SWOT ANALYSIS OF TRENDS OF EDUCATIONAL RESEARCH IN PAKISTAN

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ISLAMABAD-PAKISTAN
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Submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy (Ph·D)

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In the name of ALLAH,the most Gracious, the most Merciful

اَللّٰهُمَّ صَلِّ وَسَلِّمْ عَلٰى سَيِّدِنَا مُحَمَّدٍ وَّعَلٰى الْعَدَدَ اِنْعَامِ اللهِ وَاِفْضَالِهِ ۰

ALLAH HUMMA SALLE WASSALLIM ALA SAI-YE-DE-NA
MUHAMMADIWWA ALA AALE HE A-DA-DA IN AA MILLAHHE
WA IF DH(W)A LE-HE.

O' Allah shower Thy Blessings and Peace upon Holy Prophet
Muhammad (pbuh), our master and on his children
according to the number of Thy reward and Thy bounties.

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DEDICATION

I solemnly dedicate this delicate effort to those who are the symbol of pride for me, my loving and caring father Rana Muhammad Siddique Khan Bersal Associate Professor (R) Late who scarified his life and health on my education and made my life a success and my mother without whose affection and love and pray I would not have been able to substantiate my abstraction in this thesis. Then my beloved brother and sisters, they all the time pray for my success.

FORWARDING SHEET

This thesis entitled **"SWOT ANALYSIS OF TRENDS OF EDUCATIONAL RESEARCH IN PAKISTAN"** submitted by **Muhammad Musaud Asdaque, Registration No. 70-FSS/PHDEDU/S11** in partial fulfillment of **Doctor of Philosophy (Ph.D) Degree 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 further process as per IIUI rules and regulations.

Supervisor: **Dr. Syed Asad Abbas Rizvi**

APPROVAL SHEET

# SWOT Analysis of Trends of Educational Research in Pakistan

By

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Reg. No. 70-FSS/PHDEDU/S11

Accepted by the Department of Education, Faculty of Social Sciences, International Islamic University Islamabad, in partial fulfillment of the requirements for the award of the degree of **"DOCTOR OF PHILOSOPHY IN EDUCATION"**

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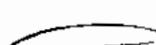
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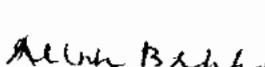
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External Examiner II: _____
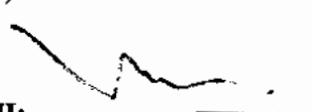
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Muhammad Musaud Asdaque

ABSTRACT

The research in education field has gone through massive transformations due to innovative methodological approaches and inclusion of new subject areas. The SWOT analysis of research trends is important for improving research activities. This study aimed to conduct the SWOT analysis of trends of Educational research in Pakistan. The objectives of the study were as (1) to classify the research works conducted in the field of education at doctoral level in terms of themes and research methods; (2) to find out the existing research trends in educational research areas at doctoral level research in Pakistan; (3) to identify the priority areas in the education field for planning the future research activities in the education field; (4) to conduct the SWOT analysis of trends in educational research in Pakistan. The doctoral theses submitted at the departments of Education at Pakistani universities during 2000-2012 constituted the population of this study, and 247 doctoral research theses accessible at the higher education commission (HEC) website were selected as sample for this study. The education dissertation research form (EDRF) was utilized to quantitative data from 247 doctoral theses, while the interviews were used to collect qualitative data from 16 research experts working at the Education departments. For quantitative phase universal sampling technique was used and for qualitative phase purposive sampling technique was used. Quantitative and qualitative data were analyzed using descriptive statistics involving frequencies/percentages/rank order and thematic analysis, respectively. The semi-structured interview questionnaire was used in qualitative data collection. The findings of the study revealed that the research trends showed the predominant use towards using the quantitative research methods and use of descriptive statistics for data analysis. It was also found that public sector performed better than private sector universities in terms of research productivity. The overall trend of research showed improvement during 2008-2012. It was also shown that the areas of the research were ignored including the educational psychology, early childhood education and elementary education, curriculum development, sports education, crime education, moral and Islamic education. The interview and EDRF data supported each other showing the research gaps in these areas. SWOT analysis of trends of Educational Research in universities of Pakistan indicated strengths, weaknesses, opportunities and threats to the educational research trends. The main strengths of the educational research included high experience faculty, originality, quantitative research, research for all, active supervision, promoting critical thinking, innovative teaching methods and talented researchers. The major weaknesses in the educational research found by this study included the availability of less research grants, delays in graduation, the lack of innovative and practical research, the lack of research activities in leadership/policy making and partnerships. The opportunities reported by this study to increase the educational trends/activities in the areas of leadership and policy-making, provision of research grants, development of instructional technologies, building partnerships and focus on the innovative and practical research. The main threats to the educational research found by this study were the withdrawal of research funding, lack of interest in research and non-conducive environment and the lack of research aptitude. Based on the findings, this study suggests that the research trends in educational field can be strengthened by exploiting opportunities and minimizing the impact of threats, educational research at doctoral level.

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ABBREVIATIONS

AIOU	Allama Iqbal Open University, Islamabad
AITA	Applied Inductive Thematic Analysis
BZU	Bahaduddin Zakariya University, Multan
CERI	Center for Educational Research and Innovation, Austria
DCIs	Data Collection Instruments
EDRF	Educational Dissertations Research Form
FUI	Foundation University, Islamabad
GU	Gomal University, Dera Ismail Khan
HEC	Higher Education Commission, Pakistan
HUK	Hamdard University, Karachi
IIUI	International Islamic University, Islamabad
JUWK	Jinnah University of Women, Karachi
KU	University of Karachi, Karachi
NPS	Non-Probability Sampling
NUML	National University of Modern Languages, Islamabad
OECD	Organization for Economic Co-operation and Development
PS	Probability Sampling
PU	University of Punjab, Lahore
PUK	Preston University, Kohat
QUISP	Qurtuba University of Science and Technology, Peshawar

R&D	Research and Development
SUIT	Sarhad University of Science and Technology, Peshawar
UAAR	University of Arid Agriculture, Rawalpindi
UE	University of Education, Lahore
UOS	University of Sargodha, Sargodha
UOSJ	University of Sindh, Jamshoro

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Educational research plays a key role in leading to the developed nation, educating the societal standards and moving forward to the ethical and financial perspectives of the nation by examining the problems and issues confronted by the societies (David, 2009). Without making endeavors to have a profound knowledge into the problems faced by the society and finding the cures to overcome the confronted issues and problems, it is not conceivable to anticipate a solid society and developed country. The education is not limited to a single area of interest, it has a wide notion that wraps all the areas of interest and is used as a tool that gives way to advancement and development in all fields of life. (Bacca et al., 2014). Hence, the education given in many fields of information is an instrument in moving forward the learning and information sharing practices (Peril & Promise, 2000). Educational research is utilized as an equipment to discover the problems and investigate the strategies to tackle the challenges efficiently and give suggestions to improve the knowledge and pedagogical methods (Ary & Walker, 2013). Despite the overwhelming role of education in any society, there are some scholars who think otherwise, for instance, Wolf (2002) showed that education was not the key to economic development in any country. Some other scholars stated that education has a limited role in the development of social and moral values (Dewey, 2007; Teichler, 2007).

Pakistan, being a developing country, has tried to improve the quality of learning and teaching processes in various disciplines through research such as education, psychology, sociology, and science subjects. Historically, various efforts have been made not only to develop the research competencies of the educational departments across the country but also to improve the educational research either through the allocation of research funds and grants to the competent research departments and experts in the educational field. The transformation of University Grants Commission (UGC) into the Higher Education Commission (HEC) was another step to enhance the research activities and support the endeavours to improve the processes associated with the teaching and learning system applied to all disciplines of knowledge (Rahman, 2011).

Since 1960, educational research has carried a considerable impact on the improvement of learning and psychology through the betterment of teaching practices. The research methods have assumed tremendous importance in addressing the research aims and objectives effectively. In addition, the reliability of the data gathered through research also plays a fundamental role in increasing the quality of educational research. For example, if the data gathering instruments and data analysis tools are not robust enough to improve the quality of information gathered from the sample of the study, they can weaken the validity and reliability parameters of the qualitative and quantitative data (Mortimore, 2000). However, Mortimore (2000) also expressed his opinions in another presidential address that education has made 'almost no impact on practice in education. The empirical evidence also supported it. Nonetheless, this evidence is limited, as the majority of researchers showed evidence of education playing a vital role in healthcare and other sectors, especially in developing countries (Krueger & Lindhal, 2001;

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Hargreaves, 2003). This shows that it may be true that in developed countries, education no longer assumes the critical role, but in developing countries, education does play a fundamental role in shaping the social and economic development (Wolf, 2002).

By perceiving the importance of research methods not only for the improvement of the research data, but also for providing the right information for correcting and refining the research issues, it is critical to make effort to evaluate the robustness and their level of applications in the research processes using the systematic approach (Mingle, 2000). According to Mauch and Sabloff (1995) the educational research and related methodologies are the useful pillars in facilitating the learning and teaching processes, improving the performance of educational institutions through the selection of right, effective and robust research tools and resources.

In the current era where competition has increased to a great extent to harness the utility of knowledge, there is a great emphasis on educational research as how to develop educational themes and methodological approaches to conduct useful research endeavours for the improvement of research and education quality. The developed countries have spent a great deal of their budget for the development of research ideas and exploration of new research themes to promote educational research. However, the developing countries are still struggling to apply robust research design and methods for improving the credibility of the research findings from the educational research. Therefore, it is important to evaluate the types of the research methods, their relevance to the research issues and their effectiveness used in the past research projects, so that guidelines for improving the research process can be provided (Kogan & Hanney, 2000).

Research in education has always been subjected to harsh criticism from critiques. For instance, Moore (1987) commented on the educational research that badly designed research produced poor and unreliable outcomes; therefore, design of the research holds great importance in making it effective. Indian literature on the distance education was analyzed by Panda (1992); and he concluded that "most of the studies are descriptive status with poor methodological footing" (Panda, 1992). The criticism of Saba (2000) on educational research is directed towards the incoherence and absence of theoretical underpinnings: "research questions are rarely posed within a theoretical framework or based on its fundamental concepts and constructs". Perraton (2000) also seems to be agreed to views of Saba by stating that theoretical framework is useful in explaining the logics behind methodological choices.

The question arises about whether these critical views are applicable to the educational research in Pakistan. The current research project intends to perform the SWOT analysis of trends of educational research concerning themes and methodological approaches. Lee et al (2004) put a great deal of emphasis on the fact that researchers and policy-makers need to understand the quality of research methods and their suitability to address the research questions for advancing the research in education. In a Delphi study, Zawacki-Richter (2009) established the classification of educational research areas by conducting the literature reviews of past published studies undertaken in education field for the past five years. According to Mishra (1998) the structuring of a research discipline lays a foundation for the classification and identification of research gaps and research questions for future research (Arthur & Davies, 2010).

The educational patterns emerging in 21st century are far different from that of 20th century. In this new pattern, application of research and theoretical knowledge is underway to create productive learning environment in universities. In this context, priority should be placed on information-seeking, data-analysis, the reasonability and problem-solving. Moreover, research competencies including team-work, peer evaluation, imaginative and creative abilities, flexibility and resilience are also among the new skills (Young-Gil, 2010). Though the vagueness of definitions of the foregoing skills is evident in educational literature, the emphasis is placed on the acquisition of skills and their utilization for creating a new economy of knowledge and information which can be useful for the welfare of the mankind.

With the advent of educational technology, the educational processes related to the teachings and learning faced different challenges and scholars have suggested that the issues to the educational processes can be dealt with focusing on the research issue and finding the right tools to address the problems using systematic research approaches (Chang & Tseng, 2000). Policy-makers and educators in almost every country obtain the directions from the research results of previous studies to refine their policies and policy outcomes in the educational field, thereby findings of the research activities have direct utility in the process of refining educational parameters in the educational research (Townsend & Cheng, 2000; Weber, 1989). In the face of fast-changing environment, many policy-makers and educators are on the horns of dilemma in the development of comprehensive framework of education reforms which assure the quality improvement in both well-studied and understudied areas of education in order to meet the challenges in

both local and international communities in the new millennium (Kogan & Hanney, 2000).

For achieving consistency and best outcomes from the research projects, a well-planned and systematic approach is needed. In return this will ensure the quality of research and productivity at Pakistani educational institutions. In addition, this research work is critically important for harmonizing the research themes to be researched with the research themes being researched at international level. Therefore, the research projects need to be aligned with pressing issues in Pakistani society at Pakistani educational institutions. There is a dire need to conduct educational research in those fields that have been left behind in research work (NQAAC, 2004).

1.2 STATEMENT OF THE PROBLEM

Currently there is no research study in the literature which is attempted to show the research trends in terms of research methods and research topics investigated by researchers at the educational departments in Pakistani universities. Though hundreds of the research dissertations have been submitted to the research institutes in the educational field in Pakistani universities, however, there is a lack of considerable empirical evidence regarding the utility and functionality of the research data in improving the curricular delivery and management practices in the field of education. Moreover, there is a lack of data about the strengths and weaknesses of the research data submitted to Education Departments in Pakistani universities. Therefore it is important to conduct SWOT (strengths and weaknesses, opportunities and threats) analysis of research trends in education. It is a mixed methods study involving document analysis and qualitative interviews to find out the changes in trends in educational research. The classification of

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research trends in education is occurred from time by time. There are many types of research. Some types of research activities are focused more in Pakistan, and some are ignored. It is the need of time to find the trends in educational research. The analysis found out the different trends of educational research (Prior, 2003).

Furthermore the scarcity of assessment, classification and identification of research themes, quality checks of research methods aggravated the problem of decline in educational research quality. Currently, there is no data available to the research experts and policy makers regarding the types of research design used in previous research works and their relevance to research issues. Therefore there is a need to classify the research by methods in order to find the relevance of the findings to the real teachings and learning, and to enumerate the number of research activities per area of the education, so that gaps in the research and priority areas of education can be prescribed for the future researchers.

The literature of educational research in Pakistan is designed to identify the classification of research areas, the location of gaps and priority areas in educational research is necessary to cause innovation and improvements in the educational system of Pakistan. Against the backdrop of these problems, the researcher has conducted a comprehensive review of PhD dissertations from 2000 through 2012 in order to find out the existing trends, SWOT analysis of these trends, to suggest the potential emerging trends, to explore the most used methods and possibility of use of some new research methods and to provide the recommendations to research community and policy makers as how to improve the quality of educational research at doctoral level research. So the

problem to be investigated is "What is the SWOT analysis of trends of educational research in the field of education in Pakistan?"

1.3 OBJECTIVES OF THE STUDY

Following were the objectives of this study:

1. To classify the research works conducted in the field of education at doctoral level in terms of themes and research methods

2. To find out the existing trends in educational research at the doctoral level in Pakistan

3. To identify the priority areas of education for future research activities in the education field

4. To conduct the SWOT (strengths, weaknesses, opportunities, threats) analysis of trends in educational research in Pakistan

1.4 RESEARCH QUESTIONS

This study has the following research questions:

1. How the educational research that was conducted by the universities can be classified in Pakistan?

2. What is the classification of research by methods in education?

3. What is the level of research productivity in educational research at Pakistani universities?

4. What is the level of gender representation in educational research in Pakistani universities?

5. What are the trends of educational research conducted in Pakistan?

6. What are priority areas of education for designing future research activities in educational research in Pakistan?

7. How the strengths, weaknesses, opportunities and threats related to the doctoral research in education can be conducted in Pakistan?

1.5 SIGNIFICANCE OF THE STUDY

This study contributes the key data about the research trends in Pakistan to the existing literature. This knowledge is important in terms of increasing the awareness of the research quality in terms of the methodology used and research areas explored in the past and present at the Educational research institutes in Pakistan. This study reveals the key characteristics of the research portfolio and potentials of Education Departments in universities. The policymakers and practitioners will benefit from these characteristics to align the research direction to the effective methodology and best quality controls to make it more practical and applicable in nature.

The findings of this study were significant in terms of exploring research gaps in different areas of education such as early childhood education, adult education, sports education, quality assessment of teachers training and special education. These areas were not researched extensively. So this study helped inform the policymakers and practitioners in the educational field such as HEC and academic leadership at Pakistani universities that special attention should be paid to promote research activities in these areas.

This study is first of its kind to conduct the SWOT analysis of the research potential of the Education departments in Pakistan. Without building the research potentials in the right direction, the research profile of the Education departments cannot

be improved. This study is critical in highlighting the emerging research areas in Education fields showed to which extent these developments in the research areas are helpful in addressing the challenges faced by the Pakistani nation in the field of increasing the literacy rate and building the educational system. For the first time, this study reveals the ignored or under-researched areas through the document analysis of the past PhD research theses submitted between 2000-2012. This is critical for the policymakers at Higher Education Institutions and Academic leadership and researchers at Pakistani universities to gain better knowledge and understanding of the research directions, the areas of the research, the over-researched areas and the under-researched areas in the education field. These data contributed to setting the priority areas for shunting the funding to the ignored but important areas of the research.

This study does contribute to the existing knowledge relating to the quality of research, trends in educational research and opportunities to improve the educational research at the Pakistani universities.

1.6 DELIMITATIONS OF STUDY

1 The study was delimited to only those Public and Private Sector Universities having faculties/institutions/departments of Education in Pakistan.

2 Doctoral level research works (Theses) in the subject of education available on the Pakistan Research Repository from 2000 to 2012.

3 SWOT analysis is based on the human judgement that may be questioned.

1.7 RESEARCH METHODOLOGY

In the first stage, the literature was reviewed using the desk analysis to explore the research trends, the developments in different areas of educational research and the

appropriate practices in the educational research in the education field worldwide. This provided the researcher with the opportunity to formulate key questions about the research in the education field and methods to approach the issue of research trends of educational research in Pakistani universities. In the second stage, based on the research issue and aim of this study, a mixed method research design was selected which involved the collection of data about the past research trends using the Educational Research Dissertations Form (EDRF) and interviews to explore the research trends. A part of interview was dedicated to questions related to SWOT analysis to explore strengths, weaknesses, opportunities and threats in the educational research of Pakistani universities.

1.7.1 Research Design

According to philosophical worldview, the research design is explanatory sequential and it consists of:

1. Describing the objectives of the research.

2. Collecting the information from selected theses.

3. Analyzing the quantitative data with qualitative data

4. Drawing the conclusion from gathered data.

5. Determining the trends of research and SWOT analysis.

6. Finding and observing the data.

7. Exploring the new dimension for educational research.

This type of research was considered on the basis of purpose, methods and approach.

Considering the two-phase design identified by Creswell, (2009) explanatory strategy was adopted. The design can be figured in this way.
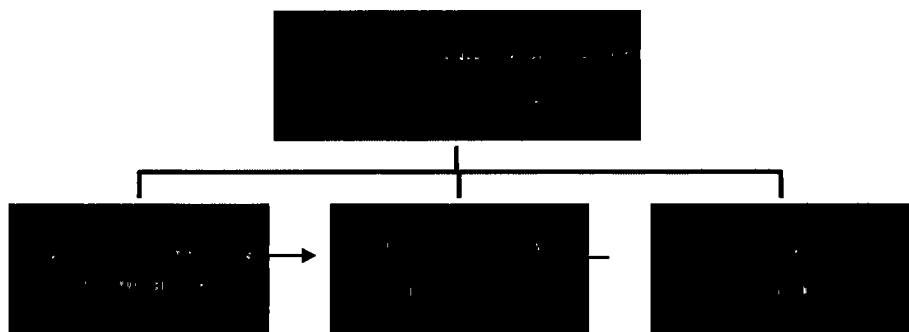
Figure 1.1 Methodological framework of research Source: Creswell (2009).

Figure 1.1 Illustrates the methodological consideration for the study as the explanatory sequential mixed methods design was used, in which quantitative data collected from the PhD theses, and trends identified by the quantitative data were explained and understood by conducting the qualitative study with research experts. Due to the time factor in the study, chronological strategies were adopted for data collection for which the explanatory approach was appropriate (Creswell, 2009). The quantitative methods used for EDRF and qualitative methods used for the interview. The data were disassembled when they had separated into different sections, followed by organization of sections into codes which are more understandable. These fragments are then rearranged through coding to produce a new understanding that explores similarities, difference across a number of different cases. The developed codes are selected and exhaustive comparisons are made in order to infer the broader categories (Ranjit, 2014).
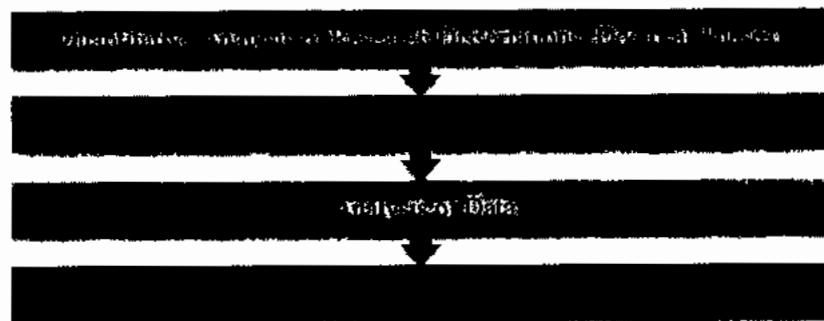
Figure 1.2 Research design Source: Goktas (2012).

Figure 1.2 The figure illustrates that the quantitative data were collected and analyzed through the quantitative analysis of research dissertations, thematic analysis and coding the related materials of qualitative data. The data were analyzed on the basis of a quantitative and qualitative approach.

The overall theoretical framework designed to find the research trends and SWOT analysis of research trends is shown in the figure 1.3:
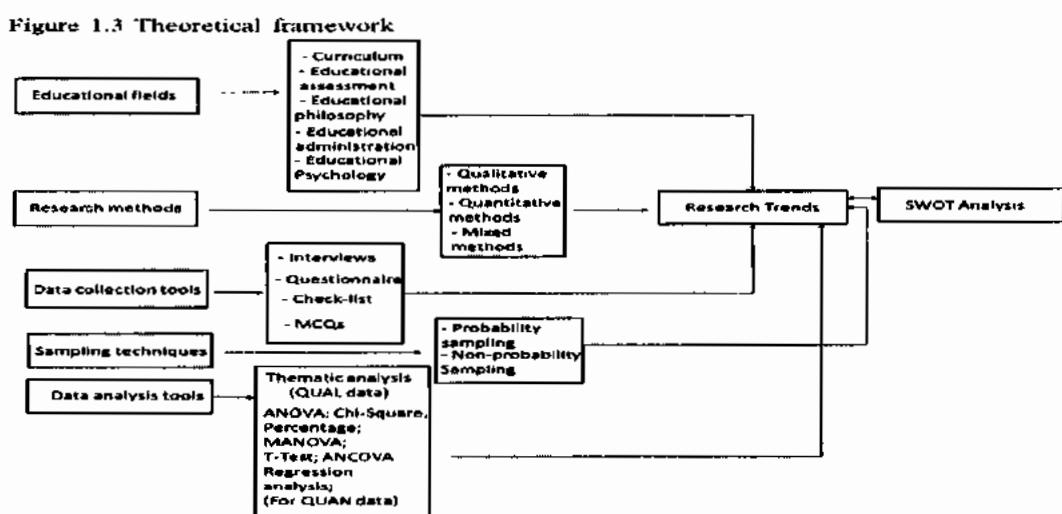
Figure: 1.3 Conceptual models for Content Analysis Source: Ivankova (2006).

1.7.2 Population of the Study

The PhD theses submitted to the Education Departments at Pakistani universities between 2000-2012 and uploaded on HEC research repository constituted the population of this study. The scholars submitting these theses were awarded PhD degrees successfully by the education departments, faculties and institutions of Pakistani Universities (Higher Education Commission of Pakistan, March 2014 (eprints.hec.gov.pk).

1.7.3 Sample of the Study

Universal sampling technique was used for this study, which enables the researcher to select only those doctoral theses from the population that were available on the HEC research repository. The 247 theses were the sample of the study, as they were accessible on the HEC repository (Higher Education Commission of Pakistan, March 2014) (eprints.hec.gov.pk).

1.7.4 Instruments

Following instruments were used according to the nature of data

1.7.4.1 Educational Research Dissertations Form (ERDF)

The data from the study sample (247 doctoral theses) were collected by designing the Educational Research Dissertations Form (ERDF). The Educational Research Dissertations Form (ERDF) was designed as a part of document analysis for the collection of data which is a modified version of Educational Research Papers Classification Form" by Goktas et al. (2012) (See Appendix A). Furthermore, the supervisor's assistance was sought in designing the ERDF.   Each dissertation was

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subjected to a document analysis by applying the "Educational Research Dissertations Form". The ERDF was face-validated by experts who looked for any discrepancy in the structure or wording of the questionnaire and recommended it to be used for the current study. Documents are useful in rendering more visible information and data regarding phenomena under the study (Prior, 2003). Document analysis has several salient features, for example, it is a systematic way of analysis (Bailey, 1994). Coding of text from document analysis was executed. Coding is referred to a process of converting texts into small meaningful segments (Creswell, 2009).

1.7.4.2 In-Depth Interview

Leading research group leaders in selected universities overseeing the PhD research experts were selected as population and sample from the participating universities. Semi-structured interview for in-depth interviews involving both open-ended and close ended questions were designed to collect the data from the sample population. Face validation of semi-structured interview was sought by consulting with supervisor for correction regarding the sequence/order of questions, language and understandability of questions in the interview.

Table 1.1

Instruments for Data Collection

Document Analysis	EDRF from doctoral theses about research trends in education according to the topics and methods
Interview	From the experts of education about trends and SWOT analysis of educational research

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1.7.5 Data Collection

The following data collection procedures were used;

ERDF: This was developed to collect the data from the PhD theses available on the research repository of HEC Pakistan.

In-depth Interviews: The interviews were designed to collect the data from the supervisors/research experts at the selected universities. Interviews were administered through personal visits; and wherever it was not possible due to the lack of funding and resources, interview questions were delivered via the postal method. The responses were returned by hand or by postal method.

1.7.6 Data Analysis

Following the data collection stage, EDRF data were analysed using the descriptive statistics (frequencies, percentages, ranking order). The interview data were analysed using the applied inductive thematic analysis.

1.8 DEFINITION OF KEY TERMS

There are some key terms that are used. Here, the operational definitions are as under

1.8.1 Research

The research word derived from "recherché" means "to seek again or travel through or survey". Research is a careful, systematic and patient process of inquiry, using scientific methods to solve the problem or establish facts and relationships (Shami, 2006). The educational research means to identify the issues either through the personal observations of the researchers or through scanning of the existing literature and constructing research questions which can add value to the theory and practice in education.

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1.8.2 Educational Research

Educational research represents the systematic way of collecting data relating to specific educational problems and issues in the field of education. It involves the application of various tools, methods and approaches for data collection and data analysis depending on the nature of the research questions (Shami, 2006).

1.8.3 Thesis

A thesis is the vast body of written work necessary for gaining a PhD or MS/M Phil by research and course work based (https://www.wg.aegee.org/ewg/higheredu.htm).

1.8.4 Higher Education

Higher education means university level education after 12 years of schooling. It offers several qualifications ranging from Bachelor Degrees to Honor Degrees and as a further step, Postgraduate programs such as Masters Degrees and Doctorates (https://www.wg.aegee.org/ewg/higheredu.htm).

This chapter consisted of the introduction and background of the study, statement of problem, objective of the study, research questions, significance of the study, delimitation of the study, and assumption of the study, research methodology including research design, population and sampling, tools of research, data collection, data analysis and definition of key terms and at the end closing paragraph. Next chapter has consisted of review of related literature.

CHAPTER 2

REVIEW OF RELATED LITERATURE

The last chapter provides information about the background of the study, statement of the problem, the objective of the study, research questions, and significance of the research and delimitation of the study, research methodology including research design, population and sampling, tools of research, data collection data analysis and definition of key terms. This chapter defines research. This shows the purpose and types of educational research. This chapter provides the background about the educational research and development activities by purpose and method and shows the research and its relationship with the knowledge. It also presents details about the diversity and maturity of the educational research and gives the issues in the field of educational research. Then it gives the overview of the reaction to the issues of the educational research in developed countries. The overview of reaction of Pakistan to the challenges in the educational research is also presented in this chapter. In the end, the research gaps are given and a summary of this chapter is also there.

2.1 RESEARCH

Research is an organized activity and structured inquiry that searches the solutions to the problems and issues in any discipline by assuming the systematic and scientific approach. In other words, research is a systematic process of pinpointing issues,

developing reliable and accurate procedures to address the issues under study (Robert, 2004).

All the problems and problems in any discipline are approached through the development of sequential process starting from the problem statement, through the development of aim/objectives/research questions findings suitable tools and methods to address the objectives and to the reporting of results. The reported findings are expected to contribute to the further development of knowledge, theories and practices (Kumar, 2009).

Neville (2005) posits that research is a systematic study of a subject matter of adding information. In research, the topic is already recognized but for one clarification or another need to be measured once more. On the other hand, this word can be used without a hyphen and in this case it is usually meant to investigate a new problem or observable fact (Neville, 2005).

Research is carried out in both social sciences and science disciplines to resolve various issues and problems. The current study aims to explore the research trends in the education field; therefore, the focus of literature reviewed in this chapter is placed on the educational research. The next section discusses the purpose and types of educational research (Kumar, 2009).

2.2 EDUCATIONAL RESEARCH

The educational research can be defined as the process of inquiry which begins with the emergence of problems and issues in the education field. The identified issues should be of such natures that they can either be a hurdle in the progression of knowledge

and theories or can pose a challenge to the existing theories and knowledge; such problems can be harmful and detrimental to the development of education as a distinct discipline. Therefore, the identified problems lead to the development of transparent and manageable aims/objectives/hypotheses/research questions which are addressed through the development of new or existing methodologies. Hence, educational research is a useful way to find the solutions to the identified problems and allow the development of new knowledge, theories and practical implications (Gay, 2009).

2.3 RESEARCH TRENDS

Themes and trends emerged from research data regained from Universities and research database, classify them to get them subjected to longitudinal analysis for comparison of past and present educational research trends. They also predict future patterns of educational researches (Griffiths & Blat, 2005).

So the classification ranges to the fields of educational development, educational technology, academic management, resources types and subjects. In this context, the most relevant is the educational classification. The educational classification of research consists of these sub-categories: planning and administration, educational psychology, plan and policies, curriculum, teacher education, primary education, secondary education, distance education, assessment and evaluation. The database is searched or browsed using keywords by areas of education, planning and administration, educational psychology, plan and policies, curriculum, teacher education, primary education, secondary education, distance education, assessment and evaluation (Campbell & Littlejohn, 2001).

2.3.1 Trends in Educational Research in the 21st Century

The 21st century has brought its challenges in the teaching and knowledge sharing field, and the educational research was expected to unfold these issues to dissect the problems and provide the suitable remedies to deal with these challenges. According to Barjak (2004), the research trends in the educational field in the 21st century are condensed into three main categories: developments in the field of information and communication technologies for the teaching and learning purposes, the establishment of the economy or network society, and the development of knowledge-driven economy or society.

The need for developing the information and communication technologies in field of education arose due to several factors and trends in education such as the huge competition between the public and private sector educational institutions, networking, implementation of policies, and the advances in the field of distant education (Drysdale et al., 2013; Bacca et al., 2014). This led to the competition between virtual and traditional educational institutions. The policymakers and educational experts felt a greater need for improving the teaching and learning processes at the departments of Education across the world (Yu-Chen et al., 2012). Though this trend was more evident in the developed countries such as the USA, the UK, Australia, Germany, Canada and New Zealand than the developing ones, which might be due to the fact these countries were pioneers in developing such technologies for communication and knowledge sharing (Lee et al., 2009; Chang et al., 2010).

The research endeavor conducted by OECD and published with the title "Global Research Village" led to an improvement in the communication among academics,

between teachers and students, giving access to the scientific knowledge/data, electronic publishing, and improved the modes for teachers training (OCED, 1998). Through the implementation of findings of research activities in enhancing the efficiency and performance of education department, accessibility to knowledge databases was increased, leaning and retention of knowledge was reinforced, the cross-border communication between institutions and academics were improved as was seen in the form of partnerships and collaborations between the research groups working in different organizations across the globe, and significant growth was observed in the electronic publications available to the researchers. The research activities in the education field also resulted in the improved efficacy and performance of the educational departments in both developed and developing countries. However, many scholars conducted content analysis and showed that developing countries showed more interest in developing and implementing the communication and IT infrastructure to support the teaching and learning functions in Education Departments through large-scale investments and commitments on behalf of leadership of institutions and governmental policy-makers (Bozkurt et al., 2015; Hwang & Tsai, 2011).

The network society or economy means that different research groups in Education departments can collaborate to make innovations, generate new ideas, and report useful data to the educators and policy-makers. The research has shown that governmental agencies and research community are focusing more on the collaborative research endeavors, which not only resources, but it also brings out some useful results due to coordinated research efforts within a short span of time (Yu-Chen et al., 2012). Hwang and Tasi (2011) argued that "this is the latest trend in educational research to

provide recommendations as to how to develop the effective and durable network societies in the educational field, which can develop the new research instruments and tools to address the problems and issues encountered by the academia and government to control the poor quality of education". Several researchers in the developed countries have contributed to the establishment of such societies through publications in the area of improving coordination and collaboration between researchers (Kondracki et al., 2002; Szyika, 2012).

De Jong (2007) argued that the researchers in the Education departments are classed as the knowledge society, thereby making the departments of Education as a knowledge economy. The latest research activities have been emphasized exploring issues in promoting the science education and development of science curricula, which are expected to improve the function of the departments of Education as a knowledge

Davies et al. (2010) showed that intensity of the research was increased in distance learning between 1998 and 2007, which led to overcome the social and cultural barriers in collaboration by focusing more on the production of knowledge and using the knowledge sharing as a mechanism to communicate with each other. Erduran et al. (2015) demonstrated that the research trends between 1998 and 2014 indicated more emphasis on augmentation of science knowledge through creating links between the Departments of Education in universities for creating productive awareness and solving the issue of funding in science education. Bacca et al. (2014) argued that the industrialists could provide funds for research and innovation, and the process of developing knowledge was observed to be increased through educational institutions and industry partnerships.

society. The focus of the research in the 21st century has shifted to strengthen the teachers' training, coordination and knowledge sharing for the amelioration of teaching methodologies in different disciplines, and development of new research tools to address the complex research issues in the education field (Ary et al., 2013).

The research activities between 2000 and 2009 showed that mixed method research was used by the experts in departments of Education as the knowledge society to resolve the complex issues such as the implementation of new tools and teaching methods in the field of education (Goktas et al., 2012).

Taken together, the above discussion on the latest trends shows that cross-border collaborations, establishment and promotion of knowledge societies, and the application of information and communication technologies are the most recent research trends in the education field in the 21st century, as the focus of the research shifted to the foregoing components. The Departments of Education in developing countries need to follow suit of the developed countries to improve upon these processes (De Jong, 2007).

2.3.2 Research Trends in Advanced Countries in the Education Field

Many countries from the developed world have developed their academic institutions, especially the education departments to deliver quality education in all disciplines. The research expertise developed by the UK, the USA, and Canada based education faculties showed a shift in their research interest to the science, childhood education and adult education (Lin et al., 2014; Tsai & Lydia Wen, 2005). All of three areas are complex and critical for the improvement of social settings, education of society and preparation of talent for the future leadership in the education field. In addition, Lee et al. (2009) noted that research groups from Australia, the UK, the USA and Canada

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have shown more interest in solving many issues in the delivery of knowledge in psychology and science disciplines between 2003-2007. They further showed that trend was shifted more towards student learning contexts from the student conception learning and conceptual change. The students are motivated at the primary and secondary education levels to develop their aptitude for scientific or social activities, and resources, both teaching and learning, are provided to them to excel in their field of choices (Lin et al., 2014).

The content analysis conducted by Chang et al. (2010) indicated that main improvements are made in the area of assessments of students at the end of the semester. The technologies for assessing the students through summative and formative assessment methods were developed through the research projects such as 'learning for the life' project in New Zealand, the government-sponsored projects in Australia, the UK, the USA and Canada. The concept of knowledge economies or societies were introduced by the UK and contrived the research projects to solve the challenges in the way of successful collaborations and coordination from all research groups working in universities to take part in knowledge sharing process within e-learning framework (Shih et al., 2008). The criticism, has been directed to the role of technologies, has not changed the nature of learning and that many of the claims and assertions in the literature are contradicted by empirical evidence.

O'Donoghue (2014) highlighted the research trends in Australian context and in relation to educational system of New Zealand that both countries have developed their teaching and curricula strengths in different subjects through the research activities supported by the historical contexts of New Zealand and educational context of Australia

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and New as revealed by New Zealand History of Education Society established in 1970. The researchers worked on developing the new research methods, data analysis and data collection instruments such as the application of mixed methods - qualitative and quantitative methods which are suitable for addressing the complex issues in the education field. Shih et al. (2008) reported that the utility of the findings in policy and decision making was improved as a result of the new research methods. In addition, through research work in the field of pedagogy, the digital technologies were developed and implemented in secondary and higher education institutions to create value for the stakeholders, however, the role of digital education in promoting educational research is still needed to be supported by the evidence (Shih et al., 2008).

Similarly, Cavas (2015) reported the research trends in the USA, the UK, Germany, New Zealand, Australia and Turkey, and showed that most of the research activities conducted between 2011-2015 were focused on addressing issues in relation to curricular changes, pedagogical methods and innovative teaching strategies, educational technologies and learning characteristics. The author concluded that the researchers in developed countries worked more and produced a higher number of publications compared to the developing countries such as India, Estonia, West Indies and Kenya (Cavas, 2015).

2.4 PURPOSE AND TYPES OF EDUCATIONAL RESEARCH

The social and behavioral scientists are expected by political authorities and some researchers working with them to create generalizable research outcomes, which can be generalized to different social settings (Gorski, 2006; Gauchat, 2012). All along, a distinction has been made between the production of knowledge that policy-makers,

administrators, institution leaders and teachers would apply in policy and practice. The relationship between knowledge production and applications of gathered understanding is problematic. In this context, educational research may be helpful to consider knowledge production and knowledge utilization as a variety by which different types of intellectual activities can be explained. Educational research is intended at exploring educational issues lying at the core of learning behavior, learning processes and cognitive developments of students.

The educational research aims to give insight into social and cultural issues which should be resolved to create harmonized system of politics across all institutions. Educational research has brought forward much knowledge, some of which must be deemed highly sophisticated. "Educational research's viewpoint cannot be delivered by the kind of independent research strategies suiting to the policy-makers' needs unless fact-exploration is incorporated at the core of research endeavors" (Shavelson, 2010).

Alreck et al. (2011) agrees to views of Shavelson (2010) and accentuated that educational research is the scientific method of solving educational problems and issues. It is also the source of new inventions and interventions. It can be classified in several ways such as educational technologies, classroom management, administration of educational institutions, and pedagogical methodologies. Moreover, based on methodological approaches, they may be classified into qualitative, quantitative and mixed-methods research endeavors (Shavelson, 2010). The qualitative studies are conducted in situation which lacks in theoretical underpinnings to the research issues, while quantitative studies involve application of conceptual framework to address the research issues, and mixed methods are employed, when the research questions cannot be

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addressed via application of a single research method. A wider approach used for classification of research studies involves the type of data employed by studies. The discussion on types of educational research by purpose, method and approach is presented in the following figure 2.1;

2.5 TYPES OF EDUCATIONAL RESEARCH

In this section, the types of research in social science disciplines are discussed. The educational research can be divided into three categories: research by purpose, research by method and research by approach. Each research type has sub-types as shown in the Figure: 2.1 Types of research by purpose, by method, by approach;

```
                    Types of educational research

    Research by          Research by          Research by
    Purpose              Method               Approach

    Basic                Experimental
    Research             Research             Quantitative

    Action               Descriptive
    Research             Research             Qualitative

    Applied              Historical
    Research             Research             Mixed

    Evaluation           Comparative
    Research             Research

    Research and         Co-relational
    Development          Research
```
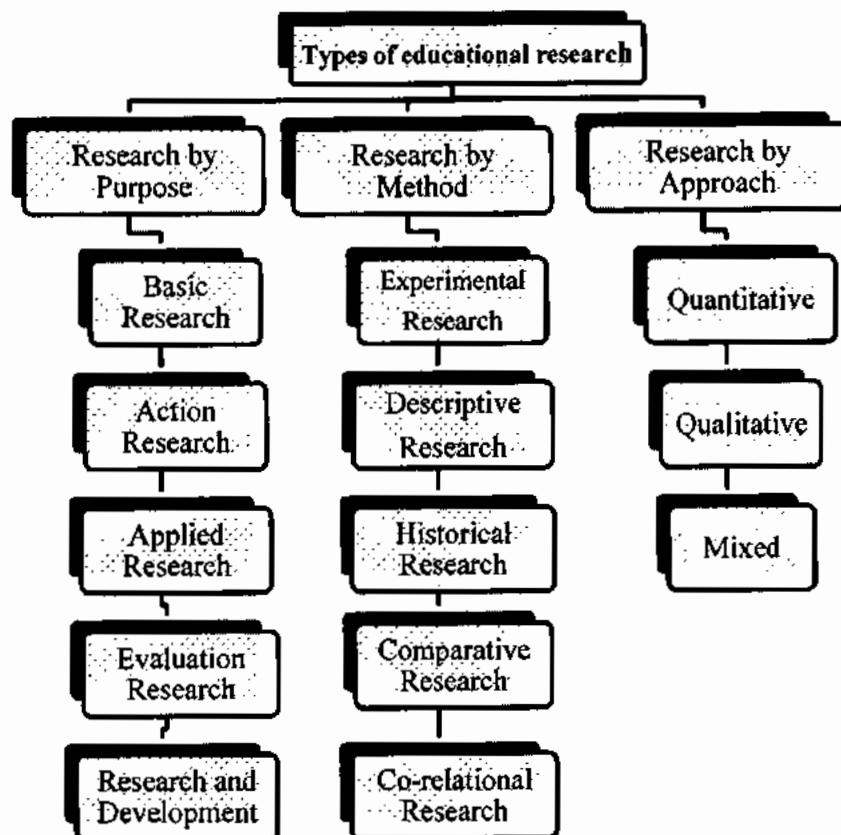
Figure: 2.1 Types of research by purpose, method, and approach (Anderson, 2012).

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The discussion on the types of research shown in the figure 2.1 is given in the following sections.

