

A Study of Distinguishing Operative TQM Factors in Public Sector Universities of Pakistan

Tanzeela Urooj



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Abstract

Universities all over the world are accepted as up-to-date hubs for higher education. For that reason, many of the higher education organizations strive to meet quality fundamentals, as quality makes an organization more effective, innovative, and adds credibility to any organization with absolute advocacy, ultimate benefits, and aids to continually improve the organization.

Therefore, this research study was done to explore the distinguishing operative Total Quality Management (TQM) factors operating in the Public-Sector universities of Pakistan; the seven TQM factors were Vision, Mission and Values, Leadership, Leadership Team, Monitoring of Programs process and performances, Curriculum design and Delivery, Student selection support and assessment, and Continuous quality improvement. The prime objectives of this research study were to study Public sector universities of Pakistan that are committed towards Total Quality Management for sustainable growth of quality education and quality management of the organization, and to prospect ways for continual improvement of the Pakistani higher education organizations.



I dedicate this work to my parents; they are always continued to be a great source of inspiration for me. May Almighty Allah bless them with high ranks in Jannah.



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CHAPTER ONE

INTRODUCTION OF THE STUDY

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1. INTRODUCTION

To adhere to the preferences of 21st century, higher education institutions are focusing on quality education and quality management to bring change and innovation in the society (Khan, 2012). In recent times, changes are rapidly taking place in the field of humanities, applied, social, natural and formal sciences. Speedy growth of cutting edge technologies is arousing higher education institutions (McDonough, Braungart, 2002) to cope with the emerging demands of the present times (Compact, 1999). These increasing demands stimulate higher educational organizations to convert colleges and universities in learning organizations (Orr, 2002), where individuals can get high quality learning that leads them to higher earnings and supports them to reduce level of unemployment alongwith other social issues within the society. First world conference was held under the forum of United Nations Educational Scientific and Cultural Organization (UNESCO, 2006) in March (UNESCO, 1998) on status and significance of higher education, wherein it was argued that there must be provision of higher education across the borders as higher education plays an important role to build capacity and advance lives of nations to meet 21st century challenges (Patricia and George, 1997), (Mustard, 1998).

“In the early 21st century, higher education has become a competitive enterprise. Globalization has already influenced higher education organizations intensely and induces other organizations in the world to compete as competition always drives to achieve technological and economic



progression universally.” (UNESCO, 2009)

To highlight the significance of higher education (Mishra, 2006) quoted (Barnett, 1992) very accurately who provided inspirational views about higher education. According to him, higher education 1). helps to prepare skilled and qualified manpower; 2). develops academic/professional life and transmits quality research culture; 3). empowers humans to meet competitive requirements with high spirit and dedication; and 4). provides means to extend life experiences and development processes through continuing education. Likewise, (Cortese, 2003) underlines importance and advantages of higher education in creating balanced society as follows: 1). It assists to improve learning for all (inside and outside higher education); 2). It serves as an imperishable model that supports individuals for citizenship and livelihood; 3). It increases economic and social status worldwide; 4). It puts sincere efforts to foster skills and competencies (knowledge acquisition, innovation, problem solving, team building and communication skills) required to transform the society. In the same way (Allen, 2010) claims higher education as a pragmatic ability and inquiry based learning delivered to the individuals to create healthy and sustainable society (Chronicle of Higher Education, 2000).

By foreseeing importance of higher education, higher education institutions now striving to implement philosophy of Total Quality Management (TQM) to improve their quality of education, management and institution (Owlia and Aspinwall, 1996-1997) and improve the educational processes and programs (Jashim-Uddin, 2008). According to (Vroeijenstijn 1995) the concept of quality in higher education is not new; it



is as old as higher education be existent. Similarly, (Sallis, 1992) claims that the concept of quality or philosophy of TQM is not new in the realm of higher education institutions, it was there; hence all ancient universities existed in the world are the great examples, as these universities always focused on their strategic plans, outputs, academic staff, teaching and learning processes and program of studies and determined towards enhancements, reforms and developments to bring change and innovations. Conversely, (Geddes, 1993) claims that TQM is a new term in higher education, as recent era demands more efficient and zero-defect system of education. However, growing demands of changing society structures, mass economic rates, job requirements needed to work on quality of educational processes, academic and administrative staff and design and delivery of program to answer complex questions (Jusoh, Yusoff and Mohtar, 2008), (Kai, 2009), (Zabadi, 2013). Therefore, most of the universities around the globe is focusing on TQM philosophy to enhance and maintain excellence of all its functions (Vught, 1991), (Lardizabal, 2000) and for the accreditation and audit of institutional procedures and the monitoring of educational processes (Sudha, 2013). Moreover, (Cullen, Joyce, Hassall and Broadbent, 2003) also highlighted importance of higher education and role of TQM in higher education institutions. According to them, higher education is vastly influenced by TQM philosophy and claimed to be applied on all functions of higher education, because it is quality oriented focused approach aimed to enhance governance, productivity, service delivery and improvement. Thus, TQM becomes indispensable for higher educational organizations, to focus on quality as TQM plays an important role to increase efficiency and functional quality of higher



education (Hall, 1996), (Zubair, 2013). At present, many of higher education institutions are striving to implement or have been implementing TQM theories and frameworks worldwide to managing and improving the performance of educational system, especially in UK, USA, Australia, Norwegian and Nordic countries (OECD, 2014). Quality envision as heart of the education fairly influences quality of management, products in the form of brilliant students (how well they perform and learn), delivery of programs, learning outcomes, and services for continuous improvement of higher education. It also assists to achieve predefined strategic goals, and serves as an instrument to accredit educational processes and performances by evaluating academic and administrative staff and quality of results/outputs or meeting vision and mission of an organization (UNESCO, 1998), (Harvey and Williams, 2010). There are five concepts specified by (Harvey and Green, 1993) to understand the philosophy and aspects of quality in higher education. They described quality as exceptional means; it cannot be achieved by every organization, only organizations with unique and outstanding characteristics can achieve level of excellence. Quality as transformative, transforms teaching and learning processes and empowers learner's ability to grasp more knowledge and seek more competent skills. Quality as value for money, means it supports organization and students both to enhance efficiency and achieve effectiveness at the lowest possible cost. Quality seeks for zero-defects, it efforts to control and refine academic processes and administrative functions at that level where there is no fear of defects. Quality is highly acceptable in higher education institutions, as it works for perfection and purpose; it enables an organization to achieve its predefined quality statements and raises its



academic quality standards (Koslowski, 2006), (EUA, 2006) that are globally acceptable (Bogue, 1998). Therefore, integration of TQM into higher education becomes a need of every university as TQM benefits universities at large scale (Bernbaum, 1992) by defining mission/goals and by guiding academic and administrative staff related to educational management, planning, resource allocation, curriculum development, student learning and institutional improvement (Harvey, Green, 1993), (Yusof and Aspinwall, 2001), (Zabadi, 2013).

TQM becomes need of the present times to combat with highly competitive and transitional world (Sudha, 2013). It becomes mediator to shape the quality goals of higher educational institutions in favor of all stakeholders to satisfy them. Fundamentally, TQM is a set of guiding principles and a quality philosophy used to manage quality of an organization (Dale, Van, Iwaarden, 2007). TQM is quality metric or criterion to achieve excellence in educational functions as TQM is the best management technique to achieve excellence in all affairs (Mani, Murugan and Rajendran 2003). (Boaden, 1997) identifies TQM as a new paradigm of human resource management that supports a system through inspection and continual improvement. To support statement of (Boaden, 1997), (Radnor, 2000) describes TQM as quality of management that involves self-assessment and inspection of every activity through quality monitoring for organizational development. Moreover (Ugboro and Obeng, 2000) described TQM as an approach that supports organizational affairs and put optimal efforts to satisfy the customers, as core component of the TQM philosophy (Anderson, Sohal, Terziovski and Samson, 1999). TQM is a scientific process that serves



organizations to achieve long-term objectives by providing best services to the customers (Zhang, 2000), (Julius and Nin, 2006), (Jeffries and Lee, 1996). TQM is universally proved institutional approach used to provide quality education/training and satisfy requirements of customers and all other stakeholders; simultaneously TQM provides several ways to improve quality of management and (Mohanty and Lakhe, 2002) through staff training and development that may purposefully enhance the contributions for the settlement and effectiveness of organizations (Yasin, 2004).

2. Rationale of the Study

The upsurge of TQM in higher education institutions (Zairi and Ali, 2005) is getting more attention to encounter global challenges, since TQM becomes burning desire of the 21st century and it has been implemented by the universities worldwide as 21st century is the century of demographic trends and modernizations (Barnett, 1992), (Rubach and Stratton, 1994). Therefore (Rehman, 2001) stressed that higher educational institutions in Pakistan must be keen towards global market trends and undertake 21st century challenges seriously and give careful attention to accelerate knowledge economy to strengthen the nation by developing their skills (Batoool and Qureshi, 2007) to bring productive and provocative changes in the country. By seeing upcoming demands of the time and acknowledging higher education as an engine of growth for knowledge economy and socio-economic development of Pakistan, Atta-ur-Rehman on the support of the then President Musharraf (2002) took courageous steps to establish a distinctive organization to run the system of higher education of Pakistan efficiently named as the Higher Education Commission of Pakistan (HEC). Like other



international quality control institutions, HEC works hard to fulfill the needs and requirements of Pakistani nationals and is willing enthusiastically to harmonize academic and professional programs (Zubair, 2013) by following TQM philosophy to impart quality education and to construct standardized higher educational institutions across the country (Ahmed, 2012). For this purpose, following cognitive steps, *inter alia*, were taken by the HEC:

- Gauging the quality of higher education;
- Development of internationalized level of education;
- Standardized academic/professional programs;
- Advancement of the human recourse capital/management;
- Provision of foreign and indigenous scholarships;
- Enrich the research culture;
- Increase of ratio of information and scientific technologies, etc.

Additionally, HEC established an agency known as Quality Assurance Agency (QAA) (2005) to control and promote the quality culture as other organizations do worldwide to control organizational processes, to evaluate organizational failures/accomplishments like “CHEA” developed by the United States of America, “QAAHE” by United Kingdom, “AUQA” by Australia, “NBA” by India, Malaysian Qualification Agency (MQA), European Foundation Quality Model (EFQM) and European Association of Quality Assurance (ENQA). In (2006 QAA) widened spectrum of



responsibilities and took step to originate Quality Enhancement Cells (QECs) with the objective of supporting and strengthening internal processes of the universities. Official website of HEC indicates that there are 130 QECs are functioning for the promotion of quality culture in the public and private sectors universities countrywide. QECs are responsible to assure quality of organizational policies, programs/processes and uniformity of pace and standards across the Pakistani universities. Moreover, by recognizing the significance of the higher education, QAA of HEC introduced and established Institutional Performance Evaluation standards (IPE) to evaluate Pakistani universities in respect of quality of services, teaching, learning, research and other relevant activities administered by the universities. The main purpose of IPE is to develop high standards of quality in the universities and to assess performances of each university about the quality standards set by the HEC and that the academic activities are harmonized with the HEC standards. By determining value of IPE's seven factors were selected with the support of Malaysian qualification framework initiated by the MQA for this research study. For this research study seven distinguishing operative factors were nominated from them to be studied within the orbit of TQM. Brief description of each factor is given below.

2.1 Vision, Mission and Values

Vision, mission and values are critically important and have effective and functional role in the organizations as mission vision and values consider as inspirational tools that provoke organizations to gauge the success (Aspinwall, 1997), (World Bank, 2006), (Zubair, 2013). According to American Society of Quality (ASQ), mission, vision and values are dynamic beliefs, code of conducts and organizational policies or goals,



formulated by the top-management or leadership by involving all pertinent employees, by keeping in view organizational resources, achievement power, availability of qualified workforces, for the deployment of established policies to reach ultimate objectives. Vision defines future identity of an organization. It is rational and realistic statement, an achievable aspiration or idealistic projection (Bratianu and Balanescu, 2008), in indeterminate time or future. It is about what an organization might be and might attain or accomplish with the guidance and support of visionary leadership and dedicated employees. While mission is an anticipated responsibility of the organization, it describes a way how vision will be attained; it signifies the reason of organization's existence; on the other hand, values define actions, it symbolizes about organizational people how they are expected to behave with each other, how they value customers and their management suppliers and what traits and qualities are required to behave with them, during the working time and after (Bratianu *et al.* 2008), (Papulova, 2014). In educational institutions, vision, mission and values may work more coherently, as in educational institutions these are framed based on national aims of education and quality targets; every organization sets its plans accordingly, for the provision of quality education or services to the community (Sian, 2010), (Ozdem, 2011). Vision, mission and value statements are deemed aspects, accountable for technical improvements of organizations, require long-term efforts and host conditions for sustainable development of all functions of an institution, leadership and other associate bodies, playing basic roles towards development, deployment and accomplishment of them (Richardson, 1997), (Zhang, 2000). These are futuristic approaches that may empower higher



educational institutions to work for economic growth and development of mature society (ENQA, 2009).

2.2 Leadership

An effective leader is a competent person, who constructs an inspirational vision, sets activities and motivates employees/workforces to achieve vision, he or she plays vital role in the ultimate achievements and failures of an organization (Zhang, 2000). Leaders envision the future of an institution (Pilar and Gon, 2009), leader is a key ingredient of support, commitment and guidance (Atkinson, 1990). While leadership is the ability to understand position, roles and responsibilities to accomplish organizational vision and goals with dedication and agility (Samir, 2003) and (Zakuan, Muniandy, Zameri, Ariff, Sulaiman, 2012). The role of leadership varies from institution to institution in business side, it might expect from them to be committed towards manufacturing of quality products or establishment of corporate networks throughout the world (Salaheldin, 2009), (Alharbi and Yusoff, 2012); while in educational settings their position and commitment is more sensitive and significantly vital (Fredendall, and Cantrell, 2009). Leadership or top-management are beachheads who may act as senior management (VCs, Registrars, Deans or Heads of departments) of universities and key persons in implementing TQM philosophy and its principles within educational operations and events (Bayraktar, Tatoglu and Zaim, 2008), (Asif, Khan and Ahmed, 2013). Though, quality is responsibility of everyone in the institution, however, leadership has critical importance for managing change, improving competitiveness and effectiveness of the institution along with quality of education (Buch and Rivers, 2002), (Burgoyne and James, 2001).



Leadership develops value system that strives for quality in both directions product (student) and educational services (Campbell and Rozsnyai, 2002). Leadership ensures quality of education through quality assurance techniques, change organizational culture, and ensures interest, involvement and participation of all the employees to reach both educational and organizational objectives (Creech, 1994), (Cortese, 2003), (Cartwright, 2007). Leadership contributes to policy and planning session, communicates with partner organizations, quality assurance agencies, manages quality of information and financial system, allots budgets for goods and process invoices, liaises with other managerial staff, provides administrative support to academic boards and teams, tasks groups for the maintenance of high level of quality assurance of education and educational processes, course evaluations and subject-matter approval procedures, participates actively in the development of future of organizations and facilitates several social or educational activities, (Dollery, Murray and Crase, 2006 ,Venkatraman, 2007, Dew, 2009 and Verma, 2014).

