Accreditation would be set up for the regulation of the academic matters of the private and public sector institutions possessing degree awarding status.

xiv. The UGC in collaboration with universities will organize a ten-year programme for the improvement of higher education in respect of manpower needs for industries.

xv. National Awards would be instituted for innovative research in the field of social sciences

xvi. Pakistan Study Centers and Area Study Centers would be further strengthened so that they may be able to undertake Ph.D. Programmes. Furthermore, Asian Study Centers would be expanded.

xvii. A Dean of Students Affairs would be appointed in every educational campus for regulating and promoting students` co-curricular activities. The Dean will also acts like Ombudsman to deal with the students` complaints.

xviii. The rule of 80% of class attendance would be strictly imposed.

xix. University-community interaction would be encouraged so that common issues and problems in the community may be projected and may be solved with the assistance of academic community (Govt. of Pakistan, 1992)

2.12.7 National Education Policy (1998-2010)

The National Education Policy (1998-2010) was announced on 27th March, the 100th death anniversary of Sir Syed Ahmad Khan, the great thinker and believer in the Muslim Community. Education recognized as the prime key to cultural, moral and socio-economic development of a nation. The major recommendation specific to higher education are given below:

Access

i. Efforts would be made to raise the enrollment in higher education from 2.6% to 7% of the age group (17-23) by the year 2010.

ii. Entry to higher education will be based on entrance tests.

iii. New and emerging disciplines would be introduced in public sector universities.

iv. Public sector universities would be supported to expand and broader their intake through establishment of additional campuses with necessary infrastructure.

v. To make our degree equivalent with the international standards as well as not disturbing academic practices, the following measures would be adopted:

   a. Government recruitment policy would be reviewed at suitable time to replace B.A. / B.Sc. by B.A. / B.Sc. Honors degree as minimum requirement for different jobs. B.A. / B.Sc. would be continued as at present.

   b. One year B.A. / B.Sc. (Honors) course after B.A / B.Sc. would be introduced in all the colleges.

vi. Teachers and nonacademic staff would be selected on merit.

vii. To attract highly skilled and qualified university teachers, they would be paid at higher rates than usual grades.

i. Curricula of the universities would be revised as per the need and demands of the industry and international standards.

Linkage with Industry

i. Universities-industries interaction would be encouraged so that the learners may use their learned knowledge to practical life problems.

ii. To achieve this goal, industrial research centers and technology and parks would be established in the universities.

iii. Commercialization of research work and the development of new technologies would be encouraged in the universities.

Faculty Development

i. Split PhD programmes would be introduced in association with abroad universities. Whereby, university teachers will assume a part of their degree programme in indigenous institutions, while the remaining course of study

would be completed. At minimum, 100 research scholars would be annually trained under this programme.

ii. Linkage programmes with foreign universities would be developed in order to promote academic mobility and international cooperation. This programme would support research cooperation, exchange of material, short-term and long-term visits of faculty members.

iii. A Teacher Service Training Academy would be established for delivering in-service training in the field. In-service training includes educational management i.e. administration and financial matters, teaching methods, curriculum development and research methodologies.

iv. Along with the existing tenure system, a contractual system of appointment for university and college teacher would be launched.

v. Initial appointment of university teacher (lecturer) would be in grade 18, university professor would be placed in grade 21 and meritorious professor would be in grade 22.

vi. The funding of education will be increased from the present amount of 2.2% of GNP to the amount of 4% with greater amount for universities.

2.12.8 National Education Policy 2009

This policy was emerged in a successions of other education policies dating back to the very beginning of the country in 1947. Ministry of Education (MoE) initiated the review process of the National Education Policy 1998-2010 in 2005 before the time horizon of the existing education policy. There were two reasons for the review of the existing policy before the time limit. First, the existing education policy was not delivering will to achieve the desired results and performances. In other words, multiple deficiencies were observed in some essential areas including quality, equity and access

of educational opportunities. Second, challenges at national and international level like Millennium Development Goals; Dakar Framework of Action Education for All (EFA) etc. resulted in the review of new policy document. The major recommendations made in respect of higher education are given blew:

i. Efforts would be made to raise enrollment in higher education sector from 4.7% to 10% by 2015 and 15% by 2020.

ii. Budget for higher education sector would be raised to 20% of the total budget allocated for education while the total allocated budget for education would be increased to 7% of GDP.

iii. Opportunities for post-graduate students and faculty would be provided to work with scholar community at world level.

iv. Indigenous and foreign scholarships for doctoral and post-doctoral pragamme would be awarded to talented students for faculty development.

v. A continuous professional development (CPD) programme would be prepared for the college and university teachers. This programme would include the practice of refresher courses i.e. subject-wise for college teachers. Education department of the concerned areas will be bound to train college teachers for in educational administration and pedagogical skills.

vi. To enhance access to higher education, need based scholarships programme would be develop and instituted.

vii. Existing university campuses would be established in second tier cities in order to facilitate the people for getting an easy access to higher education.

viii. University would adopt integrated four years Bachelor's degree programmes.

ix. The individuals who are selected for the post of lectures through PSC would be bound to complete a six month pre-service training in teaching methodologies and classroom assessment etc.

x. Accreditation council will be set up to accredit undergraduate programmes in different disciplines.

xi. Bachelor science education and other professional degree programmes would include certain subjects from social sciences so that the students may develop a balanced world view.

xii. Academia and research would be interconnected with the market, industry, commerce and agriculture.

xiii. Universities would be encouraged to build up split degree programmes in collaboration with high reputable foreign universities.

xiv. Universities of technology would be established in the country so that they may produce the required technologists for the industry.

xv. National Centers in the areas of economic significance would be marked and supported to compete in the global world.

2.13 Analysis of Higher Education in Pakistan

Higher Education in Pakistan has been remained one of the most important victims of media. Some people criticize the sector of higher education and raise questions about its development in Pakistan. Higher education system in Pakistan has undergone through many developmental stages or initiatives since the independence of Pakistan. At the time of independence (1947), Pakistan had only one public sector universities i.e. the University of the Punjab which was situated in Lahore, Pakistan. Another university i.e. the University of Sindh was created in 1951 in Karachi. University of Karachi was later on shifted to Hyderabad. After independence, these

universities took a start to deliver higher education to the citizen of Pakistan where most of the teachers in the institutions were Hindus. Those teachers who belonged to the Hindu community, they left these universities and shifted to the universities in India, this created further impediments and challenges for the new emerged state in delivering of higher education to the citizens. (Hoodbyoy, 2009).

Sharif Commission (1959) on education, was the first serious effort in the country for preparing an organized education system. The report under discussion was an effort to promote the sector of science education, agro-technical education, curriculum development, and 4-year programs for medicine and engineering. These proposals of the commission were much relevant, demand oriented. After this report, other policies were also emerge from time to time. The targets of all the policies were important for the overall system of education in the country but these were much specific to higher education. The stance of all these policies was to the extent of investment and sound planning which was found missing in the field of education, which could have made the higher education on track. However, the newly established universities in the country could not deliver because the problems confronted by earlier universities were not properly resoled (The Education Policy 1972-1980).

It is worth to mention here that only the educational policies would not be held responsible for not uplifting the sector of higher education in Pakistan. Educational plans emerged from time to time were also found inappropriate to the extent of implementation and uplifting the higher education in Pakistan. Educational plans did not point out core problems and issues faced by the higher education institutions. These issues and problem pertains to globalization, industrialization, quality of education and skills. Furthermore, lack of quality of teachers, non-motivated behavior of teacher, irrelevant content in view of the job market, ignoring the socio-physical, financial and

economic needs through the mode of education, gender disparities, class disparities, lack of student discipline, inadequate financial contribution toward education, and lack of research culture. Due to low rate of emoluments, lethargic types of promotions and lack of incentives, good teachers hesitates for working in the field of education. Besides these issues, there are some other factors which cause for un-satisfaction of students learning, they includes are; high teacher-student ratio, lack of conceptual learning, interference of politicians in the institutions, inappropriate transfers of teachers, lack of incentives. These regretful states of affair have given birth to a generation of degree holders with having the least skills or competencies for jobs in hand. (Asghar, Aamir & Asif, 2018)

These circumstances have given birth to such system of education which lacks the scientific and technical standards in education system in field. Besides this, concerns have been raised by the exerts from the last three decades that the skills including, writing skills, communication skills, languages competency and, the element of humanities have not been developed or less developed in the graduates in Pakistan. Along with other significant skills, educational programs in field could not manage to conduct training in marketing and entrepreneurship. The environment of illegal practices concluding corruption, cheating, and lack of merit have been made the situation worst. Universities in Pakistan could not redress the issues pertaining to globalization, creativity and innovations, corporate attentiveness, and the linkage of industries with the higher education institutions.

For example Huma (2012) criticized the existing higher education institutions in Pakistan and stated that "Universities in Pakistani are highly politicized, under resourced, poorly staffed, and incompetent of conducting original research". Sabri (2015) also expressed his concerns about the quality of education in the universities of

Pakistan. Shehnila (2014) stated that higher education institutions in Pakistan i.e. universities are in a poor state where they do not give attention to communicate and disseminate the research of their professors due to sluggishness, jealousy, and a deep-rooted. In this race of self-accentuation, Hoodbhoy (2013) also did not spare higher education institutions in Pakistan and deeply criticized two popular universities of Pakistan i.e. Quaid Azam University (QAU) Islamabad and Punjab University (PU) Lahore and declared them as examples of the academic dishonesty in research as well as in the evaluation of PhD thesis. He expressed his alarming views regarding Pakistani Universities and pointed out that "ethical and moral standards of university teachers in Pakistan are no more different from our policemen, shopkeepers and politicians". He further stated that the existing research in our universities is "kill count based on wholesale plagiarism" and this has shifted the academics ethics into a "free fall".

In response of the above mentioned concerns and criticism Malik (2016) argued that when we criticize the drawback and loophole in our education system but one thing should be kept in mind that our criticism must be productive and guidance oriented, suggesting a planning for the educational administrators and leaders so that they may modify their approaches to attain the desired goals and objectives. Unfortunately we become happy to be depressed and dissatisfied, like masochists. The reality is that great achievements are occurring around us every other instant but we do not give importance to these achievements. For example Quaid-Azam University has been graded as 496th among the 500 Best Global Universities of the world for the year 2015. The contribution of Pakistan's research has reached up by 300 percent. Scimago (an independent research organization and ranking platform) evaluates scientific output of institutes and countries by supervising over 30,000 journals, three countries i.e. Iran, Malaysia and Pakistan show the most radical increase in research rankings. Iran moves ahead from

number 19 to number 4, Malaysia from 30 to 13 and Pakistan from 43 to 27. Keeping in view rate of this progress, an estimated productivity of Pakistani research would move to 16 notches and that is the second highest increase at world level. It's all due to the new policies and improvements in higher education in Pakistan under the supervision of HEC. Scimago anticipates that by the year 2018, the research contribution of Pakistan will increased up to 29, 661 research publications.

The ongoing developments and reforms in higher education sector in Pakistan are highly acknowledged and appreciated at world level. According to Rode, (2008) "Never before I have seen such a speedy and positive changes in the higher education of any country as it was witnessed in Pakistan in a small period of six years. Around the whole world when we debate on the status of higher education in different countries, there is harmony of view that the developing country that has made the quickest progress globally in recent years is Pakistan."

Thus it is concluded that academic community in Pakistani is performing great job in spite of the limited resources. The hard work of our educational leaders, administrators and scholars are praiseworthy and should be stimulated and appreciated to the international community. So at the time of highlighting different problems and issues of our education system, it should be noted that we are required to motivate and expose the successes of our institution of higher education as well.

2.14 Issues to the Implementation of 21st Century Skills

To equip all students with the essential skills of the new millennium of 21st century, a transformational change of the existing education system is indispensable. It is because there are numerous issues and hurdles with the implementation of 21st century skills in educational institutions. This section reviews the issues and barriers facing our institutions in general and universities in particular for the implementation

of these skills. These issues may be included; (i) curriculum and instruction (ii) Professional development and (iii) Strategies and conditions for the implementation of these skills both at national and university level.

2.14.1 Curriculum and Instruction

Curriculum and instructional programs are the most significant pillars of any education system which provide students with knowledge and skills. It also provides students with an integrative attitude for success. Keeping in view the importance of these factors in implementation of 21st century skills, Dede (2011) argued that one of the most controversial issues is the role and place of these skills within the curriculum.

In this connection Trier (2002) suggested that the discourse of 21st century skills may be incorporated directly and explicitly in the curriculum at the time of curriculum development. Voogt and Roblin (2010) stated that there are multiple numbers of approaches given by different frameworks for curricular integration of 21st century skills. However, all frameworks of 21st century skills propose that 21st century skills call for significant and meaningful modifications in the curriculum. These important modifications are related to reorganizing the existing curriculum. Therefore, 21st century curriculum must concentrate on knowledge creation and motivate learners to generate such information that has meaning or value to them in order to build up novel skills. Curriculum must be linked with the real world problems and preparing individuals for adult life (Lombardi, 2007).

The standards are framed to be vigorous and relevant to the factual world, reflecting such skills and knowledge that our young generation would need for achievement in institutions as well as in careers and to compete successfully in the global economy" (Common Core State Standards Initiative (CCSSI 2010). Curriculum developers of P21 stated that the newly designed curriculum in 21st century should

allow learners to master and comprehend the essential academic knowledge. It should provide students with opportunities to study and develop different type literacies such as financial literacy, environmental literacy, health literacy and global awareness. Researchers examined that "multiliteracy" can enable the individuals to make up to date judgments that make them well prepared for the global challenges in the worldwide community and provide them with opportunities to be effective in the workplace (Wiggins & McTighe, 2005). Keeping in view the implementation of 21st century skills, today's` curriculum and educational verdicts must be revised and restructured thoroughly to assimilate future skills. Because these skills improve the level of achievement of students, promote their cognitive processes and construct new knowledge which prepare them skilful in their future careers.

The next issue to the implementation of 21st century skills is the instructional program in educational institutions. To cope with this issue, teachers must apply multiple methods and techniques for developing these skills because there is no single specific model or strategy or to attain this goal. Therefore, to equip the learners with 21st century skills it is also very imperative to use new methods of teaching and assessment procedures.

In this regard, teachers can play an important role in making individuals to develop new skills by applying such instructional methods and techniques that may increase their abilities. They must use ground-breaking type teaching strategies and new learning tools in order to combine both cognitive and social skills with content knowledge. Such types of innovative methods of teaching would also enhance participation of students in learning activities in order to uphold these future oriented skills.

There are numerous teaching approaches that can improve both content and students skills and engage learners in real life. These teaching strategies was further prioritized by P21 (2009) and stated that the attainment of 21st century skills can be best developed by result oriented pedagogic methods, such as PBL (problem-based learning), experiential learning, cooperative learning etc. To increase student learning and encourage the mastery of 21st century skills, the use of technological tools during teaching learning process is also indispensable

One such method is the method of problem-based learning. In this model, learners can be involved in discussion and analysis of multiple issues and problems. This method of teaching allows the learners to investigate real life problems, analyze data, and make judgments to find suitable solution to the problems. Research has proved that problem-based learning increases student's participation in routine based class activities and develops critical thinking of students (Joyce et al., 2009). Some researchers acknowledged a considerable relationship between the activities of problem-based learning and developing critical thinking skills (Drew, 2013). This method of teaching enables individuals to learn through creativity thinking as well as break through thinking hurdles to attain 21st century learning skills. By applying this strategy, teachers provide students with an opportunity to enhance their abilities in critical thinking, and societal interaction.

The next pedagogy for developing 21st century skills is cooperative learning. This teaching strategy divides learners into various groups having varied interests and abilities and has a magnificent effect on student's learning that provides typical outcomes. Working in groups is more creative than individual work because students' strengths and talents are integrated for achieving a goal or target. The diversity of students' abilities can promote creative work where "each and every individual brings

something to the table" (Knowlton, 2003). Trilling and Fadel (2009) argued that performing in various groups is very beneficial for students because it can develop multiple aspects e.g. mutual respect among members of team, required teamwork to accomplish a joint task. In addition, this method also causes collaborative learning which has a pleasant effect on learners` capabilities e.g. enhancing their enthusiasm and performance and creating social collaboration (Joyce et al., 2009).

The integration of teaching technology with the modern modes of instruction plays an important role for developing of 21st skills. In this connection, Jacobsen (2001) reasoned that the use of technological equipment in teaching learning process provide students with opportunity to involve in the real world problems. It also increases their understanding and enhances skill of creativity and innovation. Tools of multimedia are the best way to enhance students` motivation for learning by encouraging problem solving abilities, collaboration and innovation, stimulating cognitive processes as well as creating knowledge.

Keeping in view the above debate it is decided that 21st century curriculum and instruction delivers an integrative approach for success of students. In this regard, Rotherham and Willingham (2009) argued that the implementation of 21st century curriculum and instruction prepare our students for future challenges in the global word. Similarly forthcoming research should concentrate on the professional development of teacher so that they may be able to implement 21st century skills in their teaching strategies and incorporate it in multimedia tools. Beside this, future research should explore the impacts of 21st century curriculum and instruction on learners' academic, and social capabilities. Wiggins and McTighe (2005) argued that by combining both the essential academic content and essential 21st century skills, individuals can have an optimistic future. Furthermore, implementation of 21st century curriculum and

instruction is very crucial in training learners with the important future skills that will assist them satisfy their aspiration to be succeeded in the future.

2.14.2 Professional Development

Twenty-first century skills cannot be developed without well-trained and professionally sound teacher. It is because teachers' attitudes, competencies and practices are the leading factors in the teaching-learning process of 21st century education and these factors can be developed in teachers through specific and regular professional trainings. P21 acknowledges the vital role of instructors and the want for professional development for the implementation of 21st century skills. It also emphasizes the want for teachers to recognize the significance of 21st century skills and how to incorporate these skills into the curriculum. To do so teachers should be facilitated with proper up-to-date and result oriented professional trainings so that they aware about the importance of developing these skills in students.

Voogt and Roblin (2010) acknowledged that professional development of teacher and adequate support structures are playing an important role in the implementation of 21st century skills. However, it is worth to mention here that training programs should be planned in such a way that it may fully support the attainment of 21st century skills and may enhance pedagogical and technological knowledge of teachers. Teacher training programs must train the teachers to develop 21st century skills by themselves and to practice that how these skills can be develop in students.

It is worth to mention here that professional development training for teacher should be adopted at the stage pre-service as well as during in service. It is becomes the prime responsibility of teacher to develop 21st century skills themselves and to practice how these skills can be thought in the classroom. To facilitate teacher in developing 21st century skills, support structures should also be strengthened.

The National Education Census (2005) data and other research studies showed that the professional training of teachers in Pakistan is neither standardized nor it is based on acceptable professional standards. A number of other studies in the last three decades also pointed out that training of teacher professional developments are facing key issues and problems in Pakistan. Researchers of these studies acknowledged that the prevailing quality of teacher education in Pakistan is not up to the mark. A variety of factors have been pointed out in the research literature, for example, teacher professional training programs at primary school level are relics of "normal school model" taught in 19th century which is outdated. These outdated professional training programs do not make our teacher skillful to foster essential future skills like communication, critical thinking skills nor make them knowledgeable. The pedagogical skills taught at the professional training institutes are of passive nature, because they are unable to foster 21st century future skills in students. (Govt of Pakistan, 2009).

Keeping in view the importance of professional development of schools teachers in general and university teachers in particular for the development of 21st century skills the Government of Pakistan made some struggles to enhance the quality of education which has direct link with the quality of teacher education. To improve the quality of teachers, National Professional Standards for Teachers (NPSTs) were prepared. NPSTs were established by Policy and Planning Wing, Ministry of Education, in February 2009 with the technical support of UNESCO and financial support of USAID (Govt: of Pakistan 2009).