2.6 TYPES OF RESEARCH BY PURPOSE

There are five sub-categories of the research by purpose, which are explained below;

2.6.1 Basic Research

Developing and testing theories are the ultimate objectives of any basic or fundamental research endeavor. Hypotheses are tested using the rigorous statistical methodologies and outcomes of data analysis are discussed in the light of previous studies. This reflects the critical thinking and interpretation of findings of the basic research in comparison with other studies. The outcomes of the basic research may have a practical application at present or in the future or they may not have it. This type of research is concentrated upon developing, analyzing and verifying and further refining the approaches and procedures derived from the methodologies employed by existing research studies conducted in similar domain of the research (Kumar, 2009).

Basic principles and testing theories are focused on basic research. Though it is common perception which is mistakenly claimed by some scholars that basic research carries no or little practical value, but the evidence suggests that basic research leads to answer research questions which deals with problems in the real world (Stanovich, 2007).

2.6.2 Action Research

Action research solves practical issues through the implementation of the scientific method. It is about a local problem that is conducted in a domestic setting. The basic

purpose of action research is the solution to a given problem (Gay, 2009). Action research is a special type of educational research that involves the following features;

for example, it may focus on collecting data to address the practical educational issues with reliable results, reflecting on the results and their correlation with existing educational issues, developing the educational plans and subsequently implementing the educational solutions learnt from the action research studies, reflecting upon the changes in educational programs and verifying the reflections through action research studies, developing improved solutions based on the learnt lessons from the action research studies. Action research can either be carried out by a single staff or teacher or group of teachers which is also called "collaborative action research".

2.6.2.1 Individual Action Research

In the case of individual action research, teacher or member of school staff endeavors to explore the improvements in the students' learning outcomes resulting from the implementation of an educational plan or a program. For instance if a whole group instructional intervention over a certain period of time. The researcher may explore the factors improving performance of students using the qualitative research approach, or can measure the student's learning outcomes through application of quantitative research approach. The ultimate goals of individual action research to report the effectiveness of educational plans/programs in a typical educational context (McLean, 1995).

2.6.2.2 Collaborative Action Research

In the event of collaborative action research, group of teachers set a goal such as improving the reading skills of the students in language classroom. Suppose they apply

the reading technological intervention to improve the reading skills of students over 10 weeks, and are interested to look into whether the implemented intervention improves the reading outcomes among a class of language. The teachers involved in the program arrange weekly meetings with each other and with principle of the school in order to discuss the outcomes of interventions. The compare the newly acquired reading skills and students' performance with old reports from students, and based on data they draw their conclusions about the effectiveness of intervention, ways to improve the quality of learning and implementation strategies of the same or similar learning programs designed for students studying science or math (Stanovich, 2007). Hence action research is a powerful tool for evaluating the research work aiming to address the research questions with certain level of complexity through the collaborative action research.

There are several benefits of the collaborative action research reported by researchers for educational practitioners, for examples, it help identify the strategies for refining the educational programs, changes in curriculum and learning methods, engaging teaching staff including leadership of schools with the curricula and changes in teaching methods in order for refinement of learning outcomes for students. Despite benefits of collaborative action research, it carries some drawbacks; one of the main drawbacks of this methodology is rarely applied by researchers in effective manner due to predominant biasedness towards the descriptive approach and lesser focus on the experimental aspects of the research design. Additionally, the conclusions about cause and effect are trustworthy only because of robust experimental research designs. Limitation of action research is that it is limited to one classroom or school which means that the results cannot be implemented to other classrooms or schools. Internal validity and external

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validity are not usually found in action research studies because they are generally not beneficial for making policy decisions (McLean, 1995).

2.6.3 Applied Research

According to Stanovich (2007) "specific set of circumstances are examined by applied or functional research, and its ultimate goal is to relate the results to a specific situation. It has specific goals, and it enables the attained information and results for the betterment of humanity. In applied research data is used for real-world application directly" (Stanovich, 2007).

To apply or test theory and to evaluate its usefulness in solving educational problems, applied research is conducted. Educational rules are used for the betterment of the teaching-learning process. Most of the educational research studies would be classified rightly or wrongly at the end of the field (Gay, 2009).

2.6.4 Evaluation Research

Evaluation research is mainly employed for decision making purpose, and refers to collect and analyse data from the educational programs and plans for examining their performance in a particular educational setting. It may involve the following questions:

- Is the special program worth what it costs?
- Is the new experimental reading curriculum better than former curriculum?

To answer such type of questions, the collection and analysis of data are required (Gay, 2009).

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2.6.5 Research and Development

Effective products used in institutions are developed by the research and development. Products produced by research and development efforts include: set of behavioral objectives, learning material, teacher training material, media materials and management system. Research and development differ from other types of research. The researchers in research and development-based approach involve the examination of particular educational products such as educational kits and innovative teaching methods introduced as part of the reforms-based frameworks. The outcomes of this type of research are employed for improving the educational interventions at different stages of the development. For instance, if teachers are engaged in developing the innovative teaching kit for math students, the research and development-based research approach can be used to assess the usability of each stage of the kit at development stage, and if there are any loopholes, they can be addressed by analyzing data derived from each phase of development of math teaching kit. It may be summative, if the purpose is to examine the effectiveness of innovative teaching in terms of improving students' learning outcomes (Bailey, 1994).

2.7 TYPES OF RESEARCH BY METHODS

There are five sub-classes of the research by method, which are experimental research, descriptive research, comparative research, historical and co-relational research;

2.7.1 Experimental Research

Experimental research is mostly employed for examining the effects of multiple variables with each other, such as analyzing the effects of independent variables over the

dependent variable. These can be used in a systematic fusion into determined effects on other variables. Hypotheses concerning cause and effect relationship can truly be tested by experimental research. The word 'hypothesis' is used in the sense of 'sensible speculations' raised by the researchers showing the relationship between two variables. The most logical approach to the solution of educational problems both practical and theoretical is represented by it and to the advancement of education as a science. The researcher uses relationship of independent variables with the dependent variable, one or two independent variables. The aim is to determine the effects of intervention who received the treatment compared to those who did not get the treatment (Gay, 2009). For example, experimental research can be used to determine the effects of new textbooks on learning outcomes of students. The student who studies the new textbooks is labeled as treatment group, while the students who study existing textbook will be called control group. The data from both groups will be analyzed to find out the impact of treatment on experimental versus control groups (McLean, 1995). If the intervention is applied students randomly, then design of experimental research is called randomized trials or true experimental research design. However, if the intervention is implemented on group of students meeting the particular characteristics matching with intervention, then experimental research design is called quasi-experimental one (McLean, 1995).

2.7.2 Descriptive Research

Descriptive research starts with the selection of conceptual framework based on literature review, hypothesis development, and testing of hypotheses using the suitable statistical instruments. Descriptive research may be used to confer data upon various situations and events in the educational settings, such as survey of teaching methods,

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students' learning outcomes, facilities provided by schools to teachers and students (Gay, 2009).

2.7.3 Case Study

Case study generally focuses on a single situation, event or entity in the social settings in order extract the in-depth information about various features and characteristics per requirements of the study for addressing the research questions. The case study-based research is mostly employed for understanding certain social, cultural or educational phenomenon in depth. It usually involves application of qualitative research design to extract data from the specified case or cases. The examples of case study may be extended to a variety of cases such as educational performance of particular schools, or assessment of learning outcomes for a particular class. The outcomes of case studies are not generalizable to population in contexts other than the case study, students' performance in rural areas, and students' performance in urban areas (Allan & Skinner, 1991).

2.7.4 Survey Study

Surveys are used as part of the quantitative research design and are considered an important source of data collection in the quantitative studies. Surveys are usually conducted over larger sample size, administered to sample via email or face-to-face distribution methods, and involve the closed-ended questionnaire in the quantitative studies. Survey in the qualitative study may involve the semi-structured interviews with multiple choices (Alreck, & Settle, 1995). It is imperative for any study that it should collect the opinions of the participants. Given sensible information-collection strategies, respondents are often genuine but may exaggerate things. The instructive decision-

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making must be based on sound proof, not on conclusions. Essentially, the legitimacy of overviews is confronting a serious challenge, and usually it is troublesome to attain (Mathers et al., 2007).

2.7.5   Historical Research

Historical research is about describing and explaining the various occurrences and situations in the past. For instance, historical research can be used to trace the evolution of current teaching methodologies and training procedures developed for the teachers since the end of 20th century (Stanovich, 2007).

2.7.6 Comparative Research

Two or more groups of participants are described by the researcher with comparative investigation. For example, a questionnaire is conducted to the three groups of teachers about their classroom experiences. Three different schools are chosen because the schools differ from each other in the ways of professional development that they provide to teachers (Allan & Skinner, 1991).

2.7.7 Co-relational Research

Co-relational research refers to the research activity in which a research tries to determine the association between different variables using the suitable statistical approaches. The statistical association can be given through co-relational research between two variables, or multiple independent variables with a single dependent variable. For example, if the research question involves whether the student-teachers ration impacts the students' academic performance, then the multiple regression analysis

or multiple correlation statistics can be used to report the association between independent and dependent variables (Gay, 2009).

2.8 TYPES OF RESEARCH BY THE APPROACH

There are three main categories of research by approach which are quantitative research, qualitative research and mixed method research;

2.8.1 Quantitative Research

The quantitative research refers to the investigating certain social phenomenon by using statistical, computational or mathematical tools which are focused on analyzing the quantitative data. The process of measurement plays an important role in quantitative research because it mathematically or statistically establishes relationship between the variables under investigation. The summary of data occurs in the form of frequencies and percentages. Quantitative researchers may ask multiple choice questions in order to elicit the required information from the participants. They collect numerical data from participants to answer the question. Data is analyzed by the researcher with the help of statistics (Gay, 2009).

The data yielded impartial results that can be implemented to a large population. On the other hand, qualitative research works on questions starting with 'why' and 'how' to extract data regarding participants in a peculiar social setting. In social sciences like education, political science and psychology, quantitative research is widely used, while is not widely applied in anthropology and widely in history. Quantitative techniques can be used for the verification of such hypotheses which are true (Creswell, 2009).

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2.8.2 Qualitative Research

Qualitative research is all about texts and words which are given by participants of the study as a result of specific questions asked from them by researchers. The analysis of texts is done in qualitative studies, while numbers are gathered and analyzed in the quantitative studies (Merriam & Sharan 2009). The qualitative approach may be used as a tool for having good understanding about the human behavior, thinking towards particular products and services, and evaluation of utility of some product, and experiences with and about a social phenomenon. It seeks to provides explanations about the queries which begins with 'when', 'what' and 'where' (Creswell, 2013).

2.8.3 Mixed Methods Research

It is a method which is popularly used for collecting data and analyzing data using multiple data collecting tools and data analysis methods. It starts with clear philosophical assumptions such as pragmatism and presents a particular inquiry method with intention to address the social issues with considerable level of complexities (Altbach & Knight, 2007). The mixed methods research is characterized by qualitative and quantitative data collection and data analysis instruments in a single study. The sequence of the use of qualitative and quantitative methods is decided by the researchers based on the research questions posed in a study. The sequence of mixing data in the mixed method researchers is useful for giving study logical explanation and answers for addressing a complicated research issue (Creswell, 2013). For example, a researcher may use qualitative method, and an outcome of this method informs the quantitative research design. Similarly, if the quantitative research method is used in the first place, then data from this method is

employed by researchers to construct the design of qualitative approach. Researcher may also opt for the using qualitative and quantitative researcher methods simultaneously to address various research questions in a single study (see Figure 2.2).

Merge the data:

| Qualitative data | ➞ | Results | ◂ | Quantitative data |

Connect the data:

| Qualitative data | ➞ | Quantitative data | ➞ | Results |

Embed the data:

Quantitative data
  Qualitative data   ➞   Results
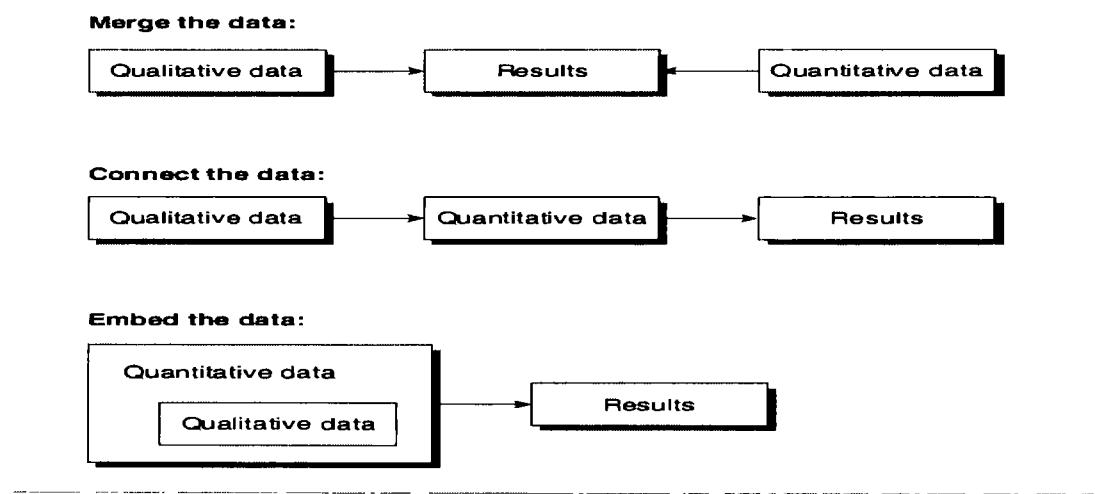
Figure 2.2 Ways of mixing data in mixed method research (Creswell, 2013).

After discussion on the types of research types based on the purpose, method and approach, it is important to discuss the research and development types by purpose and method. The next section explains the research and development activities by purpose and method.

2.9 TYPES OF QUALITATIVE RESEARCH

The commonly used data collection tools for the qualitative research include interviews structures/unstructured/semi-structured interviews, group discussions, document analysis, focus group, participants' observation and reflection field notes, different texts, pictures and other materials. The data gathered through these instruments

enables researchers to understand issues related to the cultural practices, motivational issues and emotional problems. The most frequently used qualitative research approaches are briefly explained below;

2.9.1 Ethnographic Research

This sort of research investigates the centers on a specific culture, comparison of societies to characterize the societies, particular designs and the part of culture in causing or tackling the distinctive issues in social sciences. Ethnographic investigates more often than not comprises of a depiction of occasions. These occasions happen inside the life of a gathering with specific reference to the interaction of people within the setting of the socio-cultural standards, customs and convictions shared by the group of people. The researcher is to begin with an interest within the typical life of the faction and after those employments what he learns from his participation. The illustration of this investigation may be a point of an account of the perceptions assembled by a researcher who is within the position of Principal's Collaborator to be completely included within the day by day school errands and intuitive experience by a school vital (Calhoun1994).

2.9.2 Critical Social Research

This type of research intends to dissect the communication among society members and understand the symbolic significance of the words or communication tools (Altbach & Knight, 2007).

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2.9.3 Ethical Inquiry

This type of qualitative research focuses on the questions and issues associated with social ethic governing the integrity of the social systems, rights, duty, right and wrong, choice etc. (Calhoun, 1994).

2.9.4 Foundational Research

This type of qualitative research tests and formulates the foundations of beliefs, systems and values in a particular discipline of knowledge or society (Altbach & Knight, 2007).

2.9.5 Historical Research

In this research, the events in 'the past' are evaluated to learn the lesson which can be applied to solve the issues in 'the present' (Calhoun, 1994).

2.9.6 Grounded Theory

This type of qualitative research uses the grounded theory which allows the researcher to apply the inductive method to infer the critical themes/patterns grounded the qualitative data (Altbach & Knight, 2007).

2.9.7 Phenomenology

In this type of research, the researcher focuses on the phenomenon to explore the 'subjective realities' associated with it in the views of the study population (Calhoun, 1994).

2.9.8 Philosophical Research

This type of research is used to explore the scientific, ethical, intellectual issues in any discipline (Creswell, 2009).

2.10 RESEARCH AND DEVELOPMENT ACTIVITIES

For the time being there is neither a consensus nor any agreement at the international level about the definition of educational research and development (R&D). There are, however, numerous definitions that have been adopted by definition bodies; mainly national educational research associations (OECD, 1994).

As an international standard for defining R&D activity is offered by the *Frascati Manual* (OECD, 1994). This manual, which was adopted 30 years ago by member countries of OECD, covered basic questions about the definitions of R & D and the convention associated with their use, is responsible for collecting and publishing data in educational developments in OECD countries. The *Frascati Manual* is oriented to the collection of data on national resources allocated to R & D activities as a whole. It provides less direct guidance on specific fields of R & D especially those in the social sciences such as education. However, the manual provides an internationally accepted methodology for measuring R & D activity. The manual defines this term as followed;

"Research and development (R & D) comprise creative work undertaken on a systematic basis to increase the stock of knowledge, including knowledge of man, culture and society and the use of this stock of knowledge to devise new applications". The key distinguishing characteristics of R & D as defined by the OECD are originality and investigation as a primary objective. Research and development end when the work is no

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longer experimental or investigative. Once the activity has become routine and has moved beyond the development stage, it is no longer defined as R & D. Moreover, the manual defines R & D as comprising three main activities" (OECD, 1994).

"Basic research may be hypothetical or experimental work attempted basically to procure modern information of the social occurrences and phenomena, while applied research work is targeted to resolve a particular issue in classrooms or administration of the educational programs. Experimental research focuses on drawing theories from existing literature, then utilizing these theories to produce new knowledge. The outcomes from both experimental and applied research works can be used to formulate policies, streamline operational programs, and evaluate educational programs and reforms (Aasen, 1993).

The following activities are excluded by manual from R&D definition: business-level operations, activities targeting education and training, and operations supporting administrations (OECD, 1994).

Two of these exclusions pose particular problems for educational R & D. The first is that all activities involving specialized non-university or university-based tertiary education correspond broadly to education and training. The conceptual issues arise because there is, for example, a fine line between the training of research workers and their role in conducting or assisting in research studies. The second exclusion that poses difficulties to educational R & D is the exclusion of the other related scientific and technological activities. This means that technological innovations implemented, for example, in classrooms, libraries and museums are excluded as well as activities such as

a regular collection of statistics on social, educational and economical phenomena (Campos, 1995).

Critics of educational R & D may with some justification draw upon this clarification to argue that much of what is conventionally considered educational research and experimental development should not be classified as such, since much of what currently passes as educational R & D is neither novel or original and certainly can lay claim little in the way of resolving scientific and/or technological uncertainty (OECD, 1994). This is true if the educational research is seen from the perspective of implementation into the real-world scenarios. The less or low implementation and application of the educational research mainly owning from the poor quality results in little emphasis of policy-makers on the utility of educational research for resolving scientific or technological observations (Aasen, 1993).

The definition issues are compounded because the field of educational R & D is of relatively recent origin and involves a variety of disciplines both in universities and in specialized research institutes. While multidisciplinary is an essential feature of educational research. It does also constitute a problem of identity. Educational research cannot hope to "resolve" problems through the linear application of scientific or technological "solutions". By the standards of the Frascati Manual, this must be taken to imply that education as a field of study is at best an uncertain discipline (Gruber, 1995). Against this background, the knowledge produced by educational research should be discussed. The next section delineates the research and nature of knowledge (Campos, 1995). This uncertainty in the educational field mainly comes from the lack of the systematic methodologies or exploring the facts in non-scientific manner, which puts the

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outcomes at risk of biasedness and parochial approaches towards investigating the research issues at its best. Therefore, it is imperative to signify the systematic exploration and authentic and genuine research methods which can support the reliability and validity of the findings (Aasen, 1993).

2.11 RESEARCH AND NATURE OF KNOWLEDGE

There have been, in the main, two views of the nature of research in education and the kinds of knowledge it yields. There is expectation on behalf of some researchers working with political authorities in the disciplines of social and behavioral sciences to produce knowledge that is independent of context which is neutral for social values. Along with this expectation, a distinction has been made between the production of knowledge and its application linearly to solve the problems. In this view, researchers would produce knowledge that policy-makers, administrators, school leaders and teachers would apply linearly; in policy and practice (Gruber, 1995).

The resistance to the practical implementation of educational research by the practitioners mainly stems from the following reasons: 1) Educational research is published in obscure locations in obscure language, 2) the findings of the most studies are regarded by experienced teachers as either irrelevant or something they know anyway from experience. When researchers with teaching credibility present the findings, the teachers' communities warmly embrace them. In fact, the teachers become very enthusiastic about learning more, which will further lead to the development of various practices in the educational field as a result of educational research (Gruber, 1995).

Contrarily, leadership of schools and teaching staff hold the view that research activities carry little value for decision-makings due to not being compatible with the environment of classrooms in which decisions are made. The knowledge produced by researchers originates from reflective practices which are not part of actual experiences in classrooms, and is only affiliated to the personal and social norms. True knowledge can be gained through embedment of research activities within context, which can reflect professional practices and experiences in the education (Campos, 1995).

The relationship between knowledge production and knowledge use is problematic. In this context, it may be helpful to consider knowledge production and knowledge utilization as a continuum by which different types of intellectual activities can be described. Researchers, scientists, teachers, administrators and policy-makers all produce and use knowledge. The knowledge available to the practitioners and decision-makers at various levels in the education system is not applicable practically; therefore, results are not only from research but also from implementation of knowledge. Insights derived from experience and the knowledge produced by reflective practitioners can offer an important basis for decision-making. Another significant contribution to the knowledge base is derived from administrative programs such as monitoring and evaluation programs initiated at various levels in the education system. Education statistics and indicators constitute a further important element of the knowledge base (OECD, 1994).

2.11.1 Activities of Researchers

However, there is a marked distinction between the activities of researchers and those of teachers, administrators and policy-makers from the viewpoint of educational research. Whereas the latter are concerned with solving problems encountered in educational practices, in administration and educational reform work, the research workers discourse both liberates and limits the activities of researchers compared to other knowledge-producing agents. The nature of the knowledge researchers contributes to the theoretical and practical literature depending on the conceptual frameworks (ones which are realized to explore factors or relationship of variables with each other) employed in the disciplines (Aasen, 1993). The knowledge researchers are defined as entities who strive to produce facts, principles which involve deep understanding and critical thinking in other scholars and teachers to improve their pedagogical practices.

Yet Kogan (1995) views the possibility of reporting knowledge and research outcomes in line with the contextual issues, if researchers are concerned with finding facts about the relevant context, suits to the contextual needs, and help policy-makers in improving the educational processes and practices in a particular educational environment. Hence, research activities can contribute to resolve the practical and professional issues in educational system through focusing on pertinent issues while keeping less focus on theoretical issues (Kogan, 1995).

2.11.2 Role of Educational Research

Educational research provides tentative knowledge that may be informative, advisory and problem mortising in terms of the issues faced by policy-makers,

administrators, as well as practitioners. Often the problems it identifies and finds concept and vocabulary to become clear and salient in the policy arena some years after researchers identify them. Research also importantly provides a critical challenge to many traditional or commonsense beliefs and practices. It thus becomes essential and relevant to practical and political activities indirectly and sometimes insidiously (Weiss, 1998).

Even if the knowledge produced by educational research, as a role, independently and authoritatively sanction certain forms of educational practice or political decisions, it may collect data and analyze educational institutions as economic and social institutions, working practices of teachers and educational leaderships, relationships of students and teachers, learning practices implemented by teachers and relationships between society and schools in a wider context. Educational research, therefore, is a mean of converting financial capital into a human knowledge base but the production process is decidedly unclear, and the benefits are uncertain. Research knowledge can contribute to the development of competence and can enrich and balance the attitudes of professionals involved in decision-making and educational practice. In a knowledge- and research-based society answers do not come easily, but decision-makers and problem solvers continuously get better arguments to shed light on the issues before them, which enable them to define the issues better and hence make better choices (OECD, 1994).

2.11.3 Operational Solutions

The education R&D serves as function of solving operational issues in the education discipline. Researchers have sought to undertake research work in education at

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interfaces of various disciplines for creation of useful knowledge for practitioners, which even shadow the importance of R&D models. Organizational structures are fabricated in such a way to accommodate the space for R&D activities. This has given rise the phenomenon of multidisciplinary research activities in education field, which is comprehensive in nature, and try to produce useful outcomes for practitioners. Taken as a whole, such structures are unlikely to produce universal, homothetic knowledge legitimizing political or educational decisions and other practical solutions. Research may also contribute to establishing a coherent yet always tentative conceptual framework that places the school and educational system in a social perspective (Nybom, 1995).

From the above discussion, it was clear that research and development activities have shifted from the uni-disciplinary research to the multi-disciplines, thus emphasizing the integration of innovative modes of knowledge. In this way, the educational research scope covers varied knowledge and concepts from different disciplines. The next section highlights the disciplinary orientation of educational research. This showed the emerging areas of the research in the scholarly research domain and the role of educational research in furthering the boundaries of other disciplines (Campos, 1995). The next section highlights the disciplinary orientation of scholarly research.

2.12   DISCIPLINARY   ORIENTATION   OF   EDUCATIONAL RESEARCH

Educational research is about seeking some keen understanding about some fundamental relations, for instance, structures, processes and contexts in the educational institutions, teachers and students can be explored. Moreover, the systematized approach

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to collect data, analyze data and reporting outcomes in relation to teachers-students and formative mechanisms related to the assessment and exams following the delivery of knowledge, thereby producing a useful knowledge for both theorists and practitioners in educational systems. As a field of study, education also nurtures mutually beneficial exchanges with other fields including psychology, sociology, philosophy, anthropology, economics, media studies, political science and history. Educational research has brought forward much knowledge base that offers certain premises for practical action (Lakomski, 2001).

Education is such a vast subject that practically covering all aspects is just a complicated process and requires plenty of deliberation and contemplation from researchers. Kogan (1995) is of the view that it might be useful to foster the inter-disciplinary research to resolve the complex issues in education field.

Lakomski (2001) describes that educational research should focus on developing knowledge and transferring knowledge to education institutions and practitioners, so that they can utilize such knowledge in construction of socio-political and economic fabrics of the societies and cultures. Critically speaking, the societies, and cultures, and polarization within societies are greatly attributed to the extent of the education delivered to society. The political processes are also shaped by education. Therefore, the main functions of educational research should focus on the development of cultural, political and economic aspects, through the financial contributions of the educational research are subject to criticism (Lakomski, 2001).

Socialization in this context refers to the process by which a child becomes a fully-fledged participant in a family, community and society. Hence, socialization is also about how the individual moves from a state of absolute dependence and lack of identity towards an ever increasing awareness of itself as a human being, at the same time becoming a participant in increasingly more substantial and more diversified social contexts. The formal aspect of socialization is the purposeful and planned influence brought about by education. However, socialization also involves informal and casual aspects that both facilitate and constrain the learning relations in society (Nybom, 1995).

Educational research is therefore not limited to questions such as: What should the individual learn? What is the individual going to learn in its environment? Or, what is the individual able to learn if subjected to instruction or training? Educational research should also strive to clarify the learning needs of individuals; what is actually learned in different environments and the complex interrelations between these environments and learning. Thus, educational research involves the disciplined study of learning relations at several levels by focusing on the socialization process including those of the individual learner, institutions and organizations and the broader socio-cultural, economical and political environments of societies (Kogan 1995).

Socialization may be viewed as a type of interaction process in which society "takes on" the individual, while at the same time the individual, in a certain sense, "takes on" the society. From the point of view of the individual, it is paramount to get to know social interaction patterns and the prevailing ways of thinking in society to be able to lead a meaningful life. This would mean getting a job and carrying out one's work in a satisfactory manner. However, such "social competence" is also crucial for individuals to

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able to shape their lives within an acceptable social framework and to develop their potential of independent, critical human beings who, at the same time, can adapt themselves to social laws and norms. The principle issues in socialization, therefore, concern the development of insights and the acquisition and transfer of knowledge as well as adaptation, reproduction and social control (OECD, 1994).

The learning relations considered, here are linked with external conditions that change with time; educational researchers are constantly confronted with new tasks and challenges. This perspective leads educational research to consider learning relations for improvement and reformation of the educational structure which can fundamentally shape the social and economic structure. This is only possible when the quality of the educational research will be increased by focusing on real-world problems and their strategic implementation in the real world (Nybom, 1995).

2.13 FIELDS OF EDUCATIONAL RESEARCH

Educational research improves the functions of the educational institutions and learning outcomes based on the historical experience and educational theory. This multilevel conceptual framework invites educational researchers to develop their research work from quite divergent perspectives. The point of departure may be the actual learning of the individual, the formation of identity and personal development. It may also comprise the development of cultures or cultural elements based on which the individual would strive to master certain skills which are used as a source to gain the social status, financial security and employability.

It is for this reason that education as a field may be organized around related disciplinary orientations: educational philosophy, educational history, educational psychology, economics and sociology of education or around cross-cutting perspectives as, for example, in pedagogy, the curriculum, educational governance and management, etc (Lee et al., 2004). Hence, educational research, which comprises research on institution-based learning in Kindergarten, schools, universities and adult education centers, as well as research on the informal and non-formal learning of children and adults, clearly has a multi- or cross-disciplinary basis. Psychology and social psychology focus on learning and learners. Sociology and anthropology concentrate on the cultural context of teaching and learning. Sociology, political science and economics focus on interaction and their influence on students and institutions. Social policy, administration, law and economics study systems. Philosophy is primarily concerned with meanings, intellectual relations, proposes and the ethics of educational practices.

Within and across these disciplinary orientations, educational phenomena can moreover be approached from various theoretical perspectives, including structural-functionalism, systems theory, post-structuralism, and interpretive and critical theory perspectives. Building on these perspectives, researchers then adhere to different epistemological perspectives which translate into rational and empiricist, positivist and anti-positivist position vis-a-vis the choice of research methodology. In the preceding discussion, it can be learnt that educational research and development activities play a critical role in providing the methodological choices to investigate phenomena in question. The next section discusses the diversity and maturity of educational research

showing the achievements of educational research and development in different disciplines (Lakomski, 2001).

Following are the fields or subjects of education in which educational research is done;

2.13.1 Teacher Education

Teacher education doesn't mean to make the teacher how to teach; it simply means to enhance and activate the natural capabilities and abilities of the teachers. It also means to enable the teachers on how to utilize short time, energy and money for the reasonably effective teaching outcomes. It aims at the training of the teachers that how they can deliver the pedagogical services and solves the associated problems in a more effective and efficient manner. Through this education the professional teaching skills of the teachers are increased. If a country aims to improve the standard of education, teachers' educational ability should be raised for this purpose. In the education field, highly qualified teachers should be appointed for quality education. Empirical evidence regarding the role of teachers' education and training in the early stages of teaching career to improve the pedagogical functions in the academic institutions. This shows that in initial phase of the teaching career, the academic institutions need to arrange the intensive training courses and procedures for improving the competencies of the teachers (Gordon, 2017).

2.13.2 Science Education

It is the field or branch of education which deals with science and education. In it different subjects of science in education are studied like biology, chemistry, physics, mathematics, computer science and geography (Black, 1992).

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2.13.3 Educational Psychology

Psychology is the combination of two Latin words "Psukhe and Logos." Psukhe means "breath or soul" and Logos means "study, logic or knowledge" (Anita, 2015, p. 10). In early times it was considered the study of the soul, later on, it became the study of mind, comprehension and behavior. In the present era, Psychology is the scientific study of mental abilities. However, Psychology is the science of the soul; Aristotle has defined it the basic principle of all living things. In present times, according to religion, the soul is eternal and has a strong link with Allah. Psychology as the science of mind: it is the study of the mental process. It is also defined as the science of consciousness; study is limited only the consciousness by leaving subconscious and unconscious of mind. Psychology is also the science of behavior and it has consisted of the responses and reactions of the living things. In short, the scientific study of mental processes and behavior is called Psychology (Anita, 2015).

Educational Psychology means the branch of psychology that implements psychological information on educational problems. In the present era, this branch is getting more popularity. Almost all the developed and civilized countries are running their educational institutes following the psychological rules. It's a very vast branch in itself, but it is to say that the main purpose of its implementation is to bring harmony and balance between curriculum and student. For this harmony, it's very essential to gather information about mental assessment and growth of the student. It also works on dull minded and weak students. Educational Psychology is a disciplined study that is not confined only to the teacher's personal assumptions rather vast observations and

experiences are its foundations that work on the scientific principles for the betterment of dull and weak students (Anita, 2015).

2.13.4 Curriculum Development

Curriculum plays a significant role in the educational process. The word Curriculum has a Latin origin. It is a runway, a course on which one runs to reach a goal. It is the only way that smoothes the educational process by which a student reaches his destination. For instance, if a student wants to become a doctor or engineer, for this purpose he chooses a curriculum that leads him to his goal (Akker, & Van, 2009).

2.13.4.1 Conventional Curriculum

According to the conventional concept of curriculum, it is considered the collection of subjects and the teaching of just these subjects is the completion of the curriculum. The book and the teacher have the central importance. Through the brutality of the teacher, a student is made to cram the lessons for knowing. Necessities and wishes of the student have secondary importance (Akker, & Van, 2009).

2.13.4.2 Modern Curriculum

Modern curriculum favors the student's inclinations and psychological principles. The modern era is the era of educational psychology. However, the curriculum is not the collection of just a few subjects; rather it is a group of all those activities which are directly or indirectly interlinked to education. Through these activities, the individual abilities are increased of the student. The student has the main importance (Akker, & Van, 2009).

Curriculum design is considered a major issue in the modern era of education, which must be dealt with through empirical research in education. However, educational research on the curriculum design is challenging to be performed due to many factors involved in the process such as leadership, teachers, and market forces. Many scholars have emphasized that curriculum need to be designed in line with the learners and employers' requirements. The experienced teachers know the answer, the optimal curricula design. This means that educational research concerning the curriculum design needs to focus on the exploring views of the veteran teachers in the educational field (Krueger and Lindhal, 2001).

2.13.5 Comparative Education

Comparative education is the study of understanding the differences and similarities in the educational system on the whole. It is the study of the different countries under the influence of educational systems. This study not only includes the educational set up, teaching, curriculum and method but also the causes of educational problems of any country and their solutions in the light of its national, social and political ideology (Sodhi, 2006).

2.13.6 Special Education

Special education means to give special attention to the students who need it generally. It is for the handicapped and disabled students who have some type of physical or mental disability. It is a fact that all students learn differently on all levels but some students need special support in this matter. It is different in curriculum and method of teaching. Some self-help skills like eating, dressing, etc are required to learn for the learners having a disability (Smith, 1998).

2.13.7 Higher Education

Higher education is the education of final stages of formal education that takes place after completion of higher secondary education. It is often delivered at universities, colleges, institutes, technical universities from bachelor to doctorate level. Higher Education is the need of the hour. In the present era the demand of higher education is increasing as it is the key to the progress and development of a country and nation. Students take the responsibilities and become socially and economically strong by getting higher education. Since the forty years, the demand and need of higher education is rapidly increasing (Brese & Daniel, 2012).

2.13.8 Educational Assessment

Assessment means evaluation and to diagnose the process. Literally educational assessment is a process where it is attempted to measure the learning and teaching quality and quantity using its various techniques. In this process it is estimated that to what extent the student has got the objectives of education (Nieveen, 2009).

2.13.9 Educational Administration

Educational administration means to control and manage all the affairs of school. It deals with the coordination of the activities of people. It has very vast scope because it includes the efficiency of the institutes. The functions and activities are explained through it. Appropriate materials are utilized in such a way to promote human qualities (Campbell, 2004).

2.13.10 Educational Leadership

Educational leadership is led by good leadership. It is a process that is exercised on situations. It is needed to focus on leadership theories, functions and processes (Coleman, 2007).

2.13.11 Educational Management

Educational management is referred to manage resources and tasks to attain defined objectives. It makes possible to accomplish the educational objectives with available human resources. It has the right to make decisions effectively (Coleman, 2007).

2.13.12 Educational Planning

Educational planning means to make decisions to achieve educational goals. It is a process in which decision makers check how well the education system is accomplishing its goals. After it, actions and measures are suggested for effective education (Medagama, 2016).

2.13.13 Early Childhood Education

The infancy time starts with the birth of the child until he leaves his mother's lap and starts walking. After that he enters in his early childhood period. Early childhood education is an informal education that a child gets from his environment. The most influential figure for the child in his environment is his mother. If the mother is trained and educated, the child will have good manners (George, 2007).

2.13.14 Primary Education

Education means to adjust according to the environment. Primary education sharpens the sense of adjustment. It's not the new process of adjustment because a child,

since his early time of birth starts learning to adjust himself according to the environment. This education helps the child a lot. "In Pakistan Primary education is consisted on class one to class five" (Douglas, 2007).

2.13.15 Elementary Education

After the Primary education, Elementary education is started which is consisted on three grades 6th class to 8th class. After the completion of primary education, the elementary education is started from 6th class. The major purpose of elementary education is to provide medium level of knowledge, skills and curriculum after basic or fundamental knowledge, skills and curriculum. Elementary education takes place between primary and secondary education (Smyth, 2000).

2.13.16 Secondary Education

Secondary education is an important part of educational system. Secondary education consists of two grades 9th class and 10th class. It not only provides manpower but also is gateway to the higher secondary education. After higher secondary education that supplies professionals of high rank to political, social and economic fields of country. Therefore, it is necessary to maintain education on secondary level in a way that can prepare students for attainment of higher education and lead them to successful and practical life (Douglas, 2007). The forgoing facts and figures fit in the Pakistani educational context rather than the developed countries.

2.13.17 Educational Technology

According to Gagne et al (1992, p. 12) "Educational technology is a combination of two words and the fundamental word of education has been extracted from the Latin word "Educere" it means to arrange, to guide and to give directions to the right way.

Hence, Technology is also a Latin word; it is the combination of two Latin words "Techne" and "Logia". Techne means skill or art and Logia means knowledge, science or formal education. Through Educational technology, anything can be learnt with skill and art. It is a disciplined knowledge with which different skills and techniques are learnt according to the necessities of the present time. Our society progresses due to technical inventions. In all fields of life technology has brought many different changes as well as in the field of education many attempts have been done for the better methods of teaching. Educational technology is the latest field of education. Educational technology is the set of practical knowledge and principle techniques which runs the designing, testing, planning and contents of curriculum, programs and the schools educational system (Gagne, at al, 1992).

2.13.18 Distance and Non-Formal Education

Distance education started from America and Britain and with the passage of time it has become common in other countries. Educational institutes are not established under this system. However curriculum and different teaching methods are implied that are supplied to the students through correspondence. Tutors are also available and print media and electronic media are used. When an individual learns from parents, surrounding, society and friends, is called non- formal education. In this educational system there is no curriculum and examination. This education is started from the birth of the child and mother's lap is the first institute of the child (Dodds, 1993).

2.13.19 Educational Sociology

It is a study of relation of education and society. In it, educational outcomes are studied under the influence of society with relations of others. Society itself, class,

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environment, community and culture are involved in it. It is obvious that educational process is incomplete without the interaction of society and the process of streamlining the education for meeting social needs. Social patterns and processes are analyzed by educational sociology. Family and school are also involved in the influence of study (Ravikumar, 2001).

2.13.20 Economics of Education

Economics is a social science subject that is concerned with choice making. In this study, social mechanisms are considered to be important for deciding as to what, how and for whom the goods and products should be produced. Economics of education is a field of study that is not different from economics. Economic principles and concepts are applied to the process of education is called economics of education. Human behavior, decisions and actions are studied in it (Enaohwo, 1990).

2.13.21 Islamic Education

Islamic education means to implement Islamic principles in education. Its aim is to make society Islamic in all respects. Therefore, it focuses on the promotion of religious beliefs in a student or a citizen. Every Muslim wishes to see his generation to be true in religion. It is only possible by Islamic education. So we can say that Islamic education is necessary for Islamic society. It is the only way that can reshape the patterns of life on terms of Islam (Talbani, 1996).

2.13.22 Educational Philosophy

The educational philosophy refers to a blueprint of the educational mechanism which is based on philosophical doctrines for education. Educational philosophy means to implement the philosophical principles in education (Talbani, 1996).

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2.14 DATA COLLECTION TOOLS

When a researcher wants to find out the solution of the problem, he collects data about that problem so he can find the solution of the problem by analyzing. For that purpose, the researcher collects material from different persons and books but he uses different tools so that he can collect accurate information from people. All these tools that help the researcher to collect the information are called Tools of Research, like as;

I. Interviews II. Achievement tests III. Attitude/perception/personality and talent tests IV. Open ended questionnaire V. Multiple choice questions VI. Semi-structured questionnaire vii. Structured-questionnaire (Fraenkel, & Wallen, 2008).

2.15 METHODS FOR DISTRIBUTION OF DATA COLLECTION TOOLS

Different methods are used for the distribution of data collection tools. They include:

I. Personally visit II. By Post III. Email IV. Online V. Monkey Survey VI. Interview (Akker, & Van, 2009).

2.16 SAMPLING TECHNIQUES

There are different techniques that are used for sampling;

2.16.1 Probability Sampling

It is the process of selecting the samples in which each unit in the population has a chance of its selection in the sample. Following are the kinds of probability sampling,

I. Random II. Stratified III. Cluster IV. Systematic (Shami, & Hussain, 2006).

2.16.2 Non-Probability Sampling

The process of selecting the samples in which personal judgment plays a significant role in selecting the individuals of a population in the sample; Following are the kinds of non- probability sampling;

I. Convenient II. Purposive/judgmental III. Snowball IV. Quota V. Accidental (Shami, & Hussain, 2006).

2.17 DATA ANALYSIS TECHNIQUES

Different methods for analyzing data which are applied to the collected data in order to draw conclusions. Data analysis also encompasses the critical step involved in organizing the relevant data in order to reach findings. The purpose of data analysis tools is to summarize data in such a way that hidden facts can be exposed. Data analysis includes activities of both qualitative and quantitative types. Following are different techniques that are used for analyzing data;

I. Chi-Square II. Mean/Percentages III. T-test/Z-test IV. ANOVA V. ANCOVA VI. Regression analysis and for descriptions (Fraenkel, & Wallen, 2008).

2.18 DIVERSITY AND MATURITY OF EDUCATIONAL RESEARCH

The history of educational research according to (OECD, 1994) spans over 100 years. The field has, nevertheless, produced a series of impressive results which have entered

the body of general knowledge and have also greatly influenced the development of education systems during the twentieth century. Some examples may illustrate these achievements of educational R & D;

1. In developmental psychology, Jean Piaget has analyzed the different stages of a child's cognitive development. This knowledge has greatly influenced thinking about the curriculum and teaching and learning methods.