2.3 Leadership Team

Leadership team is an essential component and asset of any institution. Leadership team may play various roles and fulfill responsibilities for the achievement of organizational vision, mission and values (Gabcanova, 2011). Leadership team is considered as driving force of an organization as it put its altruistic efforts to get maximum outcome and competitive advantage (Al-Khalifa and Aspinwall, 2000). Leadership team, academic staff, employees, workforces, labor or human resources are often used synonymously as all the words used for the staff members who put their efforts equally to achieve the set goals of an institution, they take initiatives, direct,



manage, influence and bring new paradigms for quality management and improvement of an institution. In educational institutions, leadership team consists of academic and administrative staff and other group of representatives/committees that vary from institution to institution. Leadership teams work together in different locations, situations and settings with a common interest and collective goal as goal is very important and fundamental element to achieve total quality results (Crosby, 1988), (Leonard, Graham, Bonacum, 2004). By using their entrepreneurial skills and abilities, employees satisfy social needs and produce better solutions of the problems (Kumar and U.C, 2010) through unity and strength to overcome complications/hindrances (Bradford, 2003) to make an institution quality oriented institution. In total quality institution, leadership team creates synergy, creativity, promotes flatter structures and encourage multi-disciplinary work by removing constraints through daily based monitoring and evaluation of performances (Dale, Van Der Wiele and Van Iwaarden, 2007). Strong leadership teams provide multiple advantages and put an institution in better situations, address issues in time from multiple perspectives and make improved and informed decisions by fostering sense of achievement and responsiveness (Halpert, 2001), (Bill, 2014), (Matlhope and Lessing, 2002). Basically, team is a key factor and an essential element of TQM, and the teams provide their services and formulate quality plans in an effective and efficient manner for the quality management of an organization. In educational organizations, there are two types of teams working together; one is administrative leadership team and another is Academic leadership team. Both play their diverse roles and



responsibilities for the provision of quality education and management (Brennan and Shah, 2000).

2.4 Monitoring of Program, Process and Performances

Monitoring is a basic step of evaluation and systematic collection of facts and figures to know the management and all other stakeholders, about degree of progresses, achievement of the program and organizational objectives. Monitoring of programs, processes and performances is an assessment of how well the higher education organizations are working, how deep academic and administrative staff perform into workings of organizations and is dedicated towards services, and what preventive measures they are taking for the assurance and improvement of the quality. It is a continuous process that determines the relevance, effectiveness and impact of quality initiatives being taken in the educational organizations through proper inspection and observations (Hoover, 2009). Institutional or educational monitoring is considered as assumption of responsibility carrying towards knowing status of an organization or a study program to take preventive measures for quality assurance of higher education organizations' functions and administrative or management performances (Dollery, Murray and Crase, 2006), (Nygaard and Belluigib, 2011). Monitoring is about gathering indicators or measure inputs, processes and outcomes to inform decision makers about the authenticity of a program or a process for the maintenance or improvement of an academic reputation (Kai, 2009). Monitoring and evaluation in education is focused on quality inputs (Financial, Human and material), processes (effectiveness of teaching-learning and management practices)



and outcomes (learning and quality outputs), (OECD, 2007-2008).

2.5 Curriculum Design and Delivery

Curriculum may refer towards planned series of learning being practiced and skilled by the learner in the school. The term Curriculum is used by many academicians and specialists in two ways: first to specify a plan to educate learners; and secondly to design reflective content dealing with rapid societal changes and needs (Knight, 2001). Curriculum is a course or content of study offered by the educational organization. Curriculum can be both formal or informal process, assists students to gain knowledge and develop higher level understanding about various social and scientific concepts, construct skills, and modify behaviors and values under the auspices of educational organization. It is series of total learning experiences (planned, unplanned activities) and a training to live in social life progressively. (Greene, 1995), (Biggs, 2003). Curriculum or content of study are strategic guidelines, being delivered in the schools, for the learners, subject to provide learning opportunities by dynamic processes (individual development and socialization) for the adjustment of learners with the social environment (Herbert, Dellana and Bass, 1995). Curriculum can be assumed as a vehicle that drives learners to seek unique learning experiences and enables them to seek lifelong skills, experiences to benefit their own lives and multifaceted world (Winn and Green, 1998). Therefore, curriculum should be developed per the needs, interests and capacities of the learners as well as learning experiences should be designed or implemented in a way that could innate potentialities in learners and prepare them for future responsibilities, to cater needs of the society (QAA, 1999),



(Pyle, and Forrant, 2002), (Ornstein and Hunkins, 2009), (Oliver and Hyun, 2011).

2.6 Student Selection Support and Assessment

It is common saying that today's youth (student) is tomorrow's nation; and tomorrow's nation is intellectual and competent students. Students are supposed to play several key roles in the society; and when students are being treated with sense of respect and responsibility, eventually students will live up well and work for betterment of the society. Students' selection support and assessment is an important segment of an educational organization as their proper selections contribute substantially to the society and to their academic/professional fields through teaching, research and professional practices. Efficient schools, well-organized colleges and reflective higher education organizations are responsible for students' progress and advancement; therefore, selection, retention, support and assessment policies or methods should be transparent, and consistent with national education policies, selection criteria should be publicized, and whatever admission process or method is used it must be able to support its standard or criterion. Intake of every student must be acknowledged with well-defined entrance policies and pre-requisite skills required for discipline or domain of study. Simultaneously, organizations must aware the students about the facilities and advance arrangements, e.g. professional counseling, career varieties, achievements, personal developments and ample facilities (food, health, accommodation, finance, safety and transport) by reviewing students' views and their choices about career/personal developments (MQF, 2008), (HEC, 2010). For those reasons, each organization must ensure participation of all students in managerial/leadership experience, social matters



and co-curricular activities, to inculcate a sense of duty, active citizenship and a developed learner (MQF, 2008). However, to achieve total quality, it is also important to assess the learning outcomes by auditing achievements and failures of students, and by using various quality assurance means, formative or summative assessment techniques.

2.7 Continuous Quality Improvement (CQI)

Continuous quality improvement is a scientific method, a management approach or a philosophy that is built on the principle of quality assurance methodology. It emphasizes on processes instead on individuals, and is focused on objective data rather than subjective to analyze and improve the organizational processes. Continuous quality improvement is a management theory which confers that things or processes can be improved, as most problems are found in processes instead of people, so it works on improvement of processes, through incremental changes to meet the needs and expectations of customers (Bayraktar, *et. al*, 2008), (Pandi, Rao, and Jeyathilagar, 2009). It strives for maintenance of quality, and take quality as never ending process (Brah, Lin Ong, and Madhu, 2000) in terms of organizational effectiveness and efficiencies (James, 2006). There are five concepts of quality given by (John, 2009) in the context of higher education; quality as value-added, quality as extravagance stature, quality as conformance to expectations, quality as endurance and quality as continuous improvement. Continuous quality improvement in higher education demands more hard-work, sincerity and devoted efforts of leadership along-with employees for improvement of the processes as well as for identification of the issues and the gaps existing in the organizations. In the framework of higher education, it totally



depends on internal stakeholders/top-management that are accountable for functional quality and stability of the organization. There are four elements, if they are met, successful implementation of CQI can be assured as described by (Lawrence and McCollough, 2001). CQI needs strong commitment of leadership, participation of stakeholders and support from the quality assurance agencies (Chambliss, 2003) for its successful implementation in higher education. CQI is important for higher education organizations to accredit the quality of education and educational processes against national and international benchmarks (Zhiming, 1998). However, creation and promotion of quality culture is not an easy job, as there are a lot of challenges and issues related to internal and external stakeholders' readiness to accept quality (Demirbag et al, 2006), (Jusoh, Yusoff and Mohtar, 2008) (Jalahma and Gallier, 2010).

3. Significance of the Study

The purpose of this research study is to examine distinguishing TQM operative factors, useful for enhancement of organizational efficiencies and effectiveness. This research study consists of seven distinguishing factors 1: vision, mission and core values; 2: Leadership; 3: Leadership team; 4: Monitoring of programs process and performances; 5: Curriculum design and delivery; 6: Student selection support and assessment; and 7: Continuous quality improvement, which may be considered as significant aspects in the educational organizations to focus on to measure their effectiveness and to be aware of their level of quality and services being delivered for the maintenance of total quality management, to maximizing productivity and managing change in the public sector universities of Pakistan in



accordance with the national interest. Overall autonomy of these key performance indicators may be based on philosophy of TQM that may allow higher education organizations in Pakistan to implement their systematic methods for assessing quality of vision, mission statements, administrative and management features, students learning, standardizing course evaluations and to drive continuous improvement for measuring organizational effectiveness and performances. Furthermore, it is the first doctoral study conducted in Pakistan to the best of the researcher's knowledge that centers on imperative and substantial operative factors functioned by the organizations for the creation of super quality products and provision of best services for the effectiveness of organization in the realm of TQM. This research study will provide new insights for the implementation of TQM in the public-sector universities of Pakistan as shown in the literature. TQM philosophy not only increases revenues but ensures higher productivity for the organization that educational customers (students) may want and desire. It works horizontally through the organization, and involves all departments and workforces for the probability and competitiveness of the organization. This research study will positively help administrative/management professionals to enhance understanding about the efficiencies and effectiveness of TQM to integrate its philosophy into academic/administrative activities for fostering the system of higher education in Pakistan. The results of this study will also allow top professionals to know the need of TQM and draw conclusions about the value of TQM efforts within higher educational organizations. This research study will also seek attention of coming researchers and academicians to add more variables to



study by using triangular research approach to increase the effectiveness of higher education organizations in the highly competitive and ever-changing world.

4. Objectives of the Study

This research has been carried out to identify the distinguishing operative factors in various public-sector universities of Pakistan within the orbit of TQM. Accordingly, in the light of statement of the problem, the following research objectives have been developed to keep the research on the right track:

1. To identify TQM operative management factors in the public-sector universities of Pakistan for overall development;
2. To study Public sector universities of Pakistan which are committed towards TQM factors for sustainable growth of quality education and quality management of the organization;
3. To explore differences in opinions about distinctive TQM operative factors between male and female at the public-sector universities of Pakistan;
4. To find out the relationship among different distinctive TQM operative factors at public sector universities of Pakistan;
5. To explore the differences in opinions between sample groups with respect to TQM operative factors at the public-sector universities of Pakistan;
6. To prospect ways for continual improvement of the public-sector universities of Pakistan.

5. Hypothesis of the Study



Following hypothesis were formulated on distinguishing operative factors, operated within the orbit of TQM:

H₀₁: There is no significant difference in the opinion of male and female about distinctive TQM operative factor Vision, mission and values at university level.

H₀₂: There is no significant difference in the opinion of male and female about distinctive TQM operative factor Leadership at university level

H₀₃: There is no significant difference in the opinion of male and female about distinctive TQM operative factor Leadership team at university level.

H₀₄: There is no significant difference in the opinion of male and female about distinctive TQM operative factor Monitoring of program, process and performances at university level.

H₀₅: There is no significant difference in the opinion of male and female about distinctive TQM operative factor Curriculum design and delivery at university level.

H₀₆: There is no significant difference in the opinion of male and female about distinctive TQM operative factor Student selection support and assessment at university level.

H₀₇: There is no significant difference in the opinion of male and female about distinctive TQM operative factor Continuous quality improvement at university level.

H₀₈: There is no significant relationship between distinctive TQM operative factors Vision, mission, and values and Leadership.

H₀₉: There is no significant relationship between distinctive TQM operative factors Vision, mission and values and Leadership team.



H₀₁₀: There is no significant relationship between distinctive TQM operative factors Vision, mission and values and Monitoring of program process and performances.

H₀₁₁: There is no significant relationship between distinctive TQM operative factors Vision, mission and values and Curriculum design and delivery.

H₀₁₂: There is no significant relationship between distinctive TQM operative factors Vision, mission and values and Student selection support and assessment.

H₀₁₃: There is no significant relationship between distinctive TQM operative factors Vision, mission and values and Continuous quality improvement.

H₀₁₄: There is no significant relationship between distinctive TQM operative factors leadership and leadership team.

H₀₁₅: There is no significant relationship between distinctive TQM operative factors Leadership and Monitoring of program process and performances.

H₀₁₆: There is no significant relationship between distinctive TQM operative factors Leadership and Curriculum design and delivery.

H₀₁₇: There is no significant relationship between distinctive TQM operative factors Leadership and Student selection support and assessment.

H₀₁₈: There is no significant relationship between distinctive TQM operative factors Leadership and Continuous quality improvement.

H₀₁₉: There is no significant relationship between distinctive TQM operative factors Leadership team and Monitoring of program process and performances.



H₀₂₀: There is no significant relationship between distinctive TQM operative factors Leadership team and Curriculum design and delivery.

H₀₂₁: There is no significant relationship between distinctive TQM operative factors Leadership team and Student selection support and assessment.

H₀₂₂: There is no significant relationship between distinctive TQM operative factors Leadership team and Continuous quality improvement.

H₀₂₃: There is no significant relationship between distinctive TQM operative factors monitoring of program process and performances and Curriculum design and delivery.

H₀₂₄: There is no significant relationship between distinctive TQM operative factors monitoring of program process and performances and Student selection support and assessment.

H₀₂₅: There is no significant relationship between distinctive TQM operative factors monitoring of program process and performances and Continuous quality improvement.

H₀₂₆: There is no significant relationship between distinctive TQM operative factors Curriculum design and delivery and Student selection support and assessment.

H₀₂₇: There is no significant relationship between distinctive TQM operative factors Curriculum design and delivery and Continuous quality improvement.

H₀₂₈: There is no significant relationship between distinctive TQM operative factors Student selection support and assessment and Continuous quality improvement.

H₀₂₉: There is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Vision, mission and values at university level.



H₀₃₀: There is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Leadership at university level.

H₀₃₁: There is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Leadership team at university level.

H₀₃₂: There is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Monitoring of program process and performances at university level.

H₀₃₃: There is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Curriculum design and delivery at university level.

H₀₃₄: There is no significant difference among different sample groups (VCs, Deans, Registrars Teaching Faculty and students) on TQM operative factors Student selection support and assessment at university level.

H₀₃₅: There is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Continuous quality improvement at university level.

H₀₃₆: There is no significant difference among universities on TQM operative factors Vision, mission and values.

H₀₃₇: There is no significant difference among universities on TQM operative factors Leadership.

H₀₃₈: There is no significant difference among universities on TQM operative factors Leadership Team



H₀₃₉: There is no significant difference among universities on TQM operative factors monitoring of programs process and performances.

H₀₄₀: There is no significant difference among universities on TQM operative factors Curriculum design and delivery.

H₀₄₁: There is no significant difference among universities on TQM operative factors Student selection support and assessment.

H₀₄₂: There is no significant difference among universities on TQM operative factors Continuous quality improvement.

6. Research Methodology

The research design and approach employed is descriptive and quantitative in nature. A theoretical framework was developed to collect content in terms of TQM. An elaborate assessment of prevailing quality management situations in public sector universities of Pakistan was done, keeping in view the research objectives through representative sample of all the public-sector universities of Pakistan. For collection of the data questionnaire was developed which was analyzed and interpreted quantitatively through Statistical Package for Social Sciences (SPSS, 16) as quantitative analysis always supports and facilitates researchers to conceptualize most effective, innovative and advance strategies in favor of universities in dealing with the managements tasks.