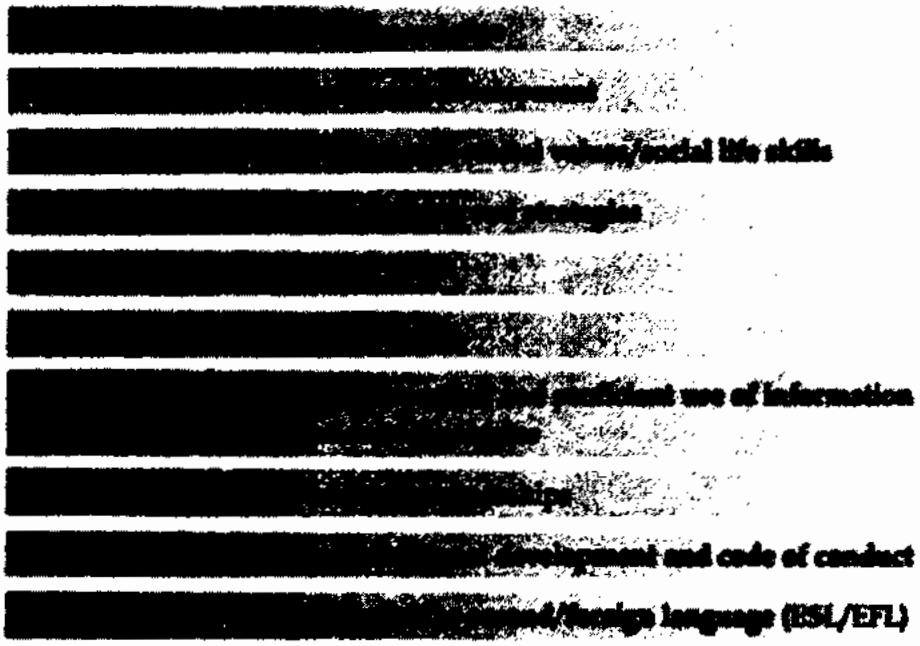

Fig 3.5: National Professional Standards for Teachers (NPSTs)

2.14.3 Insufficient Assessments

Assessment in education is of prime importance, whether it is made through standardized tests or classroom-based tests, in both cases it may be considered as a cornerstone for effective teaching-learning process. It is because that good assessments, not only give dependable and usable measure of student's learning but also it helps and guides the teachers as well as students about the ongoing teaching-learning process (P21, 2009).). Standardized tests usually measure only the essential knowledge and not the aptitude of individual to apply, analyze, and generate new knowledge. The high-stakes testing environment has contracted what is taught to the core knowledge that is tested (Silva, 2010).

The concept of 21st century skills has grown over the past decade; but still it needs much attention to implement these skills in educational institutions. There are different reasons for lack of implementation of these skills. One reason is the teachers`

differential beliefs about learning which give rise to varying classroom assessment practices (Swaffield, 2008). It is a fact that our teachers still adopt behavioristic views for curriculum and classroom assessment and still they are using summative assessments as the only methods to assess the learning outcome of students. However, 21st century skills, such as, communication and collaboration skills cannot be effectively assessed by using traditional method of assessment i.e. pen-and-paper examinations. For example, the traditional method of assessment i.e. pen-and-paper examination is unable to assess the skill of communication and collaboration because it is an individualistic attempt rather a team work. These skills can only be assessed when learners are expected to work in groups and learning take place collectively as a team in a classroom setting. Therefore, it is vital to mention here that 21st century skills can only be assessed when students work in small groups. Indeed, methods of classroom assessment must be changed in accordance with the changing needs of the 21st century education (Black & Wiliam, 1998).

Formative assessment is used for the assessment of learning process rather than product of learning while summative assessment is used to determine acquisition and application of students` knowledge. It is worth to mention here that for the implementation of 21st century education, we have to understand teachers' beliefs about students' learning and how these differential beliefs impact methods of assessment in schools. One of the main issues about the assessment of twenty first century skills is the spreading gap between the students` knowledge and skills which they acquire in schools. The ongoing assessment practices at educational institutions measure areas of content knowledge for example science, language, mathematics, arts and social studies. These prevailing assessment practices lack to measure and analyze 21st century skills. It is because that the current tests used for assessment fall short in

multiple ways i.e. these tests are not designed to measure that "to what extent students apply their learned knowledge to new circumstances or to appraise how learners might use educational technologies to cope with the daily life problems" (P21, 2009).

It is a challenge for educators at all level to modify the ongoing assessment practices in such a way that it may measure the essential skill of 21st century education. In this regard, both formative and summative assessments should be linked with core subject knowledge, learning and thinking skills, 21st century content, life skills and ICT literacy. It needs a meaningful commitment from educators as well as teaching community with the acknowledgment that the process of implementation will be slow and steady and will need various means of creation, assessment strategies. And implementation. To align the ongoing assessment practices with of 21st century skills, it is imperative to take the following initiatives: (i) create necessary standards: it is the responsibility of state to give necessary guidelines and standards for teachers to instigate the process assessments. (2) Develop, evaluate, implement, and improve assessment practices: A comprehensive plan must be developed for the implementation of assessment practices in classrooms and to appraise their usefulness as per the teaching approaches to achieve 21st century skills. Moreover, the assessments practices must be analyzed, in terms of their adherence to the given state standards, their effectiveness in enhancing teaching-learning process, and its effective usage in the classroom. It is worth to mention here that any or all of the above mentioned aspects will perhaps necessitate continuous modification and enhancement for some years before rightly effective assessment approaches can be realized. Furthermore, structured research, meetings with assessment professionals, and regular and multidisciplinary debates amongst different stakeholders will deliver a strong initial step towards the implementation of 21st century assessment practices. 3) Align assessments (formative

and summative) with 21st century curriculum and instruction. In several ways, assessment pushes what is taught, as institutes focus resources and time on the academic content. (4) Develop a professional development strategy: A professional development makes teachers skillful in assessing 21st century skills, especially formative type of assessment, is another important step in the process. Professional development improves different assessment strategies of teachers, develop multiple new capabilities, including assessment creation, analysis, teaching strategy adjustment and implementation.

CHAPTER 03

RESEARCH METHODOLOGY

The purpose of this mix methods research was to measure, analyze and examine multiple perspectives of universities` teachers, educational leaders (HoDs), students and NCRC members about the implementation of 21st century skills in the universities of Pakistan. The study was designed to gain a holistic perspective of the phenomenon regarding the implementation and development of 21stcentury skills at the universities of Pakistan. However, the study was delimited to the BS program (in the departments of Education and Management Sciences) in nine general public sector universities of Khyber Pakhtunkhwa. Twenty-first century skills proposed by the framework of "Partnership for 21st century learning" were used in this study. As the present study was a mix method study so both the quantitative and qualitative methods were used for the purpose of data collection. These methods of data collection were included (a) surveys (b) interview guide. Three different surveys were conducted for university teachers, students and members of NCRC while interview guide was used for educational leaders (HoDs). Data obtained from these methods furnished comprehensive information that how universities of Pakistan promote and implement 21st century skills to create 21st century citizens.

3.1 Research Design

A concurrent embedded mixed methods approach was adopted in this study. This strategy of mixed methods research provided researcher with broader perspective by using qualitative as well as quantitative method. Creswel (2009) argued that concurrent mix method model enables the researcher to collect two types of research

data simultaneously through a single phase of data collection. He further stated that one research method (qualitative or quantitative) in concurrent embedded mixed method strategy is treated as primary method while the other is treated as secondary method. Primary method guides the whole research process while the secondary method provides supporting role to the procedure. Secondary method is embedded or nested into the primary method.

In the present study, quantitative research method was taken as primary method which included three surveys for university teachers, students and NCRC members while the qualitative data was taken as secondary method which included individual interviews with educational leaders (HoDs). The secondary method (individual interviews) was embedded or nested into the primary method (survey). Thus the primary focus of this study was on the quantitative method of the research while the secondary focus was on qualitative method which is in the form individual interviews of HoDs.

The adopted research method (mixed-methods research design) for this study has started in the 1950s; however it gained dishonor in 1959 with a quantitative study by Campbell and Fisk (Creswell & Clark, 2007). It became popular during the period of 1970s and 1980s, and was used as an adequate research approach, particularly in the area of social sciences. Mixed methods research design provides the researcher with multiple perspectives for comprehensive understanding of research problem. It is because this method of research provides the researcher with positive characteristics of qualitative as well as quantitative research methods for understanding of the whole picture of research problem (Creswell, 2009). Furthermore, Creswel (2009) explained the concurrent mix methods research design in the following way.

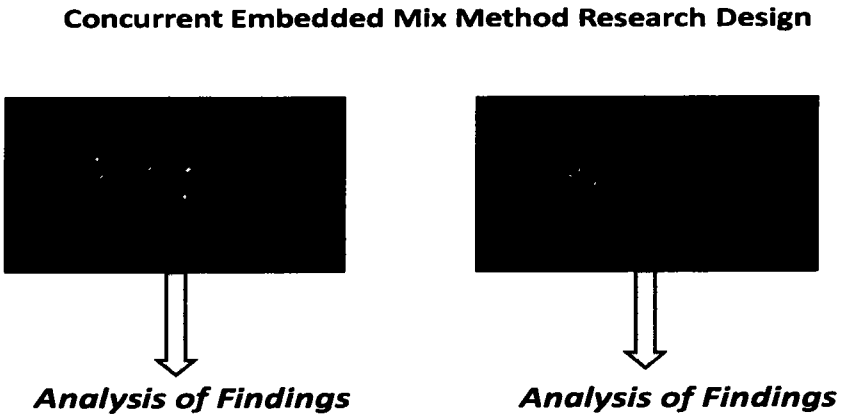

Figure 3.1: Concurrent Research Design

3.2 Universe of the Study

The present study was delimited to the nine general public sector universities of Khyber Pakhtunkhwa. The study was conducted for BS program in two the departments (Department of Education and Department of Management Sciences). However, nine general public sector universities had BS program in Department of Education and Department of Management Sciences. These universities were; University of Peshawar, Abdul Wali Khan University Mardan, University of Malakand, University of Sawat, Hazara University, Kohat University of Science and Technology, University of Science and Technology Bannu, University of Haripur and Gomal University D. I. Khan) of Khyber Pakhtunkhwa.

3.3 Population of the Study

The purpose of the study was to examine the viewpoints of universities teachers, heads of departments, students and NCRC members about the implementation of 21st century skills in the universities of Pakistan. So population of the study constituted 40 members of NCRC committee for the subjects of education and management sciences,

18 head of departments, 206 teachers and 578 students in the departments of education and management sciences of nine general public sector universities (University of Peshawar, Abdul Wali Khan University Mardan, University of Malakand, University of Swat, Hazara University, Kohat University of Science and Technology, University of Science and Technology Bannu, University of Haripur and Gomal University D. I. Khan)of Khyber Pakhtunkhwa. The whole population of the study had the same language same, religion (Islam), and almost the same age group. The students of BS programme were consisted of girls and boys, who belonged to almost same culture and society. Majority of the students were the residents of Khyber Pakhtunkhwa.

3.4 Sample of the Study

The sample of university teachers and students was selected through the proportionate stratified random sampling technique, while the sample of NCRC members and heads of department was selected through universal sampling techniques. According to Thomson (2002), stratified sampling technique is a sampling procedure which is based on probability distribution wherein, first the population is divided into homogeneous fragments (strata), and then a portion of sample is selected through a simple random sample technique is from each segments or fragments (stratum), while on the other hand, in proportionate stratified sampling technique, the number of elements assigned to the different strata is proportional to number of elements of the strata in the target population.

In this way, a sample of 251 students i.e. 40% of population (Table of sample size Krejcie & Morgan as appendix E) was selected from population of 578 students of BS programme from the departments of education and management sciences of the sampled universities. Similarly a sample of 146 students, 65% of population (Table of sample size Krejcie & Morgan as appendix E) was selected from population of 206

teachers at the department of departments. Furthermore, there were 18 heads of departments (Department of Education and Management Sciences) of above mentioned nine general public sector universities in Khyber Pakhtunkhwa and 40 NCRC members for the subjects of education and management sciences. All 40 NCRC members and 18 heads of department were selected through universal sampling technique. The detail of the sample size is given in the Table No 3.1

Table 3.1

Sampling size of research study

Sr.No.	***Target Group***	***Population***	***Sample size***
1	Students	578	251
2	Teachers	206	146
3	HoDs	18	18
4	NCRC Members	40	40
Total		842	455

3.5 Research Instrument

Questionnaires and interview guide were used as research instruments in this mixed method research study. Two online questionnaires (for teachers and NCRC members), one paper based questionnaire (for students) and one interview guide (for HoDs) were developed to collect the data from the concerned respondents. All three questionnaires were based on five point likert scales with the options as per the following detail:

Table 3.2 *Likert scale codes*

Sr.No.	Liker Scale Options	Numeric Codes
1	Always	5
2	Usually	4
3	Sometimes	3
4	Rarely	2
5	Never	1

The survey questions offered five choices, from a high of 5 to a low of 1. Fowler (1995) pointed out that the best way to use survey is to frame the questions of the survey in such a way that it inquires what the participants know, feel and perceive about that particular area. The questions in the survey were prepared in the light of the review literature regarding 21st century skills mentioned earlier.

All questionnaires were divided into three sections and each section covered a particular area of the 21st century skills. First portion of the survey was based on "learning ad innovation skills", second section was based on "Information, media and technology skills" while third section was based on "Life and career skills". Each section of the survey questions covers a particular area of the instructional activities which has direct or indirect link with the implementation of 21stcentury skills. To make comparative analysis of the NCRC members, teachers and student regarding implementation of 21st century skills, all three sections of questionnaires were developed with the same nature of questions. Keeping in view the validity and reliability of the research instrument, the surveys were piloted at selected universities.

Interview guide was developed for heads of department. Interview guide consisted of open-ended questions and were developed in the light of review of literature of the 21st century skills suggested by "Partnership for 21st century skills". Self-developed interview guide was also pilot tested in selected universities. Seidman, (2006) pointed out that open-ended questions provide the individual with the ability to take the lead and explore that particular subject matter in detail.

To triangulate the data obtained from the survey, individual interview were conducted with heads of departments. Triangulation is a process in which researchers use two or more than two research instruments for collection and analysis of data. In the present study, multiple tools were used to address the issues of reliability and validity. In this regard, Patton (2002) pointed out that the use of multiple tools allows the researcher to check consistencies and inconsistencies. Creswell (2009) argued that triangulation gives the researcher diverse or multiple ways of analyzing the same phenomenon. Triangulation enables the researcher to compare results from multiple sources and as result enhances the validity of the study. Keeping in view the importance of triangulation, the present study was triangulated with the help of two research instruments i.e. survey and interviews guide.

3.6 Reliability of the Research Instrument

These are those characteristics of the research instruments which always make sure the precision of the research findings. Being vital for any research study, the tools of present study were made reliable and validated. For this purpose the following steps were fulfilled:

i. Expert's Opinion

ii. Pilot Testing

iii. Application of Formula for Alpha value of Reliability

Further detail of validity and reliability of the research tools are discussed as under:

3.6.1 Expert's Opinion

3.6.1.1 Questionnaires. Questionnaires which were designed for university teacher, students and NCRC members, were handed over to 10 experts for granting their opinion to the extent to validity. In view of the opinions of the experts, the draft for questionnaires was amended wherein 36 questions were put for analyzing twelve 21st century skills, however the number of questions were increased to 48 questions (four questions for each skills). Similarly some of irrelevant components were omitted from the draft for questionnaires. Structure as well as order of the statements were suggested to be changed. In this way, the proposed changes were fully incorporated into the draft for questionnaires.

3.6.1.2 Interview Guide. A plan for interviews of HoDs were handed over to the team of experts having the relevant knowledge and experience for the purpose of validation. In the initial draft for interviews, 14 questions were put in the plan by the researcher as per the research objectives. However, in view of the opinion of the experts, the number of questions were reduced to 11 from 14 questions. In continuation these changes, some other minor changes in the draft were also suggested by the experts which were incorporated accordingly. Some statements were also changed in order to make them more expressive for interviewees.

3.6.1.3 Pilot Testing of Research Instruments. Pilot study of questionnaires developed for teacher, students and NCRC members was conducted at non-participating institutions (universities) i.e. Islamia Collage University Peshawar, Bacha Khan University Charsadda and Banazir Bhattu University. Twenty four students of BS programme, twelve university teachers and six heads of departments

from the above mentioned universities were selected for conducting of pilot testing. Five NCRC members were also selected for pilot testing. Online questionnaires were sent to university teacher and NCRC members and invited them for filling out. For student's survey the researcher visited personally to the selected universities and administered the questionnaire to the sample students. The questionnaires were collected from the respondents and data was coded to put into SPSS for fining out the reliability. According to analysis of reliability the alpha values for research tools of students, teacher and NCRC members are given in the following:

Table 3.3 *Cronbach Alpha*

Sr.No.	Questionnaire	Value
1	Teachers Questionnaire	0.86
2	Students Questionnaire	0.91
3	NCRC Members Questionnaire	0.89

To enhance the validity of the instruments, necessary amendments in the format, language and number of items on the basis of expert's opinion and pre-testing of the instrument were incorporated into the research tools with the permission of supervisor.

3.7 Data Collection

Keeping in view the nature of the study, multiple research tools were used for the purpose to collect quantitative data through questionnaires as well qualitative data through interview guide. They are briefly discussed in the following:

3.7.1 Quantitative Method of Data Collection

In order to collect quantitative data in the present study, three different questionnaires were administered among university teachers, students and NCRC

members. To increase the rate of participation, student's survey was made paper-based for which the researcher personally visited to the selected universities and invited BS students for filling out the given questionnaire. On the other hand surveys for NCRC members and university teachers were made on-line. Respondents were motivated for giving feedbacks by ensuring confidentiality for their responses. To get maximum feedback or responses, reminder e- mails were sent to the respondents from time to time.

3.7.2 Qualitative Method of Data Collection

Qualitative data was collected in the present study through interview guide. Interviews were conducted with 18 head of departments. Before conducting interviews, all the head department were fully briefed about the 21st century skills model used in the present study. To keep the discussion more focused and aligned with 21st century skills, a handout on 21st century skills based on the framework of "21st Century learning" was handed over to the interviewee prior to questioning in the interview. In interview guide, open-ended question were asked the respondents. Furthermore, all interviews were recorded with the consent of the participants while some of them were noted on paper. Each interview session was lasted from thirty to forty minutes.

3.8 Data Analysis

Data gathered from different respondents in the study were analyzed separately. "Statistical Package for the Social Sciences" software version 20 was used for the purpose of analysis. Multiple descriptive and statistical tools including mean, percentage and chi-square test goodness of fit were applied to analyze the data. The data was analyzed into the following two sections. These sections of analysis are mentioned ahead:

(a) In the first section of data analysis, the collected data through questionnaire from 231 students of BS programme, 135 teachers and 40 NCRC members, were analyzed and interpreted by applying multiple statistical tools. To make the analysis more logical and understandable, the data were organized, summarized and presented through frequency distribution tables, mean and percentage scores. Moreover, significance of the data was tested by applying chi-square test goodness of fit while comparisons among the variables were made with the help of percentage scores.

(b) In the second section of data analysis, the collected data through interview guide, was analyzed with the help of thematic analysis. In this method of analysis we first covert the data into coding. After coding the data, it is segregated by codes into data clumps for the purpose of analysis as well as description. Moreover, data analysis enables researcher to make sense of what he/she has learnt (Glesne, 2005). For this study, the Creswell's six steps model of qualitative data analysis was used for the purpose of analysis.

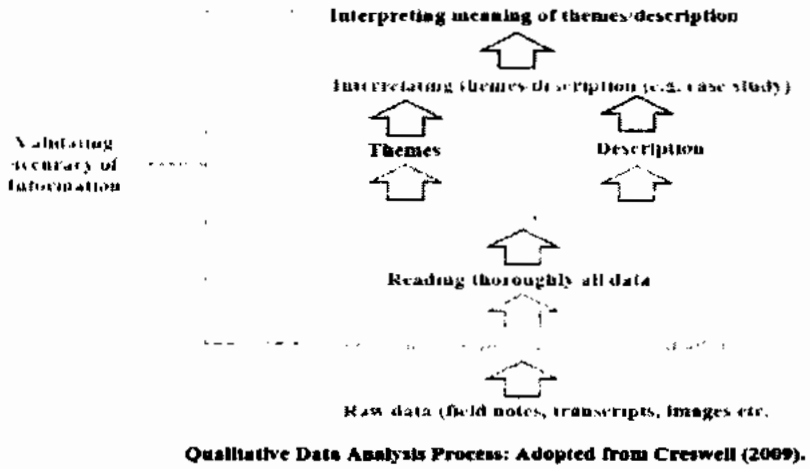

Figure 3.2 Data Analysis Process

These step are briefly discussed in the following

Step 1: Organization and preparation of data for analysis

It is the first phase for data analysis as per the above process of analysis. In this phase of data analysis, the collected data was transcribed and recorded interviews were converted to word document. All the information provided by the respondents were jotted down. Some of the collected information from the respondents were found irrelevant to the extent of research objective. In addition to this, the research noted down his own observation.