2. In the economics of education, human capital theory and theories about endogenous development have shown the importance of education in economics growth. Efficiency and effectiveness in educational production have become cornerstones of educational policy.

3. In the sociology of education, studies have demonstrated the role of education in reproducing social relations in society. Equality for 'all' principles to have access to the educational facilities has subsequently become a key issue of educational policy.

4. The sociolinguist Basil Bernstein has drawn attention to the fact that different social strata use different linguistic codes. This insight has been influential in the development of programs for multicultural education, adult basic education and adult literacy. However, this argument may be challenged in the developing countries, where policies are blindly made without insight into the core issues.

5. Educational have expanded an insight into development of thoughts and knowledge and interaction between these two factors. This understanding has provided important guidance to curriculum developers and instructional designers. There are only a few of many examples showing that educational research conducted in a number of fields has enriched the body of knowledge relevant to educational policy and the practice of

learning and teaching. However, the field as a whole has not yet succeeded in bringing together this knowledge in a coherent, systemic view linked to a set of important goals and objectives in education as mutatis mutandis is the case in the fields of science.

A brief comparison between education and economics brings out the differences in the state of development of the disciplines. Economic advisors coming from varying schools of thought, for obvious reasons, give different advice to governments concerning possible solutions of practical and economic problems. At the same time, however, there seems to have been a degree of consensus on what is called the triangle of objectives (*e.g.* monetary stability), equilibrated balance of foreign trade and full employment; a fourth objective, economic growth, was added after Second World War. This consensus has weakened in recent years, however, since, for example, there is no longer a firm agreement about the means and ends of achieving full employment (Lakomski, 2001).

Education does not deal in discrete categories; its analysis requires reference to factors that range from those of the individual psyche to the management of large-scale organizations. Whilst, for example, economists deal with categories that are precisely the concern of the central organs of government; educational R & D is concerned with issues and constructs that are far wider and diffuse and susceptible to alternative identification at all levels of operation. Although there was some agreement about what the multiple functions of educations might be. It is unlikely that there is ever being a complete consensus about which of the following functions might be dominant at any time;

1. Personal development

2. Socialization

3. Vocational qualification

4. Allocation and distribution

It is also obvious that the goals underlying them can be in conflict. It is then a matter of educational policy to give more weight to some and less to the other functions. However, as has been argued previously the relationship between educational policy and educational research has not reached a point where advice from research to policy is always pertinent. This is, inter alia, also true for economic theory and economic policy. The contributions of individual scholars working within certain branches of the education field were emphasized in the brief description above of some of the early achievements of educational research. Although an individual scholarship always remains important and essential; the focus on individual achievement is misleading.

After the Second World War, the need for a new type of knowledge emerged; knowledge that supposed to assist in rational decision-making by enlightened policy-makers. The call for decision-oriented or applied educational research led to an "explosion of research institutions" (De Landsheere, 1986). In fact, state-run educational research institutions were established in many OECD countries, mainly between 1960 and 1975. Much of the work undertaken by these institutions has been of a decision-oriented and applied nature. Only a few of them, for example, the Max-Plank Institute for Human Development and Education in Berlin has resisted the call for decision-oriented activities and maintained a focus on basic research, albeit employing both positivist and humanist frameworks (Nybom, 1995).

The 1960s and the early 1970s, therefore, marked a new beginning in the history of educational research and was characterized by expansion and by the increased role of governments in the steering and funding of decision-oriented research. The establishment of various state-run research institutions is a case in point. The hopes and promises which are linked to this investment in educational research subsequently could not all be fulfilled. There are still serious shortcomings in the relationships between research, policy making and practice. But, as Huberman (1994) observes, such a situation is not uncommon in the early stages of development of a scientific field: "such applied fields as medicine, engineering and law have traversed the same identity crisis".

For many reasons, education again became a matter of keen political and economic interest in the late 1980s and early 1990s and the question of the role of educational research had assumed a complete novel approach. It is significant to note that many OECD countries drew up- either shortly before or after 1990 and mostly for the first time in the history of the field in those countries. National reports on the conditions of educational Research and Development (R & D) convinced that there are enormous tasks in education and that R & D can contribute to the solution of the problems. The editors of these reports look forward to open new perspectives for educational research (De Landsheere, 1986).

The rejection of linear models of research utilization is a common feature of these reports. In the United States, the Committee on the Federal Role in Education Research (US National Academy of Sciences, 1992) states the position succinctly that continuous investments need to be made in the educational research in order to gain practical benefits out of targeted and focused research works. Instead of the linear model, the Committee

argued for the idea of "learning communities" *i.e.* collaboration between educational researchers and practitioners while conducting research activities about resolving the education issues. This method is effective as each stakeholder contributes to the design of research and development of useful knowledge. Yet there is no denying that the potential of educational research in contributing to the development and improvement of education systems has not been fully exploited. This is a major limitation and weakness, given that the problems are both real and urgent. Not only do some problems continue to resist solution but new problems and challenges are being added at a rapid.

To conclude, the educational research and developments activities contributed to furthering knowledge and development of different disciplines such as psychology, sociology, science etc. However, these achievements of educational research can be threatened by several challenges. The next section discusses the issues and problems faced by educational research and development activities paces (Nybom, 1995).

2.19 ISSUES AND PROBLEMS OF EDUCATIONAL RESEARCH

The educational research and development activities are challenged by the crisis of confidence and perceived issues. The details of these issues can be given in the succeeding section.

2.19.1 Crisis of Confidence

1.   The general picture of national interests in educational R & D is that of slackening, if not decreased, support after the optimism about the power of the knowledge evinced in the 1960s and first half of the 1970s.The reasons are manifold. First, confidence in the quality and relevance of educational R & D weakened as those

countries which invested quite considerable sums in earlier decades in their educational systems found that they remained incapable of solving all of the many problems placed before them. During the 1950-1960 decade, it was believed educational research is a reliable approach for detecting, researching and providing solid solutions to improve both social and economic issues faced by society. Moreover, it is believed that positivist researchers can contribute effectively to produce factual knowledge which can directly address issues in relation to education, students a achievement, learning processes, labour market-education association, and education-economy relationships.

2.   It is obvious from research conducted in the mid-1960s, that OECD countries employed educational research to solve practical issues such as attainment of satisfaction and equity between societal demands and individual needs, allocating technical and scientific labour for developing and sustaining economies, and recognizing and solving the leaning needs of individuals (Eide, 1991). Patterns of research during 1960-1970 shows similarities in focusing on afore-stated dimensions and areas of knowledge, which opened up avenues for collaborations between researchers and policy-makers internationally, leading to establishment of educational platforms and societies, CERI (Center for Educational Research and Innovation) founded in 1994 represents an example of such collaboration, which is concerned with developing and changing the educational systems in developing countries to improve the societal and economic outcomes (Hargreaves, 2003).

3.   Another study assessing the position of educational research and its relationship to policy was conducted a few years later (OECD, 1994). The main themes of the survey were identification educational research's objectives and its potential correlation with

policy-formation and practices in the educational system. The study pointed out the difficulties in implementation of surveys in developing countries, as the educational institutions hold ambiguous status in most of these countries. Another issue was the lack of establishment of relationships and partnerships between R&D and policy-making institutions (Lowe, 1999).

4. The general inability to appreciate the implications of these issues which incidentally could not be presented in such terms resulted in leaving a gap between high expectations and promises and frustration with the actual performance of educational researchers (Goodwin, 1999). Therefore, frustration and unnecessary debates led to dissipation of the previous stability and enthusiasm. In the course of this debate, scholars held discussion about educational research's purpose and role in improving the professional practices in education, paradigms-related controversies, and methodological choices, validity and reliability issues to data and reported findings. These debates and discussions gave educational research a reputation of being fragmented and politicized. This state of instability and disarray which lasted for several years did little to keep up consumers' faith in the trustworthiness and applicability of the knowledge and insights produced by the various camps of educational researchers, and so, by the mid-and late-1970s, a general "crisis of confidence" in educational research had become apparent in a number of countries. This dismal state of affairs affected especially those countries where educational research had previously received substantial public support-for example Australia, Canada, Germany, Netherland, United Kingdom and United States (OECD, 1994).

5.   It is not surprising that many countries found it difficult to continue the same level of support for educational research, given that almost all faced severe budgetary constraints. It is the resources allocated which most rigorously denote the level of interest and they did not keep pace with general educational and other public sector expenditure. As Lowe (1999) has noted "the decline of research-based authority coincided with the emergence of the action research and participation movement which "in combination with the tendency of policy-makers to depend on common sense, judgments, adhoc planning further reduced to the scope for systematic policy-oriented research" (p.15). As a result, educational research "is under-funded and under-used". This disconnection between researchers and policy-makers can be attributed to two important reasons: 1) the kind of research undertaken in most schools and faculties of education worldwide is perceived as of little value, 2) the policy-makers start with a belief that, because they once went to school and university, they are experts in education. Furthermore, the political factors thwart the policy makers to consult the educational researchers prior to forming policies.

6.   Lastly, many countries now use forms of knowledge which is considered the R & D as the knowledge base for decision-making. Audit-style evaluation with its concentration on discernible outcomes and education statistics and indicators are among such examples (Nuttall, 1994).

7.   Recently, however, there are signs of a revival of interest throughout the OECD and in individual countries. The OECD Ministerial meeting held in 1990 (OECD, 1994) agreed on the importance of strengthening educational R & D. Some countries had undergone systematic reviews of their underlying policies: Australia, Germany,

Netherland, Sweden, Switzerland and United Kingdom (where the Economics and Social Research Council-ESRC-is principally concerned with educational research). In United States, recent moves towards the adaptation of voluntary national educational standards are some evidence of renewed faith in the power to advance social and educational ends. The US Government has recently undertaken a searching review of its research strategies prior to funding a newly strengthened system. There are explicit statements concerning the power of education to restore the economy made by the Finish national authorities in their recent policy review of higher education (Finland, Ministry of Education, 1994) and they fund educational research accordingly. Regaining lost confidence is difficult and takes a long time. There began a gradual slide from about 1975 in the public funding of educational research in a number of countries. The data leave little room for misinterpreting the trend. What is of interest, however, is not only the degree of decline but also what might be the beginning of the upturn in the late 1980s. In the United States, around 1987, there was a noticeable increase in the amount of public expenditure on the knowledge base of education-primarily research and development on statistics and indicators (OECD, 1994).

2.19.2 Perceived Problems

Above it was noted that the general decline of funding for educational R & D seems to have halted in a few OECD countries. It is not certain, however, whether this change is due to an improvement in the relationship between policy-makers and researchers or even that the former have qualified their critical perception of much educational R & D as being too fragmented, politicized, irrelevant and too distant from practices. Perceptions of the problems besetting educational R & D may have been influenced by national studies

of the value and utility of educational R & D undertaken in the late 1980s and early 1990s (McGraw *et al.,* 1992: Germany, 1994:Swedan, 1993: Swiss Science Council, 1993: US National Academy of Sciences, 1992: Kuh, 1994). These reviews and accompanying studies undertaken by academics (*e.g.* Finn, 1988: Kotrlik.,2002: Gagne, 1993: Kuh, 2008: Horner, 2005) were triggered by political changes that led to struggles over the future directions of research, for example in the case of the re-authorization of OERI in United States, the replacement of National Board of Education by the new Agency for Education in Sweden and the review and studies have identified several generic problems that appear to limit the value of educational R & D:

1.   Disintegration: Political specialists, policymakers, specialists and educational investigators regularly work at a long separation from each other. The educational investigators are in addition separated in their views on numerous imperative issues.

2.   Irrelevance: It is observed that educational research is not adequately funded in developing countries, which leads to production of irrelevant and weak knowledge base to support the robustness of educational policies, thereby weakening the overall impact of educational research activities on the policy-structuration and educational reforms. Additionally, the irrelevance of the educational research is due to the convincing effect of the research outcomes on the policymakers and the lack of focus of research questions having important issues in the real-world problems.

3.   Poor Quality: It is frequently claimed by critics that much educational inquiries (both quantitative and qualitative) are unable to stand up to the rigorous validity and reliability criteria. This is mostly because of poor planning of quality and coordination in conceptualizing and planning research endeavors around the prevalent research issues.

Partly the poor quality of research is attributed to poor justification of research methods and reliability of data analysis tools.

4.   Poor Capability: In European and OECD countries, there is low ratio of students to professors, delayed submissions of theses, issues of low staff to fulfill students' needs, and evens publications have fallen low. These indicate the poor capability of educational departments in terms of producing theses and publications.

5.   Little Adequacy: There's a hoary recognition that the discoveries resulting from the educational inquiries found narrow applications in practice and policy since much of research outcomes are irrelevant, but due to poor strategies adopted for dissemination of results to the relevant stakeholders including practitioners and policymakers in the field.

These generic problems were mentioned also in the country reports submitted to the Washington seminar (Nuttall, 1994). The list of perceived problems limiting growth in the educational R & D is also long and intractable. They can be inventoried as follows:

2.19.3 Funding

There are two main consequences of reduction in the funds available for educational research: financial and organizational problems for research centers and institutions; increased competition and market failures in educational R & D. The lack of funding to the educational research contributes to reduced inflow of talented young researchers and uncertainty about the research agenda for the near future and therefore problems in stating the course to be followed (Nybom, 1995).

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2.19.4 Planning and Government

Poor coordination and segmentation in the educational research is the hallmark of poor planning of the educational research. In addition, R & D is thinly spread. There is also a lack of continuity in research efforts. Poor product specification as a result of ambiguity especially in federal countries as to who is responsible for defining educational goals and agendas and priorities for R & D. Poor management of quasi-research markets results in inefficiency and imperfect competition among researchers. Little planning for the training of researchers for dissemination has been done by the government. Poor prioritization (From business community) is another significant feature of the inadequate planning in the educational research (Nuttall, 1994).

2.19.5 Communication and Appreciation

Mutual misunderstanding between government and researcher exists, which results from using the proper communication channels. Appreciation of expertise and skills are also needed to promote the educational research. Furthermore, administrators and practitioners regarded the research irrelevant, while researchers believe to neglect practical problems. Constraints on publication are made by some government sponsors. The lack of communication and appreciation results in difficulty of discovering research objectives of government departments. Devaluation of educational expertise as being politically biased (Kaestle, 1993).

2.19.6 Quality

Projects aimed at improving education lack of the practical aspects in the real-world scenario. In addition, the educational research is of parochial nature, and not informed by international experience, poor state of comparative education (Nybom,

1995). Various factors determining the quality of higher education must be set in stability at a level that fulfills the standard of international expectations and standards; this quality in higher education is dynamic entity. Leadership, quality of faculty and students, research and learning environment, curriculum, infrastructure facilities, governance, assessment procedures, strategic planning and relevance to market forces are included in these factors.

Additional factors leave a great impact on quality and cause the quality level further down like poor quality of education at the primary and secondary levels, low level of the socio-political environment of the universities and poor grasp of communication skills of the students. In foregoing discussion, the different issues and challenges faced the educational research activities were discussed. The next section presents the reactions to the crises mediated by these issues in the educational research (Nybom, 1995).

2.19.7 Reactions of Developed Countries to the Crises in Educational Research

Not all problems are experienced in all countries. Surely all of them are corrigible and downward spirals can become virtuous cycles. Poor communication and low appreciation may result from poor planning and poor quality be reinforced by low levels of appreciation and imperfect competition. Such problems can be identified by sponsors perhaps acting on the judgments of peer reviews and external assessments and can be tackled co-operatively by sponsors and institutions. Given this, crisis of confidence on educational research activities on behalf of stakeholders in educational field is partially the cause of low funds allocated to educational departments in certain developing countries, and spending on educational research for stakeholders in both public and

private sectors mean that hope is pinned to the educational institutions for providing high quality research data to the funders.

The share of research funding devoted to applied research increased in certain countries and even in the case of the funding of more fundamental research there was a clear increase in the commissioning of such research related to the improvement in their own administrative functions and contributions to R&D activities of others institutions which may be affiliated or associated with educational institutions in higher education sector. These trends of course weakened the institutional basis for conducting educational research in the university sector. The slow-down or decline in the level of public funding for educational research had come at a time when many universities had already upgraded or were in the middle of a process of enlarging their academic staff in the field of education. The result was an increase in the competition for funds. Competition increased further because educational R & D centers were established outside the university sector. Such centers usually engaged little in teaching, administration and related activities and were often more competitive than the traditional university departments of education. Increased academic competition, reduced access to research funds and in some countries, a deteriorating infrastructure for research brought to light further problems especially in the university sectors.

For example, social and academic esteem was threatened which deepened the sense of malaise among many researchers. In some countries, for example, Australia, France, Germany and especially United Kingdom researchers felt increasingly marginalized and distanced from both political and practical action. This marginality led to mainly two courses of policy and school practice perhaps by engaging in historical

studies or critical research. The other reaction was for academic circles to seek ways of turning the tide. Accordingly, researchers turned to new topics for investigation, topics that were deemed to be of interest to other constituencies. During the 1980s, the upsurge in studies of school effectiveness and school improvement or the newly found respectability of policy analysis is good examples (Goodwin, 1999).

2.19.8 Utilization of Educational Research

In the group that turned to policy analysis there were those who initiated systematic studies of the relationships between educational research, educational reform and school improvement. (Husen, 1984), for example, discovered through interviews with policy-makers that the crisis of confidence was caused to some extent by an overselling of the researchers' products. Not only the researchers but also many policy-makers, believed in a linear relationship between quantitative research, reform planning and improved practice. Since then, the work conducted by policy analysts has discredited this perspective (Nisbet & Broadfoot, 1980; Weiss, 1982 & 1989).

The most common perception is prevalent among stakeholders ais that educational research rarely contribute to addressing practical and professional issues in the educational, social and economic sectors. These flaws originate from the researchers' parochial approaches towards understanding and experimenting, the novel aspects of the research. Other findings also argue in favor of a humbler view of the role of educational research in improving policy and practice. Educational researchers should understand, for example, that they cannot play a decisive role in the setting of policy goals, because such goals are central to a particular ideology which guides the actions of decision-making

bodies. Another issue is that researchers should be very careful in making prescriptions and they should pretend to play the role of social reformer. If educational research cannot decisively influence the setting of policy goals then it can even less influence the direction of educational reform. Another insight contributed by policy analysis is that reforms cannot be brought about overnight. It takes a long time for new policy to take effect in schools and classrooms but it takes even longer for educational research to change practice, because educational research seldom produces insights that can be readily applied in the markets for goods and services, adherence to the beliefs in the linear research model that is bound to lead to trouble. The knowledge and theories produced by the researchers as a result of the educational research is not tested to the market's requirements, or it can be argued that academic environment is purely separated from the market situation which makes it almost impossible to apply the research outcomes to the market (Eide, 1991).

Opposition to the linear and utilitarian perspective mounted during 1970s, when researchers increasingly turned to "qualitative" or "interpretative" methods. Action research, ethnography, discourse analysis and other hermeneutical and phenomenological approaches to policy research became increasingly popular among a growing number of researchers who didn't share the basic tenets of the functionalist interpretation of the relationship between educational research and decision-making. The resulting increase in the legitimacy and the frequency of use of interpretation methods was one of the main events in the history of the social sciences during the latter half of the 1970s (Nisbet & Broadfoot, 1980;Weiss, 1998 and 1999). During the 1980s, once the inadequacy of the linear model of R & D had been established, the discussion can be directed towards

exploring ways and means to enhance the potential contribution of research. The main questions were similar to those asked by Eide (1991) more than a decade previously: How can the needs of the government and the practitioners are best met? What role can or should educational research play in helping the government and practitioners plan and assess educational policy?

When the national delegates of OECD countries met in Washington, DC in June 1992 there were some signs that the crisis of confidence in educational research was being resolved, as dialogue among stakeholders was being re-established. But, as Nuttall (1994) observed, although there was reason for optimism the plight of educational R & D was still real;

"Many of the trends identified, point to a state of good health for educational research, but some of the more significant ones (dwindling funds, a still unsatisfactory relationship between research, policy and practice and a dearth of basic research) indicate malaise and justify earlier use of the phrase the 'plight of educational research' rather than the more neutral 'state of educational research'. There are positive signs from most (but not all) OECD countries that the malaise is recognized not only by the research community but also by the funders of research and that some steps are being taken to improve the position" (Nuttall, 1994).

A common diagnosis is that issues in relation to low quality and effectiveness of educational research can be addressed through adoption of a multiple strategy. There is general agreement that accountability and quality-assurance mechanisms are needed to be put into place. There is, however, less agreement on what these mechanisms are and how

they should be used. For example, should quality indicators be obtained through self-evaluation, external assessments and how should these indicators be linked with an effective system? A related issue concerns the elements of a strategy for enhancing the effectiveness of educational research in offering insights for policy and practice (OECD, 1994).

The "crisis of confidence" in educational research may thus be seen not as a destructive force but as having served a useful purpose in bringing about change. It has provoked critical reflection, evaluation in the research community, which has further resulted in motivating stakeholders in governments to find ways to make the educational research more effective in providing sound knowledge-base to the practitioners and policy-makers. The outcomes, however, depend to a large extent on whether they can improve communication so that the distance between the communities can be reduced. In turn, this depends on which perspective is taken regarding the role of the researcher *vis-à-vis* the policy community and practitioners (Nybom, 1995).

2.20 REACTION OF PAKISTANI EDUCATIONAL SECTOR TO CHALLENGES OF EDUCATIONAL RESEARCH

The ultimate goal of any educational system might be to provide the tools and methods for improving the social and cultural processes, building economical strengths and foster the prosperity within a society. The educational research should address the issues and problems encountered by the society and economy and other functions of the state. For development of educational system, the university grants commission (UGC) was renovated, reformed and renamed as a Higher Education Commission (HEC). In

HEC, a multi dimension approach has been centered with specific accentuation on the advancement of quality of staff, change in inquiries and learning environment, infrastructural enhancement, enhancement in educational program, tending to administration issues, evaluation issues and official acknowledgment of modern scholastic programs as well as Colleges, Universities and Degree Granting Institutes (Zia & Riaz, 2005).

Research is an imperative work of the HE through which it contributes to the economic development and societal consistency. The afore-stated statement is true for the science and technological education, while it partly holds true for the education, as most of the educational research outcomes are inapplicable to the market. The Higher Education Commission (HEC) was founded with aim of planning, structuring and funding on education of all disciplines of knowledge at national level. HEC sets out standards for operations, guides educational institutions to achieve the higher efficiency in research, offers resources and funds to the R&D activities within universities, give official approval to programs of change and reforms for maintaining quality assurance controls in the higher education (Hyder et al., 2003). However, the implementations of guidelines are simply at discretion of universities, and HEC is not considered a dictating force in key functions of universities.

Furthermore, HEC has undertaken many initiatives and projects to improve upon the shortcomings of the educational research, however, the quality objectives and milestones of these projects could not fully have achieved. For example, special incentive programs for HEC approved supervisors, students' scholarships, incentives from universities to supervisors on publishing the research papers. The issue with current

approach is that, the focus is directed more towards the number of research publications rather than quality of the research. The reason undermining the quality objectives of HEC educational projects may be associated with the lack of assessment of performance parameters, evaluation and inability to learn the lessons from the past due to the lack of historical studies. The HEC and the research oriented educational departments of the universities in Pakistan are the main beneficiaries of this study, as this research work intends to provide the historical background of the past research projects in terms of their productivity, quality and practicability and suitability to the existing social and educational issues faced by Pakistani nation in the educational sector. Based on the outcomes of this work, HEC can formulate the future course of action, revise its existing strategies and manage the education development projects effectively to produce the high-quality research at the public and private sector universities (Hyder et al., 2003).

Through these initiatives, the overall economy and developments can be undertaken. HEC has helped the universities to foster the knowledge-based economy and research activities. Nonetheless, these activities are not being managed systematically and scientifically. Special attention must be paid to manage the research and knowledge-creation projects, because they are still important for creating knowledge and utilizing them for the welfare and betterment of the national education and economy. The steps taken by HEC in building the Pakistani educational system are given below;

2.21 DIGITAL LIBRARY

The experts and supervisors in HEC have created the digital library for the staff to explore the web-knowledge in the form of peer-reviewed journals. In addition, the subscription of the scientific and peer-reviewed journals is also provided to the

departments so that they can access the theoretical and research knowledge easily in their respective fields. For example, public sector universities affiliated with HEC can enjoy the access to 45000 online textbooks, research articles and monographs. These universities are provided with free access to 220 international publishers and 25000 international research journal (digitallibrary.edu.pk).

2.22 INCREASE IN GRADUATE AND POSTGRADUATE COURSES

Due to HEC measures in the educational field, the Pakistani universities are given the funding to extend their departments, develop the teaching portfolio, revise and update the curricula, and recruiting the teaching staff. These initiatives have resulted in increasing the enrollments of graduate and postgraduate students from 135000 in 2003 to 400,000 in 2008. Within four years, the enrollments were triply increased. This was a big achievement for uplifting the educational background of Pakistani nation (https://hechingerreport.org).

2.23 INTERIM PLACEMENT OF FRESH PHD PROGRAMS (IPFP)

IPFP was introduced for the PhD students graduating from either Pakistani or foreign universities in any discipline. The salient features of this program are the payment of salary at the scale of Assistant Professor and provision of research grant worth of Rs 0.5 million. The research grant helps the fresh PhD scholars to develop their research career, develop their CV and career in academics and research. It is also useful in terms of helping the universities to permanently recruit the talented faculty on tenure track system source: (https://www.hec.gov.pk/english/services/faculty/NAHE/IPFP/Pages/default.aspx).

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2.24 RESEARCH PRODUCTIVITY HIGHER EDUCATION LEVEL

Research is the important part of higher education as universities are guardians and producers of knowledge. Teachers and students of Pakistani universities carry out the research. The various initiatives launched by HEC to improve the research publications, preparing the human resources and building the research infrastructure impact positively the research profile of the universities. For instance, the publications for research students were made compulsory for passing their PhD degrees and promotion of staff. The research productivity of Pakistani universities was increased from 600 research articles in 2003 to 4300 research papers in 2008 due to the following initiatives (Vinluan, 2011; www.hec.gov.pk/InsideHEC/Divisions/RND/ORI/Pages/OfficeforResearchInnovation (ORI).aspx).

2.25 NATIONAL RESEARCH PROGRAM FOR UNIVERSITIES (NRPU)

The lack of data on the research facilities and tools at Pakistani universities is a major challenge in the way of improving the research productivity and initiatives at degree awarding and research institutes in Pakistan (Hyder et al., 2003). There are substantial number of young researchers and innovative faculty members at the research institutes; however, the issues of cataloguing the equipment can hamper their ability to produce the quality research. Funding to the research initiatives is considered a main obstacle in designing the quality research projects (Zaidi, 2005). In the past, many such initiatives were undertaken to ensure the funds; however, they did not play a significant role in increasing the research output to the substantial level (Marsh, 2002). One of such

programs initiated by Higher Education Commission is National research program for universities (NRPU). According to this program, HEC invites the research proposals for awarding the research funding from all public universities in Pakistan (Bird & Vaillancourt, 2008).

However, the private universities and research institutes in Pakistan are not part of this program which reduces the ability of private sector to implement the innovative and practical research projects from the researchers and faculty members (Shamim ,2002). The high priorities areas to which funding are channelled involve the Sciences, Management Sciences, Engineering and Technology. Though the research proposals from the Education departments of the universities are considered for allocation of grants, nevertheless educational research currently is not part of the high priority area. The amount of funds provided to any research project is capped up to Rs 1.5 million to research project based on their quality and subject area. The quality is judged by the HEC appointed referees, and after approval from them, HEC approves the research project for funding (Bulmer & Warwick, 2008).

2.25.1 Faculty Development Program (FDP)

Often the universities appoint the lecturers based on their Master/MPhil qualifications. In order to develop their research skills, HEC provides the financial assistance to the universities to develop their faculties. This includes enrolment of the faculty members onto PhD programs either in Pakistani or foreign universities. As part of this faculty development program (FDP), the PhD scholars are awarded with the tuition fees, living expenses, stationary and flight expenses (Naeem et al., 2012). FDP was a

powerful program in terms of equipping the faculty with right research skills which could be used by them to improve upon their pedagogical and research methodological skills. The PhD scholars conducting PhD research on FDP publish the papers and produce the research output which consequently lifts the research profile of the universities and research institutes (Siddiqui et al., 2007).

2.25.2 Indigenous PhD Fellow Program

This project aims to train high quality human resources for universities in all fields and disciplines. These PhD qualified individuals play a critical role in meeting the critical mass of the PhD scholars required to fill in the positions of assistant professors at Pakistani universities. This program is helpful in improving the research and development potential of the research institutes and universities in both public and private sector in addition to strengthening the local industrial sector. This scheme also supports the development of both public and private sector universities. According to this program, the scholarships for PhD qualification and training are provided in all disciplines including humanities, science, technology and Life Sciences (hec.gov.pk).

HEC had launched this scheme with an emphasis upon the fact that indigenous PhD scholars are more sensitive in detecting and understanding the research issues in Pakistani society and culture. Apart from funding the PhD scholars, the indigenous PhD Fellowship program also offers the small funding to establish the laboratories, develop the research equipment, tools and protocols. Thus these scholarships are not only considered useful for PhD scholars but also they serve as a great asset for departments in universities to improve their research activities (hec.gov.pk).

Despite all the above-mentioned programs for increasing the research activities and developing the research culture and human resources for public and private sector universities and industrial sector, several scholars found that the objectives of increasing the research excellence could not be achieved, as Pakistani universities and research institutes are still struggling to find their place in the top 200 universities of the world. Therefore, it is important to investigate the strengths, weaknesses, opportunities and threats (SWOT analysis) of the research capabilities of the universities in Pakistan. In the next section, the discussion on SWOT analysis utility and its components are presented (hec.gov.pk).

2.26 THE CONTEXT OF SWOT

SWOT tool is used to analyze internal strengths, weaknesses, opportunities, threats and environment of an organization, shown in the figure 2.3 below;
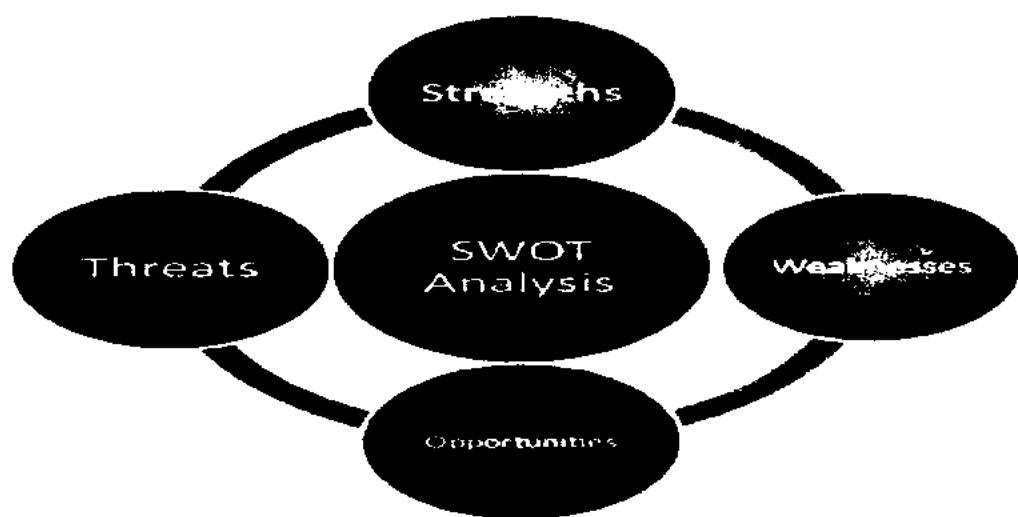
Figure: 2.2 The components of the SWOT analysis (Gorski, 1991).

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The SWOT analysis is designed to be used in various kinds of applications and in the preliminary stages of decision-making. When SWOT analysis is applied correctly, it provides a complete picture of overall situation in relation to the communities, schools and industries. Understanding of external threats and opportunities as well as of internal strengths and weaknesses examination can help constructs better future vision for making appropriate decisions. Such foresight would help in stimulating initiations for competent programs that replaced irrelevant and redundant programs with relevant and innovative ones. The first step in SWOT analysis involves creation of square with four regions; one region is assigned for opportunities, second is devoted for strengths, third is reserved for weaknesses and fourth is set for the threats. In the second step, the related items specific to each category are listed under appropriate programs in the worksheet. The number of items under one heading is good to be limited to 10 or few points in order to avoid generalization (Gorski 1991).

SWOT analysis can be either performed in a group or by individual administrator. The group analysis techniques used are found to be very effective in providing objectives, structures, clarity and focus to discussions about the business cases and strategies required for the success of any program. In addition, SWOT analysis provides a strategic agenda, and should be implemented with some other strategic tools from the strategic management literature. The areas must be prioritized before implementing SWOT and at the stage of implementation of actions suggested by the SWOT analysis.

In educational settings one particular thing of great importance is the emergence of three distinct attitudes among the teacher depending on the years of services. These three attitudes include (positive/participative, negative/non-participative and

neutral/indecision). Teachers having experience from 0-6 years tend to be more participative and receptive to new ideas. SWOT analysis must cover the following below areas, each one as a source of strengths, weaknesses, opportunities and threads (Gorski 1991).

2.27   INSTITUTIONS   INTERNAL   AND   EXTERNAL ENVIRONMENT

The institutions internal environment consists of the following factors: current students, research programs, faculty and staffs, learning environment (Class rooms, Laboratories, Facilities), operating budget, and various committees (Weber, 1989).

The institutions internal environment consists of the following factors: funding agencies, competing colleges, population demographics, students' parents and families, prospective employer of graduates, and preparatory high schools (Weber, 1989).

2.28   THE   INTERNAL   SURVEY   OF   STRENGTHS   AND WEAKNESSES

In order to attract students to college programs, administrators usually pay attention to advertisements efforts and promotion activities; however there is a less focus on analyzing institutions' strength and weakness. Internal audits are carried out sometimes when needed and some areas reveal themselves when changes are done. In addition, possibilities and potentials also emerge for new programs and services. Enlisting internal weakness of college helps in revealing areas that need improvement and can help in controlling things that were out of control previously. There are numerous examples of internal weaknesses such as poor building infrastructure, low

faculty and staff morale, sub-standard laboratory, workshop facilities, location of institutions within community and scarce instructional resources. Similarly the strengths should also be listed. Examples of internal strengths includes strong and dedicated faculty with high morale, diversity within student population, reasonable tuition fee charged from students, strong reputation required for the training required to get entry-level employment and articulation with other four year colleges and universities which could enable students to transfer credit hours (Weber, 1989).

Important emerging issues include minority enrollment and retention vocational schools mission to educate people from all sectors of society. The strengths and weaknesses can also be accessed through interview with past and current students, surveys of employees, and focus groups involving both students and employees. The strengths and weaknesses once highlighted should be confirmed again for verification (Radha and Dugger, 1995).

2.29 SWOT ANALYSIS DRAWBACKS

SWOT analysis helps in reflecting individual own view point and existing position that can be misused for previously decided course of action justification rather than for opening new possibilities. It is very important to note that sometimes threats can be considered as an opportunity depending on people or group involved. Sometimes SWOT analysis allows institutions to careless approach towards analyzing the available options, and they tend to apply 'fit rather than to stretch' policies. They ignore the opportunity from which they can take advantage and look for strengths which match to their opportunities. An attractive approach is to identify and involve the most attractive

opportunities then stretch the target Universities to meet these opportunities. This approach helps in making this strategy challenging for the colleges rather than a fit between its current strengths and the opportunities, it picks to develop (Radha & Dugger, 1995).

2.30 APPLICATION OF SWOT ANALYSIS FOR INITIATING NEW EDUCATIONAL PROGRAMS

The impact of external environment on Educational institutions is immense. During last decade of twentieth century, Pakistan's people life styles, educational institutes, political structures, society and economy are poised for new changes. Moreover, demands made on vocational programs offerings are significantly impacted due to recent shift to information-based from industrial society and form manufacturing to service-oriented society (Martin, 1989).

In comprehensive schools, broad spectrums of service areas are covered by vocational programs, however, they provide very few programs within each area as compared to that provided in specialty or vocational schools in Japan (Kogan & Weber, 1995). Current and future planned programs should be structured in such a way that trend of the future society should be taken into consideration irrespective of schools' type. Shaping of institutions futures and vocational administrators play a very vital role and should take an initiative. Institutions should take the responsibility of developing such strategies that fulfill the requirement of people. A framework known by the name of SWOT (Strength, Weaknesses, Opportunities and Threat) analysis can be used that provides the administrator a way to fulfill the need of their communities (Gorski, 1991).

This tool was originally used for business applications; nevertheless, the idea was not new such as Gorski (1991) used this approach in order to enhance the number of enrollment in community and other regional schools. The tools of managements originally used for industrial applications were frequently manipulated and tailored for educational purposes as administrative responsibilities of respective executive chief officers were found to be fundamentally similar. The SWOT technique is easy and simple to understand and can be used as a tool in formulating strategies and policies for administrators (Gorski, 1991).

2.31 RESEARCH GAPS

In the literature presented in this chapter, it was concluded that educational research is key in improving the educational functions, processes of the society and functions and knowledge of the other disciplines. The studies have shown that educational research faces many issues including funding, quality, methodological approaches and confidence. However, there is scarcity of studies showing the issues of methodological approaches, funding and quality in educational research. The literature also showed that educational research helped furthering the knowledge boundaries of the other disciplines. There was no study in the area of research trends which aimed to investigate low and high priority areas and their relevance to the existing problems in the Pakistani educational domain. It was also showed that HEC played a critical role in strengthening the research and development activities in departments in universities. However, there is no study undertaken until now which has evaluated the research capabilities of the education department. Therefore, this study aims to explore the research trends and evaluate the research potentials by conducting the SWOT analysis.

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2.32 SUMMARY

In this chapter, literature was reviewed in the field of educational research. The educational research is systematic way of addressing the problems in the field of education. There are different types of the educational research: research by purpose, research by method and research by approach. These methodological approaches are used depending on the research questions, research budget and research settings. The action research and experimental research are widely used by the previous literature in the education field. The educational research produces the knowledge which faces issues of application and practicability due to uncertainty of the education field. Nevertheless, the educational research has achieved diversity and maturity by expanding the knowledge boundaries of various disciplines such as psychology and sociology etc. Though the educational research has contributed the important knowledge to the literature and achieved milestones in creating useful knowledge in various disciplines but it faces several issues relating to educational research quality, the crisis of confidence, some perceived issues such as funding and sustaining quality in terms of delivering the objectives and resolving the issues. The developed countries have reacted to address the challenges to the educational research through systematic policies, establishing the funding channels, the research specific institutes and building the research infrastructure. Similarly, Pakistan had attempted to address these challenges through building and streamlining the functions of HEC which is responsible for increasing the research productivity, providing scholarships for PhD research projects, building the research laboratories and infrastructure. There were 363 dissertations during 1947 -2012 and 247 theses during 2000- 2012. The number of theses has increased during the recent years.

This quantity is better than quantity achieved during early years of establishment of Pakistan. Despite all these initiatives, the research quality is poor and the ranking of Pakistani universities does not fall in the top 200 universities of the world. These issues urge the launch of the research project exploring the shortcoming of the educational research in terms of its methodological approaches, the priority areas of the past research and their relevance to the existing issues in the education field. There are no studies directed to value the research potentials of the education departments in the universities. Thus, this study tried to explore the research trends and research potentials of the education departments in universities of Pakistan. The next chapter presents the methodological choices to address the research problem of this study.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

The purpose of this research was to explore the research trends in educational field of Pakistan and the SWOT analysis of these trends. The study was explorative and descriptive in nature and mixed method approach was used. This chapter deals with the research methodology adopted for conducting research for this study. In this chapter, the blueprint of the research design, selection and justification of the research approaches, data collection instruments and data analysis have been elaborated.

3.2 RESEARCH DESIGN

Mixed method research, which is a combination of quantitative and qualitative research methods, is used in this study. A mixed method is not an illogical or indiscriminate combination of quantitative and qualitative techniques but a paradigm on its own (Tashakkori, 1998). The use of only quantitative research methods, are based on positivism, places knowledge outside the realms of the teachers and their classrooms. Knowledge is arrived at objectively through scientific means (Creswell, 2013). Knowledge is not constructed but discovered and not produced by the teachers. The relationships between dependent and independent variables are measured through

quantitative methods which are justified through the constructivism paradigm, which usually addresses the questions with multiple choices (Kyale, 2009).

The quantitative research paradigm also places the researcher outside the research; therefore the choice of this method alone is inappropriate for this study. The interpretive research methodology supports the view that people construct their own knowledge (Carr & Kemmis, 2003). It usually addresses the questions starting with 'What' and how' and fits into interpretive paradigm (Creswell, 2013). Consequently, the interpretive methodology along with quantitative method discussion is used so that the researcher can interact with the teachers and gain a clearer overview of the difficulties they face. Mixed methods were used in order to explain or expand the understanding obtained from the quantitative study (Kondracki et al., 2002).

This methodology was used in this study to assess the credibility of the inferences obtained from the quantitative approach (Bland et al., 2005). It should be noted that the quantitative approach was used mainly to initiate this research as it would be impossible to conduct it. Based on the information gathered from the semi-structured interview and the wishes of the respondents to participate further in the research, the qualitative method in the form of interviews was then considered. Hence, mixed methods involving quantitative and qualitative approaches were used to allow greater interaction with the research participants and to develop a deeper understanding of the research trends and SWOT analysis of these trends in educational research field of Pakistan.

3.3 POPULATION OF THE STUDY

The doctoral theses produced by Departments of Education or faculties of education or institutes of educational research in Pakistani universities and uploaded on HEC research repository between 2000 and 2012 were the population of the study. The 247 PhD theses were selected as population of this study, because they could provide data regarding the applications of various trends of research designs, areas of research, data collection methods, sampling techniques and data analysis methods. The researchers use these methods during their PhD research projects, and write them in their PhD project, which makes them a useful source for collecting information about the research trends.