6.1. Population

The population of the current research study consists of all the Public-sector universities of Pakistan. There are 74 public sector universities in Pakistan which are acknowledged by the HEC of Pakistan; detailed list whereof is appendix “N” as obtained from the official website of the HEC. According to the database available on the official website of HEC, Islamabad,



25,908 faculty members were working in the public-sector universities and 1,243,040 students were studying in all public-sector universities of Pakistan (2013-2014). All the faculty members and all the students were treated as the population of the research study. The categories studied were based on administrators, teaching faculty and the students

6.2 Sampling Technique

Convenient Sampling technique was used for selection of the data. It's a basic sampling technique which is used to select a sample for study from a population conveniently where subjects are selected because of their convenient accessibility and proximity to the researcher. It's more primitive and mechanical method in which researcher picks representatives from the larger group unbiasedly to draw conclusions scientifically.

6.3 Sample

The sample of the current research study comprised 30 public sector universities, 30 VC's, 30 Registrars, 30 Social Sciences Deans, 250 Teaching faculty and the 1000 students were conveniently selected from the Social sciences and Humanities departments. Department, group, region and university wise details of the sample size had been given in the tables in the chapter 3 under the heading of the sample.

7. Tool for Data Collection

To confirm research and research findings, every research needs to choose between dual methodologies i.e. primary and secondary sources termed as triangulation. There are several standardized methods and techniques included in above mentioned data collection sources such as surveys, questionnaires, interviews, observations, life histories focus group, previous researches, case studies, tracer studies,



administrative studies, longitudinal studies, action researches, letters, diaries, official statistics, government reports, historical and web information and study of archival records (Best and Kahn, 2006) for collection of the desired data. A questionnaire was designed for proceeding research study for collection of data from the selected public-sector universities of Pakistan as questionnaire is economical and suitable tool to obtain and gain the insight and relevant knowledge from institutional administrators, teachers and the students. The questionnaire was distributed into seven parts (1) Vision, Mission and Values; (2) Leadership; (3) Leadership Team; (4) Monitoring of program process and performances; (5) Curriculum design and delivery; (6) Student selection, support and assessment; and (7) Continuous quality improvement. All questionnaire items were developed in the light of TQM philosophy to collect the data. Following techniques were used to examine research questionnaire.

1. Factor Analysis
2. Inter Scale Correlation
3. Items Total Correlation
4. Cronbach's Alpha Coefficient

The questionnaire was also assessed and evaluated by the panel of experts of respective fields for questionnaire's face and construct validity before use. For further confirmation, questionnaire was also examined through pilot study and items were removed having low level of correlation from the questionnaire. Almost data was gathered through personal visits of the researcher in sample universities and emailed research instrument to get filled from relevant persons cross the region as emailed questionnaires permit wide coverage in minimum expenses (Miller, 1991) both in money and efforts.



However, the researcher also requested some representatives of the sample universities especially in the region of Baluchistan and Khyber Pakhtunkhwa to fill up the questionnaires and mail them back to the researcher.

8. Theoretical Framework of the Research Study

The theoretical framework of the research study is mainly based on two quality frameworks that are in use in higher education organizations in Pakistan and Malaysia both, to audit and accredit institutional and program quality. One is IPE developed by the HEC of Pakistan, comprising 11 standards (1- Mission Statement and Goals, 2- Planning and Evaluation, 3- Organization and Governance, 4- Integrity, 5- Faculty, 6- Students, 7- Institutional Resources, 8- Academic Programs and Curricula, 9- Public Disclosure and Transparency, 10- Assessment and Quality Assurance, and 11- Student Support Service) and another is Malaysian Qualification Framework (MQF) framed by the MQA encompassed 9 areas (1- Vision, mission, educational goals and learning outcomes, 2- Curriculum design and delivery, 3- Assessment of students, 4- Student selection and support services, 5- Academic staff, 6- Educational resources, 7- Program monitoring and review, 8- Leadership, governance and administration, 9- Continual quality improvement). Both, quality accrediting frameworks contemplate as strategic aims to standardized performances of higher educational organizations relevance to the national priorities and international benchmarks.

The researcher has sought advice from two frames of references i.e. national and international as source models to confer authenticity to research. Since there are no appropriate quality standards other than IPE to improve Pakistani higher education system; hence national standard was adopted as a base of this



research study. The researcher employed national model to yield framework of present research and to substantiate as to how Pakistani higher education system is working and satisfying demands of 21st century. The researcher has employed international model as the researcher observes similitude between the core criterion of Malaysia and Pakistan as both are situated in South Asian region and employing same variables to upgrade higher education system of their respective communities. Although various other models were available in the literature yet none satisfied the desirability of this research study. Thereupon, the researcher made use of these models to facilitate this study. Both quality models are equally significant to be met by the higher educational organizations for the promotion of progressive learning, rich research culture, to promote quality aspects, to implement TQM and to deliver quality education for the nation building. Therefore, from both of quality frameworks 7 factors were extracted to be studied 1), Vision, mission and values, 2) - Leadership, 3) - Leadership team, 4) - Monitoring of programs process and performances, 5) -Curriculum design and delivery, 6) - Student selection support and assessment and 7) - Continuous quality improvement). Detailed description of these standards is given in chapter 3. Following figure 1 represents theoretical framework of study;



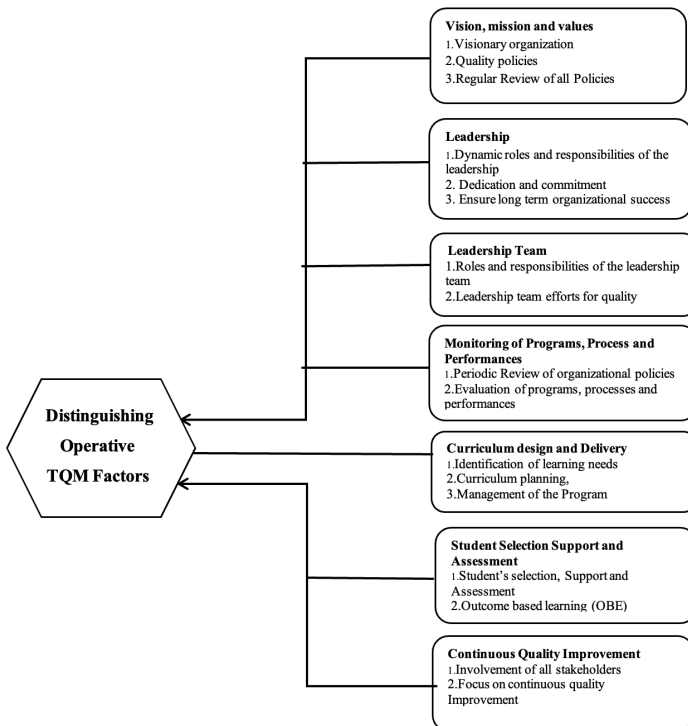


Figure 1: Theoretical Framework

For Interpretation of the data, following statistical techniques were applied:

1. Mean and Standard deviation
2. *t*-test
3. ANOVA
4. Post-HOC test (LSD)

The mean score difference was compared and independent samples t-test was applied to test the hypotheses to find out the significance difference between male and female at significant

level 0.05. To test those hypotheses which were related to correlation by applying formula of Pearson Correlation Coefficient. To compare the difference in seven factors among respondents Vice Chancellor, Deans, Registrars, teaching faculty, students and universities One Way ANOVA was applied.

9. Delimitations of the Study

TQM is the area which requires more discussions, dialogues and profound investigations but due to time, financial constraints and lack of resources this research is delimited to the 30 public sector universities of Pakistan only. The study was conducted to study the TQM operative factors of the public-sector universities of Pakistan; therefore, this research study is delimited to the distinguishing operative factors only. The study is delimited to VCs, Registrars and the social sciences Deans only, simultaneously it is restricted to Social Sciences and Humanities departments teaching faculty and the students only.

10. Ethical Considerations

This research study is designed in view of research etiquettes bearing in mind ethical issues, flees fraudulent and vigilant about authorship matters, plagiarism and duplicate publications; and, to avoid those questions during creation of the questionnaire that can annoy others, can raise eye-brows in the cultural context and against moral codes of the community. The researcher carefully kept an eye on fundamental ethical values including confidentiality, privacy, truthfulness, dedication, good will and any excessive behavior has been avoided. During dissemination of the questionnaire, participants involved in the research study have been fully ensured about their confidentiality by cover-up of their names,



titles, departments and the universities they belonged to support them from any meager situation to save their reputation and evasion from any negative effect.

11. Operational Definitions

Operational definitions include variables terms and objects used in the research study.

Management: It is an act of managing something; it comprises planning, organizing, resourcing, controlling, directing and leading an organization.

Management System: Management system is called structure of the organization that helps to build smooth organizations by organizing, planning, maintaining, controlling, enhancing quality atmosphere monitoring and implementing policies.

Top Management: Top management is recognized as the highest officials of any organization. In fact, top level management consists of administrative bodies/executives who are committed to implement quality policies and devoted to maintain organizational performances, productivity and services.

Quality: Quality means worth, value or excellence. Quality is a distinctive characteristic/feature possessed by someone or something.

Quality System: It's an organizational process focused on quality policies and objectives and attempt to maintain it by achieving quality in organizational procedures, processes and resources by meeting customer's requirements/expectations.

Total Quality Management (TQM): Total quality management is a comprehensive methodology and structured management approach, whereby all the members participate in improving processes, products and services for long term success of an organization.



Quality Policy: Quality policy consists of official papers/booklets mainly developed by quality experts and administrative/management personnel to describe quality goals and duties of an organization to ensure quality in adequate manner.

Quality Plan: Generally quality plan comprises numerous documents or a document that may contain quality standards, specifications, practices, resources and structure of activities related to projects, products and services.

Quality Objectives: Quality objectives are mission and vision statements of an organization which an organization needs to attain.

Quality Control: Quality control is recognized as a set of procedures intended to ensure quality criteria through satisfaction and meeting of requirements of customers of an organization.

Quality Assurance: It is an approach that strives to ensure organizational processes, products and services being delivered in a favorable condition and an organization being achieved desired level of quality in delivery of services and products.

Stakeholders: Stakeholder is an independent party with a concern in something from every walk of life including public and private personnel, agencies and companies that directly or indirectly influence the organization. Basically, stakeholders share their equal interest.

Strategic Planning: Strategic planning is an organizational process that describes control mechanisms, directions and strategies implementation.

Critical Success Factors (CSF): Critical Success Factors are factors which have serious impact on organizational efficiency



and efficacy of processes, products and services internally and externally.

Visionary Organization: Visionary Organization is an organization which has a clearly developed core ideology, shows consistent improvements in its profitability and realizes that change cannot occur unless it has a roadmap to reach its destination.

Leadership: Leadership is the ability of an organization's management to set and achieve core objectives, take expeditious and decisive actions, vanquish the competition, and inspire others to perform well.

Dynamic Roles and Responsibilities: Dynamic leadership is fair and play by the rules, cooperate and build better community, accept responsibility and do what it is supposed to do, cares about others and is considerate and forgiving, models good character, solves problems, fosters positive relationships, manages conflict and educates peers.

Dedication and Commitment: An organization requires dedication and commitment of the leadership and other managerial staff for the achievement of organizational vision and mission. Dedication refers towards state of being committed to doing a task effectively and efficiently while commitment can be articulated as a kind of an emotional attachment towards something.

Long Term Success: Strong organizational philosophy, mission, beliefs, values and culture consider as key ingredients to achieve long term success of an organization. These all key elements tell the world what the organization is, may give laser focus and bring organization together through collaboration and teamwork.



Roles and Responsibilities of the Leadership Team:

Organizations are much more likely to perform well when their workforces work effectively as a team or a group. This is because effective teamwork creates synergy and dedication towards common goal of an organization as well as enhancing organizations' performance by carrying out their roles and responsibilities efficiently.

Leadership Team Efforts for Quality: Teams are formed when individuals with a common preference, liking, and attitude come and work together. Teams play a very important role in organizations to manage total quality and works together to achieve quality in every process of an organization by meeting organizational goals and all stakeholders' demands.

Periodic Review of Organizational Policies: Policies and procedures have critical importance in any organization as these enable workforces to clearly understand individual and team responsibilities for accomplishment of organizational objectives. Hence, periodic review of organizational policies is very necessary to monitor and review activities of all processes and to evaluate quality in subject specific contexts for organizational maintenance and improvement.

Curriculum Planning: Curriculum planning refers to the creation of a curriculum. It is centered around student activities and planned engagement of learners.

Identification of Learning Needs: It is important to identify students' learning needs as it is the most important stage in the learning process and involves the learners assessing the difference in their current state of knowledge or skill in relation to an area of learning and what they wish to achieve.

Management of the Program: In an educational organization programs or curriculum has key importance as all programs are



designed to equip and build learners' fundamental skills and abilities; hence the purpose of this is to comprehensively evaluate the quality of curriculum and to provide wide outlook to school boards, administrators, managerial staff and community members to close the loops and to manage the programs vigorously.

Outcome Based Learning (OBE): Outcome based learning is an educational theory that bases each part of an educational system around outcomes. By the end of the learning experiences, each student should have achieved the objective of a program of a study.

Involvement of all Stakeholders: Involvement of stakeholders is a significant part of any organization as involvement is a powerful influence on the success of organizational programs and activities. Organizations engage their stakeholders in dialogue to find out solutions of the problems, most of them about their performance to improve decision making, and accountability. Organization involves people who may be affected by the decisions it makes or can influence the implementation of its decisions.

Focus on Continuous Quality Improvement: Continuous improvement sometimes called continual improvement is ongoing improvement of products, services or processes through incremental and breakthrough improvements. Focus on linear, incremental improvement within an existing process is a key ingredient of an organization to improve processes, products and services.



CHAPTER TWO

PRIOR INVESTIGATION

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1. Overview of Higher Education

Higher education means to gain excellence in interested field of studies. It is known as various types of education offered in higher education organizations (Isani, 2001). More typically, higher education is the education learners get after 12 years of schooling (Isani, 2013). Higher education sometimes also refers to university level education that awards degrees in various fields and disciplines after completion of 3 to 4 years' degree programs of post-secondary education. Generally, Higher education Organizations are recognized as universities, and universities are acknowledged as hubs that uplifts live of humans by providing quality teaching and learning experiences (Isani and Virk, 2005).

Education is a process of development of people economically and socially as education plays a vital role in the growth of these two important factors. It is not mere public instruction; it is social interaction which provides mental, physical, ideological training to individuals to enable them to meet their mission and goals of life (Akhtar, 2007). It plays great role to sustain and maintain human lives deftly as globalization intriguing independent nations who undertake emotive inventions and discoveries to generate global arena of knowledge and virtual learning (OECD, 2001), (World Bank, 2006). The United Nations Educational, Scientific and Cultural Organization (UNESCO, 1998-2009) conferences and study reports of Organization for Economic Co-operation and Development (OECD, World Bank, 2006) have argued about need and significance of Higher Education. In most of the conferences and reports, emphasized has been given upon knowledge-based economy and economic development as knowledge has been recognized as a key factor that is



responsible to determine living standards (Fazli, 2015) of people. Higher education provides ample ways to revitalize people lives. It provides lifelong/methodological learning and Interdisciplinary education that is helpful to raise individuals and is important to upgrade knowledge and skills (Forrant and Pyle 2002). Higher education inculcates social/moral values and plays an integral role in cultural transformation and maintenance (World Bank-2007, Yibing 2008). Higher education helps to construct civic community and cultivate democratic values in individuals that leads public towards prosperity and success in a globalized world (Delanty 2008). Higher education works hard for larger social change that directly and scientifically contributes to the human transformations and experiences (Schugensky 2000). Higher education helps individuals to improve quality of their lives through economic stability, greater knowledge and less dependence on others. Theoretically, higher education enables people to expand their thoughts and increase their understanding about the globalized world and the society they live in. Higher education offers opportunities to individuals who tend to have those skills that are functional and applicable in various work settings geographically (Kothari Commission Report, 1966).