Step 2: Reading through all data

Creswell (2009) stated that through this step of interview analysis, complete sense of the information or reflection of the overall opinions of the respondents are occurred. Therefore, the whole collected data from the participants were read thoroughly by the researcher in order to understand the overall sense of the collected information.

Step 3: Coding the data

In this step of interview analysis, the collected information were coded in the light of the research questions of the study. The most appropriate and significant information was coded with specific name. During coding of collected data, focus was made on the information which was aligned with the research questions. Furthermore, the researcher also focused on those ideas which more frequently furnished by the participants as well as quoted by the published articles and reports etc. Regardless of the respondent's opinion, the researcher tried his best to stay unbiased and prioritize and honor their responses only.

Step 4: Generate Themes

As in the first step the data was transcribed, in the second phase it was read thoroughly and in the third step data were fitted in codes i.e. axial coding, open coding, selective coding. The next step was generate and develop the main themes of

the data. To do this the whole coded data was thoroughly examined, fitted together and then the themes were generated.

Step 5: Interrelating the themes and description

After developing the themes, the meaning or ideas were inferred from the already generated themes so that to get a comprehensive descriptions of the overall opinions of the respondents.

Step 6: Interpreting the meaning of themes/description

Finally the available themes and description were interpreted for reaching to logical conclusion in light of research objectives.

3.9 Discussion

Teaching 21st Century skills has become more important than ever before because 21st Century students have been thrived in a world where change is continued and constant while the learning never stops and business community in 21st Century demands for workforce, equipped with these skills. In view of the importance of 21st century teaching, the present study was conducted to gain a holistic perspective of the phenomenon regarding the implementation and development of 21st century skills at the universities of Pakistan. Both the quantitative and qualitative approaches were used to examine the teaching practices in field, in higher education institution.

Population of the study included students, teachers and NCRC members. A question arises that why employers were not included in the population of the study? which seems to be a mismatch in the present study between what we teach in our universities and what the employer expect. In response to this, it is mandatory to clarify here that the present study was conducted to the extent of teaching practices in universities to examine that to what extent teaching practices were aligned with

developing of 21st century skills students. That is why employers were not included in the present study.

Responses of the participants were collected through online questionnaires, paper based questionnaires and through interview guide, irrespective of their gender i.e. male or female. This is because the main venture of the study was to examine the ongoing teaching practices in universities that whether these practices are aligned with the development of 21st century skills or otherwise. Therefore, the opinion of the respondents were collected from the students regardless of their gender that whether they were male or female, and it declares the present study as genderless study.

Respondents were motivated for giving feedbacks by ensuring confidentiality for their responses. To get maximum feedback or responses, contacts through reminder e- mails etc. were made with the respondents from time to time and resultantly maximum participation of the respondents was made possible in the process of data collection. Multiple descriptive and statistical tools including mean, percentage and chi-square test goodness of fit were applied to analyze quantitative data while the qualitative data was analyzed and interpreted by making multiple themes of the responses of the interviewees.

CHAPTER 04

ANALYSIS AND INTERPRETATION

This chapter deals with in-depth analysis and interpretation of the data gathered in the research study. The study was designed to gain a holistic viewpoint of universities` teachers, educational leaders (HoDs), students and NCRC members about the implementation of 21st century skills in the universities of Pakistan. For this purpose, a worldly known comprehensive educational framework named "The Partnership for 21st Century Learning (P21)" was used as a model for 21st century skills in the study. Three set of skills, given by the framework of P21 were taken as "21st century skills" in this study.

The study was conducted to achieve the following research objectives:

(1) To examine the existing programs and practices at the universities and their relations with 21st century skills.

(2) To evaluate the potential of Pakistan universities regarding the implementation of 21st century skills

(3) To highlight the challenges being faced by universities regarding the implementation of 21st century skills

(4) To explore practicable strategies for implementation of 21st century skills in Pakistan universities

Data gathered from different respondents in the study were analyzed separately. The analyzed data has presented in the following two sections: (i) in the first section, quantitative data which was collected through questionnaires from 231 students, 135 teachers and 40 NCRC members were analyzed and interpreted. (ii) Second section of

data analysis deals with the qualitative data collected through interviews with 18 heads of departments (HoDs).

4.1 Analysis of Quantitative Data

Three different self-developed questionnaires were administered to the 251 students of BS programme, 146 teachers and 40 NCRC members. Questionnaires for teachers and students were administered online whereas for students it was made paper based. After collection of data, responses of student, teachers and NCRC members were statistically analyzed and interpreted by using appropriate statistical tools. For the purpose of analysis and interpretation, researcher used "Statistical Package for the Social Sciences" software version 20. The data were interpreted as mentioned ahead:

Table 4.1

Developing students' ability to ask critical questions

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	57	86	49	30	09	3.66	72.61	0.004
	Percentage	25%	37%	21%	13%	04%			
Teacher	Frequency	33	54	25	18	05	3.56	49.40	0.001
	Percentage	24%	40%	19%	13%	04%			
NCRC Members	Frequency	15	12	07	05	01	3.89	15.50	0.007
	Percentage	38%	30%	18%	13%	03%			
Total	Frequency	105	152	81	53	15	3.70		
	Percentage	26%	37%	20%	13%	4%			

Table 4.1 shows respondents' views about development of students' ability to ask critical questions. It demonstrates that most of students (62%), teachers (64%) and NCRC members (68%) supported the statement that BS programme developed students' ability to ask critical questions. On the whole, majority of the respondents (63%) were in favor of the statement. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 72.61, 49.40 and 15.50 with p-values of 0.004, 0.001and 0.007 respectively. Responses of students, teachers and NCRC members regarding the statement were found significant because all the mentioned p-values were smaller than the assumed level of significance i.e. 0.05.

Table 4.2

Developing students' ability to solve and analyze problems

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	50	103	43	29	06			
							3.70	111.7	0.002
	Percentage	22%	43%	19%	13%	03%			
Teacher	Frequency	30	59	26	16	04			
							3.68	62.70	0.005
	Percentage	22%	44%	19%	10%	03%			
NCRC Members	Frequency	10	14	08	06	02			
							3.60	10.6	0.004
	Percentage	25%	35%	20%	15%	05%			
Total	Frequency	90	176	77	51	12			
							3.66		
	Percentage	22%	42%	19%	13%	4%			

Table 4.2 depicts respondents' views about development of students' ability to solve and analyze problems. It describes that the majority of students (65%), teachers (66%)

and NCRC members (68%) supported the statement that BS programme developed students' ability to solve and analyze problems. By and large, majority of the respondents (64%) gave opinion in favor of the statement. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 111.7, 62.70 and 10.6 with p-values of 0.002, 0.005 and 0.004 respectively. Responses of students, teachers and NCRC members regarding the statement were found significant because all the mentioned p-values were smaller than the assumed level of significance i.e. 0.05.

Table 4.3

Developing students' ability to write home assignments

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	66	93	44	21	06			
	Percentage	29%		40%	18%	09%	3.81 04%	99.9	0.002
Teacher	Frequency	44	55	22	10	04			
	Percentage	33%	41%	16%	07%	03%	3.93	71.0	0.001
NCRC Members	Frequency	19	11	05	04	02			
	Percentage	45%	28%	13	10%	05%	3.97	21.3	0.003
Total	Frequency	129	159	71	35	12			
	Percentage	32%	39%	17%	09%	03%	3.90		

Table 4.3 portrays respondents' opinions about development of students' ability to write home assignment. It shows that large number of students (69%), teachers (74%) and NCRC members (73%) supported the statement that BS programme developed students' ability to write home assignment. On the whole, greater number of the

respondents (71%) was in favor of the statement. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 99.9, 71.0 and 21.3 with p-values of 0.002, 0.001and 0.003 respectively. Responses of students, teachers and NCRC members regarding the statement were found significant because all the mentioned p-values in the above table are smaller than the assumed level of significance i.e. 0.05.

Table 4.4

Developing students' ability to generate active learning activities

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	74	84	42	23	08	3.84	91.3	0.006
	Percentage	32%	36%	18%	10%	04%			
Teacher	Frequency	47	50	23	11	04	3.95	64.1	0.001
	Percentage	35%	37%	17%	08%	03%			
NCRC Members	Frequency	16	12	06 04	02		3.89	17.0	0.004
	Percentage	40%	30%	15%	10%	05%			
Total	Frequency	137	146	71	38	14	3.90		
	Percentage	34%	36%	17%	09%	04%			

Table 4.4 reveals respondents' views about development of students' ability to generate active learning activities. It depicts that more than half of students (68%), teachers (72%) and NCRC members (70%) responded in favor of the statement that BS programme developed students' ability to generate active learning activities. By and large, greater number of the respondents (70%) supported the statement. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are

91.3, 64.1 and 17.0 with p-values of 0.006, 0.001 and 0.004 respectively. Responses of students, teachers and NCRC members regarding the statement were found significant because all the mentioned p-values were smaller than the assumed level of significance i.e. 0.05.

Table 4.5

Developing students' ability to think of several creative solutions to problems

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	26	35	52	82	36	2.84	7.05	0.062
	Percentage	11%	15%	23%	35%	16%			
Teacher	Frequency	14	27	28	42	24	2.74	8.96	0.083
	Percentage	10%	20%	21%	31%	18%			
NCRC Members	Frequency	18	08	06	06	02	2.63	15.25	0.005
	Percentage	45%	20%	15%	15%	05%			
Total	Frequency	58	70	86	130	62	3.73		
	Percentage	14%	17%	21%	32%	15%			

Table 4.5 displays respondents' opinions about development of students' ability to think of several creative solutions to problems. It shows that large number of students (51%) and teachers (49%) were against the statement while the majority of NCRC members (56%) were in favour of the statement. By and large, greater numbers of the respondents (47%) were against the statement by arguing that BS programme in universities did not develop students' ability to think of several creative solutions to problems. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 7.05, 8.96 and 15.25 with p-values of 0.062, 0.083 and 0.005

respectively. Responses of students and teacher were found were insignificant because the mentioned p-values were smaller than the assumed level of significance i.e. 0.05. However, responses of NCRC members about the statement were found significant because the mentioned p-value for NCRC members was smaller than the assumed level of confidence i.e. 0.05.

Table 4.6

Developing students' ability to work on projects

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	25	40	57	72	37	2.76	10.05	0.067
	Percentage	11%	17%	25%	31%	16%			
Teacher	Frequency	13	22	33	32	35	2.60	9.60	0.082
	Percentage	10%	16%	23%	24%	26%			
NCRC Members	Frequency	17	10	05	04	04	2.20	15.75	0.003
	Percentage	43%	25%	13%	10%	10%			
Total	Frequency	55	72	95	108	76	2.52		
	Percentage	14%	18%	22%	27%	19%			

Table 4.6 illustrates respondents' views about development of students' ability to work on projects. It describes that majority of students (47%) and teachers (50%) opposed the statement while majority of NCRC members (68%) supported the statement. On the whole, most of the respondents (46%) were against the statement by arguing that BS programme in universities did not develop students' ability to work on projects. Moreover, calculated values of chi-square statistic for students, teachers and NCRC membersare10.05, 09.60 and 15.75 with p-values of 0.067, 0.082 and 0.003

respectively. Responses of students and teachers regarding the statement were found insignificant because the mentioned p-values for students and teacher were greater than the assumed level of significance i.e. 0.05. However, responses of NCRC members about the statement were found significant because the mentioned p-value for NCRC members was smaller than the assumed level of confidence i.e. 0.05.

Table 4.7

Developing students' ability to take initiatives in solving problems

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	23	29	49	92	38	2.80	9.95	0.132
	Percentage	10%	13%	21%	40%	16%			
Teacher	Frequency	11	25	23	51	25	2.76	11.35	0.075
	Percentage	08%	19%	17%	38%	19%			
NCRC Members	Frequency	15	11	05	06	03	2.65	14.65	0.005
	Percentage	38%	28%	13%	15%	07%			
Total	Frequency	49	65	77	149	66	3.73		
	Percentage	12%	16%	19%	37%	16%			

Table 4.7 presents respondents' opinions about development of students' ability to take initiatives in solving problems. It depicts that greater number of students (59%), and teachers (56%) were against the statement while the majority of NCRC members were in favour of the statement. By and large, large number of the respondents (53%) opposed the statement by arguing that BS programme in universities did not develop students' ability to take initiatives in solving problems. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 9.95, 11.35 and 14.65

with p-values of 0.132, 0.075 and 0.005 respectively. Responses of students and teachers regarding the statement were found insignificant because the mentioned p-values for students and teacher were smaller than the assumed level of significance i.e. 0.05. However, responses of NCRC members were found significant because the p-value for NCRC members was smaller than the assumed level of significance i.e. 0.05.

Table 4.8

Developing students' ability to complete routine tasks within deadline

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	56	99	46	23	07	3.75	107.3	0.031
	Percentage	24%	43%	20%	10%	03%			
Teacher	Frequency	34	55	29	12	05	3.60	57.25	0.012
	Percentage	25%	41%	22%	10%	04%			
NCRC Members	Frequency	10	11	14	03	02	3.66	13.75	0.038
	Percentage	25%	28%	35%	08%	05%			
Total	Frequency	100	165	89	38	14	3.67		
	Percentage	25%	41%	22%	09%	03%			

Table 4.8 illustrates respondents' opinions about development of students' ability to complete routine tasks within deadlines. It shows that most of the students (67%), teachers (61%) and NCRC members (53%) were in favor of the statement. On the whole, majority of the respondents (65%) supported the statement that BS programme in universities develop students ability' to complete routine tasks within deadlines. Moreover, calculated values of chi-square statistic for students, teachers and NCRC membersare107.3, 57.25 and 13.75 with p-values of 0.021, 0.012 and 0.038

respectively. Responses of students, teachers and NCRC members regarding the statement were found significant because the mentioned p-values for students, teacher and NCRC members were found smaller than the assumed level of significance i.e. 0.05.

Table 4.9

Developing students' ability to take part in active listening activities

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	47	75	65	32	12	3.49	55.30	0.004
	Percentage	20%	33%	28%	14%	05%			
Teacher	Frequency	31	45	34	19	06	3.56	33.11	0.017
	Percentage	23%	33%	25%	14%	04%			
NCRC Members	Frequency	07	12	10	07	04	3.27	24.75	0.014
	Percentage	18%	30%	25%	18%	10%			
Total	Frequency	85	132	109	58	22	3.44		
	Percentage	22%	33%	27%	14%	05%			

Table 4.9 depicts respondents' views about development of students' ability to take part in active listening activities. It describes that more than half of the students (63%), teachers (56%) and NCRC members (48%) were in favour of the statement. By and large, majority of the respondents (55%) supported the statement that BS programme in universities developed students' ability to take part in active listening activities. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 55.30, 3.11 and 24.75 with p-values of 0.004, 0.017 and 0.0014

respectively. The responses of students, teachers and NCRC members regarding the statement were found significant because all the mentioned p-values in the table were less than the assumed level of significance i.e. 0.05.

Table 4.10

Developing students' ability to deliver classroom presentations

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	57	86	49	30	09	3.66	72.62	0.002
	Percentage	25%	37%	21%	13%	04%			
Teacher	Frequency	33	54	25	18	05	3.58	49.04	0.017
	Percentage	25%	40%	19%	13%	04%			
NCRC Members	Frequency	09	15	07	07	02	3.54	11.00	0.027
	Percentage	23%	38%	18%	18%	05%			
Total	Frequency	99	155	81	55	16	3.63		
	Percentage	24%	38%	20%	14%	04%			

Table 4.10 shows respondents' opinions about development of students' ability to deliver classroom presentations. It displays that most ofthe students (62%), teachers (65%) and NCRC members (61%) were in favour of the statement. By and large, majority of the respondents (62%) supported the statement that BS programme in universities developed students' ability to deliver classroom presentation. Moreover, the calculated values of chi-square statistic for students, teachers and NCRC members are 72.62, 49.04 and 11.00 with p-values of 0.002, 0.017 and 0.027 respectively. Responses of students, teachers and NCRC members regarding the statement were

found significant because the mentioned p-values for students, teacher and NCRC members were found smaller than the assumed level of significance i.e. 0.05.

Table 4.11

Developing students' ability to take part in classroom discussions

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	50	103	43	29	06	3.70	111.7	0.002
	Percentage	22%	46%	19%	13%	03%			
Teacher	Frequency	30	59	26	16	05	3.26	62.37	0.017
	Percentage	22%	44%	19%	12%	04%			
NCRC Members	Frequency	10	14	08	06	02	3.50	10.00	0.040
	Percentage	25%	35%	20%	15%	05%			
Total	Frequency	90	176	77	50	13	3.48		
	Percentage	22%	43%	19%	13%	03%			

Table 4.11 depicts respondents' views about development of students' ability to take part in classroom discussion. It shows that majority of students (68%), teachers (66%) and NCRC members (57%) were in favour of the statement. On the whole, most of the respondents (65%) supported the statement that BS programme in universities developed students' ability to take part in classroom discussions. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are111.7, 62.37 and 10.00 with p-values of 0.002, 0.017 and 0.040 respectively. Responses of students, teachers and NCRC members regarding the statement were found significant because

the mentioned p-values for students, teachers and NCRC members were less than the assumed level of significance i.e. 0.05.

Table 4.12

Developing students' ability to communicate effectively in multicultural environment

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	66	93	42	21	09	3.81	99.97	0.008
	Percentage	29%	40%	18%	09%	10%			
Teacher	Frequency	44	55	22	10	04	3.97	70.96	0.011
	Percentage	33%	41%	16%	07%	03%			
NCRC Members	Frequency	18	11	05	04	02	3.93	21.25	0.031
	Percentage	45%	28%	20%	10%	05%			
Total	Frequency	128	159	69	35	15	3.90		
	Percentage	32%	39%	17%	09%	04%			

Table 4.12 demonstrates respondents' views about development of students' ability to communicate effectively in multicultural environment. It portrays that large number of students (69%), teachers (74%) and NCRC members (73%) were in favour of the statement. On the whole, greater number of the respondents (71%) supported the statement that BS programme in universities developed students' ability to communicate effectively in multicultural environment. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 99.97, 70.96 and 21.25 with p-values of 0.008, 0.011 and 0.031 respectively. Responses of students, teachers and NCRC members regarding the statement were found significant because

the mentioned p-values for students, teacher and NCRC members were smaller than the assumed level of significance i.e. 0.05.

Table 4.13

Developing students' ability to work with team members on projects

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	36	85	52	32	26	2.31	28.25	0.013
	Percentage	16%	37%	23%	14%	11%			
Teacher	Frequency	42	40	28	14	11	3.19	46.65	0.021
	Percentage	31%	30%	21%	10%	08%			
NCRC Members	Frequency	15	11	08	04	02	3.62	17.25	0.005
	Percentage	38%	27%	20%	10%	05%			
Total	Frequency	93	136	88	50	39	3.04		
	Percentage	23%	33%	22%	12%	10%			

Table 4.13 displays respondents' views about development of students' ability to work with team members on project. It shows that more than half of the students (53%), teachers (61%) and NCRC members (65%) were in favour of the statement. By and large, majority of the respondents (56%) supported the statement that BS programme in universities developed students' ability to work with team members on projects. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 28.25, 46.65 and 17.25 with p-values of 0.013, 0.021 and 0.05 respectively. Responses of students, teachers and NCRC members about the statement

were found significant because the mentioned p-values for students, teachers and NCRC members were smaller than the level of significance i.e. 0.05.

Table 4.14

Developing students' ability to contribute individually to the team work

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	20	33	57	84	37	2.21	28.25	0.063
	Percentage	09%	14%	25%	36%	16 %			
Teacher	Frequency	13	22	33	32	35	2.17	41.65	0.078
	Percentage	10%	16%	25%	24%	26%			
NCRC Members	Frequency	17	10	05	05	03	3.20	14.75	0.003
	Percentage	42%	25%	13%	13%	08%			
Total	Frequency	50	65	95	121	75	2.52		
	Percentage	12%	16%	23%	30%	18%			

Table 4.14 demonstrates respondents' opinions about development of students' ability to contribute individually to the team work. It depicts that most of the students (52%) and teachers (50%) were against the statement while majority of the NCRC members (67%) were in favour of the statement. On the whole, majority of the respondents (48%) were against the statement and BS programme in universities did not develop student' ability to contribute individually to the team work. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 28.25, 41.78 and 14.75 with p-values of 0.063, 0.078 and 0.003 respectively. Responses of students and teachers regarding the statement were found insignificant because the mentioned p-

value for students and teachers were greater than the assumed level of significance i.e. 0.05. However, responses of NCRC members regarding the statement were found significant because the mentioned p-value for NCRC members was smaller than the assumed level of confidence i.e. 0.05.