The theses of following public universities were population of this study:

1. University of Karachi
2. University of Punjab, Lahore
3. University of Arid Agriculture, Rawalpindi
4. National University of Modern Languages, Islamabad
5. International Islamic University, Islamabad
6. Allama Iqbal Open University, Islamabad
7. Bahaduddin Zakariya University, Multan
8. Gomal University, DI Khan
9. University of Sargodha
10. University of Sindh, Jamshoro
11. University of Education, Lahore

Table 3.1

Public Sector Universities awarded PhD degrees year wise (2000-2012)

Year	University of Karachi	University of Punjab	UAAR Rawalpindi	NUML Islamabad	International Islamic University, Islamabad	AIOU Islamabad	BZU Multan	Gomal University DI Khan	UOS, Sargodha	University of Sindh, Jamshoro	UE Lahore
2000	0	0	0	0	0	0	1	0	0	0	0
2001	0	0	4	1	0	2	1	0	0	0	0
2002	1	0	9	0	0	3	0	0	0	0	0
2003	1	3	0	1	0	3	0	0	0	0	0
2004	2	2	14	1	0	1	2	0	0	0	0
2005	0	2	16	0	0	3	0	1	1	1	0
2006	1	0	0	2	0	0	0	0	0	1	0
2007	0	1	3	1	0	1	0	0	0	0	0
2008	1	1	6	1	2	2	0	1	0	1	0
2009	0	0	4	6	0	7	0	0	0	2	0
2010	3	8	6	3	2	5	0	1	0	0	2
2011	0	18	0	0	14	1	0	1	0	0	2
2012	3	9	0	2	3	1	1	3	0	0	2
Total	12	44	62	18	21	29	5	7	1	5	6
Grand Total											210

Source: Higher Education Commission of Pakistan, March, 2014(eprints.hec.gov.pk).

The theses of following private universities in Pakistan were the population of this study

1. Hamdard University, Karachi

2. Qurtuba University of Science and Technology, Peshawar

3. Sarhad University of Science and Technology, Peshawar

4. Jinnah University of Women, Karachi

5. Foundation University Islamabad

6. Preston University, Kohat

Table 3.2

Private Sector Universities awarded PhD degrees year wise (2000-2012)

Year	Hamdard University, Karachi	Qurtuba University of S & IT Peshawar	Jinnah University for Women, Karachi	Foundation University, Islamabad	Sarhad University of S & IT Peshawar	Preston University, Kohat
2000	3	0	0	0	0	0
2001	1	0	0	0	0	0
2002	5	0	0	0	0	0
2003	2	0	0	0	0	0
2004	2	0	0	0	0	0
2005	3	0	0	0	0	0
2006	1	0	0	0	0	0
2007	1	0	0	0	0	0
2008	2	0	0	0	0	0
2009	0	2	0	0	0	0
2010	0	0	2	1	0	0
2011	0	1	2	3	2	0
2012	0	0	0	3	0	1
Total	20	3	4	7	2	1
Grand Total						37

Public+ Private, 210 + 37= 247

Source: Higher Education Commission of Pakistan, March, 2014(eprints.hec.gov.pk).

3.4 SAMPLE OF THE STUDY

Doctoral theses on education presented in HEC repository of the relevant universities given in table 3.1 and 3.2 was accessed and constituted sample to be analyzed via document analysis. The samples for in-depth interviews consisted of 16 research experts at Education departments in universities of Pakistan. The theses of following public universities were sample of this study (see Table 3.1):

1. University of Karachi

2. University of Punjab, Lahore

3. University of Arid Agriculture, Rawalpindi

4. National University of Modern Languages, Islamabad

5. International Islamic University, Islamabad

6. Allama Iqbal Open University, Islamabad

7. Bahaduddin Zakariya University, Multan

8. Gomal University, DI Khan

9. University of Sargodha

10. University of Sindh, Jamshoro

11. University of Education, Lahore

The theses of following private universities in Pakistan were the sample of this study (see Table 3.2)

1. Hamdard University, Karachi

2. Qurtuba University of Science and Technology, Peshawar

3. Sarhad University of Science and Technology, Peshawar

4. Jinnah University of Women, Karachi

5. Foundation University, Islamabad

6. Preston University, Kohat

3.4.1. Sampling Technique

Universal Sampling technique was used for the quantitative phase of this study and Purposive Sampling technique was used for the qualitative phase of this study as this is suitable for selection of sample from population when the researcher has the knowledge of population and purpose of the study (Creswell, 2009). As this study intends to analyze doctoral theses submitted between 2000-2012 and accessible on HEC research repository, only 247 theses were available, which constituted the sample of this study. Interview was taken from 16 research experts based on the criterion and purpose of the study for qualitative phase.

3.5 INSTRUMENTS FOR DATA COLLECTION

The collection of data was started in June 2012 and completed in July 2015. Following instruments were used to collect the data from the sample population chosen for this study: document analysis and the in-depth interviews (Table 3.3).

Table 3.3

Instrument for Data Collection

Instrument	Descriptions
Document Analysis	EDRF from doctoral thesis about research trends in education according to the topics and methods
Interview	From the experts of education about trends and SWOT analysis of educational research

3.6 DEVELOPMENT OF DOCUMENT ANALYSIS TOOL (EDRF)

Doctoral theses on education produced during 2000 and 2012 by the universities in sample population constituted the sample of documents to be analyzed. The data was collected by designing the Educational Research Dissertations Form (ERDF). The Educational Research Dissertations Form (ERDF) was designed as a part of document analysis for the collection of data which is a modified version of "Educational Research Papers Classification Form" tested and validated by Goktas et al. (2012). ERDF contained multiple choice questions and was divided into the following four sections: (1) research topics with general / specific area; (2) gender of researcher; (3) research methodology; and (4) data analysis method(s). The ERDF can be viewed in appendix A.

The researcher collected data by visiting the HEC website. The doctoral theses on education produced by sample universities were accessed by logging on to HEC repository holding doctoral level theses from all universities of Pakistan. The researcher

read and reread the sample documents and filled in the Educational Research Dissertations Form (ERDF) which was divided into following sections: (1) research topics with general / specific area; (2) gender of researcher; (3) research methodology; and (4) data analysis method(s).

Furthermore, the supervisor's assistance was sought in designing the ERDF. Each dissertation was subjected to a document analysis by employing the "Educational Research Dissertations Form". The ERDF was face-validated by supervisor who looked for any discrepancy in the structure or wording of questionnaire and recommended it to be used for the current study. Documents are useful in rendering more visible information and data regarding phenomena under the study (Prior, 2003). Document analysis has several salient features. For example, it is a systematic way of analysis (Bailey, 2005). Coding of text from document analysis was executed. Coding is the process of organizing the material into segments of text in order to develop a general meaning of each segment (Creswell, 2009).

3.7 SEMI-STRUCTURED IN-DEPTH INTERVIEWS

Interviews are the typical method used to execute the qualitative research. "Interviews are regularly applied in the research process to get to data that other tactics are inaccessible,' and 'interview permits the researcher to examine and thrust things that we cannot watch. We are able to clarify the contemplations, values, partiality, recognitions, sentiments and viewpoints of the interviewer. Interviewees present the stories and circumstances in which they may have lived or learned their story."(Bailey, 2005).

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Interviews are, in substance, a discussion between two or more individuals. As Kvale properly says; "The get together an interview is actually a common point of view, a trade of interview between two individuals talking around a point of common interest" (Kvale, 2009). Interviews discussions on a specific theme or topic of intrigued are progressively being utilized as it involves of creating or extending information generation. The type of interviews utilized to realize the goals and targets of the exploratory studies about called inquire about interviews, where research interviews are a common point of view where information is built within the joint work between the interviewer and the interviewee (Kvale, 2009).

In-depth interviews are made the adaptable shape of information collecting tools than surveys and have been utilized to accumulate data in an in-depth manner. The in-depth interviews were semi-organized and conducted utilizing the postal strategy to collect data from the supervisors in education departments in Pakistani universities. As within the analyst, complex questions were clarified, where fundamental, to the respondents. The researcher moreover utilized open questions and picked up non-verbal cues showing what was significant to respondents and how they were replying distinctive questions. The reason for the utilization of semi-structured and in-depth interviews was to permit the researcher to alter or really adjust the questions concurring to the respondent's answers. The researcher moreover utilized claims, i.e. to utilize more questions or solicitations to talk about something that the respondent did not specify and energized them to more conversation. Utilizing the claims, the researcher was able to empower respondents to have conversation around issues that they considered critical. They kept up a timetable and recorded all data, so it was simple to inquire the pertinent questions. In

expansion to the claims, the researcher utilized some prompt questions to clarify a few of the responses (Kvale, 2009).

Furthermore, one of the most causes to utilize of the semi-organized meet procedure is that it makes easy to clarify the goals of the research clearly, as well as permitting the researcher to rectify any mistake or uncertainty around issues being investigated. Besides, through this process, it is conceivable to find other critical perspectives that cannot be investigated through the survey-based investigation (Anderson & Shattuck, 2012). In expansion, it has empowered the verbal and non-verbal behavior of the questioners to be watched and clarified (Anderson & Shattuck, 2012). These highlights differentiate the semi-organized meet ("Semi-Structured Interview") from other apparatuses of data collection.

While the elucidation/explanation does not give for the subjective researcher to screen the strategies, the researcher did not work out negligible control over the methods. This was accomplished by guaranteeing that questions were inquired and replied within the prescribed format, which ultimately led to collection of responses with minimal intrusion from the researcher (Phellas et al., 2012). Moreover the researcher was watchful that subjective questioners seem a predisposition that might influence the quality of responses.

3.8 SAMPLE POPULATION FOR SEMI-STRUCTURED IN-DEPTH INTERVIEWS

Leading research group leaders in selected universities overseeing the PhD research topics were selected as sample population from the participating universities. Semi-

structured interview, is a form of in-depth interviews involving both open ended and close ended questions, was designed to collect the data from sample population. During selection of respondents for in-depth interviews, following criteria were applied;

1. Only those universities in Pakistan were selected which had established departments of Education

2. The participants were HEC approved PhD research supervisors.

3. The participants have at least 10 research publications.

4. The participants should have supervised at least 5 PhD students to complete their PhD projects in last 10 years and supervised at least 10 M.Phil students.

5. The participants should have won the research grant in last 10 years.

6. The researchers meeting the above criteria were selected as a sample population for the in-depth interviews.

Based on the above criteria, total of 19 research experts based on Education Departments in Pakistani universities were contacted and only 16 of them showed their willingness to participate in this study (See in Appendix D). Therefore, the sample for the interview contained 16 research experts in Education Departments in universities.

3.9 DEVELOPMENT OF THE SEMI-STRUCTURED IN-DEPTH INTERVIEWS

The foremost concern of a researcher is to pick up as much information as possible. In order to construct the information base of researchers; a wide-ranging survey was carried out (Meuser & Nagel, 2009). The resulting information picked up was utilized to address research questions. The areas of focus in the interviews for this study

were to explore the research trends in educational field and to undertake SWOT analysis of the research trends in Pakistan. Therefore, the semi-structured interview was divided into three main sections. Section 1 contained the questions about the profile of the respondent and it was kept optional. Section II was related to the questions focusing on the type of research activities, methodologies adopted to carry out the research and the strengths and weaknesses of the research projects in educational field and finally possible methods or recommendations to improve the quality of potential and the existing research projects. Section III contained the questions about the strengths, weaknesses, opportunities and threats (SWOT analysis) of the research capabilities of the Education departments in universities. The semi-structured interview can be found in the Appendix B.

3.10 ADMINISTRATION OF SEMI-STRUCTURED INTERVIEWS

There are different methods used in the literature to distribute the data collection tools such as face-to-face method, postal, telephone, MSN and email (Creswell, 2013). Face-to-face interview technique is used when social cues of the interviewees become vital to extract the information required to answer the research question. This technique is equally important due to requirement of standardization of the interview situation. For the choice of this technique, the interviewer needs to have enough time and budget for travelling and meeting with the interviewee (Mertens, 2014; Brantlinger et al., 2005).

Telephone and MSN interviews are suitable to those situations in which the researchers have less budget and time to travel to interviewees, anonymity and information relating to interviewees are accessible through websites, no stringent

requirement of standardization of interview situation and pursuit of knowledge about social cues of the interviews (Mann et al., 2000). Email or by post interview shares the similar characteristics as that of MSN and telephone. This method becomes a preferable option for conducting telephone and MSN interviews when the interviewee needs more time to think and develop the answers to the questions in the semi-structured interview (Johnson & Christensen, 2012).

In the current research project, the researcher intends to explore the research trends and analyze the SWOT of these trends. The research problem does not demand the knowledge of social cues of researcher. The nature of questions requires the interviewees to think deeply in order to give his or her opinions about the contents of the question. There are problems of budget and time faced by researcher for travelling to the individual interviewee. Due to these limitations and merits associated with it, the in-depth interview technique had been adopted to collect the data from the respondents (Gall et al., 1996).

In addition, by post method of conducting interviews was selected rather than face-to-face interview technique as in the latter case the respondent may be affected by interviewer's tone of voice or facial expression leading him to answer the questions acceptable to the interviewer (Cohen & Manion, 2011; Hatch, 2002). "The subjectivity and bias on the part of the interviewer" in terms of interpretations of responses of interviewees is another limitation of interview (Cohen & Manion, 2011; Opie, 2004).

In the email, brief of research project was attached along with semi-structured interview in which the researcher explained the nature and purpose of the research and length of the interview was specified from the scratch. The reply of the interviewee to

email with responses to interview questions indicated that he/she had given the consent to participate in this study. Interviewees/participants were briefed about the research project prior to the start of interview (Stewart & Cash, 2008, p. 78; Kvale, 2009, p. 55-56).

The interviews were conducted after the final approval of the experts, supervisor and departmental head. Before administration of interview questions to participants, endorsement letters were obtained from the Chairmen and the leading research group leaders to carry out the interview at the Departments of Education in Pakistani universities. After successfully receipt of approval notes, the researchers circulated the semi-structure interview questions to the 19 potential participants via face to face and post by accessing their details from the departmental address of the relevant Pakistani universities. Out of 19 experts, only 16 experts replied with the complete responses to each question in semi-structured interview.

Moreover, the departmental Chairmen of the participating departments showed a great deal of interest in this research study and offered their unconditional support in providing the researcher all the facilities required to complete the data collection process. They also played an active part in motivating the participants to complete and send the completed interview questions back to the researcher by hand and through post.

3.11 DATA ANALYSIS

According to Hatch (2002) data analysis is an important component of research design as it allows the researcher to draw the important meanings from the raw data collected through research process and finally to communicate the refined interpretations of data to the research community of particular field. There are two commonly used

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approaches for data analysis in qualitative research: grounded theory and applied inductive thematic analysis. Grounded theory is normally applied to small data set and includes systemic development of codes and exhaustive comparison of codes to build a theoretical model based on codes/themes grounded into data.

Therefore, the outcome of analysis through grounded theory aims to present a theoretical model. In case of large dataset the exhaustive comparison of small units of texts is not feasible as it is extremely time consuming. However, applied inductive thematic analysis (AITA) is suitable for large datasets and involves the identification of key themes/codes followed by their aggregation into codebook (Guest et al., 2012). The outcome of applied inductive thematic analysis is not necessarily a theoretical model but it often yields recommendations for policy-makers or program-leaders. Another distinction between grounded theory and AITA is that latter requires the iterative research design in which both data collection and data analysis run in parallel fashion and size of samples is not pre-determined. AITA in contrast allows the researcher to predetermine the sample size by retaining the sampling and data `collection procedures iterative while keeping the data collection and analysis separate from each other temporarily.

AITA approach was used to analyze the interview data in congruence with research objectives and research questions. The applied inductive thematic analysis was applied to analyze the data using the following steps: Reading and rereading the data transcripts collected through the in-depth interviews; identification of codes/themes from texts obtained from both sources of data; entering these codes in the codebook; interpretation of the themes/codes in the context of research objective and questions of the present research work.

The EDRF data was analyzed using the descriptive statistics. The frequencies, percentages and rank order of each item of EDRF were calculated. Based the percentage of each item, the rank orders were computed. The priorities of items were decided on the basis of their rank orders. The higher the value of the rank, the higher value of item was in the list of priorities. The quantitative data of EDRF were presented in the form of figures to facilitate the better and clear understanding of current trends of educational research obtained through document analysis.

Rank order was applied to determine the research trends for the EDRF data, which was a method used to identify the order of items in terms of their relative place, importance or use, especially when researchers were encountered with multiple items. Hence ranking of an item simply specifying the relative ordinal position where one item or option is higher than other items. The ranks are usually based on percentage or frequencies of items in relation to other items, and values of ranks that can be 1, 2, 3 and so on, but can never be zero. As the current research is interested to specify the relative position of multiple items in EDRF, therefore ranking order is the most viable statistical tool to address the research question (Hazelkorn, 2007).

3.12 VALIDITY AND RELIABILITY OF THE INSTRUMENTS

Validity denotes the trustworthiness of the research outcomes, truthfulness of the data without involving subjective involvement of researchers' opinions, and is measured through analyzing whether the research questions measures what they are expected to measure under the given research questions (Joppe, 2000). Reliability is measured through the element of reproducibility of the research outcomes. If research questions

measure frequently the same outcomes if they are repeatedly asked from participants in the sample, the data collection instrument is considered to be reliable. (Joppe, 2000; Winter, 2000).

The advancement of solid "semi-structured interviews" is fundamental for diminishing errors in interpretation. Groves (1987) characterizes the biasedness as "the inconsistency between the characteristics and responses of the respondents within the survey". Unwavering quality of reliability is created by utilizing an exploratory research by collecting information from people who are not included within the final data collection process. Therefore, it is better if a semi-structured interview is conducted in the same way as the main study is conducted. Moreover, a pilot study is essential in order to improve the validity of the semi-structured interview by asking the volunteer teachers about their views on the semi-structured interview as a whole (Peat et al., 2002).

Accordingly, pilot test was conducted for the semi-structured interview and a participant information sheet outlining the aims of the study was enclosed (Bell, 2010).The interview questions were piloted and validated with 5 leading research group leaders selected randomly from the participating universities in Pakistan. Moreover, both EDRF and semi-structured in-depth questions were face-validated by a number of experts including PhD supervisors, the Chairman and other experts at professional positions at the Department of Education, IIUI. Based on the feedback, the corrections and editing in the questions were made.

After validation of semi-structured interview through pilot study and face-validation method by experts in the field, minor revisions were made based on the suggestions and

feedback obtained through these routes. The pilot survey enabled the researcher to clarify that the semi-structured interview was indeed meant to measure the responses of the leading research group leaders. It was evident from some of the teachers' responses that these were different from the gist of the question. Researcher realized that the research group leaders had not understood some of the questions on the semi-structured interview questions and so re-worded them. In addition to this re-wording, some of the procedural matters were also altered such as the design of the letter of introduction and participant information sheet, the sequencing of the questions and reducing the non-response rates (Oppenheim, 2005).

Reliability was also considered as the study aims to obtain the same results if the questionnaires (measure) were to be repeated by using the same subjects under the same conditions. However, it is difficult to achieve in practice testing the questionnaire on a small number of the study sample twice. One of the threats to reliability was the use of ambiguous questions; hence attempts were made to avoid ambiguity in line with suggestions and feedback obtained through pilot study and face-validation approaches (Creswell, 2009).

Coefficient of Cronbach Alphas was used to measure and show the reliability or internal consistency of the quantitative data. If the Cronbach Alpha coefficient value is below 0.70, it means that data is less reliable and not acceptable, while the value more than 0.70 represents the higher reliability and internal consistency (Peat et al., 2002). The reliability or internal consistency of the ERDF data was measured using Cronbach Alpha, which was found to be 0.91 which showed that data was internally consistent and carried the higher reliability.

3.13 ETHICAL CONSIDERATIONS

Ethical issues for conducting the qualitative research through in-depth interviews from the participants were taken into consideration. The interview questions were prepared by considering all ethical concerns as suggested by Silverman (2005) in this context. Before and after preparation of the questions, the researcher fully complied with ethical procedures as per recommended by the Chairman, Department of Education, International Islamic University for seeking grants and permissions to conduct the field surveys and research. The researcher using these procedures prepared the respondents' information sheet and consent form for the interviewees in order to inform them the purpose of the study and to seek their consent via email. Wherever it was possible, the researcher took all the efforts to arrange face-to-face meetings with respondents by visiting the departments of education of accessible universities such as the universities located in Lahore, Islamabad and Multan.

Furthermore, the prevalent Pakistani culture and traditions may come in the way of obtaining full response on certain questions, or the respondents might opt not to answer any question in the semi-structured interview. Therefore, the interviews were ensured the complete freedom in their willingness to answer or leave the questions unanswered wherever they choose to do so. The aims of the study were made as clear as possible to the interviews, for example, it was made unambiguous that the researcher aims to improve the streamline of the research activities by identifying the gaps in the research trends, it was not aimed to assess the strengths and weaknesses of the research projects carried by individual research leaders taking part in the interviews. The responses, obtained by face-to-face meetings with the respondents, were preserved in the

form of notes with their approval. Further, in order to ensure the confidentiality, the names of the participants of the study were mentioned in codes (Silverman, 2005).

3.14 SUMMARY OF THE CHAPTER

The issues of paradigms were discussed, which led to the choice of the pragmatism paradigm for this research work. The pragmatism warranted the use of mixed methods which included debates on qualitative and quantitative research approaches. The application of both types of research approaches mediated the solutions to all research issues under investigation in this study. The use of multiple methods allowed this study, was conducted in two phases: quantitative phase, and qualitative in sequential order.

This approach was found useful to meet the research questions about the research trends and SWOT analysis to be answered in this study. Hence, both qualitative and quantitative approaches used in this study complemented each other, for example, analysis of documents helped identify the key research trends in education, while interview data helped to provide explanations for the observed research trends, leading to determination of SWOT of the educational research in education departments of Pakistani universities.

Data were analyzed for the semi-structured interviews to investigate those issues which recognize with educational research trends and SWOT analysis. AITA approach was used to analyze the interview data in congruence with research objectives and research questions. The EDRF data were analyzed using the descriptive statistics. The frequencies and percentages of each item of EDRF were calculated. Based the percentage of each item, the rank orders were computed.

CHAPTER 4

INTERPRETATION AND ANALYSIS OF DATA

4.1 INTRODUCTION

This chapter presents the analysis and interpretation of data. It has been divided into three sections/parts. The part I presents the analysis and interpretation of data derived from the EDRF. In this part, the research trends in different subject areas and research methodologies are explored in the PhD level research projects in Department of Education at public and private universities of Pakistan. The overall trend of research in education has been derived from the data and presented to show the ignored or under-represented areas in the educational research in Pakistani universities. The part II of this chapter describes the analysis and interpretation of data derived from the interviews with research experts engaged in supervising PhD level research projects. The findings in this part showed the most applied and least applied methodologies and overall strengths and weaknesses of the research trends of Departments of Education in Pakistani universities. The qualitative findings were used to confirm the research trends obtained from the EDRF data in Part I. The part III of this chapter presents the mixed discussion of the findings obtained from Part I and Part II discussion and critical analysis of findings of this study in the light of the previous study with the implications for policy makers striving to improve the standards of research in education at Pakistani universities.

PART I

4.2 ANALYSIS OF EDRF DATA

In this section, the data obtained from EDRF were analyzed and interpreted. The following objectives of this study were achieved through the implementation of EDRF analysis;

1. To classify the research works conducted in the field of education at doctoral level in terms of themes and research methods.

2. To find out the existing trends in educational research at doctoral level in Pakistan.

EDRF analysis was accomplished by following many steps. Briefly, the data from EDRF were imported to Microsoft Excel. Using statistical functions in Excel, frequency, percentages and ranks were calculated. The ranks were calculated directly from the percentages, in other words, the percentage values were given ranks. The higher the rank of particular item in the EDRF, the higher the priority or use of that item was within a pool of items. Therefore, the rank score reflects the priority or importance of a particular item within a reference pool of items. The data were presented in the form of bar charts drawn from the rank values and items in the EDRF. EDRF can be found in Appendix A. Bar charts are drawn from the tabulated form of data for each category in EDRF with additional display of percentage values and frequencies assigned to each item.

4.3 GENDER REPRESENTATION IN POSTGRADUATE LEVEL RESEARCH AT PUBLIC UNIVERSITIES

Document analysis of PhD dissertations in education at public universities revealed that majority of male PhD scholars had undertaken the PhD level research and accomplished the PhD dissertations. The frequency of female PhD scholars was very low at the University of Gomal (GU), Bahauddin Zakriya University (BZU), Karachi University and University of Sind Jamshoro (USJ). However, there is no representation of females in the PhD level research at the University of Sargodha (UoS) during 2000 - 2012. Besides, Punjab University (PU), University of Arid Agriculture University Rawalpindi (UAAR) and Allama Iqbal Open University (AIOU) had fairly good representation of females who conducted PhD level research during 2000-2012 (Table 4.1, Figure 4.1).

Table 4.1

Representation of males and females in the PhD research from 2000-2012

Name of Universities	Frequencies	
	Male	Female
University of Karachi	6	6
University of Punjab, Lahore	31	13
University of Arid Agriculture, Rawalpindi	45	17
National University of Modern Languages, Islamabad	10	8
International Islamic University, Islamabad	15	6
Allama Iqbal Open University, Islamabad	18	11
Bahauddin Zakariya University, Multan	4	1
Gomal University, DI Khan	7	0
University of Sargodha	1	0
University of Sindh, Jamshoro	2	3
University of Education, Lahore	5	1
Total	144	66
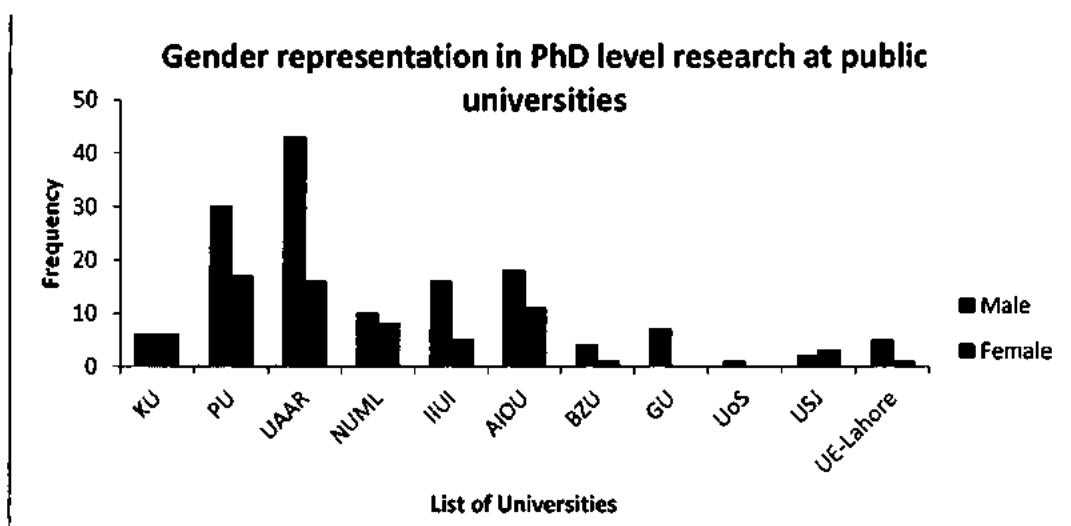
Figure: 4.1 Gender representations in PhD level research at public universities.

KU: University of Karachi; PU, University of Punjab; UAAR, University of Arid Agriculture Rawalpindi, NUML, National University of Modern Languages Islamabad;

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IIUI, International Islamic University Islamabad, BZU, Bahauddin Zakariya University; GU, Gomal University; UoS, University of Sargodha; USJ, University of Sind Jamshoro; UE-Lahore, University of Education Lahore. Interestingly, the representation of female PhD scholars at the Education department in International Islamic University Islamabad was found to be lower than PU, UAAR, AIOU and NUML.

4.4 GENDER REPRESENTATION IN POSTGRADUATE LEVEL RESEARCH AT PRIVATE UNIVERSITIES

Similar trends were observed for private universities in terms of female scholars' representation at PhD level research. Hamdard University of Karachi (HUK) showed the highest female representation compared to other universities except Jinnah University for Women Karachi (JUWK) which is completely dedicated for women education. The female representation of JUWK is equal to HUK. Overall male PhD scholars who completed their PhD dissertations during 2000-2012 were higher than female PhD scholars at Education departments of the private sector universities except Foundation University where 3 females completed PhD dissertations during 2000-2012 compared to 2 males completing PhD dissertations. Sarhad University of Science and Technology (SUIT) has the lowest level of female scholars representation in PhD level research, because only 1 female student had completed PhD dissertation in Education during 2000-2012. However, Qurtuba University (QUSIP) and Preston University (PUK) had no representation of females in PhD level research during 2000-2012 (Table 4.2, Figure 4.2).

Table 4.2

Representation of male and female who completed their PhD research at private universities during 2000-2012, in Pakistan

Names of Universities	Frequencies	
	Male	Female
Hamdard University Karachi	11	9
Qurtuba University of Science and Technology Peshawar	3	0
Jinnah University of Women Karachi	0	4
Foundation University Islamabad	4	3
Sarhad University of Information and Technology	2	0
Preston University	1	0
Total	21	16
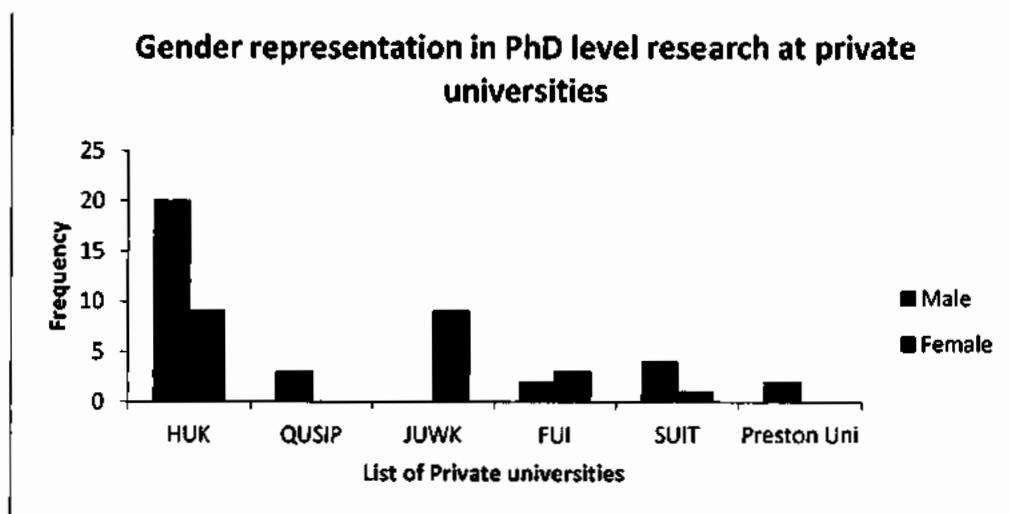
Figure: 4.2 Gender representations in PhD level research at private sector universities.

HUK: Hamdard University Karachi, QUSIP: Qurtuba University of Science and Technology Peshawar, JUWK: Jinnah University for Women Karachi, SUIT: Sarhad University of Science and Technology Peshawar.

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4.5 RESEARCH PRODUCTIVITY OF THE PUBLIC-SECTOR UNIVERSITIES

For this research work, the term 'research productivity' was defined as the number of PhD dissertations produced by the Departments of Education at Pakistani universities during specific period of time. The research productivity was measured for Departments of Education at both public and private universities in Pakistan. The document analysis was conducted based on the number of PhD dissertations in education, and it was found that the university of Arid Agriculture University (UAAR) was ranked at number 1 in terms of the research productivity. Punjab University was ranked at position 2, followed by Allama Iqbal Open University (AIOU) with rank order 3 in terms of research productivity. The research productivity of the International Islamic University Islamabad (IIUI) and National University of Modern Languages (NUML) were ranked at 4th and 5th positions, respectively. The research productivity of Karachi University (KU) and Gomal University (GU), secured ranks 6 and 7 respectively, Bahauddin Zakariya University (BZU) and University of Sindh Jamshoro got ranks 8 each of both, so due to having same rank, their research productivity was ranked at position 6. University of Education Lahore (UE-Lahore) was ranked at 9, and University of Sargodha fell at the bottom of ranking order 10. The results are presented in Table 4.3 and Figure 4.3.

Table 4.3

Research productivity of the public-sector universities during 2000- 2012

Universities Names	Frequencies	Percentage	Rank Order
University of Karachi	12	4.85	6
University of Punjab, Lahore	44	21.35	2
University of Arid Agriculture, Rawalpindi	62	25.10	1
National University of Modern Languages, Islamabad	18	7.28	5
International Islamic University, Islamabad	21	8.20	4
Allama Iqbal Open University Islamabad	29	11.74	3
Bahauddin Zakariya University, Multan	5	2.02	8
Gomal University, DI Khan	7	2.83	7
University of Sargodha	1	0.47	10
University of Sindh, Jamshoro	5	2.02	8
University of Education, Lahore	6	2.42	9
Total	210	100	
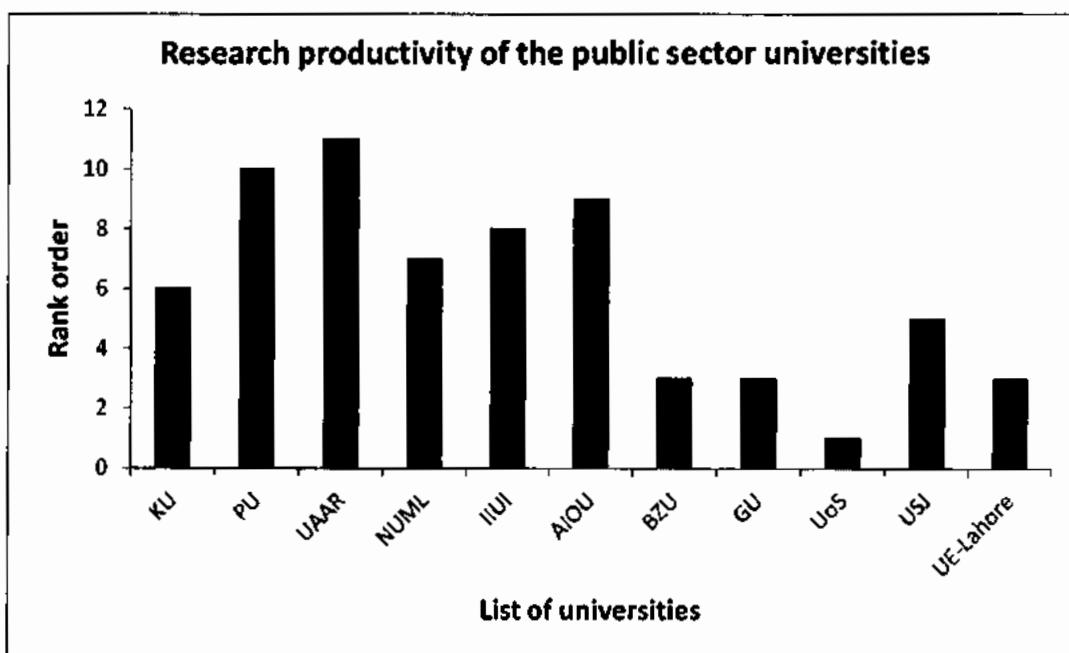
Figure: 4.3. Research productivity of the public-sector universities during 2000- 2012.

KU; University of Karachi, PU; University of Punjab, UAAR; University of Arid Agriculture Rawalpindi, NUML; National University of Modern Languages Islamabad, IIUI;

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International Islamic University Islamabad, BZU; Bahauddin Zakaria University, GU; Gomal University, UoS; University of Sargodha, USJ; University of Sind Jamshoro, UE-Lahore; University of Education Lahore.

The research productivity of UOS, GU and UE-Lahore was established during 1995-2000, that is why; they could not rank higher in the research productivity. The research productivity of the universities may differ from each other due to the following factors: university size, size of the education departments, number of staff qualified to supervise induction. Moreover, the universities have different emphasis on the PhD research which is applicable to the private universities.

4.6 YEARLY RESEARCH PRODUCTIVITY OF THE PUBLIC-SECTOR UNIVERSITIES

The yearly research productivity was also determined for the public sector universities; and thus study revealed that research productivity showed the increasing trend from years 2000 to 2005, though it was uneven as in 2003 the research productivity slightly decreased before sharply increasing in 2004, and continued to increase till 2005. After 2005, it was dropped dramatically and sharply to its lowest level during 2006. After 2006, the research productivity of the public sector universities in Pakistan showed consistent increase in research productivity and kept securing the higher and higher ranks. In 2011, the highest rank was given to the research productivity. For 2010 and 2012, the research productivity was observed to be equal in rank which means that number of theses produced during these years were equal (Table 4.4. and Figure 4.4).

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Table 4.4

Yearly research productivity of the public sector universities from 2000 to 2012

Years	No. of Theses produced	Rank Order
2000	1	11
2001	8	8
2002	13	7
2003	8	8
2004	22	4
2005	24	3
2006	4	10
2007	6	9
2008	15	6
2009	19	5
2010	30	2
2011	36	1
2012	24	3
Total	210	
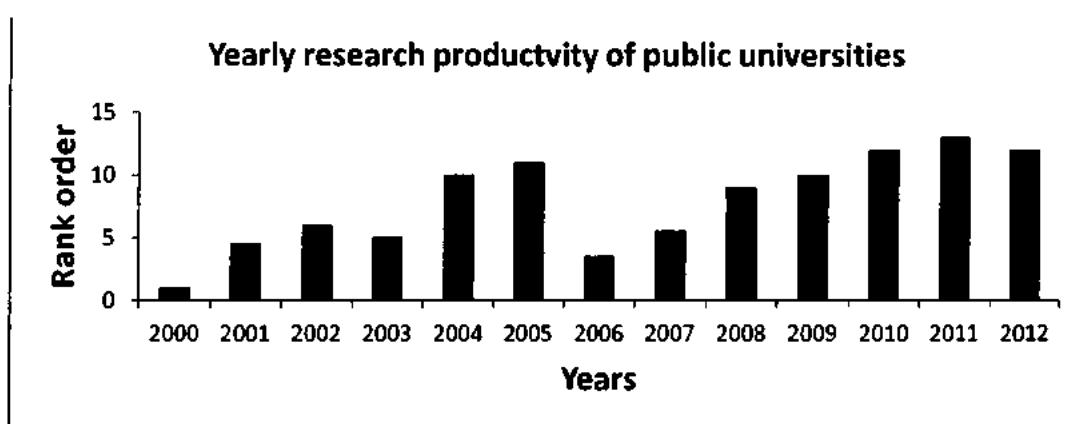
Figure: 4.4 Yearly research productivity of the public sector universities from 2000 to 2012

KU: University of Karachi, PU; University of Punjab, UAAR; University of Arid Agriculture Rawalpindi, NUML; National University of Modern Languages Islamabad, IIUI; International Islamic University Islamabad, BZU; Bahauddin Zikrya University, GU; Gomal University, UoS;

University of Sargodha, USJ; University of Sind Jamshoro, UE-Lahore; University of Education Lahore.

As shown in the Figure 4.4., overall the research productivity was increased between 2000 and 2012 which indicated that Pakistani universities were engaged in producing PhD dissertations. It also indicates that funds are being won for the research projects which might have stimulated the research activities at the postgraduate level in Pakistani universities.

The research productivity of the universities may differ from each other due to the following factors: university size, size of the education departments, number of staff qualified to supervise induction. Moreover, different universities have different emphasis on the PhD research which is applicable to the private universities.

4.7 RESEARCH PRODUCTIVITY OF THE PRIVATE SECTOR UNIVERSITIES

The research productivity of the private sector universities in the field of education was determined in the universities. The study found that research productivity of the Department of Education in the private university was not consistent from 2000 to 2012. Most of the Departments of Education in the private sector universities seem to be ranked low in terms of producing number of PhD dissertations. Hamdard University of Karachi (HUK) was ranked at position 1 in terms of producing the highest number of PhD dissertations (20) in the pool of the private sector universities; and interestingly up to 2008, Hamdard University Karachi was the only private university producing the PhD theses in the private sector universities. The reason of this, is related to the fact that most

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of the private universities started their PhD programs in Education after 2008, while

Hamdard University Karachi was the oldest private university catering to the needs of

Pakistani students in Private sector (Table 4.5 and Figure 4.5)

Table 4.5

Research productivity of the private sector universities from 2000 to 2012

Names of Universities	Frequencies	Total number of theses produced	Percentage	Rank
Hamdard University, Karachi	20	37	54	1
Qurtuba University, Peshawar	3	37	8	4
Jinnah University for Women, Karachi	4	37	11	3
Foundation University, Islamabad	7	37	19	2
Sarhad University of Science and Information Technology, Peshawar	2	37	5	5
Preston University, Kohat	1	37	3	6
Total (Frequency)	37	37	100	

Note: Frequencies is the number of PhD research theses produced by the private universities

Research productivity of the private sector universities
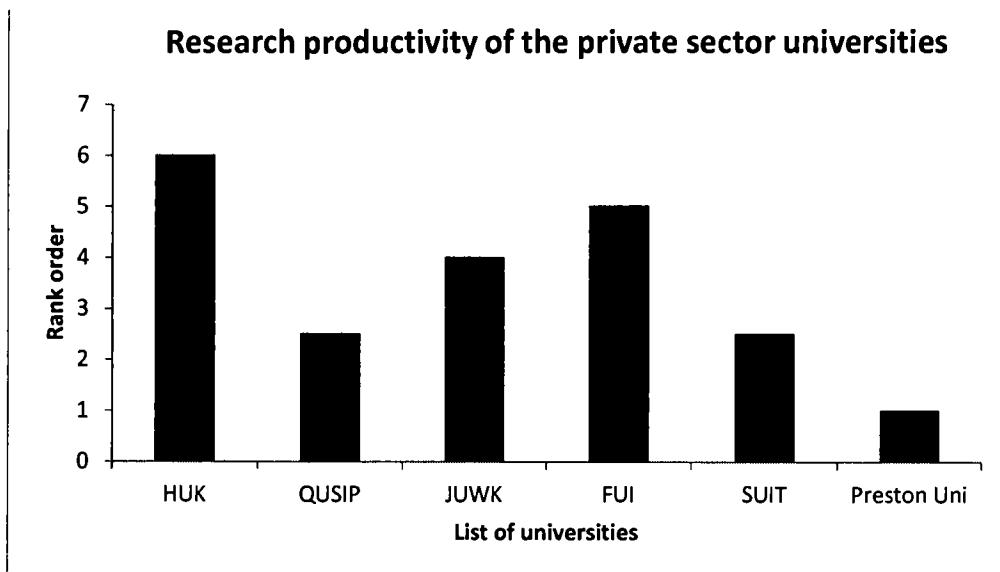
Figure: 4.5 Research productivity of the private sector universities from 2000 to 2012

HUK: Hamdard University Karachi, QUSIP: Qurtuba University of Science and Technology Peshawar, JUWK: Jinnah University for Women Karachi, SUIT: Sarhad University of Science and Technology Peshawar.