Higher education is considered as a passport to get more opportunities to become best leaders, academicians and entrepreneurs by travelling the whole world. Higher education plays strong role for promotion, enhancement of research activities and technological infrastructures (Sawyerr, 2002). It's a core mission of higher education to prepare highly qualified professionals and well-educated workforces by training and education (Hoffman, 1996). Higher education



supports and increases career prospects and income sources. Higher education supports individuals to work per their potentials and skills (Sampson, 2002) as higher education provides knowledge and training to perform job tasks dynamically, and add competencies to the individual capacity. Thus, it becomes an extreme need of every individual's life to have a higher education that enables them to get job for fulfilment of their financial and social needs (Carnoy, 2006). By determining higher education significant impacts, most of the universities in United States of America, Europe, Australia, Canada and in many parts of South Asian countries are now focusing on organizational emerging trends (Philip and Patti, 1999) and changing organizational paradigms from human capital growth to development of highly skilled professionals (Alan, 2001), (World bank, 2006).

2. Higher Education Commission (HEC) Pakistan

When Islamic Republic of Pakistan came into existence, there was only one organization for post-secondary education i.e. Punjab University, situated in Lahore that was founded in 1882 by Gottlieb Leitner. Since its inception until 1947, it served the entire region including Punjab and northern India. After independence of Pakistan, it was confined only to Pakistani regional areas. Later in period of Liaquat Ali Khan, various colleges and universities were established in realization of higher education as indispensable tool for the development of new born state. First educational conference of Pakistan was held in 1947 under the supervision of Quaid-e-Azam Muhammad Ali Jinnah who focused on ample provision of higher education for fulfillment of needs of future generations. Moreover, he conveys a message to the nation, to work hard to compete the global world which is stirring towards progression



on daily basis. He focused on worth of higher education and took steps to inaugurate University Grants Commission (UGC, 1947) to hold the responsibilities and delivery of quality education in Pakistan. Later UGC roles and responsibilities was revised in 1974. University Grants Commission took many initiatives to build qualitative system of higher education and established many institutions for the improvement of higher education and socioeconomic development of Pakistan but due to political and economic instability in the country, UGC position get enfeeble that forces to devolve it into Higher Education Commission (HEC) in 2002, during the tenure of President Musharraf, with an aim to strengthen higher education in Pakistan. Since its existence, HEC is working autonomously and has played most important role in acceleration of quality education system and has supported the nation with latest information technology and knowledge.

Growing challenges of the global world triggered Higher Education Commission of Pakistan to understand the need of scientific knowledge and education as an indispensable tool to grow in the period of science and technology. Therefore, Higher Education Commission of Pakistan set quality goals, policies and quality assurance standards to enrich the knowledge economy of Pakistan and development of higher education and educational organizations in Pakistan. (Batool and Qureshi, 2007). The goal of higher education in Pakistan is instrumental, pursued for attainment of socio-economic development and building manpower that are necessary for multidimensional growth of the country. Core mission and vision of Higher Education Commission is:

- To make systematic and strategic plans for higher education



- To strengthen the management/administrative system of higher education
- To raise the level of capacity, accessibility and participation in higher education
- To enhance the quality of higher education to global criteria
- To internationalize Pakistan's higher education

Moreover, Commission is striving to initiate quality reforms to address global challenges provokingly. HEC is playing a leading role to impart quality education and building knowledge based economy in the country by reforming and transforming higher education system of Pakistan. HEC aimed to transform Pakistan's future for achievement of this goal. Commission is concentrated on scientific researcher's at large scale and empowering individuals to attain national and international requirements. Commission is also taking steps for making higher educational organization reachable in far-flung areas of Pakistan so that no one should leave to get higher education. Higher Education Commission has also focused on up-gradation of the universities and Degree Awarding Institutions (DAIs) to provide quality education with ample research facilities for development of the country as, at present, rapid growth and provision of quality education is not only important but also it plays significant role to improve socioeconomic lives of humans. Commission is also striving to accredit public and private sector universities and involved in long term planning for assurance of quality of education, preparation of manpower required for the national development and to meet the global challenges (Saeed and Tahira, 2012). HEC is also providing aids and support in the form of research



& development grants, establishment of student support services, faculty enhancement facilities, promoting career development programs and financing quality enhancement plans at macro and micro levels for the betterment and improvement of the higher education system of Pakistan. For achievement of this goal, 21 billion rupees has been allocated for the Public-Sector Development Program (PSDP) 2014-15 to support and elevate higher education in Pakistan.

3. Taxonomy of Pakistani Universities

A university is a high-level organization, a place where students get modern teaching and learning experiences for degrees and academic research is done in many fields to advance learning competencies and research skills. It provides high level skills that are necessary for capacity building of individuals to work as high class professionals and to impact national and international, economies and civil affairs. Universally, it is divided into two categories. Category (A) known as higher education and category (B) recognized as further education. Category (A) consists of foundation certificates, honors degrees and master's degrees while category (B) includes Doctorate in any field of study. After getting degree of higher education, a person is acknowledged as a useful professional who can utilize his skills widely to develop and promote civil societies; to advance academia-industry and to increase rate of socio-economic development. Higher education system of Pakistan consists of universities and Degree Awarding Institutions (DAI) running under the administrative control of HEC. There are two sectors running under the umbrella of HEC i.e. public sector and private sector. Pakistan's higher educational system is public in nature leading both the public-sector universities/DAI and the colleges (Khan,



2012) at federal and provincial levels. However, in recent years, number of private sector institutions has taken place and these public and private sector universities are classified into general and professional universities (Khan, 2012). Most of them fall in the general category (Zubair, 2013). There has been radial growth in higher education regarding inauguration of higher education organizations and their enrollments. Enrolment rate in higher education sector has been increased more than 1600% (up till now from 114,010 to 18,28,331). 161 universities and DAIs are functioning currently in Pakistan, wherein 91 (57 %) are working in the public sector while 70 (43 %) are functioning in the private sector (Iqbal, 2016).

Public sector universities are offering courses and programs in English, Management, Education, Economics, Bio Sciences, Agriculture, Law, IT, Islamic Studies and many other degrees at Bachelor, Master and Doctorate level. While Private sector universities and degree awarding institutions are providing education in Engineering, Computer Science, Bio informatics, Business Administration, Agriculture along with other domains at graduate, postgraduate, and doctorate level. Higher education sector enrolls less than 4% of the 17 to 23 age group (Khan, 2012), and is unfairly compared with countries such as India at (11%) and Malaysia at (32%). Most of the research in higher education is conducted in public sector universities, however, private sector also plays an important role to multiply the research culture (Ahmed, 2012) in the country that would lead to much better governance and a brighter future of Pakistani youth (Isani and Virak 2005). HEC also rated and categorized universities and Degree Awarding Institutions based on 05 criterions which include Quality Assurance, Teaching Quality, Social Integration, Research, Finance &



Facilities and participation in community development activities. There are 67 universities in General category, 17 in Engineering, 15 in Business category, 6 in Veterinary & Agricultural sciences, 13 in Medical universities and 02 in Arts & Design category; while 48 universities and Degree Awarding Institutions have not been included in this ranking exercise because of either being distance education institution or being too young (Iqbal, 2016). However, this ranking does not provide any information regarding the comparison of Pakistani universities with the world or within the regional universities (Iqbal, 2016).

Table 2.1: *Universities and DAIs in Pakistan*

Sr No	Period	Total Universities/ DAIs	Public Universities/ DAIs	Private Universities/ DAIs	No of New Universities/ DAI -Public, Private & Total		
1	1947	2	2	0	0	0	0
2	1948-1952	4	4	0	2	0	2
3	1953-1959	5	5	0	1	0	1
4	1960-1966	10	10	0	4	0	4
5	1967-1973	11	11	0	1	0	1
6	1974-1980	21	21	0	10	0	10
7	1981-1987	26	24	2	3	2	5
8	1988-1994	35	29	6	5	4	9
9	1995-2001	68	41	27	12	21	33
10	2002-2008	124	67	57	26	30	56
11	2008-2010	132	73	60	6	3	9
12	2010-2014	161	91	70	18	10	28

Source: (Khan, 2012), (Official document of HEC, 2014)

Table 2.2: *Region wise Public sector universities of Pakistan as on March, 2012 = 74*

Sr. No	Region	Public
1	Punjab	22
2	Khyber Pakhtunkhwa	16
3	Sindh	15
4	Federal Capital	13



5	Baluchistan	05
6	Azad Jammu & Kashmir	02
7	Gilgit-Baltistan	01
Total		74

Source: (Official document of Learning Innovation Division (LID) of HEC, 2012)

Pakistani universities are administered by the chancellors in Federal capital territory. These universities are regulated by the President of Pakistan while at province level, these are under the charge of respective governors. The chancellor is the executive member and academic leader of the university (Khan, 2012). Chancellors are also assisted and supported by the pro-chancellors, in federal capital by the Federal minister while in the provinces, by provincial education ministers (Isani and Virak, 2005). There are also other administrative heads of the universities including Registrars, Directors, Auditor, Treasurer, Deans and Head of the departments. The teaching staff of the university is divided into four cadres including professors, associate professors, assistant professors and the lecturers form scale 18 to 22 (Khan, 2012). The senate, the syndicate, the academic council, the board of faculties, advance research studies, finance, planning, the selection committee and the discipline committees are the ruling authorities of universities (Khan, 2012). The Senate is the top most authority of the university consisted of high officials of the university including members of the syndicate, professors, eminent professors, Deans, principals of the colleges, nominated junior staff and the representative from the students. The syndicate composed of 20 to 25 persons comprised executive body and many of academic agents of the university (Deans, Head of departments, professors and the lecturers) and other stakeholders form



outside of the university including members of the national and provincial assembly, educational secretary of the province, provincial chief justice and other eminent educationists, led and directed by the vice-chancellors (Khan, 2012). The academic council is the academic body of the university which is responsible to regulate and promote academic life, establish and maintain standards of instructions, research and examination (Khan, 2012).

4. Quality Assurance Agency (QAA)

Universities of Pakistan are not only providing degrees but also playing a key role in producing hardworking and productive manpower which are playing their roles and responsibilities to sustain economy of the Pakistan. For establishment of prolific manpower, Higher Education Commission of Pakistan established Quality Assurance Agency (QAA) at HEC headquarter on January 10th, 2005 to assure and manage quality of academic and professional programs of public and private sector organizations in Pakistan. In addition, HEC is working hard to meet ever-changing needs at national and international level. Quality assurance is the measure through which an organization assures the set standards and the quality of education is being maintained and enhanced within an organization. The focal point of Quality Assurance Agency is to maintain quality of academic and research programs and increase academic teaching and learning environment to compete with the advanced countries. Quality assurance system of HEC comprised three stages, which are:

1. Development of criteria for quality accreditation and to publish manuals and guidelines for quality assurance.



2. Inauguration of Internal Quality Assurance System (IQA) in the higher educational organizations
3. Establishment of External Quality Assurance System (EQA) for accreditation of programs and the institution.

After the establishment of Quality Assurance Agency, it was decided to launch Quality Enhancement Cell's (QECs) in each university that will be sole responsible to ensure quality of organizational processes, products and services. Universities are also liable to report HEC about their organizational mission and goals and quality of academic research and programs through self-assessment reports (SARs) of respective universities. The main theme of QECs establishment is to strengthen and monitor standards of higher education and to assure teaching and learning activities in the universities of Pakistan to meet the competitive global criteria of education and research. QECs are responsible for the academic awareness through the evaluation methods, assessments and feedbacks to maintain the concern of all the stakeholders in the higher education. QECs are liable to promote public confidence about the quality of education and degree standards awarded by the university. QECs are responsible to promote public trust and confidence about quality standards by ensuring that quality is being enhanced, maintained and met. Similarly, QECs are responsible to assess and improve assurance processes and techniques of evaluation that ensures quality. QECs are also responsible to review academic intersperses between higher educational institutes in terms of effective management, research and other scholarly activities. Furthermore, QECs are responsible to ensure quality of programs in terms of



curriculum and to analyze quality of teaching and learning in each subject area. They are responsible to build program standards and specifications to clarify what knowledge, skills and attitudes students will develop after completion of their course works. Besides QECs are also responsible to check whether students are achieving such standards that are expected to get after completion of Bachelors and Master's degrees. Moreover, QECs are responsible to evaluate academic staff in respect of their skills, knowledge and other attributes. Additionally, QECs are responsible to ensure quality assurance processes that are designed to maintain and improve quality of higher education.

5. Authorization/Accreditation

Authorization/Accreditation is the process to evaluate higher education organizations and professional institutions for quality regulation and enhancement. There are two types of accreditation i.e. one is general accreditation in which an institution gets accreditation by meeting educational quality standards; and another is program/professional accreditation in which specific disciplines or colleges are accredited within the university. Basically, accreditation examines and inspects organizational processes and academic programs in terms of its vision, mission and policies whether these are compatible with the national needs and objectives, human, financial and physical resources required for the achievement of the set objectives. Before the creation of Higher Education Commission, there were various accredited councils and professional bodies working in the Pakistan which were responsible for programs and professional accreditation. Moreover, HEC is also planning to launch more councils to accredit academic programs relevant to arts and humanities,



natural, social and biosciences (Ismail, 2014). Following councils were existing before establishment of the Commission:

1. Pakistan Bar Council (PBC)
2. Pakistan Council for Architects and Town Planners (PCATP)
3. Pakistan Engineering Council (PEC)
4. Pakistan Medical and Dental Council (PMDC)
5. Pakistan Nursing Council (PNC)
6. Pakistan Pharmacy Council (PCP)
7. Pakistan Veterinary Medical Council (PVMC)
8. National Council for Homoeopathy (NCH)
9. National Council for Tibb (NCT)

Accreditation councils launched by the Higher Education Commission:

1. National Accreditation Council for Teachers Education (NACTE)
2. National Agricultural Education Accreditation Council (NAEAC)
3. National Computing Education Accreditation Council (NCEAC)
4. National Business Education Accreditation Council (NBEAC)

Generally, the accreditation process adopted by the councils is the same; i.e. all the concerned parties must apply for getting permission and clearance from the specific accreditation council before establishment of any program, department and institution. The council refers team of experts to check the facilities, level of preparedness and the infrastructure. Once the team of experts get satisfied by the level of preparedness, curriculum, infrastructure/facilities, students, faculty and the



institutional support the institution/department have, they grant permission to launch the program/department. However, final approval is always made by the accrediting committee about the initiation of program/department. The committee reviews the reports and observations conveyed by the team of experts. After reviewing the document, the committee takes decision and instruct to remove the deficiencies, where required, or program/department re-accreditation (Ismail, 2014).