Table 4.15

Developing students' ability to set up interconnected learning with classmates

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	25	47	61	75	23	2.90	13.25	0.089
	Percentage	11%	20%	26%	33%	10%			
Teacher	Frequency	13	27	32	41	22	2.76	16.65	0.077
	Percentage	10%	20%	24%	30%	16%			
NCRC Members	Frequency	15	10	06	06	03	3.02	09.75	0.006
	Percentage	38%	25%	15%	15%	08%			
Total	Frequency	53	84	99	122	48	3.09		
	Percentage	13%	21%	24%	30%	12%			

Table 4.15 depicts respondents' opinions about development of students' ability to set up interconnected learning networks with classmates. It describes that large number of students (43%) and teachers (46%) were against the statement while most of the NCRC members (63%) supported the statement. On the whole, majority of the respondents (42%) were against the statement that BS programme in universities developed students' ability to set up interconnected learning networks with classmates. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are

13.25, 16.65 and 9.75 with p-values of 0.089, 0.077 and 0.006 respectively. Responses of students and teachers regarding the statement were found insignificant because the mentioned p-values for students and teacher were greater than the assumed level of significance i.e. 0.05. However, responses of NCRC members about the statement were found significant because the mentioned p-value for NCRC members was smaller than the assumed level of confidence i.e. 0.05.

Table 4.16

Developing students' ability to connect with peers by using e-mail, video conferencing, social media etc.

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	26	45	52	82	26	2.84	19.23	0.074
	Percentage	11%	20%	23%	36%	11%			
Teacher	Frequency	14	27	28	42	24	2.74	11.65	0.091
	Percentage	10%	20%	21%	31%	18%			
NCRC Members	Frequency	03	04	10	15	08	3.02	07.35	0.119
	Percentage	08%	10%	25%	38%	20%			
Total	Frequency	53	84	99	122	48	2.86		
	Percentage	13%	21%	24%	30%	12%			

Table 4.16 shows respondents' views about development of students' ability to connect with peers by using e-mail, video conferencing, social media etc.It describes that Most of the students (47%), teachers (49%) and NCRC members (58%) were against the statement. On the whole, majority of the respondents (42%) were against the statement by arguing that BS programme in universities did not develop students' ability to

connect with their peers by using e-mail, video conferencing, social media etc. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 19.23, 11.65 and 21.35 with p-values of 0.074, 0.091 and 0.119 respectively. Responses of students, teachers and NCRC members regarding the statement were found insignificant because the mentioned p-values for students, teachers and NCRC members were greater than the assumed level of significance i.e. 0.05.

Table 4.17
Developing students' ability to search and access relevant information

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	24	25	59	99	24	2.67	11.21	0.107
	Percentage	10%	11%	35%	43%	10%			
Teacher	Frequency	12	27	35	39	22	2.76	10.61	0.081
	Percentage	09%	20%	26%	29%	16%			
NCRC Members	Frequency	04	06	12	11	07	2.62	5.75	0.219
	Percentage	10%	15%	30%	28%	18%			
Total	Frequency	40	58	106	149	53	2.86		
	Percentage	10%	14%	26%	37%	13%			

Table 4.17 describes respondents' views about development of students' ability to search and access of relevant information. It depicts that large number of students (53%), teachers (45%) and NCRC members (46%) were not in favor of the statement. On the whole, most of the respondents (50%) were against the statement by arguing

that BS programme in universities did not develop students' ability to search and access of relevant information. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 11.21, 10.61 and 5.75 with p-values of 0.107, 0.081 and 0.219 respectively. Responses of students, teachers and NCRC members regarding the statement were found insignificant because the mentioned p-values students, teachers and NCRC members were greater than the assumed level of significance i.e. 0.05.

Table 4.18

Developing students' ability to evaluate and assess obtained information

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	19	23	61	91	37			
							2.55	13.41	0.125
	Percentage	08%	10%	26%	39%	16%			
Teacher	Frequency	11	20	37	32	35			
							2.56	11.25	0.132
	Percentage	08%	15%	27%	24%	26%			
NCRC Members	Frequency	06	04	07	15	08			
							2.20	9.56	0.098
	Percentage	15%	10%	18%	28%	30%			
Total	Frequency	36	47	105	138	80			
							2.49		
	Percentage	09%	12%	25%	34%	20%			

Table 4.18 shows respondents' views about development of students' ability to evaluate and assess obtained information. It demonstrates that more than half of the students (55%) teachers (50%) and NCRC members (58%) were not in favor of the statement. On the whole, majority of the respondents (64%) opposed the statement by arguing that

BS programme in universities did not develop students' ability to evaluate and assess the obtained information. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 13.41, 11.25 and 09.56 with p-values of 0.125, 0.132 and 0.098 respectively. Responses of student, teachers and NCRC members regarding the statement were found insignificant because the mentioned p-values for student, teachers and NCRC members were greater than the assumed level of significance i.e. 0.05.

Table 4.19

Developing students' ability to classify, manipulate and store the collected information

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	24	47	60	77	23	2.89	19.32	0.117
	Percentage	10%	20%	26%	33%	10%			
Teacher	Frequency	12	27	33	41	22	2.75	17.85	0.067
	Percentage	09%	20%	24%	30%	16%			
NCRC Members	Frequency	06	04	07	11	12	2.62	8.25	0.083
	Percentage	15%	10%	18%	28%	30%			
Total	Frequency	42	78	100	129	57	2.49		
	Percentage	10%	19%	25%	32%	14%			

Table 4.19 depicts respondents' views about development of students' ability to classify, manipulate and store the collected information. It shows that most of the students (43%), teachers (46%) and NCRC members (58%) were against the statement.

On the whole, majority of the respondents (46%) discarded the statement by arguing that BS programme in universities did not develop students' ability to classify, manipulate and store the collected information. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 19.32, 17.85 and 8.25 with p-values of 0.117, 0.067 and 0.083 respectively. Responses of all students, teachers and NCRC members regarding the statement were found insignificant because the mentioned p-values for students, teachers and NCRC members were greater than the assumed level of significance i.e. 0.05.

Table 4.20

Developing students' ability to apply the collected information for solving problems

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	26	45	52	82	26	2.76	19.32	0.126
	Percentage	11%	19%	23%	36%	11%			
Teacher	Frequency	14	27	28	42	24	2.31	14.96	0.105
	Percentage	10%	20%	21%	31%	18%			
NCRC Members	Frequency	05	06	06	15	08	2.72	6.83	0.091
	Percentage	13%	15%	15%	38%	20%			
Total	Frequency	42	78	100	129	57	2.49		
	Percentage	10%	19%	25%	32%	14%			

Table 4.20 shows respondents' views about development of students' ability to apply the collected information for solving problems. It demonstrates that large number of students (47%) teachers (49%) and NCRC members (58%) were against the statement.

On the whole, majority of the respondents (46%) discarded the statement by arguing that BS programme in universities did not develop students' ability to apply the collected information for solving problems. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 19.32, 14.96 and 06.83 with p-values of 0.126, 0.105 and 0.091 respectively. Responses of student, teachers and NCRC members regarding the statement were found insignificant because the mentioned p-values for student, teachers and NCRC members were greater than the assumed level of significance i.e. 0.05.

Table 4.21

Developing students' ability to create knowledge by using technologies

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	26	35	52	92	26	2.27	19.35	0.191
	Percentage	11%	15%	23%	40%	12%			
Teacher	Frequency	11	10	28	44	42	2.11	22.65	0.132
	Percentage	18%	07%	21%	33%	31%			
NCRC Members	Frequency	04	03	08	15	10	2.32	11.25	0.085
	Percentage	10%	08%	20%	38%	25%			
Total	Frequency	41	48	88	151	78	3.23		
	Percentage	10%	12%	22%	37%	19%			

Table 4.21 displays respondents' views about development of students' ability to create knowledge by using technology. It shows that more than half of the students (62%), teachers (64%) and NCRC members (63%) gave opinion against the statement. On the

whole, the majority of respondents (56%) rejected the statement by arguing that BS programme in universities did not develop students' ability to create knowledge by using technologies. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 19.35, 22.65 and 11.25 with p-values of 0.091, 0.132 and 0.085 respectively. Responses of student, teacher and NCRC members regarding the statement were found insignificant because the mentioned p-values for student, teacher and NCRC members were greater than the assumed level of significance i.e. 0.05.

Table 4.22

Developing students' ability to use technologies i.e. Internet, laptop, eTablets and smart phone etc. effectively for learning purposes.

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	20	33	57	84	37	2.21	15.25	0.063
	Percentage	09%	14%	25%	36%	16%			
Teacher	Frequency	13	22	33	32	35	2.17	12.65	0.078
	Percentage	10%	16%	25%	24%	26%			
NCRC Members	Frequency	05	03	05	17	10	3.20	09.75	0.143
	Percentage	13%	08%	13%	43%	25%			
Total	Frequency	38	58	95	133	82	2.52		
	Percentage	09%	14%	23%	33%	20%			

Table 4.22 demonstrates respondents' views about development of students' ability to use technologies i.e. Internet, laptop, eTablets and smart phone etc. effectively for learning purposes. It shows that most of the students (62%), teachers (50%) and NCRC members

(68%) gave opinions against the statement. On the whole, the majority of the respondents (53%) discarded the statement that BS programme in universities did not develop students' ability to use technologies i.e. Internet, laptop, eTablets and smart phone etc. effectively for learning purposes. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 15.25, 12.65 and 09.75 with p-values of 0.063, 0.078 and 0.143 respectively. Responses of students, teachers and NCRC members regarding the statement were found insignificant because the mentioned p-values for students, teacher and NCRC members were greater than the assumed level of significance i.e. 0.05.

Table 4.23

Developing students' ability to set up peer learning networks through technologies

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	25	47	61	75	23	2.90	12.25	0.089
	Percentage	11%	20%	26%	33%	10%			
Teacher	Frequency	13	27	32	41	22	2.76	17.65	0.077
	Percentage	10%	20%	24%	30%	16%			
NCRC Members	Frequency	04	05	08	14	09	3.02	10.75	0.082
	Percentage	10%	12%	20%	35%	23%			
Total	Frequency	53	79	101	130	54	3.09		
	Percentage	10%	19%	25%	32%	13%			

Table 4.23 depicts respondents' views about development of students' ability to setup peer learning networks through technologies. It describes that large number of students

(43%), teachers (46%) and NCRC members (58%) were against the statement. On the whole, the majority of the respondents (45%) rejected the statement that BS programme in universities did not develop students' ability to set up peer learning networks through technologies. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 12.25, 17.65 and 10.75 with p-values of 0.089, 0.077 and 0.082 respectively. Responses of students, teachers and NCRC members regarding the statement were found insignificant because the mentioned p-values for students, teacher and NCRC members were greater than the assumed level of significance i.e. 0.05.

Table 4.24

Developing students' ability to understand the legal/ethical issues regarding the access and use of technologies

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	10	18	52	105	46	2.84	09.23	0.114
	Percentage	04%	07%	23%	45%	20%			
Teacher	Frequency	14	27	28	42	24	2.74	07.65	0.091
	Percentage	10%	20%	21%	31%	18%			
NCRC Members	Frequency	04	06	07	12	11	3.02	05.35	0.142
	Percentage	10%	15%	18%	30%	28%			
Total	Frequency	28	51	87	159	81	2.86		
	Percentage	07%	13%	21%	39%	20%			

Table 4.24 shows respondents' views about development of students' ability to understand the legal/ethical issues regarding the access and use of technologies. It demonstrates that most of the students (65%), teachers (49%) and NCRC members

(58%) were against the statement. On the whole, the majority of respondents (59%) discarded the statement that BS programme in universities did not develop students' ability to understand the legal/ethical issues regarding access and use of technologies. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 09.23, 07.65 and 05.35 with p-values of 0.114, 0.091 and 0.142 respectively. Responses of students, teachers and NCRC members regarding the statement were found insignificant because the mentioned p-values for teachers and NCRC members were greater than the assumed level of significance i.e. 0.05.

Table 4.25

Developing students' ability to analyze and evaluate media messages

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	09	16	59	108	39	2.59	06.11	0.126
	Percentage	09%	10%	26%	44%	12%			
Teacher	Frequency	11	29	25	48	22	2.67	11.62	0.067
	Percentage	08%	21%	26%	36%	16%			
NCRC Members	Frequency	03	05	11	12	09	2.55	06.35	0.108
	Percentage	08%	13%	27%	30%	23%			
Total	Frequency	34	57	95	161	59	2.60		
	Percentage	08%	14%	23%	40%	15%			

Table 4.25 describes respondents' views about development of students' ability to analyze and media messages. It shows that more than half of the students (56%), teachers (52%) and NCRC members (53%) were against the statement. On the whole,

majority of the respondents (55%) rejected the statement that BS programme in universities did not develop students' ability to analyse and evaluate media messages. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 06.11, 11.62 and 06.35 with p-values of 0.126, 0.067 and 0.108 respectively. Responses of students, teachers and NCRC members regarding the statement are insignificant because the mentioned p-values for students, teachers and NCRC members are greater than the assumed level of significance i.e. 0.05.

Table 4.26

Developing students' ability to create media messages

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	19	23	61	91	37			
	Percentage	08%	10%	26%	39%	16%	2.45	10.41	0.106
Teacher	Frequency	11	20	37	32	35			
	Percentage	08%	15%	27%	24%	26%	2.21	08.25	0.072
NCRC Members	Frequency	06	04	07	15	08			
	Percentage	15%	10%	18%	28%	30%	2.39	12.56	0.128
Total	Frequency	36	47	105	138	80			
	Percentage	09%	12%	25%	34%	20%	2.35		

Table 4.26 shows respondents' views about development of students' ability to create media messages. It depicts that greater number of students (55%) teachers (50%) and NCRC members (58%) opposed the statement. On the whole, majority of the respondents (54%) discarded the statement that BS programme in universities did not

develop students' ability to create media messages. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 10.41, 08.25 and 12.56 with p-values of 0.106, 0.072 and 0.128 respectively. Responses of student, teachers and NCRC members regarding the statement were found insignificant because the mentioned p-values were greater than the assumed level of significance i.e. 0.05.

Table 4.27

Developing students' ability to utilize the most suitable tools of media

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	24	47	60	77	23	2.49	17.32	0.140
	Percentage	10%	20%	26%	33%	10%			
Teacher	Frequency	12	27	33	41	22	2.26	14.75	0.113
	Percentage	09%	20%	24%	30%	16%			
NCRC Members	Frequency	06	04	07	11	12	2.51	9.35	0.149
	Percentage	15%	10%	18%	28%	30%			
Total	Frequency	42	78	100	129	57	2.42		
	Percentage	10%	19%	25%	32%	14%			

Table 4.27 depicts respondents' views about development of students' ability to utilize the most suitable tools of media. It shows that majority of students (43%), teachers (46%) and NCRC members (58%) were against the statement. On the whole, majority of the respondents (46%) rejected the statement that BS programme in universities did not develop students' ability to utilize the most suitable tools of media. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are

17.32, 14.75 and 9.35 with p-values of 0.140, 0.113 and 0.149 respectively. Responses of students, teachers and NCRC members regarding the statement were found insignificant because the mentioned p-values were greater than the assumed level of significance i.e. 0.05.

Table 4.28

Developing students' ability to understand ethical and legal issues regarding the access and use of media

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	26	45	52	82	26	2.83	20.22	0.069
	Percentage	11%	19%	23%	36%	11%			
Teacher	Frequency	14	27	28	42	24	2.74	15.56	0.085
	Percentage	10%	20%	21%	31%	18%			
NCRC Members	Frequency	05	06	06	15	08	2.62	11.23	0.181
	Percentage	13%	15%	15%	38%	20%			
Total	Frequency	42	78	100	129	57	2.73		
	Percentage	10%	19%	25%	33%	14%			

Table 4.28 shows respondents' views about development of students' ability to understand ethical/legal issues regarding the access and use of media. It demonstrates that most of the students (47%) teachers (49%) and NCRC members (58%) opposed the statement. On the whole, majority of the respondents (47%) rejected the statement that BS programme in universities did not develop students' ability to understand ethical and legal issues about the access and use of media. Moreover, calculated values

of chi-square statistic for students, teachers and NCRC members are 20.22, 15.56 and 11.23 with p-values of 0.069, 0.085 and 0.181 respectively. Responses of student, teachers and NCRC members regarding the statement were found insignificant because the mentioned p-values were greater than the assumed level of significance i.e. 0.05.

Table 4.29
Developing students' ability to appreciate and reply to the feedback in a positive manner

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	57	86	49	30	09	3.64	52.61	0.005
	Percentage	25%	37%	21%	13%	04%			
Teacher	Frequency	33	54	25	18	05	3.58	44.40	0.003
	Percentage	24%	40%	19%	13%	04%			
NCRC Members	Frequency	15	12	07	05	01	3.88	17.50	0.007
	Percentage	38%	30%	18%	13%	03%			
Total	Frequency	105	152	81	53	15	3.71		
	Percentage	26%	37%	20%	13%	4%			

Table 4.29 demonstrates respondents' views about development of students' ability to appreciate and reply to the feedback in a positive manner. It depicts that more than half of the students (62%), teachers (64%) and NCRC members (68%) gave opinion in favor of the statement. On the whole, majority of the respondents (63%) supported the statement that BS programme in universities developed students' ability to appreciate and reply to the feedback in a positive manner. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 52.61, 44.40 and 17.50 with p-values of 0.005, 0.031and 0.007 respectively. Responses of students, teachers

and NCRC members regarding the statement were found significant because the mentioned p-values for students, teachers and NCRC members were smaller than the assumed level of significance i.e. 0.05.

Table 4.30

Developing students' ability to work and adjust themselves in a changing situation or environment

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	50	103	43	29	06	3.60	89.7	0.002
	Percentage	22%	43%	19%	13%	03%			
Teacher	Frequency	30	59	26	16	04	3.78	62.70	0.005
	Percentage	22%	44%	19%	10%	03%			
NCRC Members	Frequency	10	14	08	06	02	3.68	19.60	0.004
	Percentage	25%	35%	20%	15%	05%			
Total	Frequency	90	176	77	51	12	3.64		
	Percentage	22%	42%	19%	13%	4%			

Table 4.30 shows respondents' views about development of students' ability to work and adjust themselves in a changing situation or environment. It shows that most of the students (65%), teachers (66%) and NCRC members (60%) were in favor of the statement. On the whole, majority of the respondents (66%) supported the statement that BS programme in universities developed students' ability to work and adjust themselves in a changing situation or environment. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 89.7, 62.70 and 19.60 with p-values of 0.002, 0.005 and 0.004 respectively. Responses of students, teachers

and NCRC members regarding the statement were found significant because the mentioned p-values for students, teachers and NCRC members were smaller than the assumed level of significance i.e. 0.05.

Table 4.31

Developing students' ability to incorporate the desired or proposed changes in the given tasks

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	66	93	44	21	06	3.81	78.9	0.004
	Percentage	29%	40%	18%	09%	04%			
Teacher	Frequency	44	55	22	10	04	3.93	81.0	0.001
	Percentage	33%	41%	16%	07%	03%			
NCRC Members	Frequency	19	11	05	04	02	3.97	22.3	0.002
	Percentage	45%	28%	13%	10%	05%			
Total	Frequency	129	159	71	35	12	3.90		
	Percentage	32%	39%	17%	09%	03%			

Table 4.31 portrays respondents' views about development of students' ability to incorporate the desired or proposed changes in the given tasks. It depicts that majority of students (69%), teachers (74%) and NCRC members (73%) were in favor of the statement. On the whole, majority of the respondents (71%) supported the statement BS programme in universities developed students' ability to incorporate the desired or proposed changes in the given tasks. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 78.9, 81.0 and 22.3 with p-values of 0.004, 0.001and 0.002 respectively. Responses of students, teachers and NCRC

members regarding the statement were found significant because the p-values for students, teachers and NCRC members were smaller than the assumed level of significance i.e. 0.05.