In the above figure, Foundation University Islamabad (FUI), and Jinnah University for Women Karachi (JUWK) secured ranks 2 and 3, respectively in the list of high PhD dissertations producing private universities. However, the number of PhD dissertations produced by these universities during 2000-2012 was very low compared to HUK. For example, JUWK produced 4 PhD dissertations and QUISP produced 3 PhD dissertations each compared to 20 PhD dissertations produced by HUK. Qurtaba University of Science and IT Peshawar (QUSIP) and Sarhad University of science and IT Peshawar (SUIT) were ranked at 4th and 5th position in the pool of the private sector universities. Each of these universities produced 3 PhD dissertations in education during

2000 and 2012. Preston University was ranked at 6th position in term of the research productivity (Figure 4.5).

4.8 YEARLY RESEARCH PRODUCTIVITY OF THE PRIVATE SECTOR UNIVERSITIES

The yearly research productivity of the private sector universities from 2000 to 2012 was determined and results showed the trend in research productivity that displayed some irregularity from 2000 to 2007. For example, the ranks of research productivity were higher in 2002 and 2006 than 2001, 2004 and 2005. During years 2000, 2002 and 2007, the lowest ranks of the research productivity were observed with production of only 4 and 2 PhD dissertations in Education for each year. The low research productivity in education field in these universities might be attributed to debut of these universities in the educational research. However, the trend of a consistent increase in ranks of the research productivity was detected from 2007 till 2012. The highest research productivity with 15 dissertations during 2010 and 2012 were reported by this study (Table 4.6 and Figure 4.6).

Table 4.6

Yearly research productivity of the private sector universities from 2000 to 2012

Years	No. of Theses produced	Rank Order
2000	3	4
2001	1	6
2002	5	2
2003	2	5
2004	2	5
2005	3	4
2006	1	6
2007	1	6
2008	2	5
2009	2	5
2010	3	4
2011	8	1
2012	4	3
Total (Frequency)	37	
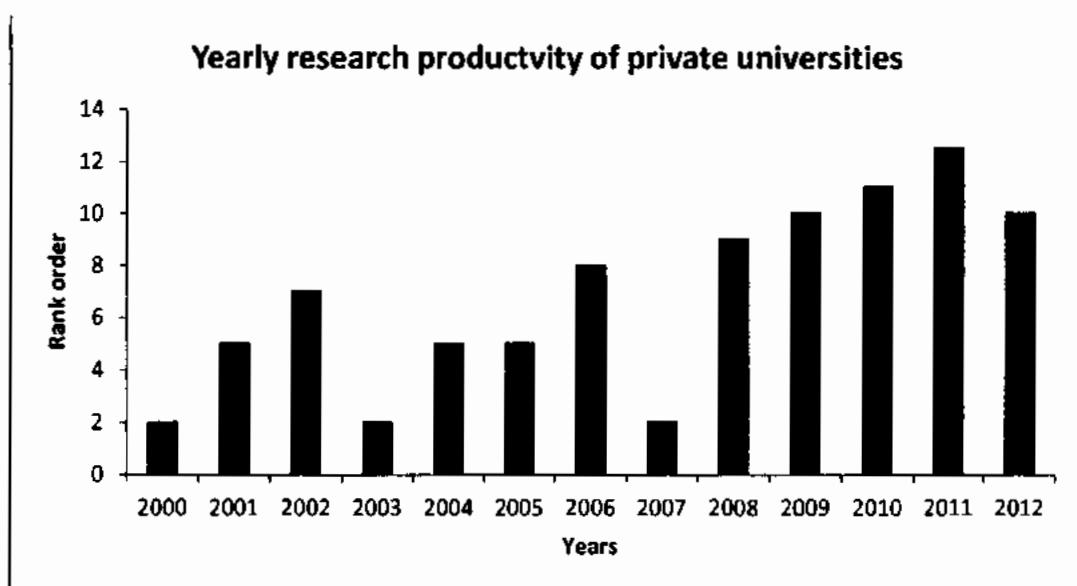
Figure: 4.6. Yearly research productivity of the private sector universities from 2000 to 2012

HUK: Hamdard University Karachi, FUI: Foundation University Islamabad, JUWK: Jinnah University for Women Karachi, QUSIP: Qurtuba University of Science and Technology Peshawar, SUIT: Sarhad University of Science and Technology Peshawar

It seems that the research at the Department of Education at the private universities has established its infrastructure and expertise which showed the positive impact on improving the number of PhD level dissertations at these universities. This also predicts the positive omen for the private universities in the future.

4.9 RESEARCH TRENDS OF 'THE RESEARCH BY CATEGORY'

Document analysis of 247 PhD dissertations showed that survey and experimental research were used in the research to conduct the PhD level research at the Pakistani Public and Private universities. Survey and experimental research was ranked at 1st and 2nd Position, respectively. Descriptive research was ranked at 3rd position, and R&D and case study methods were ranked at 4th Position. The content analysis and historical research were used very less in PhD dissertations submitted to Pakistani universities during 2000-2012, and were ranked at 5th and 6th position, respectively. The results have been shown in the Table 4.7 and Figure 4.7.

Table 4.7

Research trends of the use of 'research by themes in education at the Departments of Education at Pakistani public and private universities during 2000-2012

Research type	Frequency	Total (Theses)	Percentage	Rank
Historical research	1	247	0.40	6
Descriptive research	12	247	4.85	3
Survey	175	247	70.85	1
Case study	3	247	1.21	4
Content analysis	2	247	0.80	5
Experimental research	51	247	20.64	2
Research & Development	3	247	1.24	4
Total (Frequency)	247		100.00	
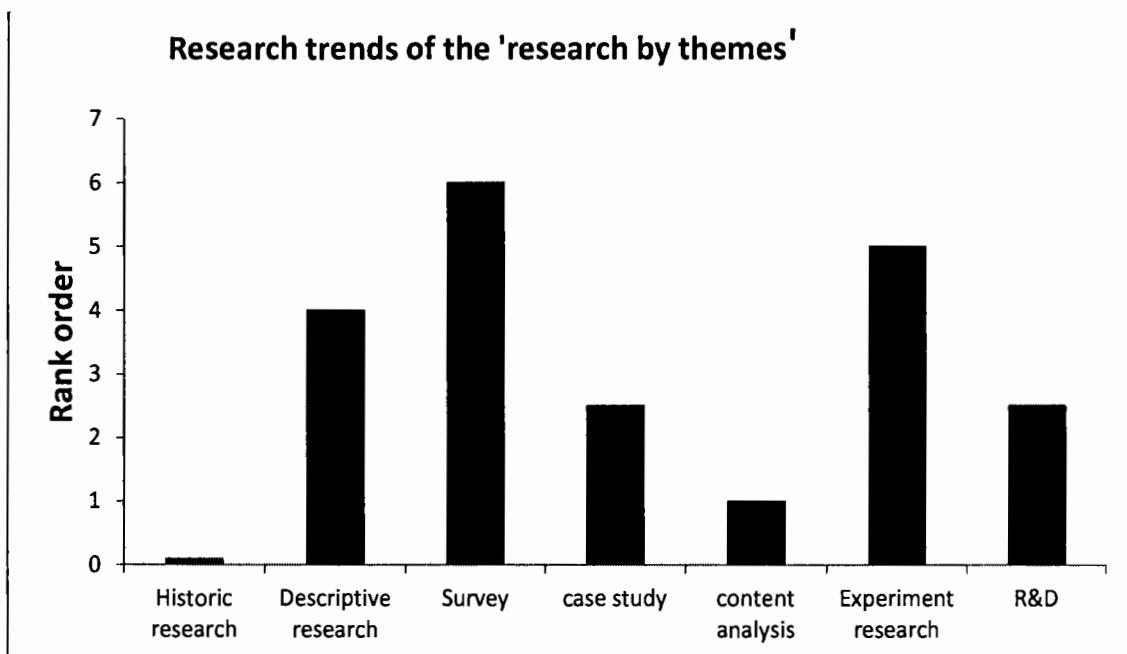
Figure: 4.7 Research trends with respect to the use of 'research by themes in education at the Department of Education at Pakistani public and private universities during 2000-2012.

To sum up, the survey research design was the most used technique and second was experimental research design in PhD dissertations in Education submitted at Pakistani universities.

4.10 RESEARCH TRENDS OF TEACHER EDUCATION, TRAINING

Teachers training and development are the common research areas focussed by the researchers in different countries. This helps increase the competency of teachers in delivering the education to the students. However, it is not clear of which pattern of trends exists in the research endeavours performed as part of the PhD research in Pakistani universities. Therefore, in this section, the research trends in teachers' education towards teachers training are presented.

The 247 PhD dissertations in Education submitted to Pakistani universities from 2000 to 2012 were scanned for their focus of research and it was found that two education areas: teachers training and development and teacher-student interaction had the same rank (1). This indicated that most of the dissertations were focussed on addressing the issues in teacher training and development and teacher-student interaction. The rank of quality assurance/education was 2 which was the lowest. This showed that quality assurance in teachers' education; training and development fall in the ignored research area in educational research at Pakistani universities. The results have been presented in the Table 4.8 and Figure 4.8.

Table 4.8

Research trends of teachers' education at the Department of Education at Pakistani public and private universities during 2000-2012

Type of Research	Frequency	Total (Theses)	Percentage	Rank
Teacher training and Development	16	247	6.47	1
Teacher-Student interaction	16	247	6.47	1
Quality assurance/Education	4	247	1.61	2
Total (Frequency)	36	247		

Research trends in Teachers education
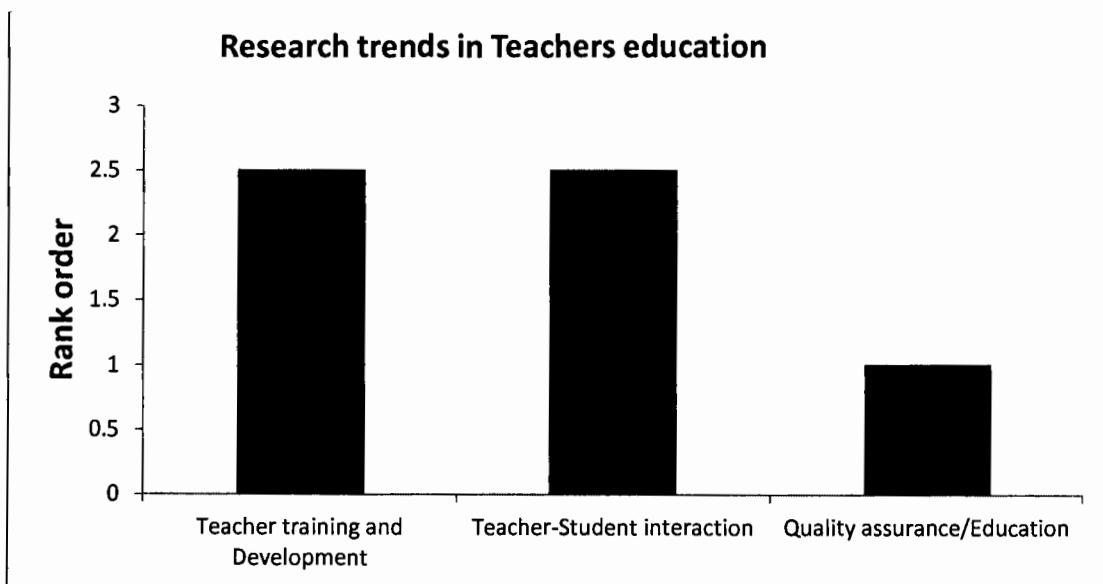
Figure: 4.8 Research trends with respect to the use of 'research focus of the research projects on teachers' development in education at the Department of Education at Pakistani public and private universities during 2000-2012.

4.11 RESEARCH TRENDS IN SCIENCE EDUCATION

The science education is critical for the development and progress in the field of education, which is mainly due to two important reasons: Firstly, science education has generated a considerable amount of learning difficulties which are not observed in other areas of education worldwide. Secondly, science education has developed its own journals for publishing the science researches with high impact. 247 PhD dissertations in Education from 2000 to 2012 were selected and scanned to collect data about the focus of the research on science education. It was found that small proportion of dissertations (8%) focussed on the development of science education. Considering the ranks of research areas in maths, biology, chemistry and physics, it was revealed that most of the PhD dissertations in Science education submitted to Pakistani universities, addressed the

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issues in Maths with the highest rank 1, and secondly the issues in chemistry education

were focused with rank 2. As far as addressing the research issues in biology education

is concerned, it was given the rank 3, which indicated that less research work had been

done to address the education in biology. Similarly, Physics was given the rank 4, which

showed that there were very limited studies which focussed on the physics education. The

results are presented in the Table 4.9 and Figure 4.9.

Table 4.9

Research trends of Science Education at the Department of Education at Pakistani public and private universities during 2000-2012

Research Type	Frequency	Total (Theses)	Percentage	Rank
Math	10	247	4.04	1
Biology	4	247	1.61	3
Chemistry	6	247	2.42	2
Physics	1	247	0.40	4
Total (Frequency)	21			

Research trends in Science education
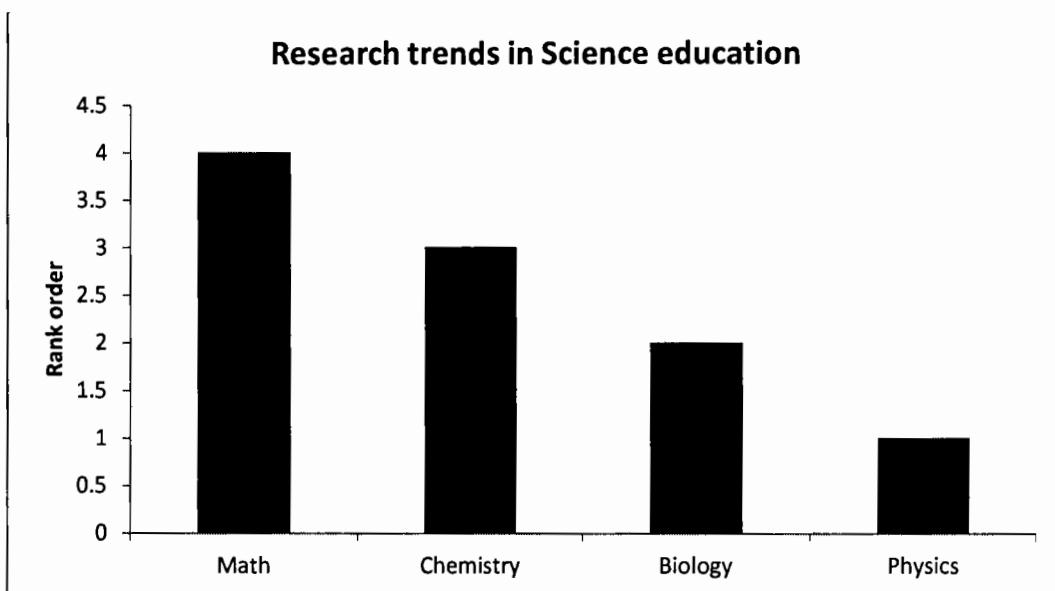
Figure: 4.9 Research trends with respect to the use of 'research focus of the research projects on science education in education at the Department of Education at Pakistani public and private universities during 2000-2012.

4.12 RESEARCH TRENDS, DIFFERENT LEVELS OF EDUCATION

Document analysis of 247 PhD dissertations in Education submitted at Pakistani universities showed that total proportion of the research work carried out on the different levels of education constitutes 8% which is relatively lower than other areas of research in education but same to the science education. The rank wise prioritization of the research conducted in different levels of education found that secondary level education received the large attention of the most of the researchers with rank 1. Second popular level of research with rank 2 was the higher education which had been conducted by students as part of their PhD dissertations from 2000 to 2012. After secondary and higher education, the primary education and elementary education ranked at third and fourth positions in terms of focus on the research works. Early childhood education was ranked

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at 5 and falling in the least researched area. The results can be viewed in the Table 4.10 and Figure 4.10.

Table 4.10

Research trends of different levels of education in the Departments of Education at Pakistani public and private universities during 2000-2012.

Different levels of Education	Frequency	Total (Theses)	Percentage	Rank
Early Childhood Education	3	247	1.21	5
Primary Education	19	247	7.69	3
Elementary Education	7	247	2.83	4
Secondary Education	68	247	27.53	1
Higher Education	41	247	16.59	2
Total (Frequency)	138			
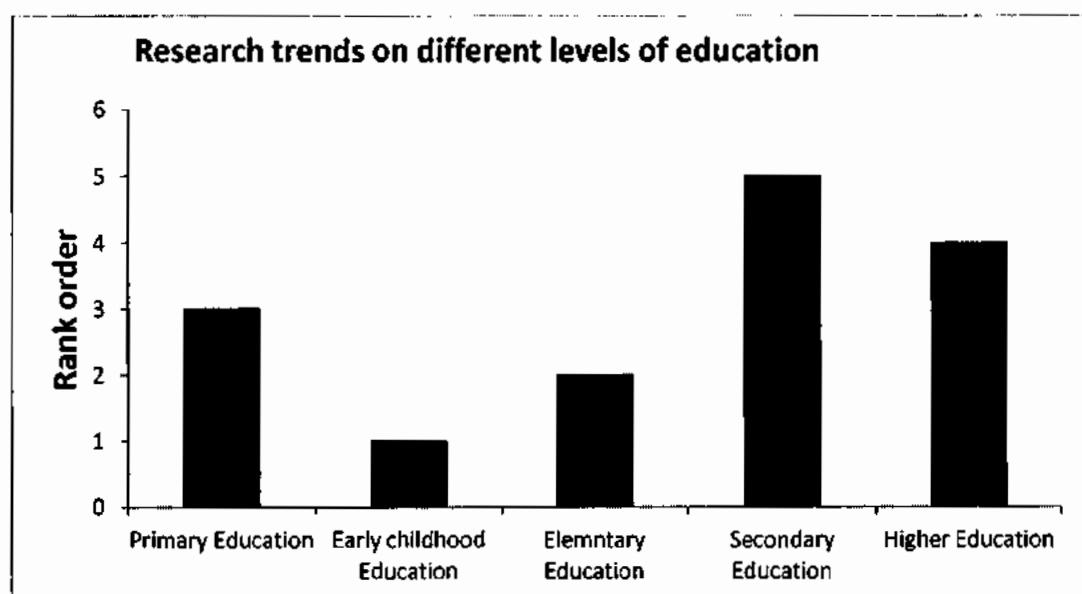
Figure: 4.10 Research trends with respect to the use of 'research focus of the research projects on different levels of education in education field at the Pakistani public and private universities during 2000-2012.

4.13 OVERALL ANALYSIS OF RESEARCH TRENDS IN DIFFERENT SUBJECTS

The overall research trends in different subject areas and their sub-areas are summarized in the Table 4.11. The table is self-explanatory; therefore, already discussion is presented in related tables and figures.

Table 4.11

The summary of overall research trends in different subject areas with commentary on the most and least explored areas.

Subject areas	Subject Sub-areas	Percentage	Rank	Overall Research Trends
Islamic Education	Islamic Education	1.21	1	Highly explored areas: Islamic Education
	Moral Education	0.80	2	
	Mystical Education	0.40	3	Mediumly explored areas: Moral Education
				Least researched area: Mystical education
Miscellaneous Subjects	Comparative Education	12.95	1	
	Educational Psychology	9.71	2	Highly explored areas: Comparative
	Special Education	4.04	3	Education, Educational Psychology,
	Educational Assessment	3.64	4	Special Education, Educational
	Curriculum Development	3.64	4	Assessment, Curriculum
	DNFE	2.83	5	Development, DNFE, Educational
	Educational Evaluation	2.83	5	Evaluation
	Economics of Education	1.61	6	
	Gender Studies	1.61	6	Mediumly explored areas: Economic
	Educational Technology	1.21	7	of Education, Gender Studies,
	Educational Sociology	1.21	7	Educational Technology,
	Policy Studies	1.21	7	Educational Sociology, Policy
	Sports Education	0.80	8	Studies
	Adult Education	0.80	8	
	Crime Education	0.40	9	Least researched area: Crime
	Philosophy of Education	0.40	9	Education, Adult Education, Sports
	Historical Education	0.40	9	Education, Crime Education,
	Commerce Education	0.40	9	Philosophy of Education, Historical Education, Commerce Education
Teacher Education	Teacher Training and Development	6.47	1	Highly explored areas: Teacher Training and Development, Teacher-
	Teacher-Student Interaction	6.47	1	Student Interaction
	Quality Assurance Education	1.6I	2	Least researched area: Quality Assurance Education

Science Education	Math	4.04	1	Highly explored areas: Pedagogical Concepts in Math
	Chemistry	2.42	2	
	Biology	1.61	3	Mediumly explored areas: Pedagogical Concepts in Chemistry
	Physics	0.40	4	Least researched area: Pedagogical Concepts in Biology and Physics
Different Levels of Education	Secondary Education	27.53	1	Highly explored areas: Secondary Education, Higher Education
	Higher Education	16.59	2	
	Primary Education	7.69	3	Mediumly explored areas: Primary Education
	Elementary Education	2.83	4	
	Early Childhood Education	1.21	5	Least researched area: Elementary Education, Early Childhood Education
Educational Administration	Leadership	3.23	1	Highly explored areas: Educational Leadership
	Management	2.42	2	
	Planning	1.21	3	Mediumly explored areas: Management in Education Least researched area: Planning of Education

4.14 RESEARCH TRENDS IN EDUCATION ADMINISTRATION

The document analysis of 247 PhD dissertations in education at Pakistani universities revealed that only 10% of the research activities as part of PhD research degree were dedicated to the area of education administration. Ranks of three sub-areas in education administration including leadership, management and planning were calculated. Leadership and management and planning were ranked at 1, 2 and 3, respectively. This indicated that the focuses of the most of the PhD dissertations were to resolve the issues surrounding leadership and second priority was given to the conduct research on management area of education administration. Planning received the little attention of the researchers and very few PhD theses addressed the problems in this area. The results are presented in the Table 4.12 and Figure 4.11.

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Table 4.12

Research trends of administration in education at the Department of Education at Pakistani public and private universities during 2000-2012.

Research Type	Frequency	Total (Theses)	Percentage	Rank
Leadership	8	247	3.23	1
Management	6	247	2.42	2
Planning	3	247	1.21	3
Total (Frequency)	17	247		
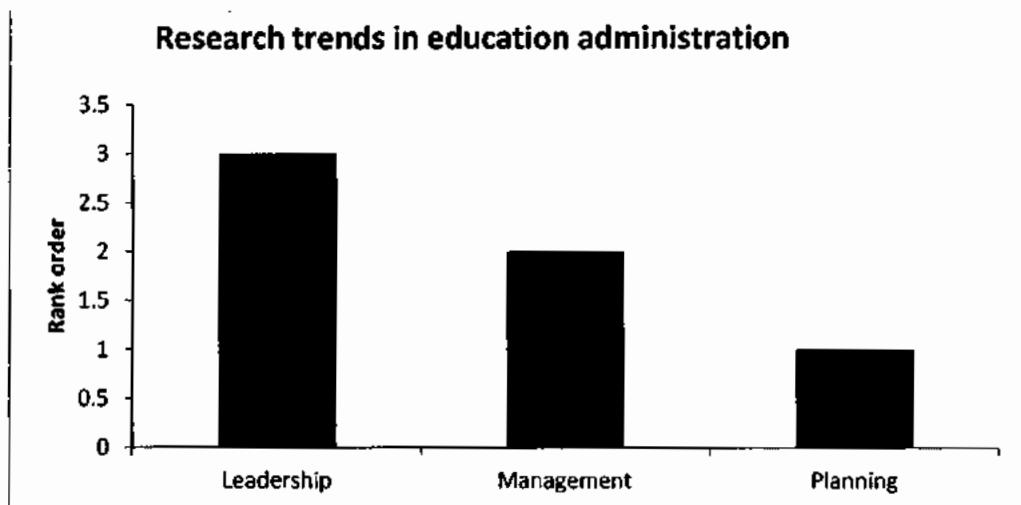
Figure: 4.11 Research trends with respect to the use of 'research focus of the research projects on Education administration in education at the Department of Education at Pakistani public and private universities during 2000-2012.

4.15 RESEARCH TRENDS IN ISLAMIC EDUCATION

Three sub-areas were grouped into Islamic studies areas: Islamic education, moral education and mystical education. Based on the ranking order, Islamic education and moral education were ranked at 1st and 2nd positions, while mystical education appeared at position three with rank 3, indicating and mystical and moral education did not receive substantial input from researchers doing their PhD dissertations at Pakistani universities from 2000 to 2012 (Table 4.13, Figure. 4.12).

Table 4.13

Research trends of Islamic studies in education at the Department of Education at Pakistani public and private universities during 2000-2012.

Research Type	Frequency	Total (Theses)	Percentage	Rank
Islamic Education	3	247	1.21	1
Mystical Education	1	247	0.40	3
Moral Education	2	247	0.80	2
Total (Frequency)	6	247		

Research trends in Islamic studies
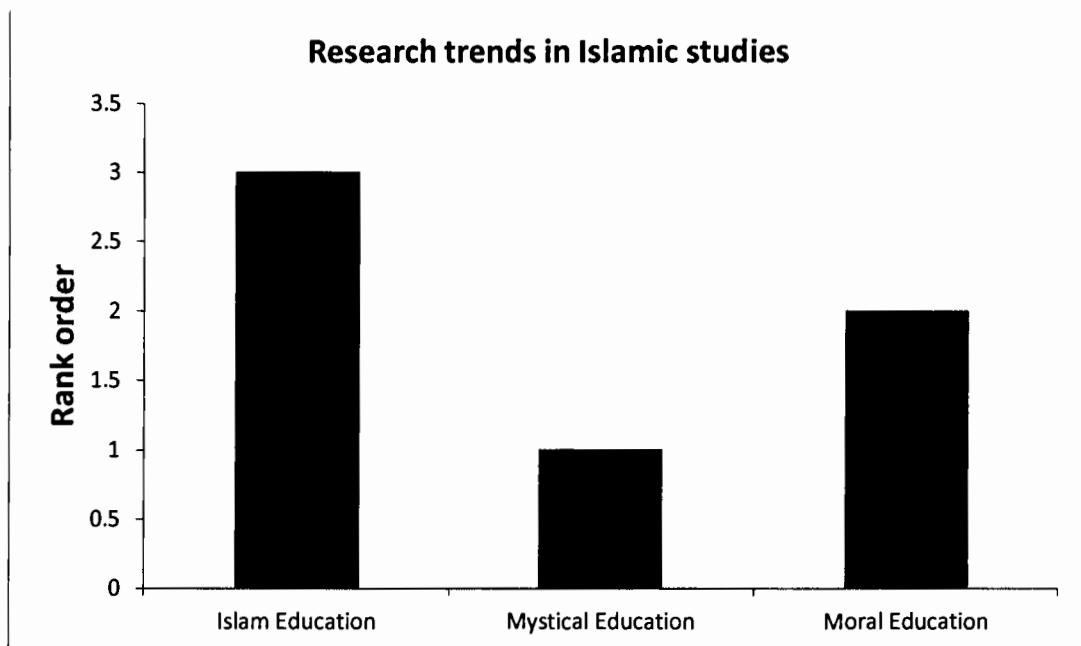
Figure: 4.12 Research trends with respect to the use of 'research focus of the research projects on Islamic studies in education at the Department of Education at Pakistani public and private universities during 2000-2012.

The percentage wise, 1%, 0.4% and 0.8% of the 247 PhD dissertations submitted at Pakistani universities focussed on research issues in areas of Islamic education, mystical education and moral education (see Appendix C). This indicated that there were very limited research activities at PhD level in Pakistani universities.

4.16 RESEARCH TRENDS IN MISCELLANEOUS EDUCATION AREAS

The document analysis of 247 PhD dissertations submitted during 2000-2012 at the Pakistani public and private universities revealed that pool of the education areas (247 dissertations) contained relatively small proportions of dissertations with focus on

educational psychology (10%), comparative education (13%), special education (4%), educational assessment and curriculum development (3.64%), distance and non-formal education (DNFE) (3%), educational technology, education sociology and policy studies were (1.21%), economics of education (1.61%), gender studies (1.61%), sports education (0.8%), and adult education (0.8%) crime education, philosophy of education, historical education and commerce education (0.4%).

Rank-wise, it was revealed that comparative education and educational psychology were ranked at 1st and 2nd positions, respectively. Special education and educational assessment and curriculum development were ranked at 3rd and 4th positions in terms of focus and aim of the research in PhD dissertations in education at Pakistani universities during 2000 and 2012. DNFE and educational evaluation were ranked at 5th position. Economics of education and gender studies came at position 6, while educational technology, educational sociology and policy Studies areas fell at position 7. Sports education and adult education areas were came at position 8, and crime education, philosophy of education, historical education and commerce education were ranked at position 9. Overall, the educational technology, educational sociology, economics of education, & gender education areas and sports & adult education, crime education, philosophy of education, historical education and commerce education areas were not researched substantially and remained under-represented areas in educational research conducted during 2000 to 2012. The data have been presented in the Table 4.14 and Figure 4.13.

Table 4.14

Research trends some miscellaneous education areas in education at the Department of
Education at Pakistani public and private universities during 2000-2012.

Research Type	Frequency	Total (Theses)	Percentage	Rank
Comparative Education	32	247	12.95	1
Educational Psychology	24	247	9.71	2
Special Education	10	247	4.04	3
Educational Assessment	9	247	3.64	4
Curriculum Development	9	247	3.64	4
DNFE	7	247	2.83	5
Educational Evaluation	7	247	2.83	5
Economics of Education	4	247	1.61	6
Gender Studies	4	247	1.61	6
Educational Technology	3	247	1.21	7
Educational Sociology	3	247	1.21	7
Policy Studies	3	247	1.21	7
Sports Education	2	247	0.80	8
Adult Education	2	247	0.80	8
Crime education	1	247	0.40	9
Philosophy of Education	1	247	0.40	9
Historical Education	1	247	0.40	9
Commerce Education	1	247	0.40	9
Total (Frequency)	120			

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Research trends in some miscellaneous education
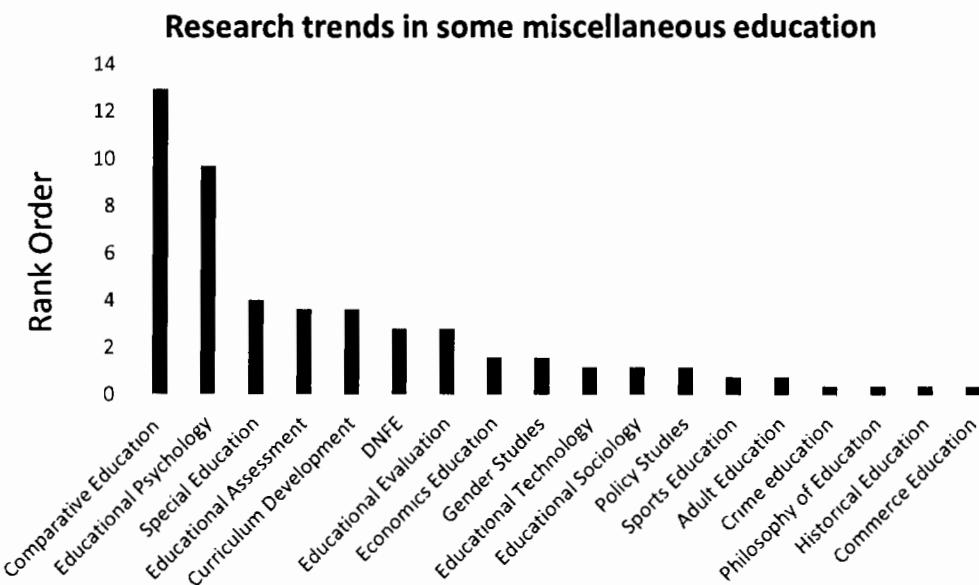
Figure: 4.13 Research trends with respect to the use of 'research focus of the research projects on some miscellaneous education areas in education at the Department of Education at Pakistani public and private universities during 2000-2012.

4.17 TRENDS IN THE USE OF RESEARCH METHODOLOGY

The document analysis of 247 PhD dissertations in Education at Pakistani universities during 2000-2012 revealed that quantitative research methods were widely used during the postgraduate level research activities in education with the rank 3. In the pool of three reference items (qualitative, quantitative and mixed method), it was positioned at number 1 in terms of its use in the PhD research during 2000-2012. Qualitative research method was ranked at position 2 with rank 2. 41 PhD dissertations in Education were found using this research tool. The mixed method was found to be used lesser than the quantitative and qualitative research methods as it was only used in 25 PhD dissertations in education from 2000 to 2012 and most of the use was emerged

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during 2009-2012 which indicated that this method is an emerging research method in education at Pakistani universities. The data can be seen in the Table 4.15 and Figure 4.14.

Table 4.15

Research trends with respect to the use of 'research methodology (data type)' in education at the Department of Education at Pakistani public and private universities during 2000-2012.

Research type	Frequency	Total (Theses)	Percentage	Rank
Qualitative	41	247	16.59	2
Quantitative	181	247	73.27	1
Mixed Method	25	247	10.12	3
Total (Frequency)	247	247	100.00	
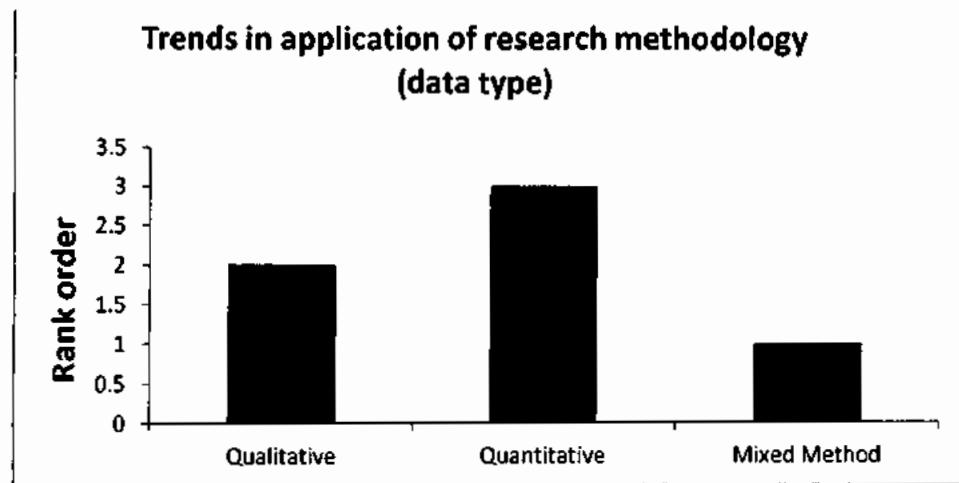
Figure: 4.14 Research trends with respect to the use of 'research methodology (data type)' in education at the Department of Education at Pakistani public and private universities during 2000-2012.

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4.18 PRIMARY AND SECONDARY DATA SOURCES

In EDRF, data source was evaluated to check as to which data source is the most commonly used in the PhD theses accomplished in Pakistan. According to Creswell (2011), there are two types of data sources including primary and secondary data sources. The results showed that PhD theses completed within 12 years (2000-2012) used primary data source (97%) at rank 1, while the secondary source was the second most commonly used data source and fell in rank 2. The results have been shown in Table 4.16 and Figure 4.15.

Table 4.16

Research trends of application of data sources in educational research at the Department of Education at Pakistani public and private universities during 2000-2012.

| Data type	Frequency	Total	Percentage	Rank
Primary Data source	240	247	97.16	1
Secondary data	7	247	2.83	2
Total	247	247	100.00	

Sources of data
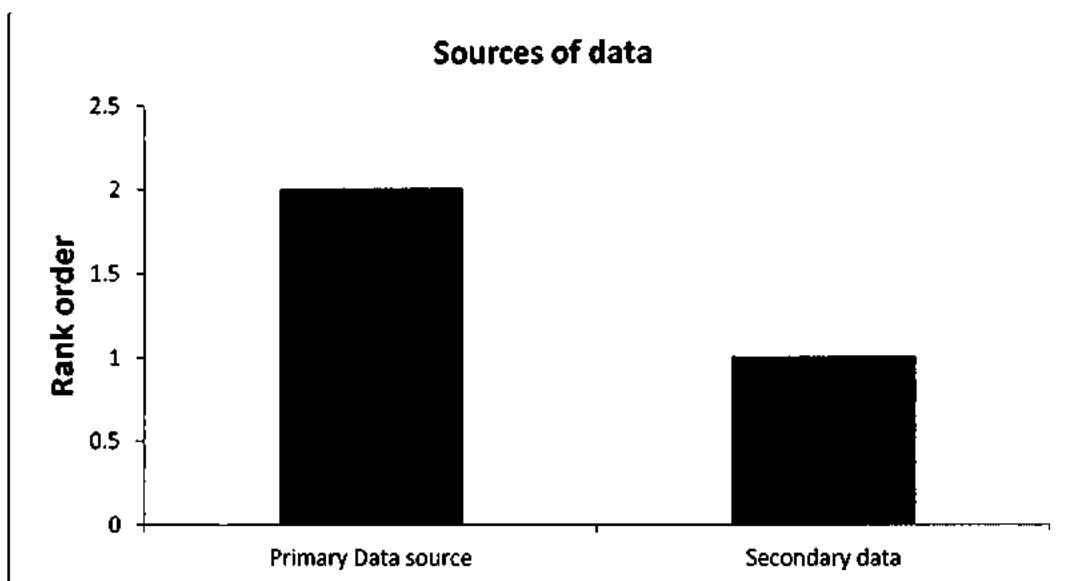
Figure: 4.15 Research trends with respect to the use of 'research focus of the research projects using different data sources in education at the Department of Education at Pakistani public and private universities during 2000-2012.

4.19 PROBABILITY SAMPLING TECHNIQUES WERE TRENDY IN PAKISTANI PHD DISSERTATIONS

This study found the trends of probability and non-probability sampling techniques in PhD level educational research at Pakistani universities located in both public and private sectors. The results have been demonstrated in the Table 4.17 and Figure 4.16.

Table 4.17

Research trends with respect to the use of sampling techniques in education related projects at the Department of Education at Pakistani public and private universities during 2000-2012.

Sampling techniques	Frequency	Total (Theses)	Percentage	Rank
Random PS	153	247	61.94	1
Stratified PS	53	247	21.45	2
Cluster PS	23	247	9.31	4
Convenient NPS	41	247	16.59	3
Purposive NPS	20	247	8.09	5
Snowball NPS	4	247	1.61	6
Universal sampling	1	247	0.40	7
Total (Frequency)[1]	295			

1, More than one technique was used in 247 theses sample, and due to repetition of certain methods, the total came out to be 295.
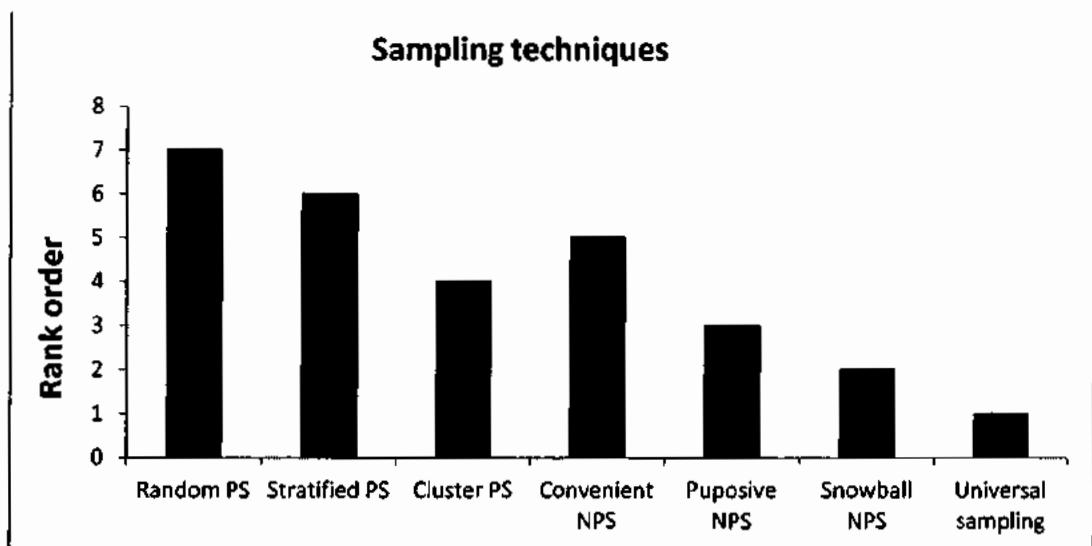
Figure: 4.16 Research trends with respect to the use of sampling techniques in education related projects at the Department of Education at Pakistani public and private universities during 2000-2012. PS: probability sampling; NPS: non-probability sampling

It was found that probability sampling techniques including random, stratified and cluster sampling techniques secured the highest ranks in terms of their usage to recruit the samples for data collection. The ranks of random and stratified probability sampling were calculated to be 1 and 2 which indicated that these techniques were mostly used in the 247 PhD level dissertations in the education field in Pakistan. Non-probability sampling methods were used including convenient, cluster, purposive, snowball and universal sampling which were ranked 3, 4, 5, 6 and 7, respectively. Out of non-probability sampling, convenient sampling was most used non-probability sampling technique with rank 3, while the snowball non-probability sampling technique was the least used sampling techniques (rank = 7) in 247 PhD dissertations analyzed during this research work.

4.20 DATA COLLECTION METHODS USED IN PhD THESES

Different data collection methods are used to collect data to address the research issues. Each research issue requires the particular and issue-specific data collection method. From 2000 to 2012, multiple choice questions (MCQs), more applied predominantly as data collection tools to execute the PhD research in the education field in Pakistani universities because the rank and score of this method was 1. Interviews had the rank order 2 which means that it is the second most used data collection method used in PhD theses during period of 2000-2012. Achievement method had the rank 3 which means that it was the third most used data collection method. The rank of open ended questionnaires were calculated which are part of the qualitative data methodology, secured rank order 4 and became the fourth most used data collection method. The rank of structured questionnaire was calculated to be 5. Attitude, perception, personality and

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talent tests (4-tests) were calculated at rank 6. The ranks of document analysis, observations, check-list and close ended questionnaire, semi-structured questionnaire, opinionnaire and focus group discussion method were calculated to be 7, 8, 9, 10, 11 and 11, respectively. It can be noticed that both opinionnaire and focus group discussion methods were ranked at 11, and were least used data collection methods. Semi structured interview questions were also used less frequently as compared to a data collection method. In short, the most used data collection tools used to conduct PhD level research in Pakistani universities were attitude, perception, personality and talent tests (4-test), interviews, MCQs and achievement tests. The results have been shown in the Table 4.18 and Figure4.17.