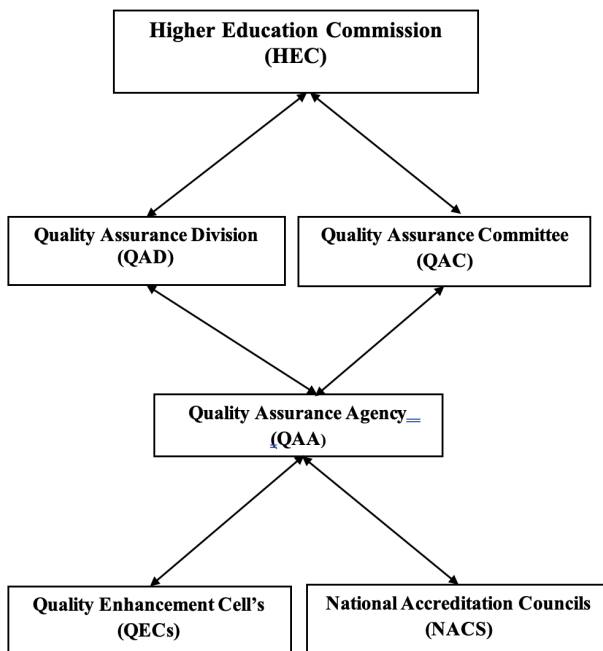


Figure 1: Set-up of Quality Assurance Agency of HEC, Source: (Khan, 2012)

CHAPTER THREE

CURRENT INVESTIGATION

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1. Research Perspective

Without searching, scanning, examining, reviewing and analyzing the literature, research cannot be possible as it is the first step to undertake research. Questions regarding intent phenomena have always been of interest to the researchers to find concerned material in the sense of what, who, where, when and how by using different ways of information. These types of investigations also help researchers to decide about suitable designs and methodologies for answering the research queries systematically; hence the literature was viewed and reviewed thoroughly, and research problem was formulated flicking through the literature associated with distinguishing TQM operative factors in respect of questions listed below:

1. What are the benefits of TQM to improve higher educational institutions?
2. Do the Public-sector universities in Pakistan practice TQM for quality education and the institution?
3. What are the current quality levels in the Public-sector universities of Pakistan?
4. How and to what extent TQM operative factors influence public sector universities in Pakistan in relation to their performances and services?
5. What areas in public sector universities of Pakistan need to be improved in line with the international standards?
6. What steps should be taken for continual improvement of the Public-sector universities of Pakistan?

2. Stimulation of Research Study



Behind every research study, there are always many reasons and motivations to pick or take the topic of interest to work on it deliberately and categorically. The main theme of this research study is TQM and its distinguishing operative factors functioning in the public-sector universities of Pakistan. Needless to reiterate that the TQM is a managing philosophy and scientific approach that is widely used and employed in the corporate sector for productions, trades, goods and services; but these days it is equally employed in the educational system for the utmost development and management of the educational institutions with an emphasis on the various factors to foster the academic and professional environment. For more understanding of it; three reasons have been categorized by (Saunders, Lewis and Thornhill, 2009)

Exploratory: This type of studies may usually be aimed to scrutinize and consider phenomena closely and to get answers of the unseen and covered questions through innovative tactics and cognitive therapy. Basically, this type of studies motivates the future researchers to conduct further researches on the same topics by looking at things differently (Saunders, *et.al*, 2009). On the same point of view, current research study is designed to explore the operative quality factors in the public-sector universities of Pakistan, including, vision, mission and values, leadership, leadership team, monitoring of program, process and performances, curriculum design and delivery, student selection support and assessment and continuous quality improvement.

Dependent variable of Research Study: Dependent variable of the present study is to explore “usefulness of distinguishing TQM operative factors in the public-sector universities of Pakistan”. To meet demands of the 21st century, it has become



necessary for both educational institutions and corporate sector organizations to focus on quality factors to get utmost outcomes as (Shahid, 2003) deliberated that it is mandatory for higher education institutions to focus on quality aspects to benefit both the institution and the community. Literature about TQM philosophy and its implementation in the institutions has demonstrated the fact about quality variables which have extensive value and expediency in the institutions as (Owlia and Aspinwall, 1997) have rightly said that quality factors consider as driving gears which strengthen the institutions and hit towards continual improvements to become advanced member of the 21st century.

Explanatory: In these types of studies, researchers study different situations (Saunders et al., 2009) to analyze, compare and explicate their effects and relationships between two or more than two variables. As mentioned above, the purpose of this research study is to explore the distinguishing quality factors which are operative and have considerably effected the organization; hence this study was designed to explain operative quality factors and articulate as to why these factors are important for the quality organization/institution, and how they work effectively in quality organization/institution and are associated with each other significantly.

Descriptive: In general terms, the descriptive researches rigorously gather data related to events and the studies are widely designed to describe data qualitatively and quantitatively. It numerically tabulates the data by collecting quantitative information and label and define the one category unlike the other methods as it includes one variable to investigate (Sunders et al., 2009). Descriptive studies are more suitable when the problem needs clear explanations, validation



of data and requires surveys (Creswell, 2012) to yield correlations and variations of data. In educational researches, the descriptive researches have dynamic roles to enhance knowledge about happenings in the institutions by using several techniques about the situations such as interviews, surveys, and questionnaires. The main purpose and motivation of this research study is to describe, explore and explain the TQM factors in the public-sector universities of Pakistan, whereas TQM is recognized as the best philosophy of Quality. Numerous research studies have been done regarding TQM in all over the world and in Pakistan, also for establishing quality system and knowledge driven society. Since the establishment of the HEC in Pakistan, this organization has put its utmost efforts towards quality of higher education and quality assessment of the institutions for improving the standards of higher education to stand against the global world.

3. Description of Theoretical Framework of the Study

For the present research study, seven factors were extracted from two frame of references. One is IPE; which comprises eleven standards developed by the HEC in (2010) and another is MQF which consists of nine evaluation areas established by the MQA in 2008. The researcher has sought advice from two frames of references i.e. national and international as source models to confer authenticity to research. Since there are no appropriate quality standards other than IPE to improve Pakistani higher education system; hence national standard was adopted as a base of this research study. The researcher has employed national model to yield framework of the present research and to substantiate as to how Pakistani higher education system is working and satisfying demands of the 21st century. The researcher has also employed international model



as the researcher observes similitude between the core criterion of Malaysia and Pakistan as both are situated in South Asian region and are employing same variables to upgrade higher education system of their respective communities. Although various other models were available in the literature but none satisfied the desirability of this research study as such. Thereupon, the researcher made use of these models to facilitate this study. Both not only influence higher educational institutions to manage and audit their institutional and program quality but efficiently support for effective implementation of TQM and control the quality of higher education institutions to get maximum benefits by utilizing minimum resources. Up till now many of the universities have been evaluated by the panel of experts, areas for improvement have been highlighted and remedial measures to prevent deficiencies to bring positive improvement in the different processes, procedures, infrastructure, physical resources and human activities have been advised (Ismail, 2014). The process of IPE is taking roots in Pakistani universities and is expected to make a discernable difference in the realm of quality assurance in higher education (Ismail, 2014). The detailed description of both of quality frameworks (IPE and MQF) has been given as follows:

3.1 Institutional Performance Evaluation Standards (IPE)

Eleven standards were established by the HEC. All the eleven standards are equally important to be met by the higher educational institutions to achieve accreditation. Brief description whereof is given below:

Mission statement and goals: It specifies intentions of the higher education institutions to whom it serves, what it wants to accomplish, what are its effects on institutional environment and for what it is made for.



Planning and Evaluation: In this phase, the top management designs vision and mission of the organization/institution, identifies strategies and chooses logical actions for accomplishment of the intended goals. At this level, every higher education institution ponders about its formation and development schedules as to how will it affect institutional processes and bring changes in the current state of the institution. Once planning has been done by the panel of experts, evaluation takes place to assess institutional vision and mission for betterment of the institutional affairs.

Organization and Governance: Every organization/institution has administration and management officials to run the organizational/institutional system, who assist to achieve organizational mission/goals and make efforts for ongoing developments. These officials also help to foster integrity of the institution and to make it a quality institution by controlling the whole system effectively.

Integrity: Integrity means moral codes that is indispensable and required to deal with institutional stakeholders whether it is educational or corporate sector institution. To maintain integrity, institutional administrators and managers are responsible to demonstrate and publicize their ethical standards, valuing equity, diversity with quality services, admitting students by recognizing their needs and interests, to make sure transparent selection and retention of faculty, promote culture of mutual respect and carefulness, perform periodic assessments of policies, programs and processes for the construction of quality system.

Faculty: Every institution desires to employ those faculty members who are talented, capable and have potentials to work in the system professionally. As faculty is responsible for



overall progress and development of academic learning, research and to bring innovation in an institution. The faculty is also responsible to assist professionals to design and develop curricula. Therefore, it is obligatory for higher education institutions to maintain and develop their career attributes by raising their qualifications, by giving them continuous professional training for accomplishment of the institutional mission and the goals. Higher education institutions also liable to promote and evaluate faculty and all those professionals who are responsible for academic affairs.

Students: Educational institutions always do encourage to offer admissions to those students who have the same goals, interests, potentials and the aptitudes to accomplish goals and objectives of the institution. Although criteria of admissions, retentions and academic success varies from student to student and institution to institution in the context of its mission, objectives, needs and structure, yet every institution must seek to provide best support services to all the students for creation of high value institutions and students.

Institutional Resources: Institutional resources are acknowledged as assets required to accomplish institutional mission. There are various types of resources like financial, human, physical and technological resources. Human resources are workforces who plan institutional goals and enhance institutional productivity through their best services and performances. Finance resources refer to monetary or budgetary resources used to purchase goods and services, while physical resources include overall possessions and properties which an institute have on campus or outside the campus e.g. laboratories, utilities, equipment, shops and materials; whereas technological resources refer to digital tools and devices



required to assist institution's technological matters. To sum up all kinds of institutional resources are sturdily linked with each other and cannot produce such quality results when perform their responsibilities individually as they all support each other to achieve stated institutional mission to meet the HEC criteria.

Academic Programs and Curricula: This standard investigates as to how programs and courses are being offered in an institution and how it helps to inculcate learning abilities in the students and enrich future research and developments as it is pivotal in the development of an educational institution to develop an effective curriculum and academic programs for the students; hence curriculum and academic programs must be coherent, rational and scientific to meet today's demands and deal with rapid scientific changes. To make this possible, sincere effort are required from the higher education institutions' authorities to raise the level of the teaching and research and make available adequate faculty along with the infrastructure which may aid to enhance learning experiences of the students successfully and steer higher education institutions towards success as per HEC requirements.

Public disclosure and Transparency: This standard is all about transparency and accountability that an institution provides to common people about its policies, mission and the objectives. The institution dutifully provides accurate and adequate information to all the stakeholders about educational plans, academic policies, procedures and the requirements about admissions and expected learning outcomes.

Assessment and Quality Assurance: To examine achievement of institutional goals and mission every institution sets its criteria to asses and assure as to how much internal quality has been increased and what are the difficulties which



needs to be answered/addressed. The institution develops its self-assessment and internal quality assurance processes which support to evaluate institutional efficiency, effectiveness and its compliance with its mission and with external quality standards at national and international level. In almost every institution, assessment proforma is designed in such a way that displays clear statements about the evaluation of an institution that helps to increase performances and efficiency of the institution.

Student Support Services: It is obligatory for an institution to provide adequate student support services which enable students to attain their educational goals and simultaneously help to achieve institutional vision and mission.

3.2 Malaysian Qualification Framework (MQF Model)

MQF is agreed criteria and unified standard that classifies qualifications used to assess academic and institutional level learning outcomes of higher education institutions in Malaysia. It provides information and guidelines to make clear to all of the stakeholders nationally and internationally (quality assurance and accrediting agencies, students, parents, employees and education providers) about its usefulness and effectiveness and ensures to get and maintain public confidence about universities in Malaysia. This qualification framework is administered by the MQA under the authority of the Ministry of Higher Education of Malaysia. It was developed in June, 2003 under the direction of Quality Assurance Division (QAD) which is responsible to manage and assure quality in public sector universities of Malaysia and integrates all qualifications offered at national level into one unified system. However, it was finally implemented in 2007 and encourages higher educational autonomies to adopt this framework with full confidence and follow guidelines to enhance the whole system.



It covers nine qualification areas, each qualification area contains quality standards with two distinct levels, one benchmarked standards and other is enhanced standards; description of each criterion is given as follows:

Vision, mission, educational goals and learning outcomes:

Generally, the main goal of higher education institutions is to generate quality graduates; for the achievement of this purpose, institution must produce quality based vision, mission and educational goals. Mission, vision and educational objectives must be established with the consultation of wide range of stakeholders. The institution must define its vision, mission and educational goals, in keeping pace with the national and international developments for best key outcomes. Quality statements must be formulating under the guidance of other community organizations, alumni, members of civil society and international stakeholders and reviewed periodically by the same members. Quality statements must define professionalism, social responsibility, research and scholarly activities, knowledge creation, community involvement and ethical values.

Curriculum design and delivery: Curriculum contributes to the development of learners and an intended packaging of competencies that learner acquires through learning experiences in formal settings. It plays an important role in the acquisition of knowledge, life-long learning competencies, social attitudes and skills, justice and promotion and respect of human rights and assists learners in their professional and personal development by increasing their confidence and self-respect. By recognizing importance of curriculum, MQF sets criteria that every institution/department must have the reasonable autonomy to design the curriculum and allocate



sufficient resources, necessary for its application for the achievement of learning outcomes. Academic workforces must have sufficient independence to focus on areas of their expertise i.e. research and scholarly activities, design of curriculum, implementation and academically related management duties. There must be a proper process of curriculum development, revision and evaluation. Program content, approaches and methods must be consistent and appropriate for the accomplishment of the program learning outcomes as well as helpful to improve personal capabilities and attitudes of learners by using multi-disciplinary approaches and various study pathways. Before inauguration of any program of study, need analysis should be done for the improvement, development, and implementation of the curriculum, by getting opinions from external and internal sources including program analysts, peers, students, national and international experts and alumni.

Assessment of students: Assessment of students is very necessary for the evaluation of learning and assurance of the quality; hence, assessment methods should be clear, effective, reliable and consistent with the present principles, practices in the support of learning outcomes and program content. Assessment must be reviewed from time to time, scheduled intervals to ensure program effectiveness and learning competencies through summative and formative assessment criteria and many other methods and tools. The methods and tools of assessment must be parallel to international standards, simultaneously it should be done with the consultation of local experts.

Student selection and support services: Admission, retention and students' support policies/methods must be complying with



the prevailing policies established by the controlling authorities of the higher education providers, whatever selection and admission method is used it must be able to defend its criterion that must be consistent with the national policies. The number of admissions to the programs must be determined by the capacity of the higher education providers and for the maintenance of desired enrollment. Intake of each student must be familiar with well-defined entry policies, regulations and prerequisite knowledge and skills required for the program of study. At the same time, institution must clear to the students about the facility mechanisms and advanced standing arrangements in the country or cross the borders like professional counseling, career choices, personal developments, achievements, culture accommodations, food and health facilities, finance and safety facilities, transport and special purpose facilities by scrutinizing students' thoughts about their career planning and choices to guide them. Therefore, every institution should make it possible for all students to participate in community and social matters, co-curricular activities, managerial and leadership experience to inculcate a sense of responsibility, active citizenship and a developed learner.