Table 4.32
Developing students' ability to get feedback immediately when they do right or wrong during solving problems

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	74	84	42	23	08	3.84	81.3	0.003
	Percentage	32%	36%	18%	10%	04%			
Teacher	Frequency	47	50	23	11	04	3.95	74.1	0.002
	Percentage	35%	37%	17%	08%	03%			
NCRC Members	Frequency	16	12	06	04	02	3.89	18.0	0.005
	Percentage	40%	30%	15%	10%	05%			
Total	Frequency	137	146	71	38	14	3.90		
	Percentage	34%	36%	17%	09%	04%			

Table 4.32 reveals respondents' views about development of students' ability to get feedback immediately when they do right or wrong during given tasks. It shows that greater number of students (68%), teachers (72%) and NCRC members (70%) gave opinion in favor of statement. On the whole, majority of the respondents (70) supported the statement that BS programme in universities developed students' ability to get feedback immediately when they do right or wrong during giving tasks. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 81.3, 74.1 and 18.0 with p-values of 0.003, 0.002 and 0.005 respectively. Responses of

students, teachers and NCRC members regarding the statement were found significant because the mentioned p-values for students, teachers and NCRC members were smaller than the assumed level of significance i.e. 0.05.

Table 4.33
Developing students ' ability to solve problems and work on project independently

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	46	115	34	20	16	3.30	28.25	0.044
	Percentage	20%	50%	15%	09%	07%			
Teacher	Frequency	42	40	28	14	11	3.29	36.65	0.031
	Percentage	31%	30%	21%	10%	08%			
NCRC Members	Frequency	15	11	08	04	02	3.52	17.25	0.004
	Percentage	38%	27%	20%	10%	05%			
Total	Frequency	103	166	70	38	29	3.37		
	Percentage	25%	42%	17%	09%	07%			

Table 4.33 displays respondents' views about development of students' ability to work on project independently. It describes that more than half of the students (70%), teachers (61%) and NCRC members (65%) were in favor of the statement. On the whole, majority of the respondents (67%) supported the statement that BS programme in universities developed students' ability to solve problems and work on project independently. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 28.25, 36.65 and 17.25 with p-values of 0.044, 0.031 and 0.04 respectively. Responses of students, teachers and NCRC members regarding the

statement were found significant because the mentioned p-value for students, teachers and NCRC members were smaller than the assumed level of significance i.e. 0.05.

Table 4.34

Developing students' ability to take initiative in solving problems and working on projects

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	74	84	42	23	08	3.7	495.3	0.004
	Percentage	32%	36%	18%	10%	04%			
Teacher	Frequency	47	50	23	11	04	3.85	66.1	0.008
	Percentage	35%	37%	17%	08%	03%			
NCRC Members	Frequency	16	12	06	04	02	3.79	27.0	0.003
	Percentage	40%	30%	15%	10%	05%			
Total	Frequency	137	146	71	38	14	3.80		
	Percentage	34%	36%	17%	09%	04%			

Table 4.34 demonstrates respondents' views about development of students' ability to initiate work on project. It shows that majority of the students (68%), teachers (72%) and NCRC members (70%) were in favor of the statement. On the whole, majority of the respondents (70%) supported the statement that BS programme in universities developed students' ability to initiate work on projects by themselves. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 95.30, 66.10 and 27.0 with p-values of 0.004, 0.008 and 0.003 respectively. Responses of students, teachers and NCRC members regarding the statement were found

significant because the mentioned p-values for students, teacher and NCRC members were smaller than the assumed level of significance i.e. 0.05.

Table 4.35

Developing students' ability to set goals for completion of tasks

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	25	47	61	75	23	2.90	13.73	0.088
	Percentage	11%	20%	26%	33%	10%			
Teacher	Frequency	13	27	32	41	22	2.76	14.15	0.097
	Percentage	10%	20%	24%	30%	16%			
NCRC Members	Frequency	15	10	06	06	03	3.02	12.35	0.007
	Percentage	38%	25%	15%	15%	08%			
Total	Frequency	53	84	99	122	48	3.09		
	Percentage	13%	21%	24%	30%	12%			

Table 4.35 depicts respondents' views about development of students' ability to set goals for completion of given tasks. It demonstrates that most of the students (43%) and teachers (46%) were against the statement while majority of NCRC members were in favor of the statement. On the whole, majority of the respondents (42%) rejected the statement that BS programme did not develop students' ability to set goals for completion of given tasks. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 13.73, 14.15 and 12.35 with p-values of 0.088, 0.097 and 0.007 respectively. Responses of students and teachers regarding the statement were found insignificant because the mentioned p-values for students and

teacher were greater than the assumed level of significance i.e. 0.05. However, the responses of NCRC members about the statement were found significant because the mentioned p-value for NCRC members was smaller than the assumed level of confidence i.e. 0.05.

Table 4.36

Developing students' ability to take in time action to solve problems

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	46	105	42	22	16	2.74	47.05	0.002
	Percentage	20%	45%	18%	10%	07%			
Teacher	Frequency	24	49	28	20	14	2.64	58.06	0.003
	Percentage	18%	36%	21%	15%	10%			
NCRC Members	Frequency	18	08	06	06	02	2.83	23.25	0.009
	Percentage	45%	19%	15%	15%	05%			
Total	Frequency	88	162	76	48	32	3.73		
	Percentage	22%	40%	18%	12%	08%			

Table 4.36 displays respondents' views about development of students' ability to take in time action to solve problem. It shows that more than half of the students (65%), teachers (54%) and NCRC members (64%) were in favor of the statement. On the whole, majority of NCRC members (62%) supported the statement that BS programme in universities developed students' ability to take in time action to solve problems. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 47.05, 58.0 and 23.25 with p-values of 0.002, 0.003 and 0.009 respectively. Responses of students, teachers and NCRC members regarding the

statement were found insignificant because the mentioned p-values for students, teacher and NCRC members were greater than the assumed level of significance 0.05.

Table 4.37

Developing students' ability to work effectively in diverse team

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	26	35	52	92	26	2.26	09.45	0.103
	Percentage	11%	15%	23%	40%	12%			
Teacher	Frequency	42	40	28	14	11	3.28	42.04	0.044
	Percentage	31%	30%	21%	10%	08%			
NCRC Members	Frequency	15	11	08	04	02	3.58	16.23	0.008
	Percentage	38%	27%	20%	10%	05%			
Total	Frequency	83	86	88	110	39	3.04		
	Percentage	20%	21%	22%	27%	10%			

Table 4.37 displays respondents' views about development of students' ability to work effectively in diverse team. It shows that large number of students (52%) was against the statement while the majority of teachers (61%) and NCRC members (65%) were in favor of the statement. On the whole, majority of the respondents (41%) supported the statement that BS programme in universities developed students' ability to work effectively in diverse team. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 09.45, 42.04 and 16.23 with p-values of 0.103, 0.044 and 0.08 respectively. Student responses regarding the statement were found insignificant because the mentioned p-value for students is greater than the

assumed level of significance i.e. 0.05. On the other hand, responses of teachers and NCRC members about the statement were found significant because p- values for teachers and NCRC members were smaller than the level of significance i.e. 0.05.

Table 4.38

Developing students' ability to interact effectively with team members

Data Source		Always	Usually	Sometimes	Rarely	Never	Chi-Square	Mean Square	P-Value
Students	Frequency	40	113	37	24	17	2.21	38.25	0.033
	Percentage	17%	49%	16%	10%	07%			
Teacher	Frequency	33	39	28	20	15	2.17	51.65	0.048
	Percentage	24%	29%	21%	15%	11%			
NCRC Members	Frequency	17	10	05	05	03	3.20	18.75	0.003
	Percentage	42%	25%	13%	13%	08%			
Total	Frequency	90	162	70	49	35	2.52		
	Percentage	22%	40%	17%	12%	09%			

Table 4.38 demonstrates respondents' views about development of students' ability to interact effectively with team members. It shows that majority of students (66%), teachers (53%) and NCRC members (67%) gave their opinions in favor of the statement. On the whole, 62% of all the respondents supported the statement that BS programme in universities developed students' ability to interact effectively with team members. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 38.25, 51.65 and 18.75 with p-values of 0.033, 0.048 and 0.003 respectively. Responses of students, teachers and NCRC members were found significant because their p-values were smaller than the assumed level of significance.

Table 4.39

Developing students' ability to set up interconnected learning with classmates

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	21	41	67	75	27	2.82	14.25	0.087
	Percentage	09%	18%	26%	32%	12%			
Teacher	Frequency	13	27	32	41	22	2.66	19.65	0.057
	Percentage	10%	20%	24%	30%	16%			
NCRC Members	Frequency	15	10	06	06	03	3.20	08.75	0.006
	Percentage	38%	25%	15%	15%	08%			
Total	Frequency	53	84	99	122	48	2.89		
	Percentage	13%	21%	24%	30%	12%			

Table 4.39 depicts respondents' views about development of students' ability to set up interconnected learning networks with classmates. It shows that most of the students (44%) and teachers (46%) were against the statement while majority of NCRC members (63%) were in favor of the statement. On the whole, majority of the respondents (42%) rejected the statement by arguing that BS programme in universities did not developed students' ability to set up interconnected learning with their classmates. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 14.25, 19.65 and 08.75 with p-values of 0.087, 0.057 and 0.006 respectively. Responses of students, teachers and NCRC members regarding the statement were found insignificant because the mentioned p-values for students and teacher were greater than the assumed level of significance i.e. 0.05. On the other hand, responses of NCRC members about the statement were found significant because the

mentioned p-value for NCRC members was smaller than the assumed level of confidence i.e. 0.05.

Table 4.40

Developing students' ability to connect with peers by using e-mail, video conferencing, social media etc.

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	23	39	52	84	33	2.74	17.23	0.094
	Percentage	10%	17%	23%	36%	14%			
Teacher	Frequency	14	27	28	42	24	2.74	10.65	0.081
	Percentage	10%	20%	21%	31%	18%			
NCRC Members	Frequency	10	12	13	02	03	3.02	07.35	0.019
	Percentage	25%	30%	33%	05%	08%			
Total	Frequency	47	78	93	128	60	2.86		
	Percentage	12%	19%	23%	32%	15%			

Table 4.40 shows respondents' views about development of students' ability to connect with peers by using e-mail, video conferencing, social media etc. It demonstrates that majority of students (50%) and teachers (49%) were against the statement while majority of NCRC members (55%) were in favor of the statement. On the whole, majority of the respondents (47%) rejected the statement by arguing that BS programme in universities did not developed students' ability to connect with their peers by using e-mail, video conferencing, social media etc. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 17.23, 10.65 and 07.35 with p-

values of 0.094, 0.081 and 0.019 respectively. Responses of student, teachers regarding the statement were found insignificant because the mentioned p-values for teachers and NCRC members were greater than the assumed level of significance i.e. 0.05. On the other hand, responses of NCRC members regarding the statement were found significant because the p- value for NCRC members was smaller than the level of significance i.e. 0.05.

Table 4.41

Developing students' ability to work on routine tasks positively and ethically

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	45	77	65	30	14	3.46	52.30	0.014
	Percentage	19%	33%	28%	13%	06%			
Teacher	Frequency	29	45	34	15	12	3.50	43.11	0.027
	Percentage	21%	33%	25%	11%	09%			
NCRC Members	Frequency	07	12	10	07	04	3.27	14.75	0.011
	Percentage	18%	30%	25%	18%	10%			
Total	Frequency	85	132	109	58	22	3.41		
	Percentage	22%	33%	27%	14%	05%			

Table 4.41 depicts respondents' views about development of students' ability to work on routine tasks positively and ethically. It describes that the large number of students (52%), teachers (54%) and NCRC members (48%) were in favor of the statement. On the whole, majority of the respondents (55%) supported the statement that BS programme in universities developed students' ability to work on routine tasks

positively and ethically. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 52.30, 43.11 and 14.75 with p-values of 0.014, 0.027 and 0.0011 respectively. The responses of students, teachers and NCRC members regarding the statement were found significant because all the mentioned p-values in the table were less than the assumed level of significance i.e. 0.05.

Table 4.42

Developing students' ability to complete given tasks effectively and efficiently

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	57	86	49	30	09	3.66	62.62	0.019
	Percentage	25%	37%	21%	13%	04%			
Teacher	Frequency	33	54	25	18	05	3.58	41.04	0.022
	Percentage	25%	40%	19%	13%	04%			
NCRC Members	Frequency	09	15	07	07	02	3.54	10.00	0.012
	Percentage	23%	38%	18%	18%	05%			
Total	Frequency	99	155	81	55	16	3.63		
	Percentage	24%	38%	20%	14%	04%			

Table 4.42 shows respondents' opinions about development of students' ability to complete given tasks effectively and efficiently. It displays that more than half of the students (62%), teachers (65%) and NCRC members (61%) were in favour of the statement. On the whole, majority of the respondents (62%) supported the statement that BS programme in universities developed students' ability to deliver classroom presentation. Moreover, calculated values of chi-square statistic for students, teachers

and NCRC members are 62.62, 41.04 and 10.00 with p-values of 0.019, 0.022 and 0.012 respectively. Responses of students, teachers and NCRC members regarding the statement were found significant because the mentioned p-values for students, teacher and NCRC members were found smaller than the assumed level of significance i.e. 0.05.

Table 4.43

Developing students' ability to accept responsibility for results of given tasks.

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	45	103	48	25	10	3.70	101.7	0.032
	Percentage	19%	45%	21%	11%	04%			
Teacher	Frequency	35	49	23	16	12	3.26	72.37	0.028
	Percentage	26%	36%	17%	12%	09%			
NCRC Members	Frequency	10	14	08	06	02	3.50	17.00	0.019
	Percentage	25%	35%	20%	15%	05%			
Total	Frequency	90	166	79	47	24	3.48		
	Percentage	22%	41%	19%	12%	06%			

Table 4.43 depicts respondents' views about development of students' ability to accept responsibility for the results of a given task. It shows that the greater number of the students (64%), teachers (62%) and NCRC members (60%) were in favor of the statement. On the whole, majority of the respondents (62%) supported the statement that BS programme in universities developed students' ability to accept responsibility for the results of a given task. Moreover, calculated values of chi-square statistic for

students, teachers and NCRC members are 101.7, 72.37 and 17.00 with p-values of 0.032, 0.028 and 0.019 respectively. Responses of students, teachers and NCRC members regarding the statement were found significant because the mentioned p-values for students, teachers and NCRC members were less than the assumed level of significance i.e. 0.05.

Table 4.44

Developing students' ability to be reliable and punctual

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	60	90	38	25	18	3.81	89.97	0.037
	Percentage	26%	38%	28%	19%	13%			
Teacher	Frequency	40	51	20	16	08	3.97	68.96	0.041
	Percentage	30%	38%	15%	12%	06%			
NCRC Members	Frequency	13	10	07	06	04	3.93	16.25	0.021
	Percentage	33%	25%	18%	15%	10%			
Total	Frequency	128	159	69	35	15	3.90		
	Percentage	32%	39%	17%	09%	04%			

Table 4.44 demonstrates respondents' views about development of students' ability to reliable and punctual. It portrays that most of the students (64%), teachers (68%) and NCRC members (68%) were in favor of the statement. On the whole, majority of the respondents (71%) supported the statement that BS programme in universities developed students' ability to be reliable and punctual. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 89.97, 68.96 and 16.25 with p-values of 0.037, 0.041 and 0.021 respectively. Responses of students,

teachers and NCRC members regarding the statement were found significant because the mentioned p-values for students, teacher and NCRC members were smaller than the assumed level of significance i.e.

Table 4.45

Developing students' ability to involve team members for accomplishment of a given task

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	22	29	52	88	40	2.84	11.05	0.077
	Percentage	10%	13%	23%	38%	17%			
Teacher	Frequency	12	25	22	47	29	2.74	14.96	0.087
	Percentage	09%	19%	16%	35%	21%			
NCRC Members	Frequency	13	07	09	08	03	2.63	15.25	0.029
	Percentage	33%	18%	23%	20%	08%			
Total	Frequency	47	61	83	143	72	3.73		
	Percentage	12%	15%	20%	35%	18%			

Table 4.5 displays respondents' opinions about development of students' ability to involve team members for accomplishment of a given task. It shows that more than half of the students (55%) and teachers (56%) were against the statement while the majority of NCRC members (51%) were in favour of the statement. On the whole, majority of the respondents (53%) were against the statement by arguing that BS programme in universities did not develop students' ability to involve team members for accomplishment of a given task. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 11.05, 14.96 and 15.25 with p-values of

0.077, 0.087 and 0.029 respectively. Responses of students and teacher were found were insignificant because the mentioned p-values were smaller than the assumed level of significance i.e. 0.05. However, responses of NCRC members about the statement were found significant because the mentioned p-value for NCRC members was smaller than the assumed level of confidence i.e. 0.05.

Table 4.46

Developing students' ability to respect and appreciate team diversity

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	19	33	57	85	37	2.76	22.05	0.177
	Percentage	08%	14%	25%	37%	16%			
Teacher	Frequency	15	20	33	52	15	2.60	19.60	0.152
	Percentage	11%	15%	24%	39%	11%			
NCRC Members	Frequency	14	11	05	06	04	2.20	13.75	0.031
	Percentage	35%	28%	13%	15%	10%			
Total	Frequency	48	64	95	143	56	2.52		
	Percentage	12%	16%	23%	35%	14%			

Table 4.46 illustrates respondents' views about development of students' ability to respect and appreciate team diversity. It describes that majority of students (53%) and teachers (50%) opposed the statement while majority of NCRC members (63%) supported the statement. On the whole, majority of respondents (49%) were against the statement by arguing that BS programme in universities did not develop students' ability to respect and appreciate team diversity. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 22.05, 19.60 and 13.75

with p-values of 0.177, 0.152 and 0.031 respectively. Responses of students and teachers regarding the statement were found insignificant because the mentioned p-values for students and teacher were greater than the assumed level of significance i.e. 0.05. However, responses of NCRC members about the statement were found significant because the mentioned p-value for NCRC members was smaller than the assumed level of confidence i.e. 0.05.

Table 4.47

Developing students' ability to apply psychological approaches to stimulate and engage colleagues toward a common goal.

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	17	24	45	101	44	2.80	12.95	0.191
	Percentage	07%	10%	19%	44%	19%			
Teacher	Frequency	11	19	34	40	31	2.76	14.35	0.145
	Percentage	08%	14%	25%	30%	23%			
NCRC Members	Frequency	15	11	05	06	03	2.65	18.65	0.023
	Percentage	38%	28%	13%	15%	07%			
Total	Frequency	43	54	84	147	78	3.73		
	Percentage	11%	13%	21%	36%	19%			

Table 4.47 presents respondents' opinions about development of students' ability to apply psychological approaches to stimulate and engage colleagues toward a common goal. It depicts that most of the students (63%), and teachers (55%) were against the statement while the majority of NCRC members (66%) were in favor of the statement. On the whole, majority of the respondents (55%) opposed the statement by arguing that BS programme in universities did not develop students' ability to apply psychological

approaches to stimulate and engage colleagues toward a common goal. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 12.95, 14.35 and 18.65 with p-values of 0.191, 0.145 and 0.023 respectively. Responses of students and teachers regarding the statement were found insignificant because the mentioned p-values for students and teacher were greater than the assumed level of significance i.e. 0.05. However, responses of NCRC members were found significant because the p-value for NCRC members was smaller than the assumed level of significance i.e. 0.05.

Table 4.48

Developing students' ability to honor the interests and happiness of team members

Data Source		Always	Usually	Sometimes	Rarely	Never	Mean	Chi-Square	P-Value
Students	Frequency	19	31	55	97	29	2.21	26.25	0.098
	Percentage	08%	13%	24%	42%	13%			
Teacher	Frequency	17	22	40	35	21	2.17	38.65	0.069
	Percentage	13%	16%	30%	26%	16%			
NCRC Members	Frequency	12	13	07	05	03	3.20	10.75	0.019
	Percentage	30%	32%	17%	13%	08%			
Total	Frequency	48	66	102	137	53		2.52	
	Percentage	12%	16%	25%	34%	13%			

Table 4.48 demonstrates respondents' opinions about development of students' ability to honor the interests and happiness of team members. It depicts that majority of students (55%) and teachers (42%) were against the statement while majority of the

NCRC members (62%) were in favor of the statement. On the whole, majority of the respondents (47%) rejected the statement by arguing that BS programme in universities did not develop students' ability to honor the interests and happiness of team members. Moreover, calculated values of chi-square statistic for students, teachers and NCRC members are 26.25, 38.78 and 10.75 with p-values of 0.098, 0.069 and 0.019 respectively. Responses of students and teachers regarding the statement were found insignificant because the mentioned p-value for students and teachers were greater than the assumed level of significance i.e. 0.05. However, responses of NCRC members regarding the statement were found significant because the mentioned p-value for NCRC members was smaller than the assumed level of confidence i.e. 0.05.