Table 4.18

Research trends with respect to the use of data collection instruments (DCIs) in education at the Department of Education at Pakistani public and private universities during 2000-2012.

DCIs	Frequency	Total (Theses)	Percentage	Rank
Interviews	55	247	22.26	2
Achievement tests	46	247	18.62	3
4 Tests	16	247	6.47	6
Open-ended Questionnaire	43	247	17.40	4
Multiple Choice Questions MCQs	144	247	58.29	1
Semi-structured Questionnaire	6	247	2.42	10
Structured- Questionnaire	22	247	8.90	5
Doc analysis Questionnaire	10	247	4.04	7
Check-list	7	247	2.83	9
Observations	9	247	3.64	8
Opinionnaire	1	247	0.40	11
Close-ended Questionnaire	7	247	2.83	9
Focused group	1	247	0.40	11
Total (Frequency)[1]	367	247	100.00	

1; More than one instruments were used in 247 theses, and due to repetition of certain methods, the total came out to be 367 (4-Tests) Attitude, Perception, Personality and Talent tests

Data collection methods used in PhD theses
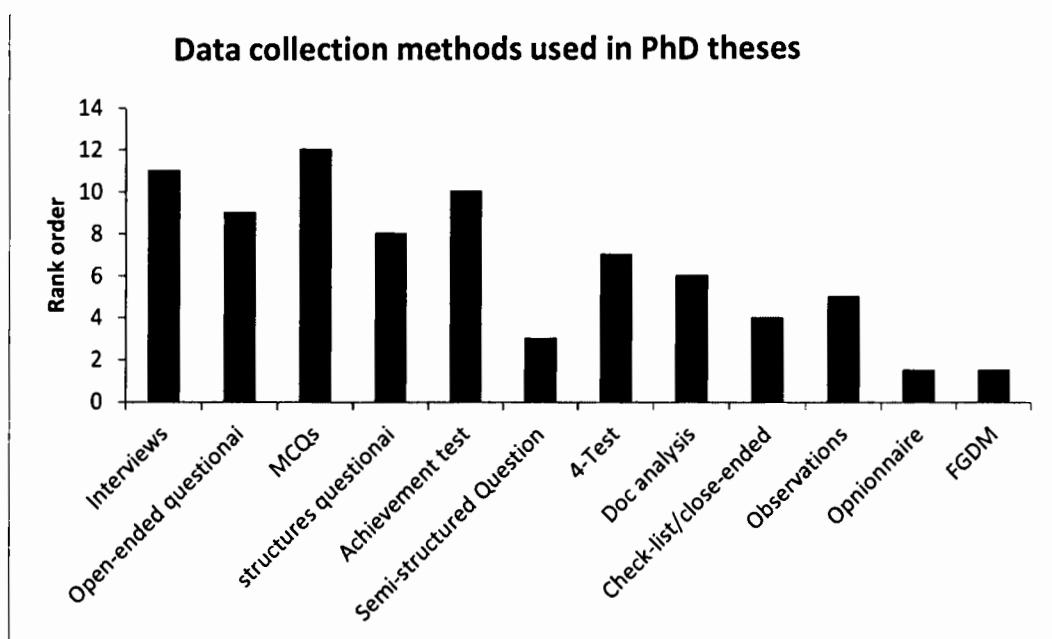
Figure: 4.17 Research trends with respect to the use of data collection methods in education at the Department of Education at Pakistani public and private universities during 2000-2012.

4.21 TRENDS IN METHODS OF DATA COLLECTION

Document analysis of 247 PhD dissertations in education at Pakistani universities during 2000-2012 showed that personally method of distribution of data collection instruments was used by 97% of the PhD dissertations and scored rank 1, while by-post and email methods were used by only 6% of the PhD dissertations in education during 2000-2012. Thus, face-to-face method was ranked at position 1 with rank score 3, while by post and email methods were ranked at positions 2 and 3, respectively. Thus, it can be concluded that email and by post methods were used by few PhD level researchers during 2000 and 2012. The data can be viewed in the Table 4.19 and Figure 4.18.

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Table 4.19

Research trends of the use of methods for dispensation of data collection instruments (DCIs) in education at the Department of Education at Pakistani public and private universities during 2000-2012.

Strategies of distributing DCIs	Frequency	Total (Theses)	Percentage	Rank
Personally visit	240	247	97.16	1
By Post	17	247	6.77	2
E-mail	15	247	6.07	3
Face-to-face	12	247	4.85	4
Total	284	247		

More than one instruments were used in 247 theses, and due to repetition of certain methods, the total came out to be 284.
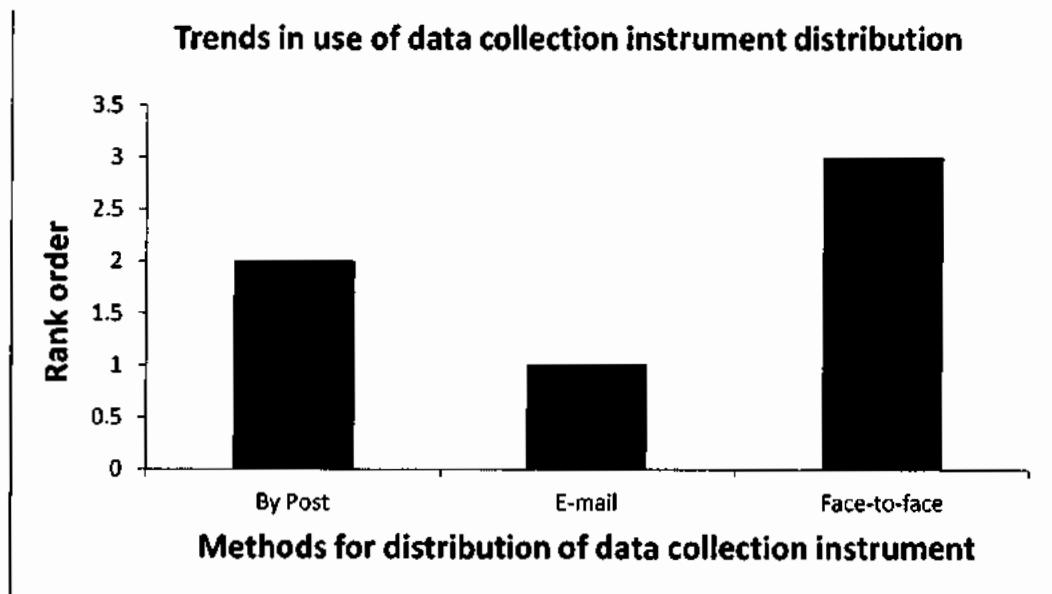
Figure: 4.18 Research trends with respect to the use of methods for dispensation of data collection instruments in education at the Department of Education at Pakistani public and private universities during 2000-2012.

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Due to predominant use of face-to-face method for data collection, the outcomes of the research might have validity and reliability issues associated with this method which is true especially in the case of qualitative research.

4.22 STATISTICS EMPLOYED

The search for the data analysis tools was made in the 247 PhD dissertations completed from 2000 to 2012 and findings revealed that most of the dissertations contained means and percentages as a prevalent data analysis method and the rank of mean/percentage method was calculated to be 1 which was the highest of all ranks secured by other data analysis methods. After this, T-test/Z-test and Chi-square secured the rank 2 and 3, respectively, among the data analysis methods used in educational PhD level research in Pakistani public and private universities. ANOVA secured the rank 4, thereby becoming the fourth most widely used descriptive statistical tool used to analyse the quantitative data in the educational PhD level research at Pakistani universities. Standard deviation was demonstrated to come at rank 5 in terms of being used as a method for data analysis. Thematic analysis and correlation had the same rank which is '7', and are less used research tools in analyzing the data in PhD level educational research in Pakistani universities. The use of Pearson test and ANCOVA were relatively less used in analyzing data in 247 PhD dissertations submitted to the relevant education departments during 2000 – 2012; and ranked 8 and 9.

Thus the findings conclude that mean/percentage; T-test/Z-test and Chi-square are the most used methods for analysing data in 247 PhD dissertations in Education at Pakistani universities. ANOVA, SD and descriptions have the medium usage by the

researchers to analyse the data based on their rank scores, while the thematic analysis, correlation, descriptions and ANOVA have lower usage for data analysis in PhD dissertations in Education in Pakistani universities based on their ranks. The results are demonstrated in Table 4.20 and Figure 4.19.

Table 4.20

Research trends with respect to the use of data analysis tools in education at the Department of Education at Pakistani public and private universities during 2000-2012.

Data analysis tools	Frequency	Total (Theses)	Percentage	Rank
Chi-Square	98	247	39.67	3
Mean/Percentage	122	247	49.39	1
T-test/Z-test	100	247	40.48	2
ANOVA	46	247	18.62	4
ANCOVA	1	247	0.40	9
Correlation	10	247	4.04	7
Descriptions	14	247	5.66	6
Standard Deviation	18	247	7.28	5
Pearson test	8	247	3.23	8
Thematic analysis	10	247	4.04	7
Total (Frequency)	427			

Data analysis tools
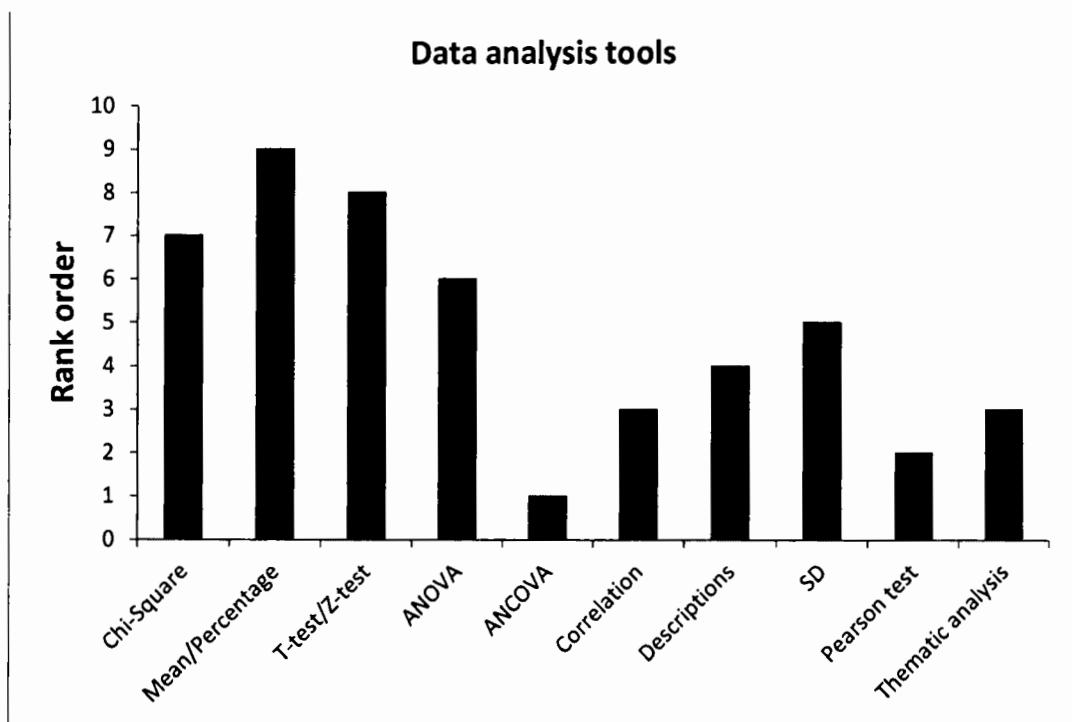
Figure 4.19: Research trends with respect to the use of data analysis tools in education at the Department of Education at Pakistani public and private universities during 2000-2012.

It is clear from the table 4.20 that Chi-square, means/percentage, T-test/Z-test are the most widely used statistical tests for analysing the data. The reason for dependence on these tests at the expense of more robust and reliable tests is not known, which means that further research projects need to be designed in order to explore the reliance on basic descriptive statistics.

4.23 OVERALL RESEARCH TRENDS OF RESEARCH METHODS

The overall research trends with the commentary on the most used research methods in the PhD research project at public and private universities in Pakistan are presented in the Table 4.21. As the table is self-explanatory, so there is no separate discussion on the contents of the table is given

Table: 4.21

The overall research trends of the use of the research methods PhD research during 2000-2012.

Research Methodology	Types	Percentage	Rank	Research Trends
Research by method	Qualitative	16.59	2	Most Used categories quantitative
	Quantitative	73.27	1	method
	Mixed Method	10.12	3	Medium used categories Qualitative method
				Least Used categories Mixed method
Data Type	Primary Data source	97.16	1	Most Used Category: Primary data
	Secondary data	2.83	2	source
				Least Used category: Secondary data
DCIs	Interviews	22.26	2	
	Achievement tests	18.62	3	Most Used categories: MCQs,
	4 Tests	6.47	6	Interviews, , Achievement tests,
	Open-ended Questionnaires	17.40	4	Open-ended Questionnaire,
	MCQs	58.29	1	Categories with medium use:
	Semi-structured Questionnaires	2.42	10	Structured questionnaire, 4-Test Doc. analysis, Observations
	Structured-Questionnaires	8.90	5	
	Doc analysis	4.04	7	Categories with least use: Check-list,
	Check-list	2.83	9	Semi-structured interviews,
	Observations	3.64	8	Opinionnaire,
	Opinionnaire	0.40	11	
	Close ended Questionnaire	2.83	9	
	Focus group	0.40	11	
Distribution of DCIs	Personally visit	97.16	1	Most used categories: Personal visits
	By Post	6.47	2	Least Used category: Email
	E-mail	6.07	3	
Sampling strategies	Random PS	61.94	1	Most Used categories: Random PS,
	Stratified PS	21.45	2	stratified PS
	Cluster PS	9.31	4	Medium used categories: convenient
	Convenient NPS	16.59	3	sampling, Cluster sampling,
	Purposive NPS	8.09	5	purposive sampling
	Snowball NPS	1.61	6	Least used categories: snowball
	Universal sampling	0.40	7	sampling, universal sampling
Data analysis tools	Chi-Square	39.67	3	Most Used Categories
	Mean/Percentage	49.39	1	Mean/Percentage, T-test/Z-test, Chi-
	T-test/Z-test	40.48	2	sampling, ANOVA
	ANOVA	18.62	4	Medium used categories
	ANCOVA	0.40	9	SD, Descriptions, Correlations
	Correlation	4.04	7	Least used categories
	Descriptions	5.66	6	Thematic Pearson test, ANCOVA
	SD	7.28	5	
	Pearson test	3.23	8	
	Thematic analysis	4.04	7	

DCIs: Data collection instruments in public and private universities, PS: Probability sampling.

PART II

4.24 DATA ANALYSIS OF INTERVIEWS

In the previous section, findings showed the research areas explored and research methods applied by the PhD researchers at the departments of education in public and private sectors. However, it was not supported by the perceptions of the supervisors. There was no evidence of how research trends identified in the Part I that could impact the overall quality of research in educational field. The research trends showed the over-researched and under-researched areas, but it was not clear what kind of threats and opportunities were resulted from the observed research trends. For this, SWOT analysis was constructed by deriving perceptions from research experts and combining the qualitative data and quantitative findings to infer the strengths, weaknesses, opportunities and threats to the educational research if the identified trends would remain persistent at departments of Education in Pakistani universities.

Furthermore, SWOT analysis is applied systematically to compare and contrast the findings from the EDRF and interviews, so that strengths, weaknesses, opportunities and threats from the research trends can be highlighted leading to the presentation of recommendations for streamlining the research policies at departments of Education in Pakistani universities. Thus, application of SWOT approach is the consequence of mixing data from interviews and EDRF to present the strengths and weaknesses of research trends, opportunities and threats due to the existing research trends from the

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research experts' perspectives, and systematic method for offering the recommendations. This approach is totally in line with real objective of the SWOT method which warrants the presentation of policy recommendations for improving the quality of social or business operations for any organization.

In addition, causes behind the research trends inferred from the quantitative data can only be supported through the real accounts from the research experts supervising the research project at PhD level. Hence qualitative data were mixed with quantitative data presented in Part I in order to present the whole story behind the research trends in context to subject areas and methodologies.

This section has presented the findings obtained from the data analysed from the semi-structured interviews. The data obtained from interviews were used to achieve the third objective of this study;

3.   To identify the priority areas of education for the future research activities in the education field.

Total of 16 research experts from different universities in Pakistan took part in the study. The interviews were posted to interviewees, and responses were received via personally visits and by post. The data were transcribed into codes and themes using the inductive thematic analysis. Briefly, the recurrent words/phrases in interview data were described as codes, similar codes were grouped in themes. The similar themes were further grouped into main themes or categories. These main themes or categories were used to present the main findings in this section. The detailed procedure of thematic analysis can be found in Chapter 3 Research Methodology. The themes and codes

developed from the data are presented in Table 4.22. The interview questions can be

found in Appendix B.

Table: 4.22
Themes and codes developed from the interview data

Themes	Sub-themes	Codes	Number
Current research problems	Education quality	Quality is poor	10
		No control on quality	15
		Link between failure and quality	15
	Lack of access to right resources	Financial resources are limited	16
		Research infrastructure limited	10
		Supervisory staff	8
	Administration and management	Administration has no knowledge of handling research process	9
		Projects delayed	12
		No proper mechanism of tracking of research projects	12
			13
	Inappropriate research methods	Research method share less compatibility with study aim	9
			13
Emerging Research Trends	Quality of teacher education	Teachers education is not assessed	11
		The effect of training of teachers is not assessed	15
	Curriculum development	More research will be seen on curriculum development	15
		More researchers focus on curricula	11
		Government recognize importance of curricula	8
	Management practices	Management of educational research is considered important	8
		Management oversees delivery of research projects	10
			16
			9
HEC role in funding	HEC role in funding	Policy studies are not being funded	2
		More focus on pure theoretical	1
		Less attention to innovative approaches/projects	3
		Qualitative research projects attract less funding	1
		Support novel and practical	6

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practices

Gaps in educational research		Quality assurance mechanisms are not obvious in research trends	16 16 16
		Mixed method research approaches have less use	15 14
		Little background of statistical tools	3
		Planning and management has gaps	5
		Elementary and higher education need attention from researchers	3
	Fields ignore by researchers	Early childhood schooling, psychology, science	15
Suggestion for bridging gaps		Students, and supervisors and funding agencies	10 15
		Active role of them	15
		Active role of HEC should be promoted	11
		Focus on current issues in educational areas	3
		Recruiting talented PhD researchers	7
Recommendations for practitioners		Hard work	8
		sincerity	1
		Funding for research	5
		Partnerships	2
Usability of the research		More focus on theory	11
		Less focus on practical research	15 9
		Less implementation of findings of the research	6
Strengths of research capabilities of Education departments		Experienced faculty	10
		Originality	15
		Quantitative research focus	8
		Research for all	9
		Active supervision	6
		Promotes critical thinking	5
		Teaching methods developed	2 7
		Talented researchers recruited	9

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Weaknesses of research capabilities of Education departments	Availability of less grants	9
	Delays in gradation	12
	Lack of practical/innovative research	16
		8
	Lack of research in areas if policy/leadership	4
		6
	Less use of mixed methods	7
	Lack of partnerships	6
Opportunities for research capabilities of Education departments	Areas like policy making and leadership developed	8
		16
	Providing research grants	11
	Developing instructional technologies	16
	Promoting applied and innovative research	8
Threats to research capabilities of Education departments	Withdrawal of research funding	15
		10
	Lack of research aptitude	7
	Non-conducive research environment	4

In the above table, the important themes emerged from the responses of participants included the research problems such as poor quality, lack of funding, the consolidation of HEC roles in promoting research, overall strengths and weaknesses of the educational research trends, utility of the educational research, and practical recommendations for the policy makers. These themes were taken as main results and interpreted in the light of the codes gathered under the heading of each theme, and are described in subsequent sections of this chapter. Before presentation of qualitative results, the experience and profile of the respondents are presented in the next section.

4.25 THE EXPERIENCE AND PROFILE OF THE RESPONDENTS

The respondents taking part in this study were the well-entrenched and experienced research experts, qualified at PhD level, positioned as associate professors in their organisations, and had a strong track record in the field of education. The table

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gives the list of respondents with their affiliated university, while table 4.23 provides the

summary of their profile and experience.

Table: 4.23

The respondents and their universities to which they are affiliated

List of Respondents (R)	Universities to which respondents are affiliated
R1	SUIT, Peshawar.
R2	NUML, Islamabad.
R3	PU, Lahore.
R4	BZU, Multan.
R5	PU, Lahore.
R6	JUW, Karachi
R7	University of Karachi
R8	GU, DI Khan
R9	IU, Bahawalpur
R10	IER, PU, Lahore.
R11	PU, Lahore.
R12	PU, Lahore
R13	QUSIT, Peshawar
RI4	UE, Lahore
R15	University of Sindh, Hyderabad
R16	PU, Lahore.

In the above table, the letter 'R' represents the 'respondent'. Five professors from the

Punjab University participated in this study. While one respondent from each other university

participated. It showed that professors in Punjab University showed greater enthusiasm to

respond to the interviews. In addition, being the oldest university of Pakistan, Punjab University

had the highly experienced professors compared to other universities. Most of the respondents

have trained more than 10 PhD students, and had more than 20 publications in their respective

area of the educational research suggesting their expertise and skills in training and supervising

the PhD students in their cognate departments. The experience profile of the respondents is

presented in Table 4.24.

Table: 4.24

Profile and Experience of the respondents taking part in this study

List of Respondents (R)	Qualification	Publications	Running PhD projects	Total supervised research projects	Research method used
R1	PhD Post Doc	37	03	34	All three
R2	PhD Post Doc	49	03	16	Quantitative
R3	PhD Post Doc	48	04	12	Mixed
R4	PhD	32	06	57	Mixed
R5	PhD, MEd	22	05	11	Quantitative
R6	PhD	10	03	10	All three
R7	PhD Post Doc	18	05	25	Qual + Mix
R8	PhD	10	05	10	Mixed
R9	PhD Post Doc	30	04	26	All three
R10	PhD Post Doc	28	04	16	Qual + Mix
R11	PhD Post Doc	20	04	11	Qual + Quan
R12	PhD Post Doc	15	03	13	All three
R13	PhD Post Doc	16	04	11	Qual + Quan
R14	PhD Post Doc	52	05	30	Mixed
R15	PhD	08	03	11	All three
R16	PhD	12	02	10	Quantitative

4.26 CURRENT RESEARCH METHODS ARE ENOUGH TO SUPPORT THE RESEARCH PROJECTS IN EDUCATION

The respondents were asked the question as to whether the current research methods; qualitative, quantitative and mixed methods are enough to support the research projects in education. All of the respondents said that these research methods are sufficient to address the research problem prevalent in the education field.

4.27 CURRENT PROBLEMS IN EDUCATIONAL RESEARCH

The respondents were asked the question: what are the current problems in the educational research? All of the respondents were of the view that research quality is the common problem encountered in the most of the research projects. The respondents

added that quality is measured through the application of the research and its outcomes which can be utilised to improve the educational system and education of the community as a whole. One of the respondents commented;

Quality in the research projects is not given due to attention; the current projects do not address the community based educational problems. The result of this lack of quality is the chaos, the failure of educational projects to deliver the outcomes successfully. [R1]

Another issue raised by the few respondents was the lack of access to the right resources. The research infrastructure is not well developed. The students often face serious issues of accessing the respondents especially at the executive levels, which do not allow the insight into the causes of success of the failure of the research projects. In addition, the respondents were of the view that participation of the community in research and cooperation with the researchers are important. For example, one of the respondents said:

"Educational research is mostly field based where the researchers interact with the community members to gain further information about the research problems, and it is expected that community members show the enthusiasm to participate in the research and help the researchers to find the answer to the pertinent research questions". [R7]

Another responded added:

"However, the interaction between the researchers and concerned participants in the community is not adequate which causes the issues in data collection and consequently addressing the issues in the right way". [R4]

Based on the above comments, there is a message for the community members such as teachers, educational policy makers and others associated with education in Pakistan to cooperate with the researchers in order to address the research issues appropriately.

Some of the research experts participating in this study also viewed that administration and management of the research projects is not up to the internationally recognized standards, such completion of the projects within the scheduled deadlines, most of the research projects often exceed the deadlines, resulting in delays in the projects outcomes and award of PhD degrees. Some of respondents attributed these delays and mis-management of the projects to the lack of commitments from the funding agencies, principal investigators and students.

The use of inappropriate research methods for data collection in some projects was voiced as another research problems faced by the educational research. As the research design and methods play a critical role in addressing the research questions, and without selection of the right research tools, it is not possible to produce the reliable and valid results. Most of the projects employ the quantitative research methodology without giving due consideration to other research methods and tools for data collection, which

has limited the ability of the research projects to explore the educational issues which deserve the in-depth insight into the social issues surrounding the education in Pakistan.

4.28 EMERGING RESEARCH TOPICS/THEMES IN EDUCATION

The expert researchers participating in this study were asked "What are the emerging research topics/themes in educational research?". Some of the respondents commented that 'addressing the quality of teacher education' is an emerging theme.

In the past, very few studies addressed the problems at the quality level of teachers' education, and most of them only focused on finding the tools and programs suitability for the teachers' education. The government had launched the many teachers training and educational programs, but the quality of these programs were not assessed. Some PhD projects have started targeted the quality level issues in teachers' education. However, some of the respondents commented that effectiveness of the teachers' education has been researched by some of studies, but their scope is very limited. Therefore, almost all of the research experts taking part in this study reported that quality and effectiveness of the teachers' education seem to be some emerging themes.

Some respondents also added that some studies can be found with focus on the curriculum development in the last 5 years, which indicates that this is an emerging topic. One of respondents reported that policy studies in education are an emerging topic because in the past less attention has been paid to this theme. The effectiveness of policies and their outcomes have not been researched extensively, which warrants the further research in this direction. Three interviewees mentioned the lack of the research in management practices at departmental level and executive level for managing the

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delivery of education to all levels of community. Therefore, researches into management practices constitute an emerging research topic.

4.29 ROLE OF HEC IN FUNDING EDUCATIONAL RESEARCH

When the interviewees were asked the question "What is your opinion about the role of HEC in funding the educational research areas?", most of them said that HEC funds the research projects in the education field, however, the funding is directed towards the pure theoretical and conceptual type of research topics. One of the interviewee was of the view that funding is delivered to very few of the applied research projects which deliver the solutions to the existing problems. Policy studies in education are not funded by HEC, "because one of the policy level project I submitted which was rejected. The project might be rejected by some vague reasons, which gave me an idea that it might be rejected due to nature of the study" [R5]. This statement reflects that policy studies may not be funded by HEC, though it does not sound convincing statement about the agenda of HEC in terms of supporting the policy studies in education.

Another interviewee said that most of the projects funded by HEC are quantitative methodology based projects, which means funding is not frequently delivered to those research projects which use the qualitative research methods. He added that "qualitative research is also important means to explore the research problems in real environment with real people who are part of the problem. The opinions and experiences of people directly interacting with the problems can guide researchers to the real and effective solutions" [R10].

Some of interviewees sounded that HEC is supportive to novel and innovative research projects. Research projects which use novel ideas with sound methodology are likely to attract funding from HEC. This shows that HEC plays a vital role in fostering and funding the innovative research with a sound research design. This also points to the grants winning formula which should involve the novelty and sound methodology in all aspects of the research projects.

4.30 GAPS IN EDUCATIONAL RESEARCH IN UNIVERSITIES

When the interviewees were posed a question "What are the gaps in the educational research in Pakistan?", all of the respondents agreed to the gaps of gender gaps in educational research. Most of the PhD research projects are led and conducted by the males, and ratio of females versus males participating in PhD level research is found to be very low. Another gap which was reported by the most of interviewees was the lack of the research in the educational policies and practices. The malpractices in the educational sector are not revealed through the research, and policy makers always remain oblivious to the pitfalls of the educational practices and policies. One of the respondents was of the view that "educational policies cannot be corrected unless research on their effectiveness and quality are taken place, and weaknesses are highlighted through such research" [R11].

Some of the respondents reported that the quality assurance mechanism is not touched by the PhD level research, which means that underdeveloped quality mechanism for sustaining and maintaining the educational practices at educational institutions in Pakistan. Another respondent added that mixed method research approach is another area

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which needs attention from researchers. He added that mixed method compensates the weaknesses of the quantitative or qualitative research methods, and provides the robust comments which clearly highlight the neglected areas in the perspective of research methods. In addition, some of the respondents said that the most of the research studies applied simplistic data analysis tools such as percentages means and chi-square tests, however, the use of complex data analysis tools such as regression, correlation and ANOVA are limited, which means that relationships of the different factors with each other in complex educational environment are not determined through research endeavours undertaken in the last 10 years.

Most of the respondents also pointed out that gaps in the planning and management of education in the elementary and higher educational institutions are present, and these means that shortcomings and weaknesses at the level of planning and management can create major setbacks for the success of policies and implementation of the research outcomes at the organizational level.

One of the respondents was of the view that the research areas in field of primary schooling, psychology, science are some of the neglected research areas, which demand attention from researchers to conduct studies in these directions to solve the prevalent issues in these areas of education.

4.31 SUGGESTIONS FOR IMPROVING GAPS OF RESEARCH

Most of the interviewees said that commitment of the principal investigators, students and funding agencies in this Pakistan can bridge the gaps in the educational research areas. One of the interviewee said:

"The commitment to research ethics, adherence to the quality research ethics, consulting the internationally recognized literature to find the current trends in terms of research methods can minimize the gaps in the educational research area of quality and methodology" [R15]

The above comments clearly highlight the need to keep the researchers in Pakistan up to date with the current trends in relation to methodological advances to conduct the quality research with robust, reliable and valid findings. Many other interviewees agreed to the thoughts of respondent 15. Some of the respondents also pointed that HEC can also play a role in bridging the gaps. For example, one of the respondents said:

"HEC can give funding to the research projects with innovative research methods, the complex research methods involving mixed methods with robust data collection and data analysis tools can be supported" [R7].

Another respondent added;

"The HEC should set criteria for funding, the boundaries of scope of the project and clear guidelines for the researchers to draft the research proposals in the areas of neglected areas. The list of neglected areas in educational research should be prepared and issued by HEC to potential applicants for research grants" [R4].

One of the respondents echoed that research gaps could be reduced through constant diligence and attention of the researchers to the current problems in the education field. He further added that current research environment is oriented towards conducting research just for awarding degrees rather than producing the quality research

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based on problem solving and remedial approaches in the education field. This approach leads to producing the low quality research material without having focus on the issues associated with community issues. Most of the interviewees suggested that quality control mechanism from the practitioners can help reducing the gaps in the educational areas.

Some of respondents said that recruitment of PhD students should be attached to condition of producing research proposals from the most current and prevalent research problems with applied outcomes. For example, one of the respondents commented like this.

"If the students are asked to go back into community educational institutions, check of what are the current issues, and focus on them in their research proposals, then the quality research based on current problems can be produced" [R16].

Another respondent added the role of supervisors of PhD projects;

"The supervisor should consult the contemporary literature, and motivate their students to use the robust research methodology, and conduct research aiming at the contemporary research issued at international level and identify issues in Pakistani education system" [R9].

Thus it can be argued that constant interaction of supervisors and PhD scholars with contemporary literature in education and keen insight into the Pakistani educational system and associated problems can be helpful in minimizing the gaps in educational research areas.

4.32 RECOMMENDATIONS FOR PAKISTANI PRACTITIONERS

Interviewees responded were Pakistani practitioners in higher education institutions. For supervisor in Pakistani universities, the interviewees suggested that there is a need of hard work, diligence and sincerity, so that good quality research projects can be constructed for the PhD students. One of the respondents reported that "the research directorates in each university must scan the research proposals for their suitability and application to solve the current research problems" [R1]. These comments were supported by other interviewees.

Another respondent added that "The role of Research Directorates in Pakistani university should be like an assessor of quality, utility and applied aspects of the research projects" [R4]. The supervisors are the main controller of aligning of the students' research ideas and proposals to the contemporary issues in education field. The respondents R8 viewed that only way of betterment in the education can be mediated through production of applied research. Many respondents also voiced that these research works must be presented to the policy makers and government officials in education sector by arranging seminars and talks. The research should be effective in bringing in the change, instead of mere instrument to award PhD degrees to students. Some of the respondents commented that the reliability and validity of the findings is another issue which should be dealt with enhancing the use of effective research tools, quality controls, validity and reliability procedures, so that policy makers and practitioners can be convinced about the robustness of the research findings produced by the Departments of Education in the university.

One of the respondents said that HEC should monitor the utilitarian aspects of the research projects submitted for the grants in education, so that applied research can be promoted [R6]. He further added that funding should be provided to research projects in teacher education, education of science and technology, developing robust curriculum for promoting the education in these fields. Minkler (2005) provided direct empirical evidence that applied research in the science education helped the policy-makers to refine the delivery and curricula development of science education.

4.33 USABILITY OF THE RESEARCH WORK

The respondents were asked to comment on the usability of research work conducted in last 10 years in terms of its implementation for improvement of educational processes of concerned institutions. Most of the respondents said that the research work conducted in last 10 years have increased the capability of the research institutions to produce PhD doctors in Education fields, solved many issues relating to theory and design of the research. Respondent 11 viewed that "many conceptual questions about the primary, secondary and higher education were solved through the previous research". The respondent 15 thought that "previous research also initiated quite a few educational programs to improve the education of community; however, the success of these projects is still to be determined".

Interestingly many respondents said that applied aspects of the past 10 years research activities were very limited, and government and funding agencies showed little care to consider these research works for application in improving the education of the community. Some of research experts taking part in this study also described that the

reason of this carelessness is partly associated with weak findings and less practical recommendations made by the previous research work to the practitioners in education field. The respondent 8 said that the lack of commitments and sincerity are some other causes which led to production of less applied research projects.

4.34 SWOT ANALYSIS OF THE EDUCATIONAL RESEARCH AT DEPARTMENTS OF EDUCATION

In this section, the findings obtained from SWOT analysis were presented. The SWOT analysis section of the interview helped the researcher to achieve the fourth objective of this study:

4. To conduct the SWOT analysis of trends in educational research in Pakistan

4.35 STRENGTHS OF EDUCATIONAL RESEARCH

In this section results about the strengths of the departments of the Education at the public and private universities are presented.

4.36 FACULTY CAPABILITIES

The respondents were asked about the faculty capabilities in terms of innovation, national leadership, originality and experience. The 94% of the respondents ticked the experienced faculty, which indicated that both public and private universities in Pakistan possess the experienced faculty members in the Department of Education. Originality was the rated as the second most important strength of the faculty of education at Departments of Education, as the 63% of the respondents ticked this option.

The 44% of the respondents said that innovation is the main strength of the faculties teaching at the Departments of Education in Pakistani public and private universities. 38% of the respondents ticked the option of premier faculty, which means that premier faculty was rated as the fourth most important strength. However, faculties teaching at the Education departments of the universities in Pakistan do not have the leadership capabilities to lead the Pakistan in Education field, as only the 6% of the respondents ticked the option of 'national leadership'. The results are shown in the Table 4.25 and Figure 4.20.

Table 4.25

The strengths of Faculty of Education in public and private universities in Pakistan

Responses	Frequency	Total	Percentage
Innovation	7	16	43.75
Premier faculty	6	16	37.5
National leadership	1	16	6.25
Originality	10	16	62.5
Experienced	15	16	93.75
Total (Frequency)	39		
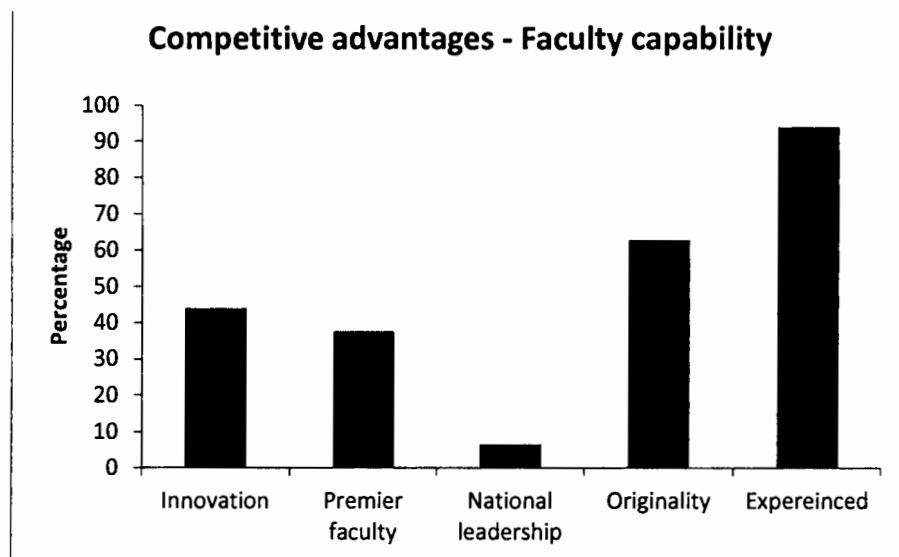
Figure: 4.20 Faculty capabilities of the Departments of the Education

The above data shown in figure indicate that faculty at the Departments of Education are experienced and characterised by originality, which are the main strengths of the faculty.

4.37 Quantitative research activity, strength of the research

The respondents were asked the question about the type of research activities carried out the Departments of Education in public and private sector universities in Pakistan. 81% of the respondents ticked the option of the quantitative research projects. This indicated that focus of the most research projects is on the quantitative investigation. Only 31% of the respondents ticked the option of the qualitative research activity. The qualitative research is designed to explore the issues in depth in the views of the people about a particular social phenomenon. This indicates that lesser focus on the qualitative research may weaken the research. Applied research is also very low. The 31% of the respondents ticked the option of applied research with practical implications and

applications. Mixed method research was ticked by only 6% of the respondents. The results have been shown in the Table 4.26 and Figure 4.21.

Table 4.26

Types of the research activities carried out in Department of Education

Responses	Frequency	Total	Percentage
Quantitative research	13	16	81.25
Qualitative research	5	16	31.25
Applied research	3	16	18.75
Mixed-method research	1	16	6.25
None of the above	0	16	0
Total	22		
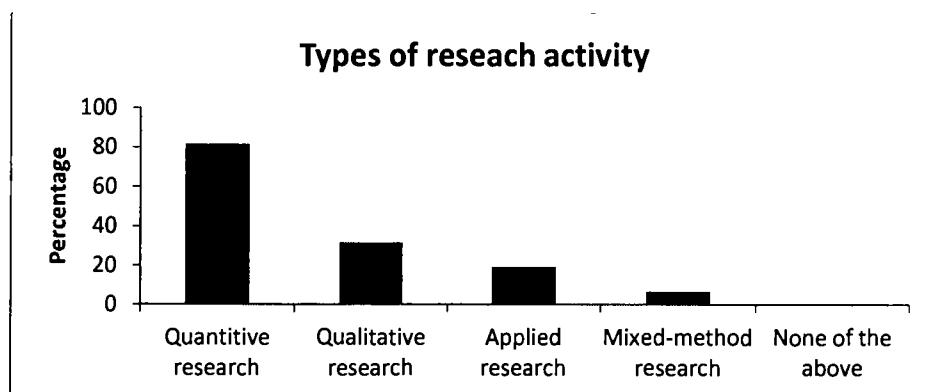
Figure: 4.21 Types of the research activities carried out in Department of Education.

4.38 CORE COMPETENCIES OF EDUCATIONAL RESEARCH

The respondents were asked the question: What are the core competencies in the field of educational research in the education departments? All of the respondents were agreed to the option that students studying PhD level education are required to conduct

the research projects. Secondly all of the respondents agreed to the option that students learn in the supervisor-dependent manner. Only 19% of the respondents said those students are given the opportunity by the supervisor to learn in a self-directed manner. The results have been shown in the Table 4.27 and Figure: 4.22.

Table 4.27

Core competencies held by the faculty of education in universities

Responses	Frequency	Total	Percentage
Research requirement for all	16	16	100
Self-directed learning	3	16	18.75
Supervisor-dependent learning	16	16	100
Others	0	0	0
Total	36		
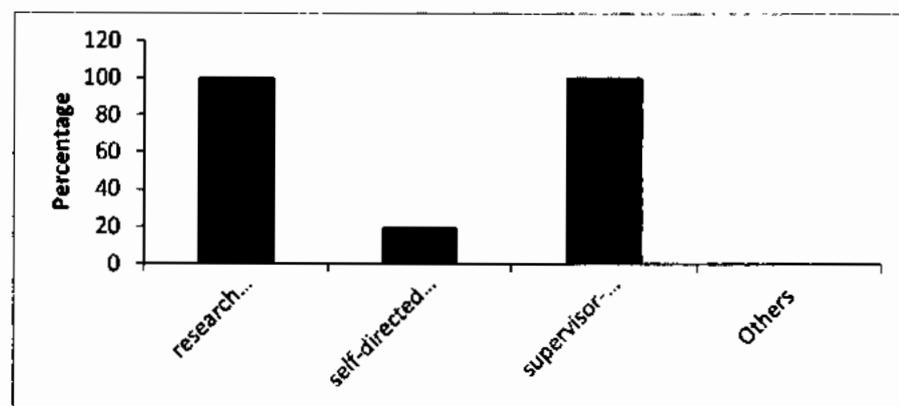
Figure: 4.22 Core competencies in the field of education research

4.39 IMPACT OF THE CURRENT RESEARCH PROJECTS

The respondents were asked to comment on the impact of the current research projects. 62% of the respondents said that research projects completed by PhD scholars at the Education departments of Pakistani universities helped to improve the teaching methods and pedagogical strategies. The 94% of the respondents were of the view that educational research projects improved the critical thinking through instructional approaches. The 31% respondents viewed that educational research projects increased the events of student-centred learning at educational institutions in Pakistan. Only small proportion of the respondents (6%) said that educational research projects helped to build the leadership in the educational field in Pakistan. The 3% of the respondents viewed that research projects conducted by PhD scholars affect the governmental policies regarding the propagation of education. The results are shown in the Table 4.28 and Figure 4.23.