Academic staff: For assurance of the quality of higher education, qualified academic staff have most importance, which plays vital role in assuring the quality of higher education; therefore, every higher education institution should institute appropriate recruitment, appraisal, retention and service development policies conducive to academic staff productivity. Every formulated policy must be clear and publicized for the maintenance of academic merit.



Educational resources: Without adequate resources, the process of teaching and learning could not proceed accurately, therefore, it is necessary to have sufficient physical facilities in the institutions. Physical facilities include sufficient academic staff, physical infrastructure needed for the specific field of study, research facilities, finance, and information and communication technology. Moreover, it includes proper space for knowledge advancement equipment i.e. resource centers, libraries, lecture halls, science and computer labs, tutorial rooms, studios and auditoriums and hospital for the improvement of higher education.

Program monitoring and review: For the enhancement of the quality, it is necessary to regularly reviewed, assessed and evaluated programs and educational processes for the enhancement of the program of study in higher education. Monitoring includes institutional and administrative structures (leadership, governance, planning and review mechanisms) elements of curriculum (syllabi, teaching techniques and methodologies along with learning outcomes) coupled with students' performances, progresses and employability.

Leadership, governance and administration: To control the administrative and educational affairs of an institution, there is need of highly qualified leadership at institutional and departmental level for the administration and management of academic and scholarly activities. Therefore, an institution must set criteria for the appointment of academic leadership with sufficient experience, qualifications. Academic leadership must be evaluated on continuous basis in terms of innovation and creativity and performance of the program and additional technical skills. The management staff of the department must



have sufficient autonomy and resources for the implementation of program related activities to ensure deployment of resources and good administration/management.

Continuous quality improvement: To meet growing needs and constantly changing demands of society, it is necessary to review and monitor all institutional core activities, structures, and strategies and functions continually and systematically to ensure continuous quality improvement of institutions and to convert them into dynamic learning institutions.

4. Scheme of The Present Research Study

Descriptive research methodology was adopted for this research study as it is quick and efficient research design that helps in minimum time and with low cost. Survey questionnaire was designed to collect data from the selected sample as survey is one of the most frequent and vital parts of social science researches to collect data from respondents about framed research queries to determine the present status of concerned variables (Gay, Geoffrey, Mills and Airasian, 2009). According to (Creswell, 2012) survey method is appropriate method for attaining information from large population.

4.1 Population

Population is complete set of objects, persons or elements that have common characteristics defined by the research through established sampling. Selected population is usually termed as target population a researcher wants to study; it may consist of large collection of persons, subjects, objects, events, region and state or country a researcher is interested to study (Levin, and Rubin, 2000), (Best and Kahn, 2007), (Gay, Geoffrey, Mills and Airasian, 2009). The population of the current research study consisted of all the public-sector universities of Pakistan. According to official website of the HEC, there are 74 public



sector universities in Pakistan which are as such recognized by the HEC (2015). There are 14 universities working under the Federal Government of Pakistan, 22 under the Government of the Punjab, 15 under the Government of the Sindh, 16 under the Government of Khyber Pakhtoonkhwa and 5 under the Government of Baluchistan and 2 universities are functioning under the Government of Azad Jammu and Kashmir. According to the database available on the official website of the HEC, 25,908 faculty members were working in the public-sector universities of Pakistan and 1,243,040 students were studying in public sector universities of Pakistan (2013-2014). All the faculty members and all the students were treated as the population of the research study. The categories studied were based on three levels of administrators including VCs, Registrars and the Social Sciences Deans, teaching faculty comprised Professors, Associate and Assistant professors, the lecturers and the students.

4.2 Sampling Technique

The main theme of sampling in research is to provide inferential statistical information about qualitative and quantitative units. It is a scientific procedure and a process of chosen sampling units (respondents) from whom the information will collect to draw conclusions with some magnitude of uncertainty. In most of researches population size is very big which mystified researchers to select each number so that is why sampling makes it easy and convenient to gather the information from selected representatives of the population to generalize the results within the academic, professional and geographical limitations of researches. Therefore, keeping in view the nature of the current research study, simple random sampling technique was used as it is an easiest and useful way to select a



sample from a population or a largest set of individuals. It is a basic and the simplest form of sampling techniques as it is free of classification error and relatively easy to interpret the data. It is an unbiased measuring technique in which each sample is selected randomly and incidentally. In this sampling technique, each individual or a sample has an equal chance of being chosen or have a same probability of being nominated (Levin, and Rubin, 2000), (Best and Kahn, 2007), (Gay, Geoffrey, Mills and Airasian, 2009).

4.3 Sample

Sample is known as group of items, objects and the individuals taken from the larger group or a population for generalization of the research study. There are 74 universities as such acknowledged by the HEC; therefore from 74 universities, 30 public sector universities including 30 VCs, 30 Registrars, 30 social sciences Deans, 250 Teachers and the 1000 students were selected through simple random sampling technique as a sample of the study. Department, group, region, and university wise details of the sample size is given in the Tables below that may indicate respondents selected from the public-sector universities of Pakistan.

Table 3.1: Discipline and Department wise distribution of sample

S #	Disciplines	Departments
1	Social sciences	3
2	Humanities	2

Table 3.1 indicates discipline and department wise distribution of sample size from public sector universities of Pakistan, wherefrom data was collected for this research study. Only five departments were selected from social sciences and Humanities disciplines from thirty public sector universities of Pakistan.

Table 3.2: Group wise distribution of Sample



Group	Frequency
VCs	30
Deans	30
Registrars	30
Teachers	250
Students	1000
Total	1340

Table 3.2 indicates group wise distribution of sample size that consists of 30 Vice Chancellors, 30 Registrars, 30 Deans, 250 Teaching Faculty and 1000 students selected from thirty public-sector universities of Pakistan.

Table 3.3: Region wise distribution of sample

S #	Region	No of Universities selected
1	Federal Territory	07 (31.81 %)
2	Punjab	11 (61.11 %)
3	Khyber Pakhtunkhwa	06 (37.5 %)
4	Baluchistan	02 (40 %)
5	Sindh	03 (20 %)
7	Azad Jammu and Kashmir	01 (25 %)
	Total	30

Table 3.3 shows region wise distribution of sample that consisted of 30 public sector universities of Pakistan. Region wise description of table indicates that 7 universities were selected from Federal Territory, 11 from Punjab, 6 from Khyber Pakhtunkhwa, 2 from Baluchistan, 3 from Sindh and 1 from Azad Jammu and Kashmir.

Table 3.4: University wise distribution of Sample

S. #	University	City	Frequency
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1	Fatima Jinnah Women University	Rawalpindi	45
2	Pir Mehr Ali Shah Arid Agriculture, University	Rawalpindi	40
3	Sardar Bahadur Khan Women University	Quetta	45
4	Bahria University	Islamabad	45
5	Quaid-e-Azam University	Islamabad	40
6	Karakoram International University	Gilgit, Baltistan	45
7	Air University	Islamabad	45
8	Allama Iqbal Open University.	Islamabad	45
9	Federal Urdu University of Arts, Sciences and Technology	Islamabad	45
10	Bahaudin Zakria University	Multan	45
11	Government College University	Faisalabad	45
12	Government College University	Lahore	45
13	Islamia University Bahawalpur	Bahawalpur	45
14	University of the Punjab	Lahore	45
15	University of Education	Lahore	45
16	University of Gujrat	Gujrat	45
17	University of Sargodha	Sargodha	45
18	Lahore College for Women University	Lahore	45
19	University of Karachi	Karachi	45
20	Sindh Madresatul Islam University	Karachi	45



21	Hazara University, Dodhial	Mansehra	45
22	University of Peshawar	Peshawar	45
23	University of Swabi	Swabi	45
24	University of Baluchistan	Quetta	45
25	University of Azad Jammu and Kashmir,	Muzaffarabad	45
26	Abdul Wali Khan University	Mardan	45
27	University of Swat	Swat	45
28	Shah Abdul Latif University	Khairpur	45
29	International Islamic University	Islamabad	45
30	Gomal University, D.I. Khan	D.I. Khan	45
Total			1340

Table 3.4 shows university wise distribution of sample of public sector universities of Pakistan. From each university, 45 respondents were randomly selected for collection of data for this research study.

5. Tool Development

Pragmatic and scientific research requires structured tool for discovery of facts and creation of useable knowledge; hence tool development is the basic step for collecting and analyzing the information (Leedy and Ormrod, 2001). There are several standardized methods and procedures for data collection such as questionnaires, interviews, observations and study of archival records (Best and Kahn, 2007), (Gay, Geoffrey, Mills and Airasian, 2009). Although there are many primary and secondary sources for the collection of data like questionnaires, interviews, case and longitudinal studies, life histories, mass media products, diaries, letters and web information; yet



questionnaire is always known as an immense source of collecting realistic facts and figures; and it is the one of the best sources that can be administered easily, economically and is extensively used to collect the investigator's desired information (Wilkinson, 2003). Generally, it is administered to gather information related to attitudes, behaviors, and performances and to get opinions that cannot be easily tracked from larger population systematically (Furze, Lewin, Roebuck, Thompson and Bull, 2001), (Denzin and Lincoln, 2000). To gain valid responses regarding attitudes, behaviors, and performances from certain population, an investigator should be careful in advance about its construction, validity and reliability before research instrument's final administration.

5.1 Construction Process of Research Instrument

Tool construction is one of the most serious and acute point in all the research activities (Jack and Clarke, 1998) for the construction of well-organized and quality questionnaire. Distinct steps and stages have been given in the literature; like (Peterson, 2000) produced following seven steps to focus on for sequel and administration of the viable questionnaire:

- Get the general review of the public how they perceive quality and quality factors and what should be the excellences and properties of a stable organization;
- Thoroughly review literature regarding the quality factors;
- Determine the facts critically needed for the questionnaire for accomplishment of desired information;



- Decide the questionnaire's wording to be asked;
- Configure the questionnaire's layout;
- Categorize the items to be asked; and
- Measure the viability of the questionnaire.

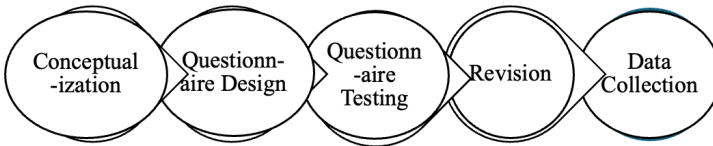


Figure 1: *Tool development process*

Abovementioned seven steps are useful gears for creation of the effective questionnaire in any field of the research; and with care of abovementioned steps a quality questionnaire can be built and an investigator can achieve formulated objectives of the research in the best possible manner. Similarly, (Brancato et al., 2006) signifies the six steps as tool development process; whereas the process is:

5.2 Conceptualization of Research Instrument

The word conceptualization refers to thoughts or concepts to make inclusive and exclusive perceptions and ideas about some specific or general objects. Basically, conceptualization is closely related to concepts which need to be measured or generalized for research study. In research perspective, usually in this phase pseudo/dummy questions were developed because pseudo/dummy questions serve the real purpose of conceptualization to make perceptions clear and wide more ideas regarding selected study. Once concept gets clear and is satisfactory, it helps to choose question's wording as wording is important part of the survey questionnaire to make

respondents easy to understand the concept projected in the questionnaire (Gay, Geoffrey, Mills and Airasian, 2009). For instance, one question must carry one concept and avoid including such questions having two aspects or parts and ambiguous terms (Black, 1999) and (Gray, 2013). The main theme of this research was TQM and its distinguishing operative factors within an organization; hence survey questionnaire was framed under the umbrella of seven factors, Vision, mission and values, Leadership, Leadership team, Monitoring of program, process and performances, Curriculum design and delivery, Student selection, support and assessment and Continuous quality improvement. Accordingly, concept map was prepared with the help of these distinctive seven factors and pseudo/dummy questions were proposed.

6. Design of Research Instrument

After conceptualization, design of research instrument is most essential part of construction of research, specifically it depends on the breadth of information required by the researcher. In this portion researcher, logically and sequentially devises the structure of the questionnaire to hold attention of the respondents required to fill the questionnaire and achievement of the research objectives. Usually in this part researcher categorized instrument items briefly and tried to make it understandable according to the understanding level of the respondents. For this research study, only one questionnaire was developed to gather the desired information from public sector universities of Pakistan regarding selected TQM operative factors. Before pilot testing, 140 items were included in the questionnaire containing seven parts, while after pilot testing 50 items were removed. In the final questionnaire, total 90 items were included comprising seven parts and all parts



were interlinked and were developed after extensive review of the literature and the performance evaluation standards of the HEC. Design of the questionnaire consisted of following parts:

a. Description

On top of the research instrument, a description was given about the instrument; a cover letter was attached indicating the instrument's theme along with each questionnaire.

b. Title

Small description was given about the title of study indicating research was all about.

c. Demographic information

This section was incorporated to get demographic information about the respondents. Respondents were supposed to inform about their gender, designation and institution's name for their identity.

d. Response Mode

Five point Likert scale was used for collecting the desired data from the respondents as (Rensis, 1932) advanced this idea of Likert scale to ease way of response in social research. Five point Likert scale is common scale than other scales for social sciences researches, which permits respondents to offer rich feedback qualitatively (Cohen, et al, 2007). The pattern of five Likert scale was adopted as Strongly-disagree (1), Disagree (2), Uncertain (3), Agree (4) and Strongly-agree (5), for rating the instrument items. Respondents were asked to complete the questionnaire reliably and express their opinions by ticking (✓) their desired option in the box against each question and fill all items thoroughly.

e. Body of Research Instrument



This part comprises of questions which has been divided into seven parts and asked to respondents; brief description of seven parts is enlisted below:

- **Part 1** is about Vision and mission which is based on dynamic beliefs and goals of the institution. It has **10** items.
- **Part 2** is about Leadership as to how leaders direct and manage the institutional workforce and affairs of the institution for continuous quality management. It includes **14** items.
- **Part 3** is about Leadership Team as to how and what extent leadership team plays its role in institutional activities productively. It comprises **13** items.
- **Part 4** is about Monitoring of programs, processes and performances to check efficacy and effectiveness of the institution. It contains **16** items.
- **Part 5** is about Curriculum design and delivery that focused on curriculum design and delivery benchmarks framed by the institution. It covers **15** items.
- **Part 6** is about Student selection, support and assessment as to how and to what extent an institution is committed with students about their lifelong skills. It consists of **14** items.
- **Part 7** is about Continuous Quality Improvement as to how and to what extent an institution is keen towards continuous improvement. It has **8** items.



f. End of the research instrument

In the end of the questionnaire, expression of gratitude was included to say thanks for the respondents' support and assistance to complete this research study.

7. Analysis Of Research Questionnaire

Before collection of the actual research data, it is very important to test the survey questionnaire, as questionnaire testing is fruitful process to assure that questionnaire is user-friendly to get the required results (Brancato et al, 2006). Therefore, before final administration of the questionnaire, it must be tested intensively for confirmation of its reliability and validity that can be possible through pilot study of the research questionnaire, by employing different statistical tests on the research questionnaire and by getting opinion from the relevant field experts.