4.2 Analysis of Qualitative Data

A structured open ended interview guide was designed for 18 heads of department from different universities. First interview was conducted on January 10, 2017 while the last one was conducted on March 30, 2017. Data gathered from interviews were compared and contrasted with data collected from surveys` administered to university teachers, students and NCRC members. After conducting interviews with the HoDs, the collected data were transcribed, coded and reviewed for themes. Thus the data were thematically analyzed to gain a holistic viewpoints of HoDs regarding the implementation of 21st century skills. Finally, the findings of the interviews were compared with findings surveys. Qualitative analysis of the responses is given below:

1. **Does your Department have a vision for identifying 21st century skills?**

In response to this question, some heads of departments from different universities replied that their departments have vision for developing and identifying of some of the 21st century skills. One head of department responded as "the vision of my departments is fully aligned with the transmission of essential skills of 21st century. My

faculty ensures teaching of essential skills on routine basis. Teaching faculty is well aware about the teaching strategies to develop these skills to students. However, all these skills, shown in handouts of 21st century model are not fully inculcated to students due to some limitation and constraints faced by faculty members". On the other hand, majority of the heads of departments replied that their department lacks the vision for identifying 21st century skills due to multiple problems.

2. **Are there standards for students to demonstrate 21st century skills in your department?**

In response to this question, almost all heads of department acknowledged that there are no as such standards in their department for students to exhibit 21st skills and competencies. According to them, faculty is making efforts to equip the graduates with essential skills in 21st century so that they may compete and survive in diverse culture of 21st century; however their departments lack standards for demonstration and developing these skills.

3. **Do you understand that 21st century skills are being implemented in BS classrooms of your Department?**

In response to this question, more than half of heads of departments responded positively by arguing that the essential skills of 21st century are being developed in students. However, when they referred to the model of P21, used in this study as a framework for 21st century learning, they replied that all these skills could not developed in students. For example "Information, Media and technology skills" were not fully inculcated to students. So they recognized that a greater number of students of their department lack the skill of technology (use of internet, laptop, e-Tablet and smart phone etc) for interconnected learning. Similarly, some student also lack skills of leadership, accountability and responsibility. Thus it may be concluded that all 21st

skills shown in the model of P21 were not fully implemented in the classrooms of BS programme due some genuine constraints.

4. **How would you describe your department's efforts to facilitate 21st century skills**

Majority of the Respondents recognized that no such efforts have been made to promote and facilitate 21st century skills. However, on a routine basis, meetings are conduct with the faculty members to promote and implement essential skills during classroom activities.

5. **What obstacles exist with the implementation of 21st entury skills in your department?**

In response to this question, heads of departments indicated multiple numbers of problems obstacles that prevent them from implementation of 21st century skills. These impediments include (i) insufficient faculty, (ii) week infrastructure, (iii) lack of vision and discussion of 21st century skills in department, (iv) lack of Information and Communication Technology (ICT) in classrooms and (v) lack professional development programmes for teaching of 21st century skills. Some respondents pointed out that time and pressure for content covering is also important impediments that prevent faculty members from implementation of 21st century skills.

6. **What are the most commonly used instructional practices in your Department?**

In response to this question, more than half respondents replied that the most commonly used method of instructional practices in classroom includes, lecture method, content coverage and test preparation. However, some of the respondents

stated that method of problem based learning; team teaching and discussion method are also used as instructional practices in their department.

7. **What are the most commonly used assessment practices in your department?**

In response to this question, respondents replied that subject-matter grading type of assessment is the most commonly used assessment practices in the universities. On the basis of paper-pencil assessment test grad-based decisions are made as per the academic and instructional emphasis.

8. **Do you understand that 21st century skills are purposefully integrated into curriculum of BS programme?**

Different respondents gave different opinions regarding the integration of 21st century skills into curriculum of BS programme. More than half of the respondents thought that the current curriculum of BS programme is aligned with the implementation of 21st century skills. On the other hand, some HoDs responded that the current curriculum cannot develop all the 21st century skills mentioned in the P21 model

9. **What challenges do you describe in higher education regarding implementation of 21st century skills?**

In response to this question, the respondents replied that with multiple challenges that universities faced in developing and implementation of 21st century skills. The first challenge narrated by the respondents was regarding insufficient faculty in departments. In most of the department teaching learning process suffered due to insufficient faculty. Another challenge that our university face, is week infrastructure (both physical and technological infrastructure) in the universities including buildings,

laboratories, classrooms computer centers, Library/Digital resource centers, ICT equipment's etc. The cause of week infrastructure in higher education institutions is due to lack of funds granted to universities. This week infrastructure affect learning of students and teacher performance.

One of the important challenges for universities, pointed out by the respondents was lack of awareness about the implementation of 21st century skills. Most of the universities had no vision and mission for developing of 21st century skills in students. The respondents told that, it is need of the day to produce awareness among, teachers, administrators, institutions and policy makers for inculcating 21st century skills and competencies to the young generation. Furthermore, they stressed that Ministry of Education (MoE) should take up the matter for bringing to the articulation of implementation of 21st century skills in universities so that the department may adopt a formal policy for implementation of 21st century skills. According to some participants, the ongoing professional development programme in universities are not up to the mark regarding the implementation of 21st century skills. Therefore, the professional development programmes must train the teachers in such a way, that they may develop 21st century essential skills and competencies in learners. Time and pressure for content covering were also found an important impediment that prevent faculty members from developing of 21st century skills because they have to cover a particular content to the students in a specific period of time.

10. What Strategies do you suggest for implementation of 21st Century Skills in Universities?

In response to this question, respondents replied that as our universities lack vision and mission regarding implementation of 21st century skills, and resultantly most of the teachers and student are unaware about the teaching and learning of 21st century

skills. So it is need of the day to produce awareness among, teachers, administrators, institutions and policy makers for inculcating of 21st century skills and competencies to the young generation. So, it is vital for higher education institutions to include the implementation of 21st century skills their vision, mission and strategic plan documents so that it may reflect goals and targets for its teaching. These documents must include the input of teachers, administrators, institutions and policy makers to make it practical and achievable.

Another strategy for teaching of 21st century skills was advocated by the respondents was curriculum. They replied that curriculum is the main pillar of any system of educational that delivers an opportunity to both students and teachers for keeping them prepared for dynamic careers. Pedagogical knowledge consists of two important factors i.e. teaching methods and curriculum design, so it is very much important for administrators and policy makers to incorporate the content and essential elements of 21st century skills in to the curriculum, so that these essential skills may develop in 21st century learners.

When asked about the pedagogy, most of the HoDs replied that although the HEC has made serious effort by providing a well-documented and organized curriculum comprising unblemished objectives for all levels of education, however gap still existed in courses to be taught. They also reiterated that pedagogy of teacher education is a matter of great concern in Pakistan and they emphasized that our teacher should modernize their pedagogy for teaching of 21st century skills so that they may to prepare the young generation for future challenges. They further suggested that pedagogical stance may be shifted from teacher centered class to student centered class. This is because that learner centered pedagogy more productive than teacher centered classes. It because that the modern system of education focuses on learner (student) rather than

the instructor (teacher). Therefore our teacher should re-examine and modernize their teaching practices to develop new skills and competencies in learners. They must incorporate the teaching of 21st century skills in their pedagogy through peer-learning, projects, assignments, and other learner-oriented activities

Next strategy, raised by the respondents, was about the out dated method of tools of assessment in universities. Our teachers still adopt behavioristic views for curriculum and classroom assessment and still they are using summative assessments as the only methods to assess the learning outcome of students. However, 21st century skills, such as, communication and collaboration skills cannot be effectively assessed by using traditional method of assessment i.e. pen-and-paper examinations. For example, the traditional method of assessment i.e. pen-and-paper examination is unable to assess the skill of communication and collaboration because it is an individualistic attempt rather a team work. These skills can only be assessed when learners are expected to work in groups and learning take place collectively as a team in a classroom setting. Therefore, it is vital to mention here that 21st century skills can only be assessed when students work in small groups. Indeed, methods of classroom assessment must be changed as per the changing priorities of the 21st century education and must be aligned with teaching and measurement of 21st century skills.

Respondents further suggested that Ministry of Education (MoE) may take up the matter for bringing to the articulation of implementation of 21st century skills in universities so that the department may adopt a formal policy for implementation of 21st century skills.

11. How would describe the strengths and potential of universities in Pakistan for developing 21st century skills?

In response to this question HoDs shared their valuable opinions regarding the strengths and potential of universities in Pakistan for developing 21st century skills in BS students. Most of them appreciated the efforts made by HEC for performing a prominent role for achieving of a knowledge-based economy in the country. To achieve this goal, HEC awarded thousands of PhDs scholarships for abroad as well as within the country which would be helpful in delivering qualitative education to our young generation. They also admitted that HEC has made well-organized struggle for achieving a continued-updating curriculums of various programs including bachelor and master level disciplines in view of the knowledge based economy, which is an initiative for integrating of essential skills into the existing curriculum. Some the HoDs reiterated that HEC through its MTDF-I strengthened internal structure of Universities while through MTDF-II teaching programmes in universities were tried to be linked with the demands of societies and industry. For this purpose HEC, constantly pursuits/ follows-up actions, to uplift higher education system and make it impressive toward developing higher learning institutions. To improve quality of higher education sector in Pakistan HEC established National Accreditation Council for Teacher Education (NATCE) in 2006 that is much helpful to uplift the quality of higher education sector. The role of NATCE is very crucial in accrediting programmes pertaining to teacher education as well to deliver maximum support (both professional and intellectual) for the teacher training institutions and make the teacher training programmes qualitative. Thus it is concluded that the establishment NACTE is an initiative toward 21st education.

Most of the HoDs highlighted that the mechanisms of (QECs) working under Quality Assurance Agency was established in the year of 2005 by the Government of Pakistan through HEC. QECs work at institutional level which monitor and encourage

the institution for uplifting of quality of education. In view of its importance for the quality of higher education, it is concluded that this is also an enterprise toward teaching of 21st century education. A critical theme was raised by some of the HoDs which was regarding CPEC requirements and challenges for Pakistan. In order to meet the CPEC requirement i.e. developing and enhancing of capacity of individuals, our universities must concentrate on the demand and supply ratio of labor market as well.

CHAPTER 05

SUMMARY, FINDINGS, CONCLUDIONS, DISCUSSION AND RECOMMENDATIONS

5.1 Summary

Globalization and technological advancement in the new millennium of the 21st century have created new demands and challenges for people, organizations, societies and countries to participate and compete in the global economy. The world's global economy is shifting from industrial economy to service economy and labor market is shifting to global market. This major shift of today's world demands for the achievement of new skills so that the individuals may contribute well to the global economy. Keeping in view the rapidly changing priorities in the global world, our education system in general and higher education in particular should be ready for preparing young generation for life after college and university education. For this purpose we must embed 21st century skills and competencies in the existing traditional discipline areas; because we do not need an education system that helps learners merely remember facts and figures, rather we need them to be critical consumers of knowledge and information. So if we do not make efforts for embedding new skills and competencies into the education system of technologically driven world, we will be held responsible for placing our nations at risk. Therefore, it is the need of the day to equip our graduates with specialized skills and competencies so that they may compete and survive in the rapidly changing world. Nowadays these specialized skill and competencies refer to as "21st century skills". The term "21st century skills" refers to a set of skills which are not only significant but also indispensable for sustainable

learning as well as living in the 21st century. The framework "Partnership for 21st Century Learning" was used as a model for 21st century skills in this study. It emerged 2002 as a leading advocacy organization emphasized on infusing and integration of 21st century skills into the field of education.

Objectives of the study are: (1) To examine the existing programs and practices at the universities and their relations with 21st century skills.(2) To evaluate the potential of Pakistan universities regarding the implementation of 21st century skills. (3) To highlight the challenges being faced by universities regarding the implementation of 21st century skills. (4) To explore practicable strategies for implementation of 21st century skills in Pakistan universities. Furthermore, research study was guided with the following research questions: (1) how are the existing programs and practices at the universities aligned with 21st century skills? (2) To what extent do universities implement 21st century skills in the instructional practices? (3) What are gaps and challenges in implementation of 21st century skills in public sector universities of Pakistan? (4) How 21st century skills can be effectively embedded in the higher education system of Pakistan? The study was delimited to; (1) General public sector universities of Khyber Pakhtunkhwa. (2) BS program in two departments (Department of Education and Department of Management Sciences) of nine general public sector universities of Khyber Pakhtunkhwa. The study was descriptive in nature. Moreover, it was a mix method research study to measure, analyze and examine multiple perspectives of universities` teachers, educational leaders (HoDs), students and NCRC members about the implementation of 21st century skills in the universities of Pakistan. A concurrent embedded mixed methods research design was adopted in this study, where the quantitative and qualitative research strategies were used. Quantitative research method was considered as primary method which included three

surveys for university teachers, students and NCRC members while qualitative research method was considered as secondary method which included individual interviews with educational leaders (HoDs). The findings of secondary method (individual interviews) was embedded or nested into the findings of primary method (survey). Thus the primary focus of this study was on the quantitative method of the research while the secondary focus was on qualitative method which was in the form individual interviews of HoDs.

Population of the study constituted 40 members of NCRC committee for the subjects of education and management sciences, 18 head of departments, 206 teachers and 578 BS students in the departments of education and management sciences of nine general public sector universities (University of Peshawar, Abdul Wali Khan University Mardan, University of Malakand, University of Swat, Hazara University, Kohat University of Science and Technology, University of Science and Technology Bannu, University of Haripur and Gomal University D. I. Khan) of Khyber Pakhtunkhwa.Sample of the study consisted of 40 NCRC members (22 for the subjects of education and 18 for the subjects of management sciences) 18 HoDs, 146 university teachers and 251 students (of BS programme) in the departments of education and of management Sciences of nine general public sector universities of Khyber Pakhtunkhwa. Proportionate stratified random sampling technique was used to samples of teachers and students while the sample of HoDs and NCRC members were selected with the help of universal sampling technique. Data was collected with the help of self-developed three questionnaires (two online questionnaires for NCRC members and university teachers while one paper-based questionnaire for BS students) and interview guide (for HoDs). The purpose of these research tools was to address the issues of reliability and validity. The research tools were pilot tested in three universities i.e. Kohat University of Science and Technology, University of Malakand and university

of Swat. Research tools for teachers and students were administered among 24 teacher and 32 BS students respectively in the department of education and management sciences of above mentioned universities while questionnaires for the NCRC members were emailed to six members of NCRC committee. Interview guide was also tested on pilot basis by conducting interviews with six heads of department of the above mentioned universities. In the light of feedback and responses of the respondents, multiple changes in the nature, language and scope of items were incorporated in the research tools of the study.

To collect data from students, researcher made personally visits to the selected universities while the online questionnaires were e-mailed to NCRC members and teachers and invited them for filling out it. Interviews were also conducted with HoDs in different universities. More than half interviews were recorded with the consent of the participants while some of them were noted on paper. Each interview session was lasted from thirty to forty minutes. Data gathered through questionnaire, from different respondents in the study were analyzed separately. "Statistical Package for the Social Sciences" software version 20 was used for the purpose of analysis. Multiple descriptive and statistical tools including mean, percentage and chi-square test goodness of fit were applied to analyze the data. After conducting interviews guide with the HoDs, the collected data were transcribed, coded and reviewed for themes. Thus the data were thematically analyzed to gain a holistic viewpoint of HoDs and then compared with data collected from surveys.

5.2 Findings of the study

Objective wise findings drawn from the analysis of responses of university teachers, students and NCRC members are stated as under:

5.2.1 Findings of Research Objective No.1: To examine the existing programs and practices at the universities and their relation with 21st century skills

1. Most of students (62%), teachers (64%) and NCRC members (68%) supported the statement that BS programme in universities develop students' ability to ask critical questions. On the whole, majority of the respondents (63%) acknowledged that BS students in universities were developing the ability of asking critical questions. (Table 4.1)
2. Majority of students (65%), teachers (66%) and NCRC members (68%) were in favor of the statement that BS programme in universities develop students' ability to solve and analyze problems. By and large, majority of the respondents (64%) admitted that students of BS programme in universities were developing the ability of solving and analyzing problems.(Table 4.2)
3. Large number of students (69%), teachers (74%) and NCRC members (73%) supported the statement that BS programme in universities develop students' ability to write home assignment. On the whole, greater number of the respondents (71%) approved that BS students in universities have not the ability of writing home assignment. (Table 4.3)
4. More than half of students (68%), teachers (72%) and NCRC members (70%) responded in favor of the statement that BS programme developed students' ability to generate active learning activities. By and large, greater number of the respondents (70%) agreed with the statement that BS students in universities learned the ability to generate active learning activities. (Table 4.4)

5. Large number of students (51%) and teachers (49%) were against the statement while the majority of NCRC members (56%) were in favor of the statement. By and large, greater number of the respondents (47%) rejected the statement by arguing that BS programme in universities did not develop students' ability to think of several creative solutions to problems. (Table 4.5)
6. Majority of students (47%) and teachers (50%) rejected the statement while majority of NCRC members (68%) supported the statement. On the whole, most of the respondents (46%) were against the statement that BS programme in universities did not develop students' ability to work on projects. (Table 4.6)
7. Greater number of students (59%), and teachers (56%) were against the statement while the majority of NCRC members were in favor of the statement. By and large, large of the respondents (53%) opposed the statement that BS programme in universities did not develop students' ability to take initiatives in solving problems. (Table 4.7)
8. Most of the students (67%), teachers (61%) and NCRC members (53%) were in favor of the statement that BS programme in universities developed the students' ability to complete routine tasks whine deadline. On the whole, majority of the respondents (65%) acknowledged that BS students in universities learned the ability to complete routine tasks within deadlines. (Table 4.8)
9. More than half of students (63%), teachers (56%) and NCRC members (48%) were in favor of the statement that BS programme in universities developed students' ability to take part in active listening activities. By and large, majority of the respondents (55%) reported that BS students in universities learned the skill to take part in active listening activities. (Table 4.9)

10. Most of the students (62%), teachers (65%) and NCRC members (61%) were supported the statement that BS programme in universities developed students' ability to deliver classroom presentation. On the whole, majority of the respondents (62%) admitted that BS students in universities learned the skills to deliver classroom presentation. (Table 4.10)
11. Majority of students (68%), teachers (66%) and NCRC members (57%) supported the statement that BS programme in universities developed students' ability to take part in classroom discussions. On the whole, most of the respondents (65%) recognized that BS students in universities were trained to take part in classroom discussions. (Table 4.11)
12. Large number of students (69%), teachers (74%) and NCRC members (73%) were in favor of the statement that BS programme in universities developed students' ability to communicating effectively in multicultural environment. On the whole, greater number of the respondents (71%) acknowledged that BS students in universities gained the ability to communicate effectively in multicultural environment. (Table 4.12)
13. More than half of the students (53%), teachers (61%) and NCRC members (65%) were in favor of the statement that BS programme in universities developed students' ability to work with team members on projects. On the whole, majority of the respondents (56%) accepted that BS students in universities got the ability to work with team members on projects. (Table 4.13)
14. Most of the students (52%) and teachers (50%) rejected the statement while majority of the NCRC members (67%) supported the statement. On the whole, majority of the respondents (48%) were found against the statement that BS

programme in universities did not develop student' ability to contribute individually to the team work. (Table 4.14)

15. Large number of students (43%) and teachers (46%) were against the statement while majority of NCRC members (63%) were found in favor of the statement that BS programme in universities developed students' ability to set up interconnected learning networks with classmates. On the whole, majority of the respondents (42%) admitted that BS students in universities did not develop the ability to set up interconnected learning with classmates. (Table 4.15)
16. Most of the students (47%), teachers (49%) and NCRC members (58%) rejected the statement that BS programme in universities develop students' ability to connect with their peers by using e-mail, video conferencing, social media etc. By and large, majority of the respondents (42%) admitted that BS students in universities did not develop students' ability to connect with their peers by using e-mail, video conferencing, social media etc.(Table 4.16)
17. Large number of students (53%), teachers (45%) and NCRC members (46%) were not in favor of the statement that BS programme in universities did not develop students' ability to search and access of relevant information. On the whole, most of the respondents (50%) recognized that BS students in universities were found unable to search and access of relevant information. (Table 4.17)
18. More than half of the students (55%) teachers (50%) and NCRC members (58%) were not in favor of the statement that BS programme in universities did not develop students' ability to evaluate and assess the obtained information. On the whole, majority of the respondents (64%) acknowledged that BS

students in universities did not learn to evaluate and assess the obtained information. (Table 4.18)

19. Most of the students (43%), teachers (46%) and NCRC members (58%) rejected the statement that BS programme in universities develop students' ability to classify, manipulate and store the collected information. On the whole, majority of the respondents (46%) discarded the statement by arguing that BS students in universities did not learn the ability to classify, manipulate and store the collected information. (Table 4.19)
20. Large number of students (47%) teachers (49%) and NCRC members (58%) were found against the statement that BS programme in universities develop students' ability to apply the collected information for solving problems. On the whole, majority of the respondents (46%) acknowledged that BS students in universities were not developing the ability to apply the collected information for solving problems.(Table 4.20)
21. More than half of the students (62%), teachers (64%) and NCRC members (63%) gave opinion against the statement that BS programme in universities develop students' ability to create knowledge by using technologies. On the whole, the majority of respondents (56%) rejected the statement by arguing that BS students in universities were not developing the ability to create knowledge by using technologies. (Table 4.21)
22. Most of the students (62%), teachers (50%) and NCRC members (68%) were found against the statement that BS programme in universities develop students' ability to use technologies i.e. Internet, laptop, e-Tablets and smart phone etc. effectively for learning purposes. On the whole, the majority of the respondents (53%) admitted that BS students in universities were using technologies i.e.