Table 4.28

The impact of educational research on different domains of educational process

Responses	Frequency	Total	Percentage
Teaching methods	10	16	62.5
Student-centred learning	5	16	31.25
Building leadership	1	16	6.25
Governmental policies	6	16	37.5
Critical thinking	15	16	93.75
Total	37		

Impact of Educational research
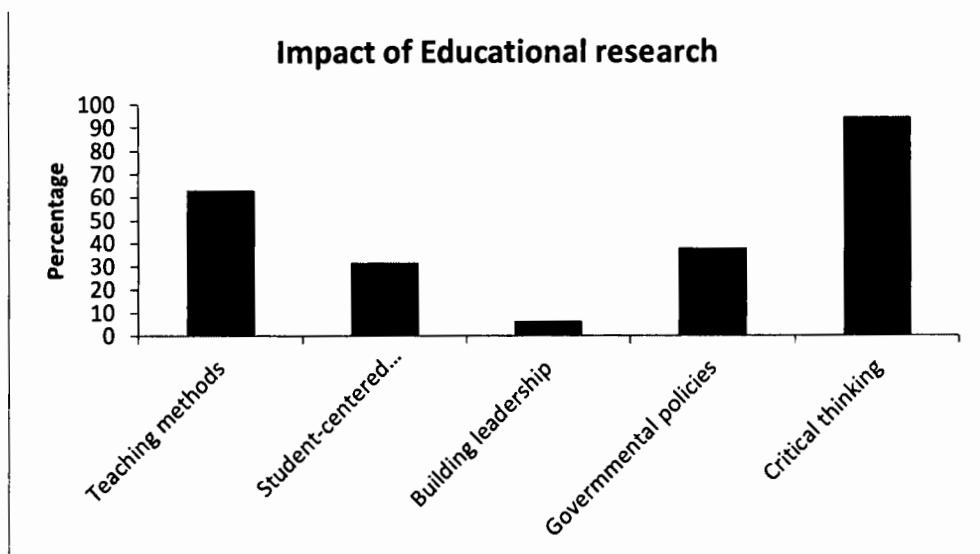
Figure: 4.23 The impact of educational research on different domains of educational

process

4.40 STRENGTHS OF EDUCATIONAL RESEARCH

The 44% of respondents said that faculties at the department of education at Pakistani universities achieved the milestone of winning research grants on periodic basis which enables the faculty members to sustain the healthy research activities at the research institutes. 75% of the respondents ticked the option of 'promoting practical research'. The faculty members are trying and promoting the practical aspects of the research. The 62% of the respondents ticked the option of 'recruiting the talented scholars to conduct the PhD level research projects. This indicated that strict procedures and aptitude tests are available to recruit the talented students who come up with strong and innovative research ideas. The 25% of the respondents agreed to the point that faculties at the departments of education in universities graduate the students in timely fashion. This indicated that most of the PhD students are unable to finish their research projects within

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due period of time. The 31% of the respondents showed their agreement to the option of 'promoting the innovation in research projects'. This shows that the strengths of innovation in the research projects are not achieved effectively in the research projects. The results are shown in Table 4.29 and Figure 4.24.

Table 4.29

Core strengths of educational research in Pakistani universities

Strengths	Frequencies	Total	Percentage
Research grants	7	16	43.75
Practical research	12	16	75
Talented researchers	10	16	62.5
Graduating within timeframe	4	16	25
Innovation in research	5	16	31.25
Total	38		
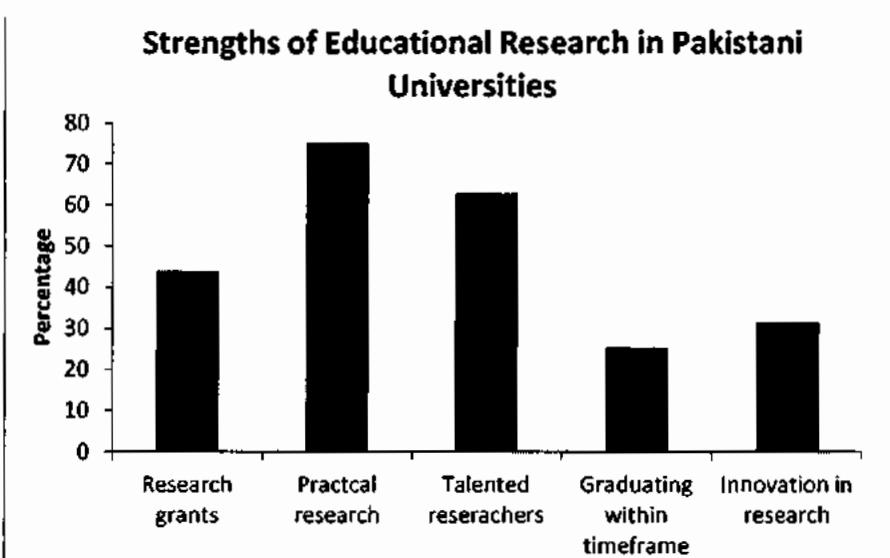
Figure: 4.24 Strengths of educational research in Pakistani universities

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4.41 WEAKNESSES

In this section, the results associated with weaknesses of the research activities and departments of education in Pakistani universities are presented.

4.41.1 Weaknesses of the Departments of Education in Pakistan

The 19% respondents said that departments of education in Pakistani universities are reluctant to establish the partnerships with government and private entities for the purpose of research. The 50% of the respondents agreed to the fact that there are limited researches funding opportunities available to the faculties at the departments of education in Pakistani universities. The 31% respondents said that departments of education lack the effective support for the instructional technologies. The 19% of the respondents viewed that the support for the educational research and development is limited at the departments of education. 63% of respondents said that supervisors at the departments of education are unable to fulfil their research obligations towards PhD students due to teaching and other administrative burdens. The results are shown in the Table 4.30 and Figure 4.25.

Table 4.30

The weaknesses of departments of education at Pakistani universities

Weaknesses	Frequency	Total	Percentage
Partnerships	3	16	18.75
Research funding opportunities	8	16	50
Use of instructional technology	5	16	31.25
Supporting Educational research	3	16	18.75
Teaching and supervision burden	10	16	62.5
Total	29		
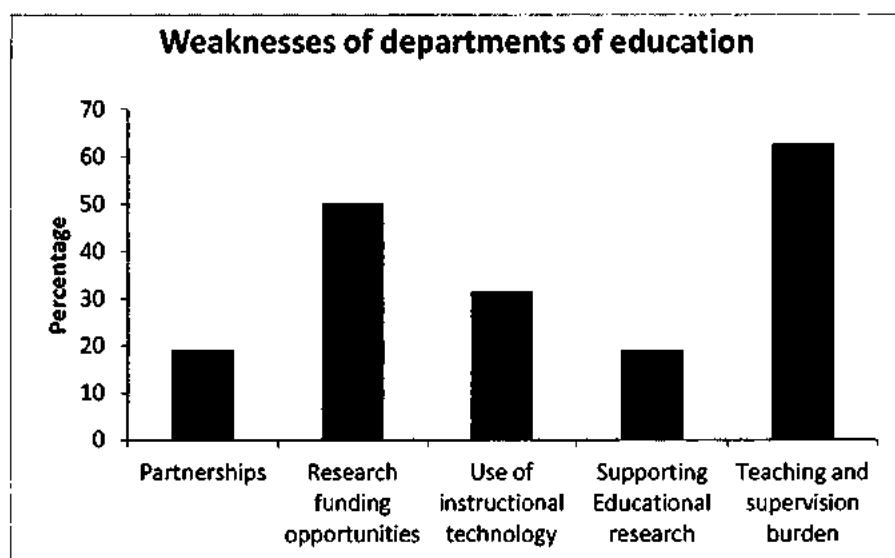
Figure: 4.25 The weaknesses of departments of education at Pakistani universities.

4.41.2 Poorly Performing Areas in Departments of Education

The 63% of respondents said that departments of education in universities are performing poorly in curriculum development. 44% of the respondents agreed to the fact that education departments in universities are promoting research in developing teachers

and professionals in the educational field. The 88% of respondents were of the view that educational departments in universities are lacking in the ability to promote research in the special education areas, due to which the special education is not developing effectively in Pakistan. The 94% of the respondents agreed to the fact that education departments are lacking in the ability to promote the research for the development of education in subjects. All of the respondents ticked the option that education departments in Pakistani universities lack of the focus on the management and business aspects of the educational research. The results are shown in the Table 4.31 and Figure 4.26.

Table 4.31

The areas of education in which Education Departments lack in

Areas with weaknesses	Frequency	Total	Percentage
Curriculum development	10	16	62.5
Teachers development	7	16	43.75
Special education	14	16	87.5
science education	15	16	93.75
business aspects of research	16	16	100
Total	62		

Areas of education in which education departments lacking
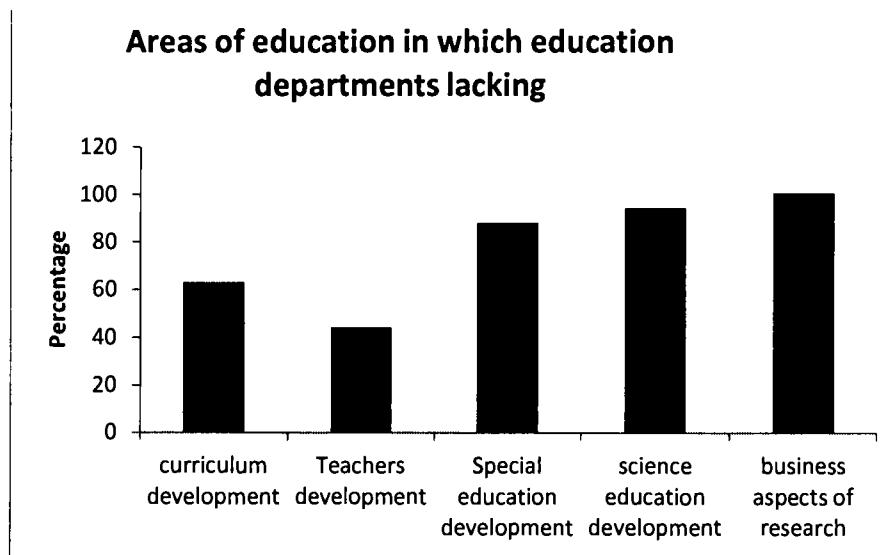
Figure: 4.26 The areas of education in which education departments of Pakistani universities are lacking

4.41.3 Weaknesses of the Research Profile of Education Departments

The respondents were asked the question about the weaknesses of the research profile of education department in the universities. 69% of the respondents viewed that research projects carried out at the education departments in Pakistani universities are unable to solve the issues associated with building the technology infrastructure. 94% of the respondents viewed that research at the education departments in universities are unable to support the activities favouring the building of course management software. 63% of the respondents said that research profile of the education departments in universities lack in the focus on the long-term outcomes building research aptitude and novelty in ideas of the researchers. The results are shown in the Table 4.32 and Figure 4.27.

Table 4.32

Areas in which research profile of Departments of Education in universities lacking

Areas of weaknesses	Frequency	Total	Percentage
Building Tech infrastructure	11	16	68.75
Building software for courses	15	16	93.75
Building research aptitude	10	16	62.5
Others	0	16	0
Total	36		
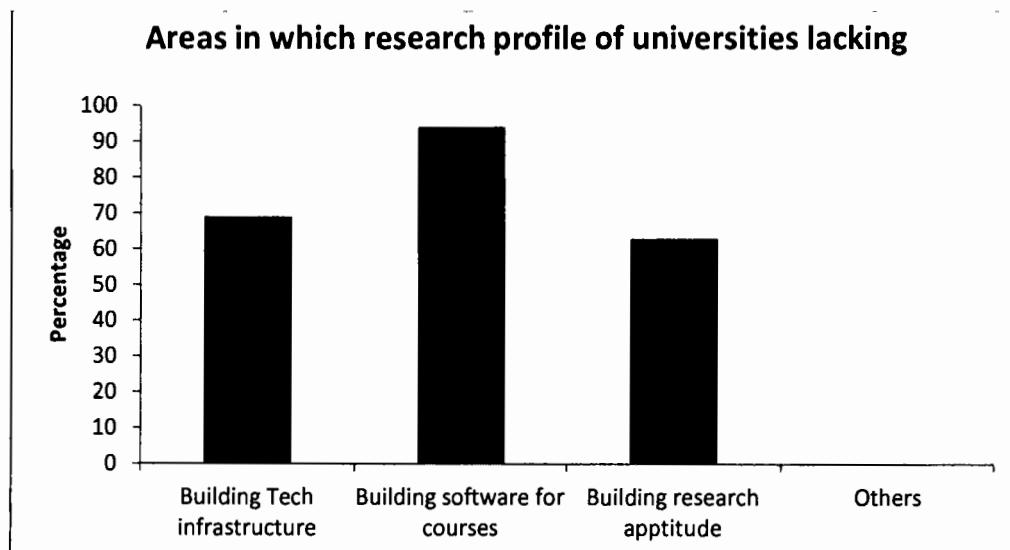
Figure: 4.27 Areas in which research profile of education departments in universities lacking.

From the quantitative data as shown in Part I, some weaknesses are found in terms of lesser focus on the certain subjects which are very important to resolve the practical issues. The results show that mystical education and moral education in the Islamic studies are the least explored areas. Similarly, elementary education and early

childhood education are the least explored areas. Educational planning and educational philosophy have not explored effectively by the research works analysed in this study. In addition, availability of lesser research works on the following areas: crime education and adult education, and biology & physics also indicate big gap in the studies conducted in education field in education departments in Pakistani universities.

4.42 OPPORTUNITIES

In this section, the outcomes associated with the opportunities to the education departments in Pakistani universities are presented.

4.42.1 Opportunities in the Area of Strengthening Departments of Education

All of the respondents were of the view that Education departments at the Pakistani universities should use their initiatives to establish the partnerships with other universities, industries and the non-governmental organizations (NGOs) active in promoting the education. For example one of the respondents said;

"The faculties and management in the department of Education have ample opportunity in the areas of partnership. NGOs are willing to fund the genuine projects for development of education, so the partnership can play a massive role in attracting funding, sharing expertise in research and developing different areas in education" [R8]

Another respondent suggested the partnership with other universities

"The partnership between Departments of Education in different universities can provide opportunities to the research experts to share the ideas, and exchange the research expertise to strengthen each other" [R6]

Thus, it is clear that the most of the respondents are suggestive of promoting partnerships, and are of the view that there are plenty of opportunities for the universities in this area. They also suggested that HEC can play a role in promoting the inter-departmental collaborations and partnerships.

4.42.2 Opportunities in the Special and Science Education

The opportunities in the areas of development of special and science educational system are available for the research experts working in the education departments of Pakistani universities. The development of special education, curriculum of the special education and the policies for revising the curricula of special and science education need to be researched, so that both science and special education can be developed. One of the respondents viewed like this;

"The special education is not fully developed, there is not much research activity in this area, and the action research with aim of practical implementation should be promoted to develop the special education". [R10]

Another respondent commented on the development of science education;

"There are areas in curricula of chemistry, physics and biology which demand the attention of the researchers. The curriculum revision is not updated; the research does not explore the negative impact of such acts on the overall development of science education" [R2]

These data indicate that researchers and faculty members in the departments of the education can play a critical role in the development of science and special education.

4.42.3 Promoting Innovative and Practical Research

The respondents also referred to the promotion of the innovative and practical research. The innovative ideas should be generated to strengthen the educational system of Pakistan, and in this regard, the department of education in universities can play an active role. For example, one of the respondents said:

The innovative ideas are not being produced at the education departments. Most of the researches are repeated. However, the researchers and faculty members at the education departments of universities can support and help produce the innovative ideas. The innovative ideas should be practical as well. [R10]

The respondent R10 seems to suggest the emphasis on the innovative ideas coupled with their practicability. Without practice and their value for solving the practical issues, the innovative ideas are futile.

Another respondent seems to suggest recruiting the talented and innovative researchers for working on the PhD projects

"The PhD projects should be innovative; the research proposals given to the candidates for PhD degrees should be securitized by the experts and supervisors in the education department. Only practical and innovative research proposals should be accepted for the PhD projects". [R4]

4.42.4 Developing Pedagogical Methods and Leadership

Most of the respondents said that currently the teacher-centred pedagogical methods are commonly applied to teach the subjects, this trend should be changed as the

developing countries have successfully used the student-centred teaching methods to increase the understanding of the concepts in science and social sciences.

"The experiments are required to be conducted on the usefulness of the student-centred teaching methods. However, the current research trends have limited evidence on the student centred pedagogical methods". [R11]

Many other respondents agreed to the views expressed by R11. Some of the respondents also expressed their thoughts about the development of leadership in research.

"The national leadership in the field of education should be developed through training and qualifications. The partnerships with the education departments and exchange of knowledge and skills can help develop the leadership skills of the teachers and researchers". [R9]

Some of the respondents also expressed the thoughts about the development of instructional technology to improve the teaching methods.

"The research efforts should be devoted to develop the instructional technologies to improve the teaching methods. The quantitative and qualitative research projects can explore the potential of instructional technologies in classrooms to deliver knowledge to students" [R7]

These data show that opportunities exist for the educational departments of Pakistani universities to do research in the areas of pedagogical methods with focus on

the student-centred teaching methods and development of national leadership with respect to leading the nation in educational research.

4.43 THREATS

In this section, results about the threats to the educational research are presented.

4.43.1 Major Threats to Educational Research

The respondents were asked the question: what are threats to educational research obstacles in the way of conducting educational research in your department? The 56% of the respondents thought that research funding is the main issue in the way of conducting the practical and effective research endeavors in the educational field. 62% of the respondents ticked the option of the lack of interest in carrying out the effective and practical research projects. Same proportion of the respondents (62%) suggested that lack of the research aptitude of the PhD students is the big threat in the way of setting the research trends based on innovation and practical implications. 94% of the respondents viewed that the lack of partnership with other universities is the threat to the growth and development of educational research. 25% of respondents agreed to the option of 'lack of support from colleagues as a threat to the growth and quality of the educational research. 69% of the respondents viewed that non-conducive environment in the department for the research activities is the big threat to produce the quality oriented research projects. The results are shown in the Table 4.33 and Figure: 4.28.

Table 4.33

Major threats to the growth and quality of the educational research produced at the education departments of universities

Threats	Frequency	Total	Percentage
research funding issues	9	16	56
lack of interest	10	16	63
lack of research aptitude	10	16	63
lack of partnerships	15	16	94
lack of support from colleagues	4	16	25
non-conducive research environ	11	16	69
Total	59		
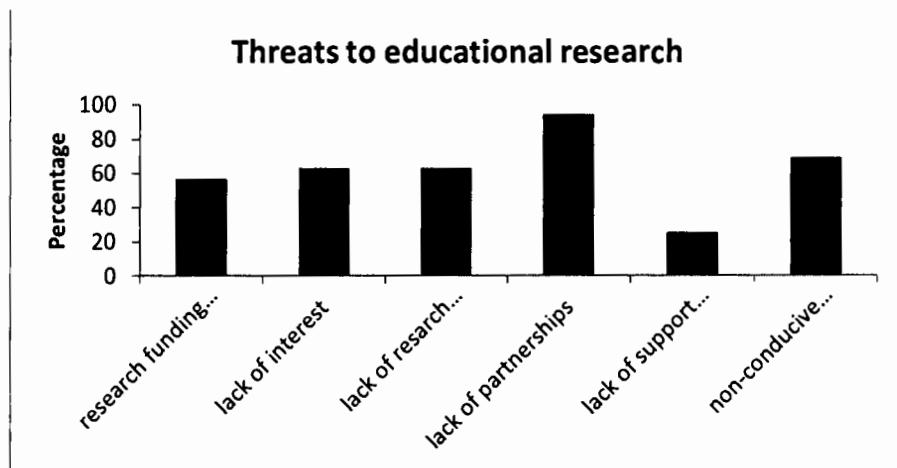
Figure: 4.28 Major threats to the growth and quality of the educational research produced at the education departments of universities.

These data show that several issues including the research funding, the lack of partnerships, non-conducive environment, the lack of interest and the lack of research

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aptitude are the main threats to educational research at the education departments of

Pakistani universities.

PART III

In this part, the combined discussion on the results from ERDF and interview data is presented.

4.44 MIXED DISCUSSION

The aim of this research work was to explore the research trends and SWOT analysis of the research trends in the educational field in Pakistani universities. The first objective addressed by research work was "to classify the research works conducted in the field of education at doctoral level in terms of themes and methods". EDRF data showed that survey, experimental and descriptive researches were the most addressed themes in the 247 dissertations submitted during 2000-2012. The research trend on addressing issues on the theme of quality assurance in educational field in Pakistan were found limited in the research projects, though they were found in some thesis submitted between 2009-2012, suggesting it was an emerging theme in 247 educational research projects. The trend of conducting education research on science subjects was also assessed through the EDRF in 247 PhD level theses, and was discovered that the most of the research activities were concentrated in Maths, Biology and Chemistry areas. However, Physics was the ignored area in which very few theses were found. This can be alarming that issues related to Physics education, curricula development and delivery are not addressed effectively in the past (2000-2012).

Interesting trends were observed in the research areas of different types of educational themes. For instance, a plenty of research activity was detected in the

secondary and higher educational sector, while early childhood education, elementary education and primary education sectors were among the ignored themes in the research work. The educational development in Pakistan cannot be achieved successfully unless the ignored theme such as early childhood education is developed properly.

In the planning, leadership, and management themes in educational research, the leadership and management were the highly focused and researched themes, while little PhD level research work has been found in 247 theses. Similarly, Islamic education and moral education were given higher priority over the mystical education, an only few PhD level theses during 2000-2012 were found in the educational research repository in Pakistan.

In addition, some other research themes which were not extensively explored in 247 PhD level dissertations in education included educational psychology, comparative education and special education, DNFE, crime education, sports education and adult education.

The classification of the research activities in terms of research methods used in PhD level dissertations in education was also executed. The study found that primary data source was extensively used by the most of the research activities in between 2000-2012; and research design used by 247 dissertations fell in the category of survey as the predominant followed by experimental research design. The descriptive research design came at the third position in terms of its use in the PhD level theses at the Department of Education. Among three main research methods, quantitative research method was the most used method, while the mixed method was the least used research method. The Sampling method used to select samples from the target population in the 247 PhD level

dissertations were random probability, stratified probability sampling and convenient non-probability sampling were the most used methods, while the universal sampling and snowball non-probability sampling were the least used sampling techniques found in the research activities between 2000-2012. The trends found in the usage of data collection instruments showed that face-to-face and by-post approaches were the most predominantly ways for distributing the data collection instruments. The important data collection instruments used in PhD level dissertations involved MCQs, interviews, achievements tests and open-ended questionnaire, structured questionnaire. Semi-structured questions, opinionnaire were the least used data collection instruments.

The data analysis tools used in 247 PhD level dissertations were mean/percentage, T-test/Z-test, chi-square and ANOVA were the most used method, however, the ANCOVA, Pearson test, thematic analysis and correlation were the least used data analysis tools.

The study also found some past, current and emerging research trends. It was showed that research productivity trend was increased at KU, PU, UAAR, NUML, IIUI and AIOU. However, the research trend between 2000-2012 at GU, BZU, UoS, USJ and UE-Lahore could be increased, this was mainly because of the fact these universities started their research degree in education in the middle of the assessment period (2000-2012) used by this study.

Overall the research productivity trends of the private sector universities in Pakistan were found lagged behind the public universities. The yearly research productivity in public sector universities showed the upward trend from year 2000 to 2005, and then it dropped in 2006. It lifted again from 2007 to 2012. The consistent research productivity trend was observed during 2010-2012. Similar trend was observed

for the private sector universities, though it was more irregular than the public universities.

The third objective was to identify priority areas for the future research activities in the educational field; and it was found through interview data that addressing current research challenges such as quality and administrative issues in education on priority basis, which ensured the high-quality education to all citizens (Tikly, 2011). The second priority areas empathized by respondents were to pay greater attention to the emerging research trends in the educational areas involving quality of teacher education, curriculum development, management practices, so that emerging needs of the market in the education sector can be fulfilled. The third priority area is related to strengthening the role of HEC in providing adequate funding and other resources for increasing the research activities. The fourth important area of priority as found by this study was to bridge the gap in the educational research and to increase the educational research.

The fourth objective of this study was to conduct the SWOT analysis of educational research in Pakistan. The main strengths of the educational research included high experience faculty, originality, quantitative research, research for all, active supervision, promoting critical thinking, innovative teaching methods and talented researchers. The major weaknesses in the educational research found by this study included the availability of less research grants, delays in graduation, the lack of innovative and practical research, the lack of research activities in leadership/policy making and partnerships. The opportunities reported by this study were to increase the educational trends/activities in the areas of leadership and policy-making, provision of research grants, development of instructional technologies, building partnerships and

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focus on the innovative and practical research. The main threats to the educational research found by this study were the withdrawal of funding, lack of interest in research and non-conducive environment, and the lack of research aptitude.

The SWOT analysis can be summarised in the following figure 4.29.
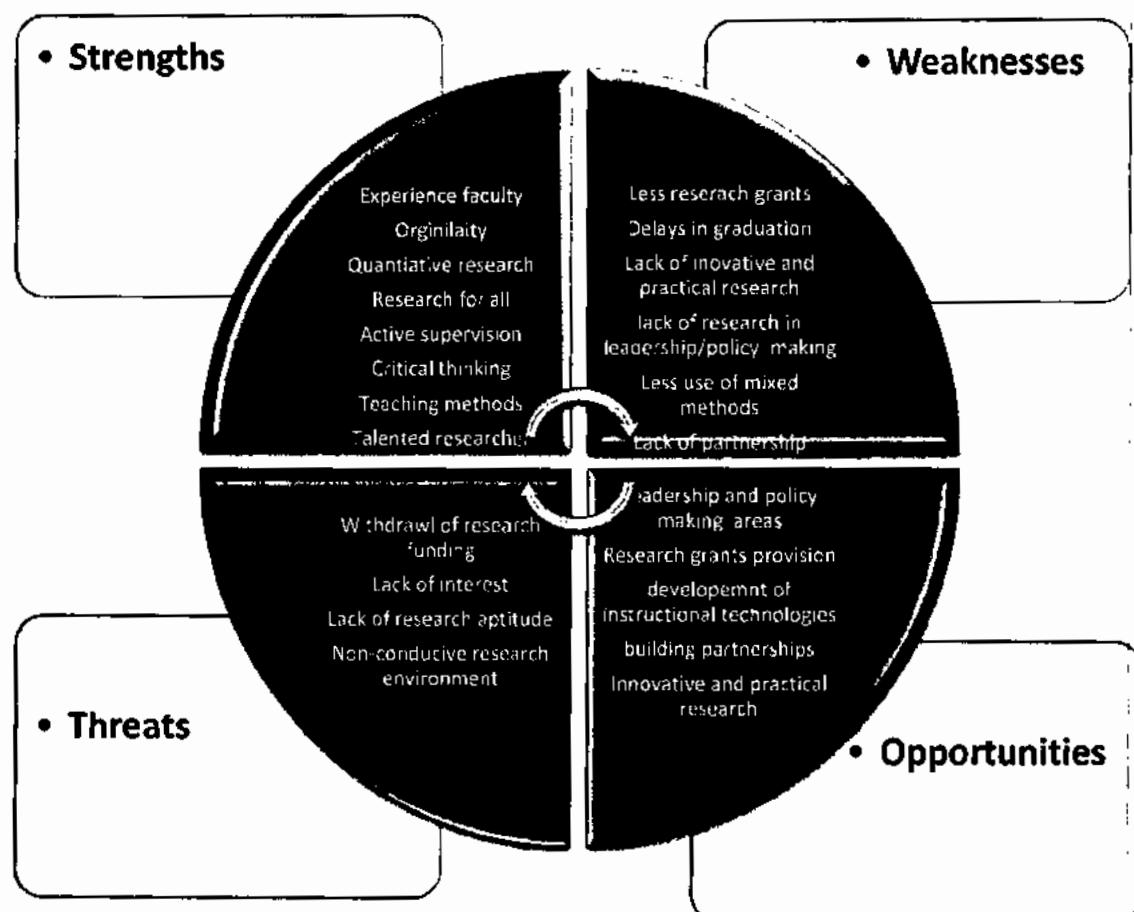
Figure: 4.29 The SWOT analysis of the educational research trends at Public and Private Universities in Pakistan. SWOT model by Gorski (Gorski, 1991).

CHAPTER 5

SUMMARY, FINDINGS, CONCLUSIONS, DISCUSSION, RECOMMENDATIONS

5.1 SUMMARY

The research potential of the educational institutions is considered the main criterion on which the performance and quality of the research is judged. The effective research projects help shape the economical, cultural and social developments of any nation. Therefore, the determination of the research capability during a particular period is indicative of the performance and productivity of the research institutes. Finding the research trends during a specific period of time can reveal the quality and effectiveness of the research activities, exposes the strengths and weaknesses of the research projects and provides clues and directions to maintain or change or improve the mainstream research projects. Moreover, the research trends in terms of methodological approach, areas of research and gender equality in promoting research can help the management of the Departments of Education in Pakistani universities to critically evaluate their research activities and help initiate the changes to reform and overhaul the research process in such a way that they can be productive, effective and efficient for improving the economic and social conditions of the country.

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Therefore, the current study was planned to explore the research trends at Education departments in public and private universities in Pakistan and the objectives of the research to meet the foregoing aim were given below;

1. To classify the research works conducted in the field of education at doctoral level in terms of themes and research methods

2. To find out the existing trends in educational research at doctoral level in Pakistan

3. To identify the priority areas for the future research activities in the education field

4. To conduct the SWOT analysis of trends in educational research in Pakistan

This study achieved the above aim and objectives successfully using the mixed method research approach; combination of qualitative and quantitative. The EDRF was designed by a data collection tool to conduct the quantitative phase of the study. The semi-structure interview was designed to collect the data for the qualitative phase of the study. The research expert with 10 years of research experience working at education departments in universities were selected as a population for this study. Their opinions and experiences were expected to reveal the research trends, strengths and weaknesses of the research projects and suggestion to improve the status quo. The sample was selected using the non-probability sampling technique from the universities located in four provinces of Pakistan: Punjab, Sindh, Khyber Pakhtunkhwa, and Baluchistan. The quantitative data in EDRF were analysed using the descriptive statistics such as percentages, mean and mean rank order. The qualitative data were analysed using the thematic analysis in which the data were summarised into codes and themes. The themes were used to draw and present the findings.

5.2 FINDINGS

The findings of this study provided an insight into research trends during 2000-2012 with respect to the research areas and research design. This allowed evaluation of the research project conducted during 2000-2012 in terms of their effectiveness to address the research questions and areas which were over-researched or under-researched. The key findings of this research project can be summarised as below:

5.2.1   The classification of research works were conducted in the field of education in terms of methodologies. Mostly identified methodologies were classified as survey research, experimental research, descriptive research, historical research, case study, content analysis, applied and action research, basic research and R & D respectively (Table 4.7).

5.2.2   The classification of research works was conducted in the field of education in terms of method. Mostly methods were classified as quantitative methods, qualitative methods and mixed methods respectively (Table 4.15).

5.2.3   Research trends of the research by method showed that survey, experimental research and descriptive research methods were used more frequently during 2000-2012 (Table 4.7).

5.2.4   The most of the PhD dissertations submitted during 2000-2012 focused on the teacher training and development and teacher-student interaction (Table 4.8).

5.2.5   The Islamic education attracted interest of the most of the researchers during 2000-2012. However, the moral education and mystical education were remained as ignored areas of the research (Table 4.11) (Table 4.13).

5.2.6 Trends in application of research methodology (data types) showed that quantitative research method was approach with more frequency compared to the qualitative research method. The mixed method was the least used research method in the PhD dissertations submitted at Education departments in public and private universities (Table 4.15).

5.2.7 The trends of using sampling technique showed that random probability sampling, stratified probability sampling and convenient probability sampling were frequently used sampling techniques compared to the others. The universal sampling technique was the least used one in the PhD research projects submitted during 2000-2012 (Table 4.17).

5.2.8 The most widely used data collection instruments found in research project during 2000-2012 included MCQs, interviews, achievement tests, open ended questionnaire, structured Questionnaire and 4-test (aptitude test, perception test, personality test, talent test) (Table 4.18).

5.2.9 The trends showing the methods used to distribute the data collection instruments revealed that personally visit and by post methods were widely applied to distribute the data collection instrument compared to E-mail method (Table 4.19).

5.2.10 The trends in terms of using data analysis methods, it was found that the most used methods to analyse the quantitative data were mean/percentages, t-test, and chi-square while the least used methods were ANCOVA, correlations and Pearson test (Table 4.20).

5.2.11 The research topics taken by the PhD students during 2000-2012 focused mainly on teaching of Mathematics and Chemistry, these areas were over-researched (Table 4.9) (Table 4.11).

5.2.12 The secondary education and higher education were revealed to be areas on which the most of the research work had been conducted. These areas were termed as 'over-researched areas. Teacher education, comparative education, educational psychology, special education, educational assessment, curriculum development, DNFE, educational evaluation is over-researched areas. The economic education, gender studies, educational technology, educational sociology and policy studies are medium-researched areas. Overall research work in medium-researched areas is limited due to fewer number of PhD theses in the above-mentioned areas/ (Table 4.10)(Table 4.11)(Table 4.12) (Table 4.14).

5.2.13 The trends in using the qualitative data analysis methods found that thematic analysis was the least used method, while the descriptions were used as widely used approach in the PhD dissertations submitted during 2000-2012 (Table 4.20).

5.2.14 The research productivity (number of dissertations/year) of Education Departments in the public-sector universities found that UAAR, PU, AIOU showed the highest research productivity (Table 4.3).

5.2.15 HUK, FUI and JUWK appeared to produce the PhD dissertations at higher rate compared to Education Departments at other universities in private-sector (Table 4.5).

5.2.16 The yearly research productivity of Education Departments in Public universities was found to the highest during 2004-2005 and 2010-2012 (Table 4.4) (Table 4.6).

5.2.17 The research productivity exhibited increasing trend from 2008-2012, indicated the productivity of the Education departments flourished during that period (Table 4.4).

5.2.18 Primary data source was widely used data for drawing findings, while the secondary data sources were the least used data sources by the researchers at Education Departments in public and private universities (Table 4.16).

5.2.19 This study also showed that HEC should support the studies using innovative and diverse research methods such as qualitative studies and mixed method (Table 4.29).

5.2.20 Main strengths of the research works conducted at Education departments of universities included the experienced faculty and originality of the research (Table 4.25).

5.2.21 The application of quantitative research approach, research for all the students and supervisors' active role are some other strength of research activities in education field (Table 4.26). (Table 4.27).

5.2.22 Teaching methods, promotion of critical thinking and talented researchers are some positive points to enhance the innovative research trends (Table 4.28).

5.2.23 The research productivity of the private sector universities was lower than that of the public-sector universities (Table 4.3) (Table 4.4) (Table 4.5) (Table 4.6).

5.2.24 The quality assurance was found to be ignored or under-researched areas at Education Departments in both public and private sectors universities (Table 4.8).

5.2.25 The research undertaken on pedagogical methods for biology and Physics were found as under-researched areas (Table 4.9).

5.2.26 There were few dissertations found on the topics of primary education, early childhood education and elementary education. This means that these areas were categorised as 'under-researched areas (Table 4.10).

5.2.27 Gaps in the research in the areas of planning of education, elementary education and early childhood education were found in research activities (Table 4.10) (Table 4.14).

5.2.28 During 2000-2012, the number of dissertations on planning was limited to only numbers which showed that research at Education Departments could not produce research ideas to address issues in planning and management areas of education [R11].

5.2.29 The case study, content analysis, R&D and historic research were found to be used with lower frequencies compared to other methods (Table 4.7).

5.2.30 The least used methods to collect data for PhD project submitted during 2000-2012 included opinionnaire, FGDM (Focus group discussion method) (Table 4.18).

5.2.31 This research found that administration and management of research projects is not up to the internationally recognized standards (Table 4.11) (Table 4.12).

5.2.32 Mixed method research was not used to address the research issue (Table 4.26).

5.2.33 The weaknesses of the research projects showed by the interview data involved the less research grants and delays in graduation of students' graduation (Table 4.30).

5.2.34 The lack of research in leadership and policy making areas and non-use of innovative and state-of-the-art research methodology based on mixed method were some other weaknesses in the research carried out at Education departments in universities [R9].

5.2.35 The lack of research aptitude on behalf of researchers and non-conducive environment are some other threats which can destabilize the research productivity (Table 4.32).

5.2.36 This study also showed the lack of business aspects of educational research (Table 4.31).

5.2.37 Many other areas were found under-researched or ignored areas during 2000-2012, which included educational technology, educational sociology, policy studies, economics of education, sports education, adult education, crime education, philosophy of education, history of education and commerce education (Table 4.14) [R10].

5.2.38 This study showed that opportunities existed for supervisors and researchers and policy makers in the areas of leadership and policy making, innovative and practical research (Table 4.29) [R10].

5.2.39 Opportunities also exist in the areas of building partnerships, technological infrastructure, instructional technologies and provision of grants to fund the research projects [R7].

5.2.40 Findings from interview showed that educational research at Education departments' faces many challenges and one of the main challenges is quality of research [R1].

5.2.41 The lack of access to the right resources was found to be another issue affecting the research productivity of the Education departments in universities (Table 4.33) [R1].

5.2.42 Inappropriate research design revealed another challenge which could impact the health of educational research (Table 4.32).

5.2.43 The quality assurance mechanisms are not supported by the research activities from 2000-2012 (4.33).

5.2.44 The threats to the research productivity of Education departments in universities come from the withdrawal of research funding, the lack of interest on behalf of supervisors (4.33).

5.3 DISCUSSION

In this section, the discussion on the findings is presented in the light of the existing literature on the education and research patterns in education field. The significance of the findings for the existing literature and the practitioners involved in managing the educational research are also illustrated in this section.

5.3.1 Classification of Research

The 247 PhD dissertations showed that survey, descriptive and experimental research were used in the research at PhD level research at the Pakistani Public and Private universities. Survey was ranked at 1st position and Experimental research was 2nd

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with rank 6 and 5, respectively. Descriptive research was ranked at 3rd position with rank equal to 4. R&D and case study methods were ranked at position 4 with the same rank. The content analysis and historical research were used very less in PhD dissertations submitted to Pakistani universities. These findings implicated that there was a lack of application of secondary sources of data in the PhD level dissertations in educational research. This did not mean that secondary sources were not used at all, for example there were extensive research reviews found in the PhD level dissertations in educational research.

However, the secondary sources of data were not properly utilized to underpin the research findings of the experimental research or inform the discussion of the data and findings, once the data were collected. Also, the secondary sources were not properly or extensively used to either develop a theoretical or conceptual framework. The same reasoning can be applied to the too much use of descriptive methods in PhD level dissertations in Education in Pakistani universities. This shows that research should not only use the secondary sources described in the literature reviews of PhD dissertations for informing the findings, but they should also use them in proactively to develop the conceptual frameworks. This will further lead to development of sophisticated methodologies for the experimental research in Education Departments in Pakistani universities.

5.3.2 Research Productivity

The research productivity of the public sector was found to be higher than that of the private sector. The development of the private sector in education was started

developing in the beginning of the 21st century and private universities are still struggling to establish their research departments due to lack of funding. However, the HEC and other government funding agencies support the research projects of the experienced and experts working in the public universities. The interview data also supported these data showing obstacles in securing the funding for the research projects is not only problem for the public universities but the private sector is also struggling to produce the quality research projects. In the public sector, the UAAR and PU, NUML, IIU and AIOU universities emerged as a trend setter in producing the highest number of PhD theses during 2000 and 2012 compared to other researchers from other universities. (Rasheed et al., 2011) provided the similar finding using the case study of Islamia University Bahawalpur.

The yearly research productivity data showed that the public universities were not active in producing the PhD dissertations during 2000 to 2007 with exceptions of 2004 and 2005 in which 11 and 12 PhD theses were submitted at education departments in different public sector universities. However, the research productivity spiraled up from 2008 to 2012. The continuous increase in the research productivity between 2008 and 2012 might be associated with HEC policies to support more and more research projects at PhD level. For example, the 5000 indigenous PhD scholarship programs introduced in 2000 served as major boost that attracted the scholars to enroll on the PhD programs at Pakistani public sector universities (Naeem et al., 2012).

Similar trend was observed for the private universities which might be related to initiation of faculty development programs under which various teachers not meeting PhD requirements were allowed to develop their research skills and qualification through

undertaking PhD level research (Naeem et al., 2012). Because private universities are more flexible for scholars in terms of supervisory requirements and timing of study (Easterly, 2001). Therefore, during 2008-2012, the PhD scholars enrolling in PhD via Faculty Development Programs might have boosted the yearly productivity of the private sector universities in education field. These findings are supported by many other studies (Vinuluan, 2001; Sax et al., 2002; Bland et al., 2005)

Overall, the research productivity needs to be enhanced because research leads to innovative ideas, practical implementation of the ideas and scientifically addressing the issues faced by Pakistani nation in the education field (Sabzwari et al., 2009).

5.3.3 Areas Deficient of Research Activities

The educational areas which could not receive considerable attention were the following;

5.3.4 Quality Assurance Education

The area of the quality assurance in education was ignored by the researcher 2000 to 2012. Almost there was no research activity was observed in this area. This showed that government, HEC and other funding agencies did not fund the projects in the area of quality assurance in Pakistan, which is why the quality of the education in Pakistan does not meet the international standards in many aspects. The quality assurance in developed countries was the main area because without increasing the educational quality, the objectives of the education cannot be met. The needs of the employers and other stakeholders are not warranted by the education delivered to students (Batool and Qureshi, 2007). In addition, Memon (2007) emphasized that quality assurance research is

necessary to enable the education to meet the educational objectives and needs of the stakeholders. Several other researchers supported these findings (Altbach and Kogan, 2000; Mishra, 2007; Shami and Hussain, 2006).