Pilot Testing: Pilot study, which is also called pre-testing, has a key role in research as it prepares the researcher to find the errors and issues regarding the research instrument. It also helps investigators to ensure their method of data collection and its feasibility in general that does questionnaire measure what it is thought to measure. According to (Hundley and Teijlingen, 2004) pilot study is very essential for any research study as it provides general feedback on formulated methods and warns about the instrument redundancies before final try out of research instrument and actual study. For that reason, pilot study was conducted by distributing questionnaires to administrators, teaching faculty and the students. The researcher personally went to see universities and interacted with the university authorities about the research and desired respondents, and after their willingness date and time was confirmed for pilot testing of the instrument of the research.



The researcher herself visited the university and approached the respondents. They were asked to fill the questionnaire and provide clear views and perceptions about TQM operative factors. For the pilot testing of the questionnaire, data was collected through convenience sampling from two universities of Pakistan. Respondents made clear about the secrecy of the information that it would be used only for research. The sample of pilot study included three top administrators and managers, 10 teachers and 100 students from both the universities. After 15 days, questionnaires were collected from them, only 94 questionnaires were returned with required information.

Reliability: Reliability means consistency in research; reliability is most significant as it assures that whatever we expect to measure is changeless. According to (Best and Kahn, 1996) reliability is based on repeated actions, checks and tryouts of tests, re-tests of questionnaire to ensure instrument stability. Therefore, reliability of this research study instrument was also examined by using statistical tests to enhance the efficiency of the questionnaire. To determine reliability of the survey questionnaire, statistical tests were applied like Factor Analysis and Inter Scale Correlation.

Factor Analysis: To measure reliability and construct validity of multidimensional factors, a sample of 113 respondents were collected from two universities of Pakistan. 140 items were loaded on 7 factors, as a result items no 5, 7, 9, 13, 16, 17, 18, 19, 22, 24, 25, 29, 33, 37, 40, 44, 48, 50, 51, 54, 57, 61, 66, 70, 71, 72, 78, 79, 82, 83, 86, 88, 90, 94, 97, 100, 104, 107, 109, 113, 116, 118, 122, 123, 127, 129, 131, 134, 139, 140 were not considerably loaded on any factor as it was less than .20 which is the determinant proposed before the factor analysis. So, these



items were deleted from the questionnaire and rest of the 90 items retained in the final research tool.

Final Attempt: The result of seven factors indicates that Eigenvalues greater than 1.00 only was supported by them. These factors were titled as vision, mission and values (10), Leadership (14), Leadership Team (13), Monitoring of programs, process and performances (16), Curriculum design and delivery (15), Student Selection support and assessment (14) and Continuous quality improvement (8).

Table 3.5: Inter-Scale Correlation of Research Instrument

Factors	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Total
Vision, mission and values	1							
Leadership	.224	1						
Leadership team	.301	.205	1					
Monitoring of Program, process and performances	.249	.302	.153	1				
Curriculum design and delivery	.289	.226	.221	.337	1			
Student selection support and assessment	.311	.406	.308	.219	.269	1		
Continuous quality improvement	.256	.098	.227	.252	.204	.330	1	
Total	.419**	.329**	.424**	.305**	.347**	.413**	.328**	1



Table 3.5 shows inter-scale correlation of research instrument and it indicates that factors were significantly correlated with each other. It was found that the highest correlation exists between factors Curriculum design and delivery and factor monitoring of program, process and performances (.337); and the lowest correlations exists between factors Leadership team and monitoring of program, process and performances (.153).

Validity: Questionnaire must be pretested/ surveyed for valid outcomes of intended research study (Gay, 2009). Validation of the research tool is important to identify the deficiencies and errors as it helps the researcher to measure what exactly is intended or projected to measure (Gray, 2013). (Best and Kahn, 1999) advised that validity of questionnaire must be tested by the panel of experts to ensure face validity and construct validity of research. Accordingly, the researcher personally paid visits to the concerned experts to check the face validity and construct validity of the instrument. Two education specialists and one management specialists were selected to discuss the instrument thoroughly for further process. Instrument was examined carefully by the professional consultants in the favour of research objectives and suggestions given by them were duly incorporated in the research questionnaire.

8. Final Administration

The targeted respondents' demographic information was included in the questionnaire e.g. gender, position and the institution's name. The research instrument was personally administered by the researcher and mailed and e-mailed to get the questionnaires filled from the relevant respondents. All the questions included in the questionnaire were close ended questions as close ended questions are handy to deal with



tabulation of the data. (Wiersma and Jurs, 2005) state that closed ended statements in a survey questionnaire take less time for tabulation rather than open ended questions and eases the respondents by consuming their time to select items among five options. Respondents were asked and instructed to respond clearly and write opinion against the given statements carefully to complete the questionnaire.

Table 3.6: Response rate of the sample

Respondents	Frequency	Percentage
VCs	19	1.62
Deans	24	2.04
Registrars	21	1.79
Teachers	219	18.65
Students	891	75.89
Total	1174	100

Table 3.6 indicates the number and percentage of Vice Chancellors (VCs), Deans, Registrars, Teaching Faculty and students of sample. The data was collected from 1,174 said respondents. The table shows that most students (75.89%) were included in the sample. While the percentage of Vice Chancellor (VCs) are 1.62%, Deans 2.04%, Registrars 1.79% and teaching faculty was 18.65%. The number and percentage of Vice Chancellor (VCs) was less in the sample.

9. Data Collection

Data collection is always the major and challenging task for researcher in any research study for collection of the right data he/she must sensibly take the route to collect the data. On the advice of prestigious supervisor, the researcher took the permission from the concerned universities to collect the data.



Total 1,340 questionnaires were sent to 30 public sector universities of Pakistan. Most of the data was collected by the researcher through personal visits and to answer the queries of the participants when and wherever required; and where the researcher could not reach in time due to other fatigues and engagements, the questionnaires were sent through fellow academicians and the practitioners to get filled from the concerned high officials, teaching faculty and the students. After waiting for 30 days, first reminder was sent to the collaborators, some of them were very helpful and encouraging and some of them were unhelpful. Some of them lost questionnaires again and again and some of them not fully answered. After many sour attempts, only 1,174 filled questionnaires were collected, 19 from VCs, 21 from registrars, 24 from deans, 219 from teachers and 891 from students.

10. Data Analysis

For the interpretation of the data of the explored questionnaire, the data was coded and fed into the statistical package for social sciences (SPSS) version 16.0. Various techniques were used such as, Factor Analysis, Inter Scales Correlation, Items Total Correlation, Cronbach's Alpha Reliability Co-efficient Test, Mean and Standard Deviation, whereas *t*-test was applied for making the comparison and one-way analysis of variance (ANOVA) and Post-HOC tests (LSD) were also applied to see the differences between the means of the sample group.

Factor Analysis: Factor analysis is a statistical method used to describe variability among observed correlated variables in terms of a potentially lower number of unobserved variables. The main purpose of this factor analysis is to check relevance of each item among each other (Yong and Pearce, 2013).



Inter Scales Correlation: Inter scale correlation choose to determine multiple scales and situations to investigate the relationship between the variables which those scales are measuring. Depending on the nature of the research, a high or low inter scale correlation could be sought after. In the case of a validity study it is used to examine how similar a newly created scale is to another scale that is deemed to be a “gold standard”. Finding that the researcher’s scale has a high correlation with the other scale would lend itself to evidence of (Michalos, 2014).

Items Total Correlation: An item-total correlation test is performed to check if any item in the set is inconsistent with the averaged behavior of others, and thus can be discarded. The analysis is performed to purify the measure by eliminating ‘garbage’ items prior to determining the factors that represent the construct items of the averaged measure (Everitt, 2002).

Cronbach’s Alpha Reliability Co-efficient Test: Cronbach’s alpha is a measure of internal consistency that is used to examine expected correlation of two tests that measure the same construct. By using this definition, it is implicitly assumed that the average correlation of a set of items is an accurate estimate of the average correlation of all items that pertain to a certain construct (George and Mallery, 2003).

t-test: A *t*-test is an analysis of two populations means with statistical examination. A *t*-test tests the difference between the samples when the variances of two normal distributions are not known (Fay and Proschan, 2010).

One-way analysis of variance (ANOVA): Analysis of variance (ANOVA) is a collection of statistical models used to analyze the differences among group means and their associated procedures. ANOVA is useful for comparing three



or more means (groups or variables) for statistical significance (Cox, 2006)

Post-HOC tests (LSD): Post hoc tests are run to confirm where the differences occurred between groups to show an overall significant difference in group means and subgroups of sampled populations that would otherwise remain undetected and undiscovered (IJSMI, 2016). The mean score difference was compared and independent samples t-test was applied to test the hypotheses to find out the significance difference between male and female at significant level 0.05. To test those hypotheses which were related to correlation by applying formula of Pearson Correlation Coefficient. To compare the difference in seven factors among respondents Vice Chancellor, Deans, Registrars, teaching faculty, students and universities One Way ANOVA was applied.



CHAPTER FOUR

ANALYSIS AND INTERPRETATION OF DATA

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1. Introduction

This chapter is confined to the descriptions of reliability and validity of the research instrument, analysis of the data and interpretations of the data collected through the research instrument. The main theme of this research was based on distinguishing operative Total Quality Management (TQM) factors functioning in the public-sector universities of Pakistan. In view of that research instrument were developed in the light of Total Quality Management (TQM) and its operative factors after the extensive review of the literature and the performance evaluation standards of the Higher Education Commission of the Pakistan (HEC). By method research study was descriptive and results based on the opinions of Vice Chancellor's, Registrars, Deans, Teaching Faculty and the students. The instrument was piloted before administration to the final sample. Questionnaire was designed including demographic variables that were based on sample group's gender, position and the institution. Purpose of this information was to develop an idea about sample group's place of work and the name of institution they belonged. One thirteen members were selected from the population through convenient sampling technique for reliability of the research instrument and questionnaire was sent to them. After three days' data was collected from them only 94 questionnaires were returned with required information. The data were coded and entered in SPSS 16to check consistency of the items. After analysis of the items, 50 items were removed from the research instrument that have low correlation between them.

Final questionnaire comprised 90 items. The experts also reviewed the instrument on the bases of item statistics of the research instrument from the field of Education and



Management sciences. In the light of their suggestions research instrument was improved and statements of the questionnaire were modified in review of Total Quality Management (TQM) and its significance in Education. The research instrument was finalized and distributed in the thirty public universities of Pakistan (sample groups: Vice Chancellor, Deans, Registrars, Teaching Faculty and the students). Questionnaire was used to collect the data from all sample groups on Total Quality Management (TQM). Seven distinctive operative Total Quality Management (TQM) factors were included in the questionnaire. These seven factors were vision, mission and values Leadership, Leadership team, Monitoring of programs process and performances, Curriculum design and delivery, Student selection support and assessment and Continuous quality improvement. The data was analysed and presented in the form of tables and graphs. The mean score difference was compared and independent samples t-test was applied to test the hypotheses to find out the significance difference between male and female at significant level 0.05. To test those hypotheses which were related to correlation by applying formula of Pearson Correlation Coefficient. To compare the difference in seven factors among respondents Vice Chancellor, Deans, Registrars, teaching faculty, students and universities One Way ANOVA was applied.

The results of the study were presented in two parts the first part contain two sections, Section (A) and Section (B). Section A shows the descriptive statistic of tool reliability and Section (B) shows the descriptive statistic of the demographic variables. Second part includes two sections Section (A) shows the descriptive statistic of TQM operative factor of the sample group and (Section B) demonstrate the descriptive statistic of



TQM operative factor at Universities level and third part consists of testing of the null hypotheses. The next chapter includes summary, findings, conclusions, discussion and recommendations.

Part-I

(Section A): 4.1: Descriptive Statistics of Reliability of Research Instrument

The research instrument was designed to identify distinguishing Total Quality Management (TQM) operative factors in the public-sector universities of Pakistan for sustainable growth of quality education and the organization. For that reason, inter scale correlation was employed to determine the reliability among distinguishing TQM operative factors.

Table 4.1: Inter Scale Correlation of Research Instrument (N=1174)

Factors	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
Vision, mission and values	1						
Leadership	.620**	1					
Leadership team	.398**	.411**	1				
Monitoring of Program, process and performances	.301**	.380**	.656**	1			
Curriculum design and delivery	.550**	.366**	.451**	.337**	1		
Student selection support and assessment	.326**	.587**	.362**	.419**	.469**	1	
Continuous quality improvement	.456**	.298**	.427**	.352**	.304**	.430**	1
Total	.619**	.429**	.366**	.505**	.447**	.713**	.339**

**Correlation is significant at the 0.01 level (2-tailed)

Table 4.1 shows inter-scale correlation of research instrument and it indicates that factors were significantly correlated with each other. The internal reliability of items was significant at



0.01. It was found that highest correlations were between the factor monitoring of program, process and performances and the factor leadership team (.656**) and lowest inter-scale correlations exists between factor leadership and leadership team (.411**).

2. Item Total Correlation (N=1174)

The research instrument was developed to explore distinguishing TQM operative factors in the Public-sector universities of Pakistan to gauge the quality organization and the education in relation with seven distinctive factors. Accordingly, item total correlation was employed on the research instrument to determine items effectiveness in relation with seven distinctive factors.

Table 4.2: Item Total Correlation of Research Instrument

Items	Correlation	Items	Correlation
1	.45**	46	.58**
2	.62**	47	.57**
3	.51**	48	.89**
4	.43**	49	.73**
5	.56**	50	.55**
6	.58**	51	.39**
7	.45*	52	.61**
8	.60**	53	.71**
9	.50**	54	.45**
10	.48*	55	.53**
11	.56**	56	.59**
12	.53**	57	.74**
13	.61**	58	.77**
14	.57**	59	.53**
15	.41*	60	.76**
16	.46**	61	.56**
17	.68**	62	.38*
18	.35**	63	.45*
19	.59**	64	.67**
20	.53**	65	.68**



21	.55**	66	.75**
22	.66**	67	.79**
23	.54**	68	.45*
24	.34**	69	.47*
25	.43**	70	.78**
26	.77**	71	.54**
27	.49**	72	.48**
28	.51**	73	.38**
29	.63**	74	.51**
30	.58**	75	.37**
31	.75**	76	.58**
32	.58**	77	.34**
33	.62**	78	.67**
34	.55**	79	.29**
35	.61**	80	.34**
36	.45**	81	.58**
37	.76**	82	.45**
38	.85**	83	.40**
39	.67**	84	.30**
40	.47**	85	.42**
41	.57**	86	.78**
42	.41**	87	.48**
43	.81**	88	.67**
44	.53**	89	.47**
45	.46**	90	.87**

**Correlation is significant at the 0.01 level (2-tailed)

Above table shows item total correlations of the research instrument in relation with seven distinctive factors that was Vision, mission and values, Leadership, Leadership Team, Monitoring of Programs process and performances, Curriculum design and Delivery, Student selection support and assessment and Continuous quality improvement. The correlation score of the research instrument ranging between .89 to .21 which indicates that research instrument was significant. The data indicates that all items of the scales have significant



correlation with the total scale. Hence all items were retained in the scale and further no changes were made.