Internet, laptop, e-Tablets and smart phone etc. effectively for learning purposes. (Table 4.22)

23. Large number of students (43%), teachers (46%) and NCRC members (58%) discarded the statement that BS programme in universities develop students' ability to set up peer learning networks through technologies. On the whole, the majority of the respondents (45%) admitted that BS students in universities were found unable to set up peer learning networks through technologies. (Table 4.23)
24. Most of the students (65%), teachers (49%) and NCRC members (58%) rejected the statement that BS programme in universities develop students' ability to understand the legal/ethical issues regarding access and use of technologies. On the whole, the majority of respondents (59%) acknowledged that BS students in universities were not developing the ability to understand the legal/ethical issues regarding access and use of technologies. (Table 4.24)
25. More than half of the students (56%), teachers (52%) and NCRC members (53%) discarded the statement that BS programme in universities develop students' ability to analyze and evaluate media messages. On the whole, majority of the respondents (55%) approved that BS students in universities were found unable to analyze and evaluate media messages. (Table 4.25)
26. Greater number of students (55%) teachers (50%) and NCRC members (58%) opposed the statement that BS programme in universities develop students' ability to create media messages. On the whole, majority of the respondents (54%) admitted that BS students in universities were not developing ability to create media messages. (Table 4.26)

27. Majority of students (43%), teachers (46%) and NCRC members (58%) rejected the statement that BS programme in universities develop students' ability to utilize the most suitable tools of media. On the whole, majority of the respondents (46%) recognized that BS students in universities were not developing the ability to utilize the most suitable tools of media. (Table 4.27)
28. Most of the students (47%) teachers (49%) and NCRC members (58%) discarded the statement that BS programme in universities develop students' ability to understand ethical and legal issues about the access and use of media. On the whole, majority of the respondents (47%) accepted that BS students were found unable to understand ethical and legal issues about the access and use of media. (Table 4.28)
29. More than of the students (62%), teachers (64%) and NCRC members (68%) supported the statement that BS programme in universities developed students' ability to appreciate and reply to the feedback in a positive manner. On the whole, majority of the respondents (63%) admitted that BS students in universities were found to develop the ability to appreciate and reply to the feedback in a positive manner. (Table 4.29)
30. Most of students (65%), teachers (66%) and NCRC members (60%) were in favor of the statement that BS programme in universities develop students' ability to work and adjust themselves in a changing situation or environment. On the whole, majority of the respondents (66%) acknowledged that BS students in universities were found to develop the ability to work and adjust themselves in a changing situation or environment. (Table 4.30)
31. Majority of students (69%), teachers (74%) and NCRC members (73%) were in favor of the statement that BS programme in universities developed students'

ability to incorporate the desired or proposed changes in the given tasks. On the whole, majority of the respondents (71%) admitted that BS students in universities were developing the ability to incorporate the desired or proposed changes in the given tasks. (Table 4.31)

32. Greater number of students (70%), teachers (61%) and NCRC members (65%) were in favor of the statement that BS programme in universities develop students' ability to solve problems and work on project independently. On the whole, majority of the respondents (67%) acknowledged that students of BS programme in universities were developing the ability to solve problems and work on project independently. (Table 4.32)
33. More than half of the students (68%), teachers (72%) and NCRC members (70%) supported the statement that BS programme in universities developed students' ability to get feedback immediately when they do right or wrong during solving problems. On the whole, majority of the respondents (70) declared that students BS programme in universities were developing the ability to get feedback immediately when they do right or wrong during giving tasks. (Table 4.33)
34. Majority of students (68%), teachers (72%) and NCRC members (70%) were in favor of the statement that BS programme in universities developed students' ability to take initiate in solving problems and working on projects. On the whole, majority of the respondents (70%) acknowledged that students of BS programme in universities were developing the ability to take initiative in solving problem and working on projects.(Table 4.34)
35. Most of the students (43%) and teachers (46%) were found against the statement while majority of NCRC members supported the statement that BS programme

in universities develop students' ability to set goals for completion of given tasks. On the whole, majority of the respondents (42%) rejected the statement that students of BS programme in universities were not developing the ability to set goals for completion of given tasks. (Table 4.35)

36. More than half of the students (65%), teachers (54%) and NCRC members (64%) were in favor of the statement that BS programme in universities develop students' ability to take in time action to solve problems. On the whole, majority of NCRC members (62%) admitted that students of BS programme in universities were developing the ability to take in time action to solve problems. (Table 4.36)
37. Large number of students (52%) was found against the statement while the majority of teachers (61%) and NCRC members (65%) were supported the statement that BS programme in universities develop students' ability to work effectively in diverse team. On the whole, majority of the respondents (41%) recognized that students of BS programme in universities were developing the ability to work effectively in diverse team. (Table 4.37)
38. Majority of students (66%), teachers (53%) and NCRC members (67%) supported the statement that BS programme in universities develop students' ability to interact effectively with team members. On the whole, 62% of all the respondents acknowledged that students of BS programme in universities were developing the ability to interact effectively with team members. (Table 4.38)
39. Most of the students (44%) and teachers (46%) rejected the statement while majority of NCRC members (63%) were in favor of the statement that BS programme in universities develop students' ability to set up interconnected learning with their classmates. On the whole, majority of the respondents (42%)

opposed that students of BS programme in universities were not developing the ability to set up interconnected learning with their classmates.

40. Majority of students (50%) and teachers (49%) were found against the statement while majority of NCRC members (55%) were in favor of the statement that BS programme in universities develop students' ability to connect with their peers by using e-mail, video conferencing, social media etc. On the whole, majority of the respondents (47%) rejected the statement by arguing that BS programme in universities were not developing students' ability to connect with their peers by using e-mail, video conferencing, social media etc. (Table 4.40)
41. Large number of students (52%), teachers (54%) and NCRC members (48%) were in favor of the statement that BS programme in universities develop students' ability to work on routine tasks positively and ethically. On the whole, majority of the respondents (55%) admitted that students of BS programme in universities were developing the ability to work on routine tasks positively and ethically. (Table 4.41)
42. More than half of the students (62%), teachers (65%) and NCRC members (61%) were in favor of the statement that BS programme in universities develop students' ability to deliver classroom presentation. On the whole, majority of the respondents (62%) accepted that students of BS programme in universities were developing the ability to deliver classroom presentation. (Table 4.42)
43. Greater number of the students (64%), teachers (62%) and NCRC members (60%) supported the statement that BS programme in universities develop students' ability to accept responsibility for the results of a given task. On the whole, majority of the respondents (62%) acknowledged that students of BS

programme in universities were developing students' ability to accept responsibility for the results of a given tasks. (Table 4.43)

44. Most of the students (64%), teachers (68%) and NCRC members (68%) were in favor of the statement that BS programme in universities develop students' ability to be reliable and punctual. On the whole, majority of the respondents (71%) admitted that students of BS programme in universities were developing the ability to be reliable and punctual. (Table 4.44)
45. More than half of the students (55%) and teachers (56%) were against the statement while the majority of NCRC members (51%) were in favor of the statement that BS programme in universities develop students' ability to involve team members for accomplishment of a given task. On the whole, majority of the respondents (53%) rejected the statement by arguing that students of BS programme in universities were not developing the ability to involve team members for accomplishment of a given task. (Table 4.45)
46. Majority of students (53%) and teachers (50%) opposed the statement while majority of NCRC members (63%) supported the statement that BS programme in universities develop students' ability to respect and appreciate team diversity. On the whole, majority of respondents (49%) rejected statement by arguing that students of BS programme in universities were developing students' ability to respect and appreciate team diversity. (Table 4.46)
47. Most of the students (63%), and teachers (55%) were against the statement while the majority of NCRC members (66%) were in favor of the statement that BS programme in universities develop students' ability to apply psychological approaches to stimulate and engage colleagues toward a common goal. On the whole, majority of the respondents (55%) were against the statement that

students of BS programme in universities were not developing the ability to apply psychological approaches to stimulate and engage colleagues toward a common goal. (Table 4.47)

48. Majority of students (55%) and teachers (42%) were against the statement while majority of the NCRC members (62%) supported the statement that BS programme in universities develop students' ability to honor the interests and happiness of team members. On the whole, majority of the respondents (47%) rejected the statement by arguing that students of BS programme in universities were not developing students' ability to honor the interests and happiness of team members. (Table 4.48)
49. Majority of the HoDs replied that teaching faculty is well aware about the teaching strategies to develop new skills in students, however all the skills, mentioned in the handouts of 21st century skills model were are not fully taught to students due to some limitation and constraints faced by faculty members.
50. Most of the HoDs responded that department had no vision for teaching and development of 21st century skills. And no serious efforts have been made to promote and develop these skills.
51. Large number of HoDs were of the opinion that departments lack standards for demonstration and developing of 21st century skills.
52. More than half of the respondents recognized that the existing curriculum of BS programme is aligned with the implementation of most of the 21st century skills.
53. Most of the HoDs acknowledged that traditional and outdated tools of assessment were used in universities to measure the level of mastery of students which are not aligned with the measurement of 21st century skills.

54. Majority of the HoDs admitted that lecture method and content coverage were the commonly used instructional practices in the universities.

5.2.2 Findings of Research Objective No.2: To evaluate the potential of Pakistan Universities regarding the implementation of 21st century skills

1. Most of the HoDs responded that HEC has made well-organized struggle for achieving a continued-updating curriculums of various programs including bachelor and master level disciplines in view of the knowledge based economy, which is an initiative for integrating of essential skills into the existing curriculum. HEC is performing a critical role for building of knowledge based-economy in the country by granting thousands of PhD abroad and indigenous scholarships which would be helpful in developing of 21st century skills.
2. Majority of HoDs admitted that HEC has made organized efforts for continued updating of curriculums of various bachelor/master level programs of diversified disciplines have been updated by HEC in view of the knowledge based economy, which is an initiative for integrating of these skills into the existing curriculum.
3. More than half of HoDs acknowledged that as HEC regularly follows up academic activities, to uplift higher education and make it inspiring for the learners.
4. Large number of the HoDs admitted that NATCE is much helpful in improving quality of higher education.
5. Most of the HoDs highlighted that the mechanisms of (QECs) work at institutional level which supervise and encourage quality of higher education

within the institution. This is also an enterprises toward teaching of 21st century education.

6. Most of the HoDs admitted that HEC through its MTDF-I has strengthened internal structure of universities while through MTDF-II, teaching programmes in universities were tried to be linked with the demands of societies and industry.

5.2.3 Findings of Research Objective No.3: To highlight the challenges being faced by universities regarding the implementation of 21st century skills

1. Most of the HoDs pointed out that multiple challenges were being faced by universities which impede the implementation of 21st century skills. These challenges are given in the following:

   (i) Insufficient faculty,

   (ii) Week infrastructure,

   (iii) Lack of vision and discussion of 21st century skills in department,

   (iv) Lack of Information and Communication Technology in classrooms and

   (v) Lack of professional development programmes for teaching of 21st century skills.

   (vi) Time and pressure for content covering were also important impediment that prevent faculty members from implementation of 21st century skills.

2. Most of the HoDs responded that as our universities lack vision and mission regarding implementation of 21st century skills, so it is need of the day to produce awareness among, teachers, administrators, institutions and policy makers for inculcating 21st century skills and competencies to the young generation.

3. Some of the HoDs suggested that Ministry of Education (MoE) may take up the matter for bringing to the articulation of implementation of 21st century skills in universities so that the department may adopt a formal policy for implementation of 21st century skills.
4. A critical theme was raised by some of the HoDs which was regarding the CPEC requirements. In order to meet the CPEC requirement i.e. developing and enhancing of capacity of individuals, our universities must concentrate on the demands of its labor market.

5.2.4 Findings of Research Objectives No. 4: To explore practicable strategies for implementation of 21st century skills in Pakistan universities

1. Most of HoDs suggested that universities must produce awareness among, teachers, administrators, and policy makers for inculcating of 21st century skills and competencies to the young generation. It is vital for higher education institutions to include the implementation of 21st century skills their vision, mission and strategic plan documents to that it may reflect goals and targets for its teaching. More than half of the HoDs stated that curriculum is the main pillar of any system of education and gives an opportunity to the learners and teachers so that they may prepare themselves for dynamic careers. Therefore, it is very essential for curriculum developers to incorporate the content of essential skills in the curriculum.
2. Majority of HoDs pointed out that our teacher should modernize their pedagogy for teaching of 21st century skills so that they may prepare the young generation

for future challenges. Therefore they should re-examine and modernize their teaching practices to develop new skills and competencies in learners.

3. Teachers must incorporate the teaching of essential skills of 21st century in their methodology through project based teaching. To compete and survive in the present global era, it is very important for teachers to modernize their pedagogy.
4. Most of the HoDs recognized that traditional and out dated method and tools of assessment were used in universities that were not aligned with teaching and measurement of 21st century skills. Therefore they stressed on instructional practices and tools of assessment in universities to be aligned with the development and implementation of 21st century skills.

5.3 Discussion

The concept of 21st century skills is fairly new especially in Pakistan and no study has been conducted on 21st century skills at PhD level in Pakistan till reporting of the present study. So it was a challenging task for the researcher to investigate the implementation of 21st century skills in university of Pakistan. Therefore, main purpose of the study was to gain a holistic viewpoint of universities` teachers, educational leaders (HoDs), students and NCRC members about the implementation of 21st century skills in the universities of Pakistan. For this purpose, a worldly known comprehensive educational framework named "The Framework for 21st Century Learning (also called P21 framework)" was used as a model for 21st century skills in the present study. Research Objective of the present study and their findings are briefly discussed in the following:

Objective No.1: To examine the existing programs and practices at the universities and their relation with 21st century skills.

Findings of Research Objective No.1 revealed that analysis of both the data i.e. questionnaires and interviews were in fully agreement and they supported each other. Findings pertain to quantitative responses (questionnaires) of the respondents revealed that most of the skills pertaining to "Learning and Innovation Skills" i.e. critical thinking and problem solving skills, creativity as well as communication skills were developed in majority of the students, however collaboration skill was not taught to most of the university student. On the other hand "IMT skills" i.e. information, media and technology skills were not developed in majority of the students in universities. "Life and Career Skills" such as adaptability and flexibility Skills, initiative and self-direction skills, productivity and accountability skills were developed in majority of students; however 21st century skills such as social and cross-cultural skills and leadership and responsibility skills were not implemented in universities. Findings of interviews also depicted that some of the 21st century skills were taught to student, however all the mentioned skills in the handouts were not developed in students due to different impediments and barriers to the teaching of these skills. In view of the above discussion findings of the study drawn from the interviews were found in fully agreement with the findings drawn from questionnaires.

In this regard, Fox (2011) conducted a research study on the title "Implementing 21st century skills: a paradox in a traditional world of education" at the Graduate School of College of Saint Elizabeth. Only three skills were taken as 21st Century skills. These skills were (a) critical thinking (b) creative thinking, and (c) collaboration skills. The study was conducted at secondary level to determine the understanding and knowledge of teachers, students and administrator about the implementation of 21st century skills in high school teaching. Findings of the study include that (i) the teachers had limited information of the importance of preparing individuals with 21st century

Skills. (ii) the teachers have limited knowledge in how to teach these skills. The present study also found that the university teacher could not develop the skills of creativity and collaboration; however, critical thinking skill was developed and implemented in universities.

Similarly Egnor (2013) conducted a research study at elementary level on the title *"A case study of 21st century skills in high achieving elementary schools in Pennsylvania"* in Indiana University of Pennsylvania. The study was to determine the perception of educational leaders of elementary schools regarding the implementation of 21st century skills. Four skills (also called 4Cs skills) were taken as 21st century skills in the study. These skills were (a) critical thinking (b) creativity (c) communication and (d) collaboration. The researcher concluded that educational leaders of elementary schools were identified 4Cs skills but their perception regarding its implementation was incomplete. Findings of the present study also illustrate that all the above mentioned 4Cs skills were not implemented in universities due to multiple reasons.

Hilman (2012) conducted a research study on the title "Learning 21st century skills: implementation of programs and practices "in the faculty of the USC Rossier School of Education; University of Southern California. Researcher found that institutions lacked clearly articulated vision for implementation of 21st century skills. He further stated that if an institution has clear and articulated vision regarding implementation of 21st century skills, then there will be consistent alignment between the purpose (vision) and the on-going teaching practices at the institutions.

Another research study conducted by Velez (2012) on the title "*Preparing students for the future 21st century skills*" at the faculty of the USC Rossier School of Education; University of Southern California. Major finding of the study includes that all 21st century skills were not developed due to lack of (i) clear articulation of the vision

for developing 21st century skills; (ii) strong teacher professional development program that support the teaching of 21st century skills; and (iii) curriculum which promotes the development 21st century skills. The present study also found that most universities had no vision for implementation of 21st century skills. Findings of the present study also concluded that professional development sessions were found incompatible with teaching of 21st century skills secondary schools.

Objective No.2: To evaluate the potential of Pakistan universities regarding the implementation of 21st century skills.

One of the important developments, noted in the present study was that, most of the responses pertaining to students and HoDs were found against the statements but the NCRC members strongly supported these statements. It depicts that most of the skills were implemented in universities to extent of curriculum and this shows that the most of BS curriculum was found aligned with implementation of 21st century skills. In spite of the different impediments and barriers to the implementation of 21st century skills in higher education institutions, HEC has made significant initiative to uplift the education system in Pakistan. HEC has played a leading role towards building of a knowledge based economy in Pakistan. These initiative include:

I. HEC awarded thousands of doctoral scholarships for education abroad and within the country which would be helpful in delivering qualitative education to our young generation.

II. A well-organized effort of continued updating of curriculums of various bachelor/master level programs of diversified disciplines have been updated by HEC in view of the knowledge based economy, which is an initiative for integrating of essential skills into the existing curriculum.

III. HEC through its MTDF-I strengthened internal structure of Universities while through MTDF-II teaching programmes in universities were tried to be linked with the demands of societies and industry.

IV. HEC established NATCE in 2006 that is much helpful to improve quality of higher education. The function of council is not only to accredit the programmes pertaining to teacher education but it also gives intellectual as well as professional support for teacher training institutions and for making necessary documentation required for the purpose of accreditation and improvement of quality of teacher training programmes. In view of foregoing discussions, it is concluded that the establishment of NACTE is an initiative toward 21st education.

V. HEC established (QECs) working under Quality Assurance Agency (QAA), established in 2005. QECs work at institutional level which supervise encourage quality of higher education education.

In view of the above development made by HEC, it is concluded that higher education of the Pakistan has the potential to equip the young generation with these essential skills to become global competitors in the existing global world.

Objective No.3: To highlight the challenges being faced by universities regarding the implementation of 21st century skills.

With reference to the challenges that universities faced in developing of 21st century skills, it was emerged from the findings of the study that the ongoing teaching practices in universities lacked to develop these essential skills due multiple reasons that impede the implementation of 21st century skills. These challenges include: (i) Insufficient faculty, (ii) Week infrastructure, (iii) Lack of vision and discussion of 21st century skills in department, (iv) Lack of Information and Communication Technology

in classrooms and (v) Lack of professional development programmes for teaching of 21st century skills. (vi) Traditional and outdated tools of assessment were used in universities to measure the level of mastery of students which are not aligned with the measurement of 21st century skills.