5.3.5 Science Education

The issues related to science education were not fully explored by the PhD level research conducted 2000-2012. The science education faces many issues such as delivery of contents, empirical research, the practical and effectiveness of the curriculum. These issues mainly arise due to differences in the theoretical and practical aspects of the science education. The inadequacy of skills and expertise in translating the theoretical contents into the practical and laboratory-based research is causing the problem for professionals and academics. The foregoing areas, according to Batool and Qureshi (2007), cannot be resolved without conducting the quantitative and qualitative research on such issues. This study found that very less research was done in the areas of biology and physics and chemistry. Many other researchers have supported the findings of this study (Chang et al., 2010; Iqbal and Shayer, 2006; Memon, 2007). This study suggested that policy makers and research experts must focus on the incumbent issues associated with science subjects. This helped improve the curricula and deliver contents to students.

5.3.6 Early Childhood and Elementary Education

This study has showed that PhD dissertations on the areas of early childhood education and elementary education were very few in the HEC repository. This indicated that these research areas were highly ignored in the educational research trends. Many other researchers produced the similar findings in different parts of the world (Arnold et

al., 2007; Christensen and Aldridge, 2012). Levine (2005) suggests that early childhood education and elementary education require the expertise of the researchers with focus on the psychological and cognitive developments of the child. This means that expert knowledge and skills are required to address issues in early childhood and elementary education. The lesser research activity in early childhood may be attributed to the fact that researchers are not fully cognizant of the techniques and knowledge in areas of child cognitive development (Woodhead and Moss, 2007).

5.3.7 Planning and Management

The research trends during 2000-2012 demonstrated research in the areas of educational planning and management. The lack of research focused on the planning and management weakens the planning capability of the policy makers in organizing and coordinating the policies and actions in improving and reforming the education (Shami and Hussain, 2006). Statistics (2013) argued that quantitative or qualitative research in the areas of planning and management is critical for addressing the issues/obstacles in the way of successful changing the educational system. These data support the findings of this research. Besides, many other studies provided empirical support to these findings (Memon, 2007; Ameen, 2007).

5.3.8 Mystical and Moral Education

The mystical and moral education has not been explored by previous studies. This means that issues and problems in the areas of mystical and moral education are ignored by the previous PhD research works conducted during 2000-2012. This may have disastrous consequences for the moral and social set up. The mystical education and

moral education are considered important pillar of any social set up because it generates the endurance, forbearance and kindness in the society (Marsden, 2005). There are many issues prevalent in the social set up of Pakistan in areas of mystical and moral education such promoting tolerance and endurance which can be resolved through empirical research (Verkaaik, 2004). The moralists and proponents of mystical education should bring attention of researchers to these areas so that the social fabric of the Pakistani society can be improved. Many researchers have highlighted the significance of mystical and moral education for the social cohesion and coherence of any society which further supports the results of this study (Gates, 1990; Attaran, 2015).

5.3.9. Educational Philosophy

It has been found that educational philosophy is the least explored area. The limited or the lack of the research on practical issues and concepts concerning the educational philosophy can be fatal to the development of educational system on the concrete grounds. The educational philosophy refers to a blueprint of the educational mechanism which is based on philosophical doctrines. Therefore, the educators are portrayed as philosophers, as the functions involve the sustainability and preservation of social heritage throughout history. Greene (1973) stressed on the role of educational philosophy in developing and understanding of educational process in terms of gaps and lapses in the installation of teaching and learning methodologies at the educational institutions. With the research on the educational philosophy, it becomes clear to raise questions, find the robust methodologies to address the questions, and the presentation of data highlighting the existing and potential issues to the educational doctrines, learning approaches and teaching methods.

Many researchers have highlighted the importance of educational philosophy in terms of refining the aims of education at the education institutions which are considered to be social institutions for promoting the cultural and historical heritage of the nations (Fung, 2005; Biesta, 2012). In addition, Stables and Semetsky (2014) have argued that research on the educational philosophy answers the most pertinent questions encountered by the educators such as identification of learners for the educational process, developing teaching methodologies for effective learning, understanding the learners' attributes to determine the core learning and teaching strategies. Another scholar has pointed to the changing of educational policies a worthless exercise if the proper insight into the educational process, issues encountered by learners and educators, interactions of students with teachers, the ways students think and interact with the curricula are not developed effectively (Biesta, 2012). Stables and Semetsky (2014) are of the view that substantial amount of research work in the educational system can help the educators and policy-makers in solving the critical issues faced by students, teachers and the educational system as an organic whole, thereby strengthening the relationship between the learners and educators, and achieving the real objectives of educational system within a particular socio-cultural setting.

Fung (2005) referred to the significance of research on educational philosophy in encouraging the independent thinking among the learners and sense of self-efficacy. The research on the educational philosophy is important for looking ways to inspire the students to answer the questions in classrooms from the multiple perspectives, so that independent views and thinking about the subjects being taught in the classrooms, instead of just regurgitating the opinions offered by others. Moreover, research on educational

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philosophy needs to determine the means to cultivate the students with understanding of dealing with emotions, building relationships, and living life according to Islamic tenets.

5.3.10 Crime, Sports and Adult Education

The findings of this study revealed that PhD research projects could not focus substantially on the issues related to crime, sports and adult education. Very few theses on these areas were found, indicating that these are ignored areas of research. The education about crime is necessary to educate the masses about the crimes and empirical activities can reveal the caveats and pitfalls in the crime education (O'Malley, 2010; Jules, 2008; Miles & Miles, 1993). The increasing crime rate in different areas of Pakistan may be ascribed to the lesser focus on and attention of the government and research community on challenges in education the people about the crimes (Batool & Mahmmod, 2010). Ignoring research on sports may impair the ability of the youth to participate in different sports activities such as football, hockey and cricket. The adult education in Pakistan is not centralized and organized area which may be attributed to the lesser focus of the research on adult education (Memon, 2007).

HEC, Pakistani government and research funding organizations in Pakistan must focus on increasing the research activities in crime, adult and sports education. This change in research trends can be brought about through the concerted efforts of education departments at Pakistani public and private universities. Otherwise the sports activities and their propagation in the country was affected badly (Mittler, 2012). For example, the hockey is already on the way of obsolescence in Pakistan which may be prevented

through conducting the research on addressing the issues and problems in education for the importance of sports for the health and reputation of Pakistan (Ahmar, 2016).

5.3.11 Research Method Improvement

The EDRF data revealed that the most of the PhD dissertations used only primary data sources which is strong point because the primary data sources are significant for generating theories, testing hypotheses and producing new ideas for the further research (Rubin & Babbie, 2016). However, secondary data sources were barely used in the research projects carried out 2000-2012, which reflects the weaknesses of the research method. The secondary data are based on the literature and are used in meta-analysis, content analysis and reviews for assessing any problem historically in the existing literature (Gay et al., 2011). The secondary data is also considered helpful in designing the research frameworks, questions and research issues, though there is a little empirical evidence in the literature. This means that more research is required to furnish the empirical evidence in this regard. The lack of focus on secondary research means that research in education is unable to learn from the research works in different areas of education. It also lacks of the ability to compose the research questions based on the previous research (Mertens, 2014). Thus, there must be considerable focus on the use of secondary data to build models, frameworks and research questions to solve the critical issues in the educational areas.

The lesser use of case study and content analysis further highlight the fact that these methods have great value in line with secondary data and the policy makers need to place their focus on them to produce the quality research oriented towards resolving the

specific issues associated with educational areas. Horner et al. (2005) argued that case study is more specific on concentrating and resolving the problems and challenges faced by specific organizational cases in education. These results suggest that researchers and supervisors have random planned the research projects without due considerations to the methodological perspective of the educational research. These deficiencies and weaknesses further demand more coherent policies in managing the use of different methodologies based on their suitability for the research projects.

5.3.12 Research Method and Sampling Technique

The key finding derived from the EDRF data showed the lesser use of mixed methodology during 2000-2010. During 2011-2012, some PhD dissertations displayed the use of mixed methodology. The use of quantitative research method was widely used as a method to approach the research issues. The qualitative research method was less frequently used. The overall greater focus on addressing the research issues using quantitative approach is indicative of the scientific approach based on numerical facts rather than exploring the research issues using the qualitative research method. The people directly dealing with research issue can express their opinions and suggest solutions to solve the problems. The qualitative research method can offer the exploratory and detailed picture of the factors and stimuli causing the problem (Ramsden, 2003). The lack of substantial amount of focus on the qualitative research design in PhD research project is alarming in the sense that remedies and suggestions suggested by the research work may or may not be applicable to the social setting (Johnson and Onwuegbuzie, 2004). Because the in-depth opinions and experiences of the people are not explored

during data collection within projects conducted 2000-2012, the practicability of the solutions proposed by previous studies may be questioned.

Furthermore, the use of latest research methods such as mixed method and triangulation methods were not used in PhD research undertaken during 2000 and 2010. The some of the PhD dissertations submitted from 2011 to 2012 were found to be used this method. This means that trend is being changed in terms of using the more complex and reliable research methods. These practices can help strengthen the research profile in the education apart from increasing the reliability and validity of the results (Van den Akker et al., 2006)). Several other researchers suggested that mixed method research approach may help alleviate the weaknesses of the qualitative or quantitative method (Johnson and Onwuegbuzie, 2004; Creswell., 2013).

The trends in the use of sampling techniques showed that purposive, snowball and universal sampling were used very less for the selection and recruitment of sample from the population. Random probability sampling was used in the most of the projects. This shows that research projects conducted previous in the field of education lacked of diversity of using the sampling techniques based on the nature of the samples. The previous researchers were emphasized the use of suitable sampling techniques matching with the attributes and nature of the sample (National Research Council., 2002). The of single or two sampling techniques throughout the research projects during 12 years (2000-2012) indicated the monotony and weak decision making for selection and recruitment of samples. The use of inappropriate sampling technique may result in error in selection of good and reliable samples. This in turn may cause the errors in findings or non-reliable findings (Punch & Oancea, 2014). Besides, it can be argued that use of few

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sampling techniques may be easier to implement within Pakistani social setting while the sampling techniques which were used less frequently might either incur higher cost or not be possible.

5.3.13 Data Collection Tools

The findings of the current study have revealed that data collection tools which were mostly used by the PhD researchers during 2000-2012 were MCQs, interviews, achievement tests and open ended questionnaire. These findings support the research methods used in research. For example, the quantitative research method was used in dissertations, as a part of this research design, the PhD researchers used Test, MCQs and achievement test to gather the quantitative data. The second most widely used research design included the qualitative research method, so as a part of this research design, the interviews were used in most of the qualitative study. However, the opinionnaire, checklists, document analysis were used to some extent. Though the semi-structured interviews were used a predominant data collection instrument in qualitative study (Lodico et al., 2010), but this instrument was used in few dissertations. The structured interviews were also used very less by the PhD researchers. However, it is used a popular research method for data collection in educational research (McMillan and Schumacher, 2014). These data show that researchers in Pakistan are less specific in justifying the use of the research tools. The use of data collection tools is not always in line with the research use. In addition, the only few data collection tools are used by PhD researchers rather than using the diverse range of tools to increase the accuracy and reliability of the findings. These may weaken the strength of the findings and one can question the suitability of the data collection tools to the research design. The conflict between the

research design and the data collection tools may cause the serious damage to the reliability and validity of the findings (Ary et al., 2013). The policy makers and researchers in Pakistani public and private universities should focus not only on the suitability of the research design to the problem in question, but also on the appropriateness of the individual components of the research design to the requirements of the research design. Otherwise the applications of the findings may not bear the fruit if government uses these findings to reform the educational system of Pakistan.

5.3.14 Data Analysis Tools

Data analysis tools are critical for analyzing data and presenting the findings. The findings of the current study exhibited that the qualitative studies conducted during 2000-2012 relied on thematic analysis which is the commonly used method recommended by scholars for the qualitative data analysis. However, the most of the studies did not present the themes and codes in appropriate way such as creation of themes and codes tables. Therefore, it is not clear how the themes and codes were created and how they helped the researchers to infer particular findings. Several researchers suggested the systematic and scientific way of inferring themes and codes from the qualitative data (Creswell, 2013). These results are supported by previous studies (Johnson and Christensen, 2012).

For quantitative studies, the PhD researchers used simple descriptive statistics to analyze data such as chi-square, Mean, Percentages, T-test and ANOVA. The standard deviations, correlations and ANCOVA and Pearson tests were used less frequently to analyze the data. Moreover, the trend of using ANOVA and T-tests were found in dissertations during 2008-2012 which means that the use of more sophisticated data

analysis tools is developing. Thus the trends in using data analysis tools showed the biasedness of the researchers towards simple statistical tools. It may be possible that researchers lack in the training to apply the statistical tests based on the type of data. These results are in contrast with previous studies showing the use of ANOVA, Pearson test and correlation as a predominant data analysis tools used to analyze the qualitative data (Golafshani, 2003; Burkhardt & Schoenfeld, 2013). Thus, this study recommends that proper training and courses in applying statistical tests and knowledge to analyze data should be provided for the PhD researchers at Education departments in Pakistani universities.

5.4 SWOT ANALYSIS

5.4.1 Strengths of the Educational Research in Pakistan

The current study found that Education departments at Pakistani universities contain experienced faculty members who have the originality in terms of producing new ideas and support originality in their research projects. These results are consistent with many other studies. The experienced faculty members carry the knowledge and experience in training and supervising the PhD students and are thought to be playing an important role in producing the quality research works. In addition, the originality of the faculty members helps students to come up with original ideas (Mitchell & Shortell, 2000). These strengths can help revolutionize the educational research in Education departments in both public and private universities (Minkler, 2005).

The quantitative nature of the research projects carried out at Education departments in public university is strength of the educational research. The quantitative

research is based on the numerical values and quantitative facts, removes the researchers biased approach and emphasizes on the objective stance (Creswell, 2013). In addition, the quantitative strength is useful in providing the reliability and validity measures for the quantitative data used in research projects.

The research requirements for all students and supervisors are dependent on learning or some other strengths of the educational research at Education Departments in public and private universities. The requirement for research for all the students provides opportunity to every student at doctoral level to prepare their aptitude for the research and handling challenges in the research (Mertens, 2014). Therefore, this is one of the core competencies of the Education departments to provide knowledge and adequate training to students to conduct the research projects. These findings are supported by many other studies (Mitchell & Shortell, 2000; Chaudhry & Rahman, 2009; Sabzwari et al., 2009). In developed countries, the universities offered the research oriented Master degrees such as MRes. (Master in Research) to prepare students for PhD research projects (Phillips and Pugh, 2010).

The educational research improved the critical thinking of the researchers which is strength of the Education departments and research in the education field. Eliot (2003) argues that main function of any research activity is to promote the critical thinking. Several other researchers supported these results. Teaching methods have been improved through the educational research activities. Teaching methods have constituted an important pillar in delivering knowledge and developing skills in students. They not only prepare students to cope with challenges in their academic but also they play a role in

equipping skills to cope with issues during their professional career (Carr and Kemmis, 2003).

The Education departments have core competencies in promoting practical research and recruiting talented students to conduct PhD level research projects. Due to these competencies, the policy makers can maximum benefit from the recommendations offered by such research projects (Eliot, 2003). In addition, talented students can come with innovative research ideas which help refining the outcomes of the research projects.

5.4.2 Weaknesses

The Educational research projects do not receive the adequate research grants to support the innovative and challenging ideas. This may cause the damage to the development of innovative and practical research ideas. The students are not graduated within the given time-frame which means that supervisors responsible for running PhD projects are not supportive towards students for meeting the deadliness to finish their PhD research within 3-4 years which is recommended by research experts in universities in developed countries.

In addition, the research activities in the areas of leadership, management and policy making are hardly undertaken at Education departments of public and private universities. This may impact the capability of nation to produce managers, leaders and policy makers for managing and reforming the educational system of Pakistan. Besides, the mixed method based research and applied level of research activities were not used frequently in drafting and planning of the PhD level research projects. These may pose challenge of reliability and validity to the research findings (Golafshani, 2003). The

whole purpose of conducting research is to make solid contributions to the organizational performance, and to gain better understandings so that benefits may come to future learners. The research activities which cannot improve the policies and organizational performance are burden on the nation's budget (National Research Council, 2002).

The findings also revealed that supervisors are laden with burden of teaching, administrative activities and supervision of the PhD research projects. Under such intense pressures, it is difficult for the supervisors to pay proper attention to the research students and research activities. Consequently, such pressure may impact their research productivity. The absence of instructional technology such as software for delivering the course contents is another weakness of the educational departments.

The use of such technologies has been reported to be successful in improving skills and core concepts of the students (Smaldio et al., 2008). These technologies are used to engage students with the core contents of the curricula (Rakes et al., 2006). Absence of technological infrastructure and instructional technologies can impair the ability of the teachers to effectively deliver the knowledge and skills to the students. Thus the quality of the education is affected due to not meeting the quality objectives of the education (Newby et al., 2000).

Moreover, the educational departments and faculty members are reluctant to establish partnerships to conduct applied level research. The partnerships with NGOs and other social stakeholders to improve the status quo in the field of education were found to be instrumental in improving the innovative and applied research activities (Minkler, 2005; Mitchell & Shortell, 2000). The areas in which partnership and developments are

poor include the teacher's special education, science education and business aspects of the education. The deficiencies in these areas are reported to slow down the progress of a nation in the scientific fields (Kuh, 2008). The special education is highly ignored area which is consistent with EDRF data.

The findings demonstrated that there are several ignored research areas such as educational philosophy, educational planning, Islamic education, mystical education and moral education, which are not explored widely in departments of education in Pakistani universities. Departments of education can use their strengths relating to innovative faculty and PhD students to overcome the weakness of low research productivity in the ignored areas of research.

5.4.3 Opportunities

The findings from both interviews and EDRF data showed that faculty members and education departments in public and private universities of Pakistan have opportunities in many areas. These opportunities can help the educational departments and the supervisor to uplift the research profile and improve the areas in which educational research is lacking. For example, it was showed that Education departments can build the technological infrastructure and involve software development for instructing the curricula in classrooms which help increase the understanding of students with core concepts, and engagement of students with curricula taught at universities.

Opportunities in the area of funding research endeavors are available. HEC can play a role in paving for funding in innovative projects in the areas of teachers training, leadership, management, science and special education. The funding can also be secured

through forging partnerships with industries, social societies and NGOs. The partnerships with government and private sector can provide training and skills development of the faculty at the Education departments in public and private universities.

In the area of curriculum development, the opportunities are available to revise the curricula of science and social science subjects periodically. The national leadership can be developed through including special contents on the leadership and management for improving the leadership skills of the educators.

5.4.4 Threats

The findings of this study showed that major threat comes from the collegial relations and research supportive environment. If the faculty members are not supportive towards each other, it can endanger the healthy research environment and consequently the productivity of the research can be dropped. Therefore, it is very important to foster the good relationships between the faculty members to keep the favorable environment (Tickly, 2011). The lack of interest of supervisor into PhD research activities and the lack of research aptitude on behalf of the students are some of other threats faced by the research in the education field. These factors are critical for improving and propagating the research activities in the field of education (Lugg, 2007). Research funding is another threat. If the government or HEC stops funding the research projects at education departments in public or private universities, the research productivity and development would be affected badly. Several scholars have upheld the importance of research funding for development of innovative and practical research projects (Anderson & Shattuck, 2012; National Research Council, 2002).

5.5 CONCLUSIONS

Based on the foregoing findings, the following conclusions can be drawn:

1. The classification of this research showed that many themes were classified as survey research, descriptive and experimental and some were classified as historical, case study and content analysis. Work was not found on trends study. Quantitative methods were more than qualitative methods and mixed methods were less than qualitative methods (Findings: 5.2.1 & 5.2.2).

2. The increasing trend of the research productivity was observed for both public and private sector universities. This active role of Education departments in building research aptitude and infrastructure in both public and private universities may ensure the sustainable output in research areas in the next 20 years (Findings: 5.2.14, 5.2.15, & 5.2.16).

3. The research trends lacked of the diversity in many areas of research methodology. The diversity in terms of using the data collection instruments and research design was found absent in research projects from 2000 to 2012. For the first time, the content analysis of the PhD works showed that research design seemed to be static without varying in response to differences in the approaches towards resolution of research issues. Components of the research design like data collection methods and data analysis tools were used without consideration of the data type and problem statement. It seems that researchers choose the research method followed by previous studies by other students in Education Departments with involuntary errors in the choice of statistical tool and data collection instruments. The research design was not compatible with the research

philosophies in several research projects in education field, which bears witness on the inherent errors in the methodological choices (Finding: 5.2.9).

4. The research topics showed that in science education; mathematics and chemistry were focused. MCQs, achievement tests and interview were prior than observations, check list, close ended questionnaires and semi structured questionnaires (Finding: 5.2.8).

5. The research productivity showed the increasing trend after 2008, which clearly indicated that educational departments at the universities are catching the lime light in the research area. This is also indicative that research capability is increasing due to good management and planning of the departments by the departmental leadership. This will be helpful in increasing the research standards and publications of research from the Education department (Finding: 5.2.17).

6. SWOT analysis of the research activities highlighted the main strengths of education departments in universities which are presence of originality, experienced faculty, quantitative research, compulsory research at MPhil level to train the students for PhD level, promotion of critical thinking, innovating pedagogical methods and talented researchers (Finding: 5.2.20).

7. The universities newly established in the last decade showed comparatively low research productivity. This means that these universities are novice in the field, their education departments are still in the process of building their faculties and recruiting suitable PhD candidates in the research areas in the educational field. With the passage of time, they can also follow the footsteps of their contemporaries in the Education discipline (Finding: 5.2.35).

8. Many flaws were detected in the research design through this study. For example, the trends of using quantitative data predominantly may lead to missing the nuances and detailed picture of phenomenon under investigation. The qualitative studies were not a preferable strategy to investigate the research issues, which means that outcomes generated by the research projects may be challenged due to dynamic nature of the educational system due to constant evolution of educational system in Pakistan (Findings: 5.2.21 & 5.2.32).

9. The ignored or 'lagged behind' areas of the research were found in the research projects conducted from 2000-2012. Important ones include the Special education, planning and management, Islamic education, policy studies, educational philosophy, early childhood education and crime education. These areas need the focus of researcher community in Education departments of universities in order to address the issues in these areas. This helps in strengthening the leadership, planning, change management and cognitive developments of the students (Findings: 5.2.26, 5.2.27, 5.2.31 & 5.2.34).

10. The role of HEC is found to be active in terms of awarding grants. However, the presence of highly ignored areas in the educational research is indicative of the fact that HEC does not support the innovative research projects with diverse methodological approaches (Finding: 5.2.21).

11. The applied and practical nature of projects was found in lower proportions compared to the theoretical research projects, which has hampered the capability of the research as a tool to solve the research problems faced by the educational system of Pakistan. This is one of the great weaknesses indicated by this study.

The practical research often involves innovative approaches, challenging tasks and complicated methodological approach to solve the problem. The case studies are important in this way to specifically address the organizational issues. The finding from EDRF data showed the lower use of case study research design which supported the qualitative findings that practical research is not a commonplace in the education departments (Finding: 5.2.28).

12. The SWOT analysis indicated some weaknesses of the Education departments which can actually affect their research productivity and quality of the research. These include scarcity of the research funding, unnecessary delays in graduation, less focus on the innovative and practical research projects, persistence of under-researched areas such as Special Education, Early Childhood Education, Adult Education etc (Finding: 5.2.33).

13. This indicates the great opportunity for the supervisors and researchers to build partnership not only for strengthening the research capability but also for attracting the funds to support research activities (Finding: 5.2.35).

14. The opportunities highlighted by this study for the Education departments in universities are the promotion of research activities in the 'ignored' or 'under-researched' areas, building instructional technologies, provision of research grants and aligning the research with practical issues in the education field of Pakistan (Finding: 5.2.41).

15. The threats faced by the research activities in Education departments in universities ranges from withdrawal of funding to the non-conducive environment. The research activities cannot be developed without addressing the

weaknesses of and threats to Education Departments. The existing strengths can be cemented while further research potential can be built through exploitation of opportunities (Finding: 5.2.44).

5.6 CONTRIBUTIONS OF THE RESEARCH WORK TO EXISTING LITERATURE

This study contributed the important data about the research trends in relation to subject areas and research methods in Pakistan to the existing literature in education field.

This study revealed key characteristics of the research portfolio and potential of Education Departments in conducting the high-quality research in both public and private universities.

This study is the first of its kind to determine the research trends and conduct the SWOT analysis of the research potential of the Education departments in Pakistan. Without building the research potentials in the right direction, the research profile of the Education departments cannot be improved.

Another contribution of this research is to highlight the emerging research areas in Education fields showed with greater reliability through application of mixed method research approach.

For the first time, this study demonstrated the over-researched areas and the under-researched areas in the education field using the document analysis of the past PhD research theses submitted between 2000-2012. These data can contribute to set

the priority areas for shunting the funding to the ignored but important areas of the research.

The policymakers and practitioners will benefit from these characteristics to align the research direction to the effective methodology and the best quality controls to make it more practical and applied in nature.

The key contribution of this study appeared in form of highlighting research gaps in different areas of education such as early childhood education, adult education, sports education, quality assessment of teachers training and special education. These areas were not researched extensively.

This study does contribute to the existing knowledge relating to the quality of research, trends in educational research and opportunities to improve the educational research at the Pakistani universities.

5.7 RECOMMENDATIONS

Based on the findings of this study, the following recommendations can be made for the Departments of Education in Pakistani universities and supervisors, and for HEC based policy makers dealing with improvement in quality and impact of educational research quality in Pakistan.

5.7.1 Recommendations for Departments of Education and Supervisors

1. The research activities may be promoted in the ignored areas of the education research such as adult education, early childhood education, special education, crime education, sports education and elementary education. The special interest groups with Education Departments can be established and promoted through

funding and privileges to motivate the supervisors and students to conduct research in these areas.

2. The mixed method-based research design involving both quantitative, qualitative and the use of more than data collection instruments should be promoted within Education Departments. These methodologies are successfully being applied in the research projects of the practical importance (Mertens, 2014); and they are known for increasing reliability and validity of the findings. Therefore, mixed method approach may be incorporated in all research projects of particular and applied nature.

3. The Departments of Education and supervisors can work in collaboration to train the students in handling the complex data sets and applying the state of the art statistical tools such as ANCOVA, regression analysis and Pearson test which provide the opportunity to researchers to engage with the research data in different ways.

4. The use of qualitative study is recommended for the project which has research problem closely related to the organizational individuals and community members. The issue cannot be improved without input from their experiences and opinions. Such projects may be designed to suggest the solutions fit to the expectations and wishes of the organizational people. Many other studies support these recommendations.

5. Quality in education research was noted as a critical challenge in Education Departments. In order to address this issue, the quality assurance mechanisms, the justification of the research design, authenticity of the findings, correlation

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between the research issue and aims and compatibility of the research design with the research aim/objectives, will reduce the quality errors in the educational research.

6. The weaknesses and threats provided in the SWOT analysis section of this study should be minimized by using the strengths of Departments of Education in educational research areas for increasing quality, innovation and practicability of the research across all layers of society.

7. The opportunities provided in SWOT analysis may be exploited by the supervisors, policy makers and departmental leadership of the Education Departments in universities to build their research capabilities and reputation in the research via publications.

5.7.2 Recommendations for Policy Makers

1. The policy makers and practitioners may enhance the level of funding to the research projects in Education departments because the research activities in Education field will ultimately lead to the educational development which consequently impacts the economic growth of the countries through fulfilling the skills and knowledge needs of the industries.

2. Partnerships between the Education departments in private and public sector and collaborations between Departments of Education and NGOs may be promoted so that newly emerging private sector in education can benefit the expertise and experience of public sector universities, and funding can be attracted from the private sector to boost the research activities.

3. The general educational leadership committees may be established at Education departments which should relay the important finding to the relevant stakeholders in education field. These measures will inform the stakeholders of the latest developments in the Education field and allow them to implement the findings to improve the processes and functions in the educational field.

5.7.3 Recommendations for HEC

1. The PhD theses uploading should be done carefully on the e-portal of HEC, because a Master level thesis was discovered at the research e-portal which was done by mistake. Such mistakes may give misleading information about research productivity at PhD level in Education.

2. The innovative and practical research projects may be given priority by HEC and other funding agencies when it comes to funding the research projects in Education, the only novel and practical projects can address the social and educational issues.

5.7.4 Recommendations for Universities

1. The Arid University has showed higher research productivity among all public and private universities in Pakistan; however, the Department of Education stopped the PhD research-based programs, which drastically affected the research productivity in Education. The Education Department mostly focused on school education. It is recommended that Education Department of Arid University should start PhD level programs and focus on the mystical education, early childhood education in order to address the research issues in these subject areas.

2. After the Department of Education at Arid University, Department of Education at Punjab University produced higher number of PhD theses in the most of subject areas except theses in Islamic education, educational leadership, and educational philosophy. The Education Department of Education should focus on the ignored areas of subjects in order to promote healthy and balanced research environment in Pakistan.

3. The faculty of Departments of Education at the Punjab University and International Islamic University are experienced with high-quality research publications. They should collaborate with public universities and private sector universities for promotion of research works in the ignored areas.

4. International Islamic University was developed on grounds of Islamic ideology, however, surprisingly; there is no research work on moral, mystical and Islamic education. The IIUI should consider fir developing a separate Islamic Education Department, and play a pioneer role in conducting and leading research groups in Islamic Education in Pakistan.

5. AIOU, Islamabad only produced PhD theses in distance education and online learning. The research work in elementary childhood education in the age of digital technologies should be promoted to add to the limited literature on these subjects in Pakistan.

6. Department of Education at University of Karachi mostly focused on special education, but there is very limited research contribution towards other areas of research such as Islamic education and educational philosophy. Therefore, Department of Education at Karachi University should encourage and promote

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healthy and balanced research approach towards the ignored research areas. NUML should focus on history and linguistic education.

7. University of Sargodha, BZU (Multan), University of Sindh, University of Education Lahore showed limited research productivity in all research areas. These universities should encourage research works at PhD level in all the educational areas for improving the overall ranking of Pakistan in educational research.

8. Gomal University (Dera Ismail Khan) promotes research in sports education only; therefore, faculty members may consider propagating research in other fields of education such as educational psychology and children education.

9. Hamdard University Karachi mostly focused on teacher education and secondary education; therefore, there is a need to conduct research activities in the ignored areas.

10. Jinnah University for Woman Karachi conducted research work on the educational psychology and gender education. Faculty members may take up students with research proposals in other areas of education.

11. Foundation University Islamabad conducted research work on comparative and higher education, therefore, the innovative research projects in the ignored areas such as administrative education, leadership education and early childhood education.

12. Department of Education at the Qurtuba University of Science and Information Technology, Peshawar, only focused on producing some research work on Islamic Education, but there is no work on other areas such as crime education, moral

education and educational philosophy. Therefore, the researcher recommended for the Qurtuba University of Science and Information Technology to carry the research activities on the ignored areas of educational research for effective contribution to resolve practical issues in education in Pakistan.

13. Department of Education at Sarhad University of Science and Preston University from private sector just worked on teacher education, and supervisors should consider supervising research projects in the ignored research areas.

14. In addition, it is recommended for departments of Education in all Pakistani universities to apply the mixed method research in different educational research topics, so that the issues under investigation can be analysed from multiple perspectives and reliable outcomes can be reported in educational literature.

The findings and recommendations outlined in sections 5.5 and 5.6 are summarized in the table 5.1.

Table 5.1

The findings and recommendations outlined in sections 5.5 and 5.6 are summarized

Theme	Finding	Recommendation
Areas of Research	Some areas seem to be neglected. These include areas related to subject curricula and teaching, special education, early childhood education, planning and management and leadership. This may simply reflect the areas of interest of PhD students which in turn reflects their educational experience (or lack of experience).	There is a need to recruit PhD students from those with practical experience in specific areas and to second them from their teaching posts for 3 years, with adequate funding. or by developing part-time (5 year) PhDs for practitioners.
Research Classification	Analysis shows some approaches are more common than others, with quantitative more common	The approaches may simply reflect the experiences (or lack of) of supervisors and is not a major issue.
Research Methodology	Some approaches are found to be more common than others.	The approaches may simply reflect the experiences (or lack of) of supervisors and is not a major issue.
Statistics	Some statistical techniques are found to be more widely employed than others	Education research, like any research area, will generate certain types of data requiring predominantly specific approaches. Of greater importance is to check that statistical approaches are selected and employed correctly.
Measurements	There was a tendency to use a limited range of measuring devices, such as MCQs, questionnaires, interviews.	A practical way forward to widen approaches would be for HEC to fund and develop a short monograph, based on a wide literature review, which outlines a wider range of approaches.
University Involvement	Patterns of growth and development across universities were observed.	This looks encouraging but it has to be asked if endless growth is a wise use of resources.
Faculty Opinions	The view was expressed that Education Faculties were encouraging originality, critical thinking, innovation and encouraging talented researchers.	A study - maybe a PhD study - might be useful to see if this is actually true! Opinions from within faculties may or may not reflect the reality of what is happening.
Funding	The input from HEC is applauded but the question is raised if it is finding the nest appropriate research	The pattern is to find projects. A better way would be to find people, on the basis of their past track record. Specifically, the funding of experienced teachers on the basis on sound academic background and outstanding teaching might be a useful way forward.
Management Issues	Faculty identified frustrations in management and organisation aspects of PhDs	It is the task of individual universities to set up tight procedures in terms of time and supervision arrangements.
Supervision	There is an opinion that partnerships and supportive environments would assist research supervision.	Given the lack of evidence that supports this, it would be useful to establish the specific ways potential supervisors need support and to develop supportive mechanisms at a national level (perhaps by means of training and monographs)
Quality of Research	Although many were doubtful that quality was good enough, there is a failure to recognise that quality is very difficult to describe in any operational way.	The issue of quality is so complex that this is not really a helpful way to go forward. At the moment we have no clear agreed parameters by which to measure quality.

5.8 SUGGESTIONS FOR FURTHER RESEARCH

1. Comparative Analysis of Educational Research Trends in Public and Private Universities of Pakistan can be performed to obtain the cross-sector research trends.

2. Comparative Analysis of Educational Research Trends by Male and Female in Public and Private Universities of Pakistan can be conducted in order to assess the comparative participation and contribution of both genders in the research activities.

3. Longitudinal Analysis of Educational Research Trends in Public and Private Universities of Pakistan should be done to capture the attitude of researchers and supervisors towards the application of different research approaches and research topics.

4. Year wise study of educational research trends in public and private universities of Pakistan would be analysed to take snapshot of research activities and topics investigated in doctoral level research.

5. University wise study of educational research trends in education departments of Pakistan should be performed by the future studies.

6. Comparative Analysis of Educational Research Trends in Pakistani and Developed Countries Universities should be conducted by the researchers.

7. The future studies should explore the perceptions of students and teachers as to what extent the literature review chapter in doctoral theses help them to formulate the research questions and select the robust research methods. It will be interesting if the future studies should explore the following research questions:

Why those educational leaders and managers (and, indeed, most education faculty staff, if we are honest!), do not take the findings of research seriously but prefer to work according to their own personal experiences?

8. The future studies should also try to answer the following research questions: In what ways is the way educational research is conducted so different from the highly successful programmes of research in major disciplines like the sciences, mathematics, medicine and technologies? What changes should be made in the research activities at educational departments in Pakistani universities?

9. A further study of PhD dissertations to look at following research question: what has been implemented and why implementation is not taken seriously anywhere?

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Education Dissertation Research Form (EDRF)
A - Identification Code
1. Thesis Title: .... 2. Author's Name: .... 3. Gender:...................... 4. Author's University.. 5. Year of Degree..... .... 6. Nationality......................................
B – Classification of Educational Research
By purpose   **By method**   1.   Basic Research ( ) 3. Action research ( ) 1. Historical research ( ) 3. Experimental ( )   2.   Applied Research ( )   2. Descriptive research ( ) a. Survey ( )   b. Case Study ( ) c. Content Analysis ( ) d. Trend Study ( ) 4. R&D ( )
C - Areas of Educational Research
1.   Teachers education   ( )   b. Mental/emotional retardation ( )   a.   Teachers training and development( )   c. Speech and hearing impairments( )   b.   Teacher-student education ( )   7. Higher Education ( )   c.   Quality assurance ( )   8. Educational Assessment ( )   2.   Science education (Chemistry, biology, physics, maths ( )   3.   Educational Psychology ( )   9. Educational Administration ( )   a.   Child development ( )   a. Leadership, b. Management, c. Planning( )   4.   Curriculum Development ( )   10.Primary Education ( ), a. ECE ( )   5.   Comparative Education ( )   11. Elementary Education ( )   6.   Special Education ( )   12. Secondary Education ( ) 13. Educational Technology( )   a. Deaf-blindness ( )   14.   DNFE ( ) 15. Educational Sociology ( ) 16. Others.....
D - Research Methodology (Data Type)
1.   Qualitative ( )   2. Quantitative ( ) 3. Mixed Method ( )
E – Sources of Data
1.   Primary data Source (documents, journals etc) ( )   2. Secondary Data source ( )
F – Data Collection Tools
1.   Interviews ( )   5. Multiple choice questions ( )   2.   Achievement tests ( )   6. Semi-structured questionnaires ( )   3.   Attitude/perception/personality/and talent tests ( ) 7.Structured-questionnaire ( )   4.   Open ended questionnaire ( )   8. Other ( )
G - Methods for distribution of Questionnaire
1.   Personally visit ( )   3. Email ( )   5. Monkey Survey ( )   7. Other ( )   2.   By post ( )   4. Online ( )   6. Face-to-face ( )
H – Sampling Technique
1. Probability Sampling   2. Non Probability Sampling   (i) Random ( )   (ii) Stratified ( )   (i) Convenient ( ) (ii) Purposive/ Judgemental ( )   * Proportionate * Disproportionate   (iii) Snowball ( )   (v) Quota ( )   (iii) Cluster ( )   (vi) Systematic ( )   (vi) Accidental ( )
I - Data Analysis Techniques
1.   Chi Square ( )   3. T-test/ Z-test ( )   5. ANCOVA ( )   7. Others ( )   2.   Mean/percentages ( )   4. ANOVA ( )   6. Regression Analysis ( )

SWOT ANALYSIS OF TRENDS OF EDUCATIONAL RESEARCH IN PAKISTAN

Semi Structured Interview for Research Experts

I know you are very busy and we value your input highly. Thank you so much for agreeing. So help in this research work. The following set of questions will help me get a better understanding about your experience in this research work. Your answers will not be released to anyone.

Section A – Profile

Name:...

Institute of
Affiliation:...

Qualification: MS/M.Phil, PhD, Post Doctrate, Professional Qualification............................

No. of Publications: ....

Minimum supervised 05 PhD students and 10 MS/ M.Phil Students

Section B

1.   What are the current researches projects being conducted by you?
a)   1   b) 2   c) 3   d) 4   e) 5

2.   How many PhD research students have you supervised during your research career?
a)   05   b) 10   c) 15   d) 20   e) 25   f) any other number............

3.   Which research methodologies are applied commonly by your research group in order to address the research questions?
a)   Qualitative   b) Quantitative   d) Mixed   e) any other
4.   Do you think the current research methodologies are adequate enough to address the complex research questions in educational research field?
a)   Yes   b) No   c) comments if any
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5.   What are the current problems and research questions prevalent in the educational research?
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6.   What are the emerging research topics/themes in the educational field which can be followed by future researchers (state up to five)?

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7.   What is your opinion about the role of HEC in funding the educational research areas?

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8.   What are the gaps in the educational research conducted in Pakistan?

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9.   What would you suggest to improve the gaps in the research areas?

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10.   Please comment on the usability of research work conducted in last 10 years in terms of its implementation for improvement of educational processes of concerned institutions.

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11.   Please suggest the five recommendations for practitioners in the educational field, which can be pursued in order to improve the quality of research work.

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12.   What are the major strengths of educational research in Pakistani universities?

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13.   What are the gaps associated with current research trends in education in Pakistan?

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SECTION C

What opportunities are present for practitioners and researchers in the educational research areas? Please tick all possible options and give answers

Strengths of Educational Research

14.   Choose from the list of competitive advantages which you think are possessed by education department in terms of promoting research
a)   Innovation   b) premier faculty   c) highest level of experience d) national leadership in educational research e) originality
15.   What kind of research your department is conducting in education field?
a)   mainly empirical research   b) theoretical research   c) research with practical implications   d) none of above

16.   What are the core competencies in the field of educational research in the education departments?
a)   All students are required to do the research
b)   Students learn in self-directed way
c)   Students learn in supervisor-dependent way
d)   Others..

17.   What impact your educational research is making?
a)   Improving small group teaching
b)   Enhancing student-directed learning
c)   Building leadership and teamwork
d)   Affecting governmental policies regarding the propagation of education
e)   Promoting critical thinking through instructional approaches

18. What do you think are the salient features of education department in your university?

a)   Winning research grants
b)   Promoting practical research
c)   Recruiting the talented researchers
d)   Graduating research students in timely manner
e)   Promoting innovation in the research

Weaknesses

19. Which areas do think the department of education is lacking in your university?

a)   Partnerships with government and private entities for purpose of research
b)   Research funding opportunities
c)   Support for instructional technology
d)   Support for educational research and development

e)   Inability of research supervisors to fulfil their research obligation towards PhD students due to teaching burden

20. In which areas the education department in your university is performing poorly?

a)   Promoting research in curriculum development
b)   Promoting research in teachers development
c)   Promoting research in special education
d)   Promoting research in science subjects
e)   Focusing on the management and business aspects of educational research

21. What improvements can be made to raise the research profile of education department in your university?

a)   Building technology infrastructure
b)   Building course management software
c)   Focusing on long-term outcomes building research aptitude and novelty in ideas of the researchers
d)   Others.…………...

Opportunities

22. What are the beneficial trends do you think the education department should continue in educational research?

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23. Which categories of the educational research should be targeted by education department of your university?

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24. Do you think there is any need of building new technologies to facilitate research process in the department of education in your university?

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Threats

25. What are the main obstacles in the way of conducting educational research in your department?

a)   Problem of funding   b) lack of support from colleagues   c) less conducive environment in department for research   d) lack of research aptitude in PhD students e) Lack of partnerships with other universities

26. How the current economic conditions of country can affect the educational research you are trying to conduct?

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27. How would you like to compare your research projects with those of others in your department?

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28. What are major threats do you think Pakistani educational research system is facing?

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THANKS A LOT

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Department of Education

International Islamic University Islamabad

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Mobile# +923007447144

LIST OF DOCTORAL DISSERTATIONS (THESES)

(Note: This List of Doctoral Dissertations/References (Theses) is According to Years)

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