Keeping in view the initiative taken by HEC for uplifting the standard of higher education in Pakistan (as discussed earlier) the above mentioned challenges which faced in developing 21st century skills, may easily be overcome subject to the political will of the government, commitment and devotion of the stake holders and vision of the universities for implementation of 21st century skills.

Research Objectives No. 4: To explore practicable strategies for implementation of 21st century skills in Pakistan universities.

Findings of the study pertaining to practical strategies for implementation of 21st century skills in universities molded themes which are indispensable for the development of 21st century skills and they are: (i) Better curriculum (ii) Better teaching and (iii) Better tests. Furthermore, it was derived from the present study that without the above mentioned themes, the development of these 21st century skills in higher education institutions will be a superficial one.

5.4 Conclusion of the Study

In the light of data analysis and findings of the study, the following conclusions were drawn:

1. First conclusion of the study was about the implementation of the skills given in the "P21 Framework for 21st Century Learning" in universities. It was concluded that all the mentioned skills in the framework were not fully developed in most of the student in universities.

2. Second conclusion was related to the teaching of "Learning and Innovation Skills" in universities. It was concluded that (i) critical thinking and problem solving skills and (ii) communication were developed in majority of the students; however (iii) creativity and (iv) collaboration skills were not developed in majority of students in universities.
3. Third conclusion of the study was related to the implementation of "Information, Media and Technology (IMT) skills" in universities. It was found that all these skill were not developed in most of the students in universities.
4. Forth conclusion of the study was related to the teaching of "Life and Career Skills" to the students in universities. It was concluded that (i) adaptability and flexibility Skills, (ii) initiative and self-direction skills, and (iii) productivity and accountability skills were taught to majority of students in universities; however (iv) cross-cultural Skills, and (v) leadership and responsibility skills were not developed in most of the students in universities.
5. Fifth conclusion was related to the potential of Pakistan Universities for teaching of 21st century skills. It was found that universities have the potential to equip graduates with essential skills as HEC has taken action oriented initiatives including (i) awarding of thousands of doctoral scholarships; (ii) well-organized effort of continued updating of curriculums through NCRC committees; (iii) establishment of QECs at institutional level; (iv) establishment of National Accreditation Council for Teacher Education (NATCE); (vi) MTDF-I was given for strengthening of internal structure of universities and (vii) MTDF-II was given whereby teaching programmes in universities were tried to be linked with the demands of societies and industry.

6. Sixth conclusion of the study was related to the challenges being faced by universities in implementation of 21st century skills. It was concluded that:

   i. Curriculum was found incompatible to develop all the 21st century skills in students in universities.

   ii. Department's vision for teaching of 21st century skills plays an important role in transmitting and developing these skills. However, almost all universities had no vision for teaching of 21st century skills.

   iii. Professional development sessions were found incompatible with teaching of 21st century skills at universities.

   iv. Insufficient faculty, time and pressure for covering content, and lack of ICT in classrooms were different impediments that prevented teacher from developing 21stcentury skills.

   v. Lecture method, content coverage and test preparation were the commonly used instructional practices in the universities. These instructional practices in universities were not aligned with development and implementation of 21st century skills

   vi. Traditional and outdated tools of assessment were used in universities to measure the level of mastery of students. These tools of assessment were not aligned with the measurement of 21st century skills.

5.5 Recommendations

The findings and conclusion of the present study suggested the following plan of action for HEC to implement 21st century skills in the universities of Pakistan.

1. Vision for Implementation of 21st century skills

Keeping in view the rapidly changing priorities in the global world, it is indispensable for the universities to adopt a formal policy for teaching of 21st century

skills and this is only possible if the universities have a clear vision and strategic plan documents for implementation of these skills. On one side, it will make the students curious and well aware for learning of these essential skills to become productive global citizens and on the other side, teachers will also be sensitized and motivated for developing these skills in students. In this regard, HEC may encourage universities for launching a clear and articulated vision to develop 21st century skills in students. This will align the purpose (vision) with the on-going teaching practices at the institutions.

2. Curriculum

i. Curriculum is the most significant pillars of any education system which provide students with knowledge and skills. It also provides students with an integrative attitude for success.

ii. Curriculum must be linked with the real world problems and preparing individuals for adult life.

iii. The discourse of 21st century skills may be incorporated directly and explicitly in the curriculum at the time of curriculum development.

iv. So it is very important for HEC to analyze, revise and restructure the curriculum through NCRC committee as per the needs and demands of the global world by incorporating the content that addresses the elements of 21st century skills attainment.

3. Teaching

Twenty-first century skills cannot be developed without well-trained and professionally sound teacher. It is because teachers' attitudes, competencies and practices are the leading factors in the teaching-learning process of 21st century education and these factors can be developed in teachers through specific and regular professional trainings

Our teacher may modernize their pedagogy for teaching of 21st century skills so that they may prepare the young generation for future challenges. Teachers must incorporate the teaching of 21st century skills in their pedagogy through project-based teaching. To compete and survive in the present global era, it is very much important for HEC to re-examine and modernize pedagogical practices in universities so that universities may to develop new skills and competencies in learners.

5. Tests

i. Assessment in education is of prime importance, whether it is made through standardized tests or classroom-based tests, in both cases it may be considered as a cornerstone for effective teaching-learning process.

ii. There are different reasons for lack of implementation of these skills. One reason is the teachers` differential beliefs about learning which give rise to varying classroom assessment practices.

iii. Standardized tests usually measure only the essential knowledge and not the aptitude of individual to apply, analyze, and generate new knowledge.

iv. It is a fact that our teachers still adopt behavioristic views for curriculum and classroom assessment and still they are using summative assessments as the only methods to assess the learning outcome of students.

v. Twenty first century skills, such as, communication and collaboration skills cannot be effectively assessed by using traditional method of assessment i.e. pen-and-paper examinations. These skills can only be assessed when learners are expected to work in groups and learning take place collectively as a team in a classroom setting.

vi. Therefore, it is suggested that methods of classroom assessment may be changed in accordance with the changing needs of the 21st century education.

5.6 Future Research

The purpose of the present study was to examine the existing programme and practices in universities of Pakistan in relation to the implementation of 21st century skills for which the study was conducted in two departments i.e. department of education and management sciences. Resultantly, many valuable insights were achieved through this mix-method research study, however more research needs to be done in this field and on this topic.

To expand the study, additional analyses of the data could be undertaken. Data could be analyzed and compared between levels of students (undergraduate, graduate and post-graduate) as well as between degree programs.

Another consideration for future research is to conduct a comparative study across institutions with different demographics. This case study focused on an institutions that had limited issues related to poverty. Is there a relationship between student demographic and an institution's implementation of 21st century learning to prepare its students for globalization?

Finally a comparative gender wise study be conducted for which a separate sample of male and female students may be taken from the institutions to look into the matter that whether there is any key factor relating to the nature of gender (male or female) in developing 21st century skills.

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Annexure A

Student's Survey

Name: _____ **University Name:** _____

Programme of Study _____ **Sex:** _____

I am student of PhD Education and conducting a research on "**Implementation of 21st Century Skills: A Case Study of Higher Education in Pakistan**". In this regard your opinion is required. So kindly fill this questionnaire. Your information will be kept confidential and it will be used only for research purpose.

Name: Hayat Khan.
Education: PhD Scholar in Education Department.
University: International Islamic University Islamabad.

Note: Please do tick (√) what you think the most appropriate according to your understanding, keep in view the below criteria.

Always ***Usually*** ***Sometimes*** ***Rarely*** ***Never***

Responses description: *Always* (A) = 5, Usually (U) = 4, *Sometimes* (ST) = 3, *Rarely* (S) = 2, Never (N) =1

Please rate the frequency that your teachers use the following teaching approaches in your classes.

S.No.	Statement	A	U	ST	R	N
	Critical Thinking Skills					
1	Teachers encourage students for asking good critical questions in the class.					
2	Teachers instruct students in how to solve and analyze problems.					
3	Teachers motivate students for writing assignment as home task.					
4	Teachers engage students in active learning classroom activities.					
	Creativity and Innovations					
5	Teachers instruct students in how to think of several creative solutions to problems.					
6	Teachers motivate students for working on projects and making mistakes at their own					
7	Teachers encourage students for taking initiative in solving problems					

8	Teachers give deadline for completion of routine tasks					
	Communication skill					
9	Teachers engage students in active listening classroom activities.					
10	Teachers encourage students for delivering classroom presentations.					
11	Teachers motivate students for taking part in classroom discussion.					
12	Teachers train students to communicate effectively in multilingual and multicultural environment.					
	Collaboration skill					
13	Teachers encourage students for working with team members on projects					
14	Teachers guide students in how to contribute individually to the team work					
15	Teachers encourage students for interconnected learning with classmates.					
16	Teachers instruct students in how to connect with peers by using e-mail, video conferencing, and social media etc.					
	Information Skills					
17	Teachers help students in how to search and access relevant information.					
18	Teachers understand students in how to evaluate and assess the obtained information					
19	Teachers helps students in how to classify, manipulate and store the collected information					
20	Teachers instruct students in how to apply the collected information.					
	Technology skills					
21	Teachers understand students in how to create knowledge by using technologies.					
22	Teachers encourage students for the effective use of technologies i.e. Internet, laptop, eTablets and smart phone etc					
23	Teachers motivate students for setting up peer learning networks i.einterconnected learning through technologies.					
24	Teachers understand students the legal/ethical issues regarding access and use of technologies.					
	Media Skills					
25	Teachers guide students in how to analyze and evaluate media messages.					
26	Teachers understand students in how to create media messages.					

27	Teachers train students in how to utilize the most suitable tools of media,					
28	Teachers understand students the ethical and legal issues regarding the access and use of media					
	Adaptability and Flexibility Skills					
29	Teachers instruct students in how to appreciate and reply to feedback in a positive manner					
30	Teachers instruct students in how to work and adjust themselves in a changing situation or environment.					
31	Teachers instruct students in how to respond to the desired change in classroom tasks					
32	Teachers provide suitable feedback to students immediately when students do write or wrong during classroom tasks.					
	Initiative and Self-direction Skills					
33	Teachers encourage students to solve problems and work on project independently.					
34	Teachers train students in how to initiate work on projects by themselves.					
35	Teachers guide students in how to set goals for completion of projects.					
36	Teachers motivate students for taking in time action to solve problems.					
	Social and Cross-cultural Skills					
37	Teachers motivate students for effective working in a diverse team					
38	Teachers instruct students in how to interact with team members.					
39	Teachers instruct students in how to honor each other's point of view during working on projects.					
40	Teachers expose students to different cultures, languages and experiences					
	Productivity and Accountability Skills					
41	Teachers motivate students for working on classroom tasks positively and ethically					
42	Teachers encourage students for completion of classroom tasks effectively and efficiently					
43	Teachers train students in how to be responsible for results of a given task.					
44	Teachers guide students to in how to be reliable and punctual during working on tasks					
	Leadership and Responsibility Skills					
45	Teachers instruct students in how to involve team members for accomplishment of a given task					

46	Teachers instruct students in how to respect and appreciate team diversity					
47	Teachers train students in how to apply psychological approaches to stimulate and engage colleagues toward a common goal.					
48	Teachers instruct students in how honor the interests and happiness of team members					

Annexure B

Teacher's Survey

Name: _____ **University Name:** _____

Programme of Study _____ **Sex:** _____

I am student of PhD Education and conducting a research on "**Implementation of 21st Century Skills: A Case Study of Higher Education in Pakistan**". In this regard your opinion is required. So kindly fill this questionnaire. Your information will be kept confidential and it will be used only for research purpose.

Name: Hayat Khan.
Education: PhD Scholar in Education Department.
University: International Islamic University Islamabad.

Note: Please do tick (√) what you think the most appropriate according to your understanding, keep in view the below criteria.

Always ***Usually*** ***Sometimes*** ***Rarely*** ***Never***

Responses description: *Always* (A) = 5, *Usually* (U) = 4, *Sometimes* (ST) = 3,

Rarely (S) = 2, Never (N) =1

The following questions are generally recognized as good teaching practices. Please answer how frequently you use the following practices during classroom teaching.

S.No.	Statement	A	U	ST	R	N
	Critical Thinking Skills					
1	I encourage students for asking good critical questions in the class.					
2	It each students in how to solve and analyze problems.					
3	I motivate students for writing assignment as home task.					
4	I engage students in active learning classroom activities.					
	Creativity and Innovations					
5	It each students in how to think of several creative solutions to problems.					
6	I motivate students for working on projects and making mistakes at their own					

7	I encourage students for taking initiative in solving problems					
8	I give deadline to students for completion of routine tasks					
	Communication skill					
9	I engage students in active listening classroom activities.					
10	I encourage students for delivering classroom presentations.					
11	I motivate students for taking part in classroom discussion.					
12	I train students to communicate effectively in multilingual and multicultural environment.					
	Collaboration skill					
13	I encourage students for working with team members on projects					
14	I guide students in how to contribute individually to the team work					
15	I encourage students for interconnected learning with classmates.					
16	I teach students in how to connect with peers by using e-mail, video conferencing, and social media etc.					
	Information Skills					
17	I help students in how to search and access relevant information.					
18	I understand students in how to evaluate and assess the obtained information					
19	I helps students in how to classify, manipulate and store the collected information					
20	I teach students in how to apply the collected information.					
	Technology skills					
21	I understand students in how to create knowledge by using technologies.					
22	I encourage students for the effective use of technologies i.e. internet, laptop, eTablets and smart phone etc					
23	I motivate students for setting up peer learning networks i.e. interconnected learning through technologies.					
24	I understand students the legal/ethical issues regarding access and use of technologies.					

	Media Skills					
25	I guide students in how to analyze and evaluate media messages.					
26	I understand students in how to create media messages.					
27	I train students in how to utilize the most suitable tools of media,					
28	I understand students the ethical and legal issues regarding the access and use of media					
	Adaptability and Flexibility Skills					
29	I teach students in how to appreciate and reply to feedback in a positive manner					
30	I teach students in how to work and adjust themselves in a changing situation or environment.					
31	I teach students in how to respond to the desired change in classroom tasks					
32	I provide suitable feedback to students immediately when students do write or wrong during classroom tasks.					
	Initiative and Self-direction Skills					
33	I encourage students to solve problems and work on project independently.					
34	I train students in how to initiate work on projects by themselves.					
35	I guide students in how to set goals for completion of projects.					
36	I motivate students for taking in time action to solve problems.					
	Social and Cross-cultural Skills					
37	I motivate students for effective working in a diverse team					
38	I teach students in how to interact with team members.					
39	I teach students in how to honor each other's point of view during working on projects.					
40	I expose students to different cultures, languages and experiences					
	Productivity and Accountability Skills					
41	I motivate students for working on classroom tasks positively and ethically					
42	I encourage students for completion of classroom tasks effectively and efficiently					

43	I train students in how to be responsible for results of a given task.					
44	I guide students to in how to be reliable and punctual during working on tasks					
	Leadership and Responsibility Skills					
45	I teach students in how to involve team members for accomplishment of a given task					
46	I teach students in how to respect and appreciate team diversity					
47	I train students in how to apply psychological approaches to stimulate and engage colleagues toward a common goal.					
48	I teach students in how honour the interests and happiness of team members					

Annexure C

NCRC member's Survey

Name: _____ **University Name:** _____

Programme of Study

_____**Sex:**_____

I am student of PhD Education and conducting a research on "**Implementation of 21st Century Skills: A Case Study of Higher Education in Pakistan**". In this regard your opinion is required. So kindly fill this questionnaire. Your information will be kept confidential and it will be used only for research purpose.

Name: Hayat Khan.
Education: PhD Scholar in Education Department.
University: International Islamic University Islamabad.

Note: Please do tick (√) what you think the most appropriate according to your understanding, keep in view the below criteria.

Always ***Usually*** ***Sometimes*** ***Rarely*** ***Never***

Responses description: *Always* (A) = 5, Usually (U) = 4, *Sometimes* (ST) = 3, *Rarely* (S) = 2, Never (N) =1

Please rate the frequency that Curriculum uses the following teaching approaches in your classes.

S.No.	Statement	A	U	ST	R	N
	Critical Thinking Skills					
1	Curriculum enables students in how to ask good critical questions in the class.					
2	Curriculum encourages students to solve and analyse problems.					
3	Curriculum motivates students in how to write home task assignment.					
4	Curriculum engages students in active learning classroom activities.					
	Creativity and Innovations					
5	Curriculum enables students in how to think of several creative solutions to problems.					
6	Curriculum motivate students for working on projects and making mistakes at their own					
7	Curriculum encourage students for taking initiative in solving problems					

8	Curriculum restricts student for in time completion of classroom tasks.					
	Communication skill					
9	Curriculum engages students in active listening classroom activities.					
10	Curriculum motivates students for delivering classroom presentations.					
11	Curriculum motivates students for taking part in classroom discussion.					
12	Curriculum provides students with opportunities to communicate effectively in multilingual and multicultural environment.					
	Collaboration skill					
13	Curriculum enables students for working with team members on projects					
14	Curriculum encourages students in how to contribute individually to the team work					
15	Curriculum motivates students for interconnected learning with classmates.					
16	Curriculum instruct students in how to connect with peers by using e-mail, video conferencing, and social media etc.					
	Information Skills					
17	Curriculum helps students in how to search and access relevant information.					
18	Curriculum understand students in how to evaluate and assess the obtained information					
19	Curriculum helps students in how to classify, manipulate and store the collected information					
20	Curriculum guides students in how to apply the collected information.					
	Technology skills					
21	Curriculums understand students in how to create knowledge by using technologies.					
22	Curriculum enables students for the effective use of technologies i.e. Internet, laptop, eTablets and smart phone etc. for learning purposes.					
23	Curriculum motivates students for setting up peer learning networks i.e. interconnected learning through technologies.					
24	Curriculum understands students the legal/ethical issues regarding access and use of technologies.					
	Media Skills					
25	Curriculum understands students in how to analyse and evaluate media messages.					

26	Curriculum enables students in how to create media messages.					
27	Curriculum train students in how to utilize the most suitable tools of media,					
28	Curriculum understand students the ethical and legal issues regarding the access and use of media					
	Adaptability and Flexibility Skills					
29	Curriculum guide students in how to appreciate and reply to feedback in a positive manner					
30	Curriculum educates students in how to work and adjust themselves in a changing situation or environment.					
31	Curriculum understands students in how to respond to the desired change in classroom tasks					
32	Curriculum guides students in how to receive feedback from teachers when students do write or wrong during classroom tasks.					
	Initiative and Self-direction Skills					
33	Curriculum enables students to solve problems and work on project independently.					
34	Curriculum guides students in how to initiate work on projects by themselves.					
35	Curriculum guide students in how to set goals for completion of projects.					
36	Curriculum motivates students for taking in time action to solve problems.					
	Social and Cross-cultural Skills					
37	Curriculum encourages students for effective working in a diverse team					
38	Curriculum guides students in how to interact with team members.					
39	Curriculum understands students in how to honor each other's point of view during working on projects.					
40	Curriculum exposes students to different cultures, languages and experiences					
	Productivity and Accountability Skills					
41	Curriculum motivate students for working on classroom tasks positively and ethically					
42	Curriculum enables students for completion of classroom tasks effectively and efficiently					
43	Curriculum train students in how to be responsible for results of a given task.					
44	Curriculum guide students to in how to be reliable and punctual during working on tasks					

	Leadership and Responsibility Skills					
45	Curriculum helps students in how to involve team members for accomplishment of a given task					
46	Curriculum train students in how to respect and appreciate team diversity					
47	Curriculum understands students in how to apply psychological approaches to stimulate and engage colleagues toward a common goal.					
48	Curriculum enables students in how to honor the interests and happiness of team members					

Annexure D

Interview for HoDs

1. Does your Department have a vision for identifying 21st century skills?
2. Are there standards for students to demonstrate 21st century skills in your school or district?
3. Do you understand that 21st century skills are being implemented in classrooms of your Department?
4. What obstacles/Challenges exist with the implementation of 21st century skills in your at department?
5. What are the most commonly used instructional practices in your Department?
6. What are the most commonly used assessment practices in your department?
7. Do you understand that 21st century skills are purposefully integrated into curriculum of BS programme?
8. How would you describe your school's approach to improvement around 21st century skills?
9. What challenges do you describe in higher education regarding implementation of 21st century skills?
10. What Strategies do you suggest for implementation of 21st Century Skills in Universities?
11. How would describe the strengths and potential of universities in Pakistan for developing 21st century skills?

Annexure E

Table for Determining Sample Size for a Finite Population

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970