3 Reliability of Research Instrument through Cronbach's Alpha Coefficient

To see overall reliability of the research instrument Cronbach's alpha Coefficient were used as it is suitable method to measure coefficient of reliability among the instrument items. According to Gay and Peter (2003) Cronbach's Alpha identify the core stability of the survey items that helps to yield coefficient reliability of multiple items.

Factors	No of items	Reliability Coefficient
Vision, mission and values	10	.689
Leadership	14	.644
Leadership team	13	.691
Monitoring of program, process and performances	16	.705
Curriculum design and delivery	15	.596
Student selection support and assessment	14	.668
Continuous quality improvement	8	.684
Total	90	.969

Table 4.3: Cronbach's Alpha Coefficient

The above table indicates overall reliability of the research instrument was .969. The research instrument was divided into seven parts that were Vision, mission and values, Leadership, Leadership team, Monitoring of programs process and performances, Curriculum design and delivery, Student selection support and assessment and Continuous quality



improvement. Among these factors highest reliability was found in Monitoring of programs, process and performances.

4. Factor Analysis

It is statistical tool that point out consistency among variables and constructs validity of research instrument. It is fruitful method for examining relationships among different concepts which cannot easily measure. For that reason, research instrument was developed for current research study thus factor analysis was applied to measure reliability and construct validity of multidimensional factors a sample of 1174 respondents were collected from different sample groups VC's, Registrars, Deans, teaching faculty and the students from selected thirty public universities of Pakistan by disseminating finalized tool including 90items. Instructions were communicated to the respondents to fill up the questionnaire carefully per the guidelines given in the questionnaire and rate the question on a five point Likert scale. Data were analyzed through statistical package for social sciences (SPSS) 16. Appendix (D) displays the loading of selected items on seven distinguishing TQM operative factors that are correlated significantly. These factors were titled as vision, mission and values (10), Leadership (14), and Leadership Team (13), Monitoring of programs, process and performances (16), Curriculum design and delivery (15), Student Selection support and assessment (14) and Continuous quality improvement (8). The determinant proposed for items for .20 out of 140 items 50 items were removed as found insignificant.

5. Section B): Descriptive Statistics of Demographic Variables

Table 4.4: Distribution of the respondents according to gender



Gender	Frequency	Percentage
Male	639	54.43
Female	535	45.57
Total	1174	100

Table 4.4 shows the number and percentage of male and female. Total respondents 1174 were included in the sample. The percentage of male was 54.43 and female was 45.57.

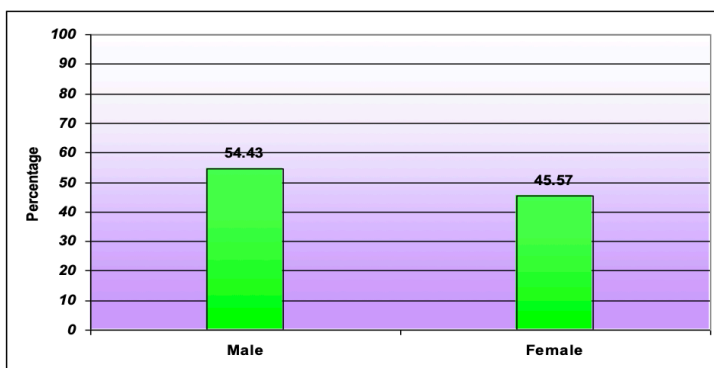


Figure 4.1 Percentage of male and female respondents

Table 4.5: Distribution of the respondents according to sample groups

Respondents	Frequency	Percentage
VC's	19	1.62
Deans	24	2.04
Registrars	21	1.79
Teaching Faculty	219	18.65
Students	891	75.89



Total	1174	100
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Table 4.5 indicates the number and percentage of Vice Chancellor (VC's), Deans, Registrars, Teaching Faculty and students of sample. The data were collected from 1174 said respondents. The table shows that most students (75.89%) were included in the sample. While the percentage of Vice Chancellor (VC's) are 1.62%, Deans 2.04%, Registrars 1.79% and teaching faculty are 18.65%. The number and percentage of Vice Chancellor (VC's) are less in the sample.

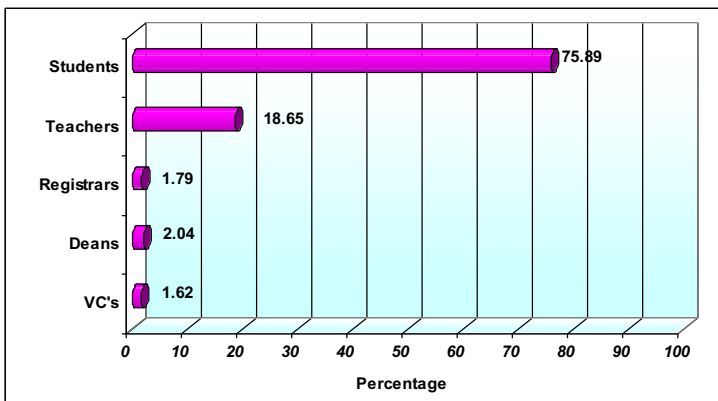


Figure 2: Percentage of sample group

Table 4.6: Distribution of the respondents according to Teaching Faculty

Designation	Frequency	Percentage
Lecturers	114	9.2
Assistant professors	51	4.1
Associate professors	32	2.6
Professors	23	1.8



Total	219	100
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Table No 4.6 shows the number of total faculty member who were included in the sample. Faculty members were divided in to four categories based on their designation in the university. The table shows that most Lecturers (114) 9.2%was included in the sample. While the percentage of Professors was (23) 1.8%, Associate professors were (32) 2.6% and Assistant professors were (51) 1.79%.

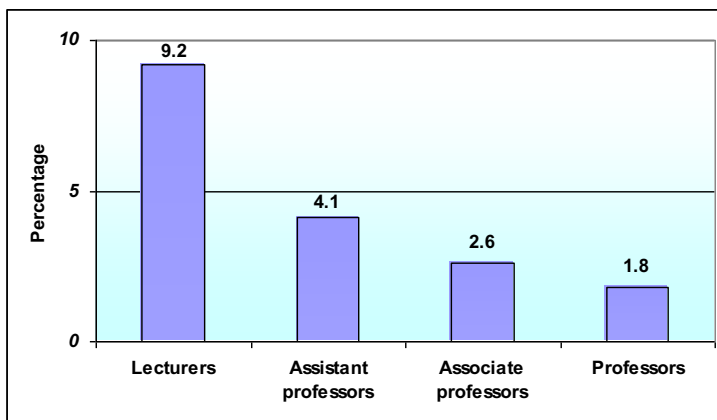


Figure 3: Percentage of teaching faculty

Table 4.7: University Wise Distribution of Respondents

S. #	University/DAI	City	Frequen cy	Perce nt	Cumulati ve Percent
1	Fatima Jinnah Women University	Rawalpindi	40	3.41	3.4
2	PirMehr Ali Shah Arid Agriculture, University	Rawalpindi	40	3.41	6.8



3	SardarBahadur Khan Women University	Quetta	39	3.32	10.1
4	Bahria University	Islamabad	39	3.41	10.1
5	Quaid-e-Azam University	Islamabad	39	3.32	13.5
6	Karakoram International University	Gilgit, Baltistan	40	3.41	17.0
7	Air University	Islamabad	38	3.24	23.5
8	Allama Iqbal Open University.	Islamabad	38	3.24	23.5
9	Federal Urdu University of Arts, Sciences & Technology	Islamabad	39	3.32	26.8
10	BahaudinZakria University	Multan	38	3.24	30.1
11	Government College University	Faisalabad	39	3.32	33.4
12	Government College University	Lahore	39	3.32	36.7
13	Islamia University Bahawalpur	Bahawalpur	40	3.41	40.1
14	University of the Punjab	Lahore	40	3.32	46.8



1	University of	Lahore	39	3.32	50.2
5	Education				
1	University of	Gujarat	40	3.41	53.6
6	Gujarat				
1	University of	Sargodha	39	3.32	56.9
7	Sargodha				
1	Lahore				
8	College for	Lahore	39	3.32	60.2
	Women				
	University				
1	University of	Karachi	29	2.47	62.7
9	Karachi				
2	Sindh				
0	Madresatul	Karachi	39	3.32	66.0
	Islam				
	University				
2	Hazara				
1	University,	Mansehra	39	3.32	69.3
	Dodhial				
2	University of	Peshawar	40	3.41	72.7
2	Peshawar				
2	University of	Swabi	38	3.24	76.0
3	Swabi				
2	University of	Quetta	41	3.41	79.5
4	Baluchistan				
2	University of	AzadKash			
5	Azad Jammu	mir	40	3.41	82.9
	and Kashmir,	Muzaffara			
		bad			
2	Abdul Wali				
6	Khan	Mardan	40	3.41	86.3
	University				
2	University of	Swat	40	3.41	89.8
7	Swat				
2	Shah Abdul				
8	Latif	Khairpur	40	3.41	93.2
	University				



2	International				
9	Islamic University	Islamabad	39	3.41	96.5
3	Gomal				
0	University, D.I. Khan	D.I. Khan	41	3.41	100
Total			1174	100	

Table 4.7 specifies response rate of the universities selected as sample of the research study. The measurement of scores of responding universities on distinguishing TQM operative factors was determined through the Mean and SD in the section B given after the section A).

Part –II

Part II comprises two Section (A) and Section(B) description is given below:

Section (A) includes Descriptive statistic of distinguishing TQM operative factors of the sample group. The sample of this research study consisted of Vice Chancellors (VC's), Registrars, Deans, Teaching Faculty and the students from the Public-sector universities of the Pakistan. The measurement of scores of respondents on distinguishing TQM operative factors was determined through the Mean and SD.

Section (B) consists of Descriptive statistic of distinguishing TQM operative factors at Universities level

6. Part A). Descriptive statistic of distinguishing TQM operative factors of the sample group

Table 4.8: Comparison of Mean and SD of VC's on distinguishing TQM operative factors



Factors	Mean	Std. Deviation
Vision, mission and values	56.6316	3.7001
Leadership	64.7895	5.2193
Leadership Team	59.5263	4.9849
Monitoring of programs process and performances	60.3158	3.1107
Curriculum design and delivery	57.6471	1.7389
Student selection support and assessment	58.4316	3.8204
Continuous quality improvement	56.2116	2.5275

Table 4.8 describes the descriptive statistics of distinguishing TQM operative factors being operated in the public-sector universities of Pakistan. There were 19 respondents in each factor from the public-sector universities of the Pakistan. Analysis discloses mean values of distinguishing TQM operative factors revealed by the Vice chancellors (VC's) respectively Leadership (Mean =64.78), leadership team (Mean =59.52), Student selection support and assessment (Mean =58.43), Vision, mission and values (Mean =56.63), Monitoring of programs, process and performances (Mean =60.31), Curriculum design and delivery (Mean =57.64) and Continuous quality improvement (Mean =56.21). The individual differences among the Vice chancellor (VC's) response, as reflected in SD scores. The entries indicate that the public-sector sectors' Vice chancellor (VC's) on the average more agreed with the factors with some spreading in their individual scores, as reflected in standard deviations.



Table 4.9: Comparison of Mean and SD of Deans on distinguishing TQM operative factors

Factors	Mean	Std. Deviation
Vision, mission and values	52.8333	2.7887
Leadership	64.7083	5.9414
Leadership Team	58.6667	5.4422
Monitoring of programs process and performances	55.2500	3.2548
Curriculum design and delivery	56.4583	3.4921
Student selection support and assessment	55.2917	3.4967
Continuous quality improvement	56.2500	2.4161

Table 4.9 describes the descriptive statistics of distinguishing TQM operative factors being operated in the public-sector universities of Pakistan. There were 24 respondents in each factor from the public-sector universities of the Pakistan. Analysis discloses mean values of distinguishing TQM operative factors revealed by the Deans Respectively Leadership (Mean =64.70), leadership team (Mean =58.66), Curriculum design and delivery (Mean =56.45), Student selection support and assessment (Mean =55.29), Monitoring of Programs, process and performances (Mean =55.25), Continuous quality improvement (Mean =56.25) and Vision, mission and values (Mean =52.83). The individual differences among the Dean response, as reflected in SD scores. The entries indicate that the public-sector sectors' Dean on the average more agreed with the factors with some spreading in their individual scores, as reflected in standard deviations.



Table 4.10: Comparison of Mean and SD of Registrars on distinguishing TQM operative factors

Factors	Mean	Std. Deviation
Vision, mission and values	57.4762	3.3568
Leadership	63.6190	5.2053
Leadership Team	58.6190	3.7124
Monitoring of programs process and performances	56.9524	3.2950
Curriculum design and delivery	57.1905	2.0007
Student selection support and assessment	56.7143	3.9005
Continuous quality improvement	56.4286	1.5009

Table 4.10 describes the descriptive statistics of distinguishing TQM operative factors being operated in the public-sector universities of Pakistan. There were 21 respondents in each factor from the public-sector universities of the Pakistan. Analysis discloses mean values of distinguishing operative factors revealed by the Registrars respectively Leadership (Mean =63.61), leadership team (Mean =58.61), Vision, mission and values (Mean =57.47), Curriculum design and delivery (Mean =57.19), Monitoring of programs, process and performances (Mean =56.95), Student selection support and assessment (Mean =56.71) and Continuous quality improvement (Mean =56.42). The individual differences among the Registrars response, as reflected in SD scores. The entries indicate that the public-sector sectors' Registrars on the average more agreed with the factors with some spreading in their individual scores, as reflected in standard deviations.



4.11: Comparison of Mean and SD of Teaching Faculty on distinguishing TQM operative factors

Factors	Mean	Std. Deviation
Vision, mission and values	50.7306	1.8040
Leadership	57.5023	4.1852
Leadership Team	49.3379	3.4218
Monitoring of programs process and performances	56.5525	2.4736
Curriculum design and delivery	53.0776	1.9582
Student selection support and assessment	51.6210	3.4547
Continuous quality improvement	52.0228	2.8699

Table 4.11 describes the descriptive statistics of distinguishing TQM operative factors being operated in the public-sector universities of Pakistan. There were 219 respondents in each factor from the public-sector universities of the Pakistan. Analysis discloses mean values of distinguishing TQM operative factors revealed by the Teaching faculty respectively Leadership (Mean =57.50), Monitoring of Programs, process and performances (Mean =56.55), Curriculum design and delivery (Mean =53.07), Continuous quality improvement (Mean =52.02), Student selection support and assessment (Mean =51.62), Vision, mission and values (Mean =50.73) and leadership team (Mean =49.33). The individual differences among the Teaching faculty response, as reflected in SD scores. The entries indicate that the public-sector sectors’ Teaching faculty on the average more agreed with the factors with some



spreading in their individual scores, as reflected in standard deviations.

Table 4.12: Comparison of Mean and SD of Students on distinguishing TQM operative factors

Factors	Mean	Std. Deviation
Vision, mission and values	43.7868	1.1359
Leadership	49.7811	3.3358
Leadership Team	46.3221	2.8783
Monitoring of programs process and performances	38.1571	2.2367
Curriculum design and delivery	35.6768	1.0820
Student selection support and assessment	35.6173	1.3675
Continuous quality improvement	31.8631	1.6271

Table 4.12 describes the descriptive statistics of distinguishing TQM operative factors being operated in the public-sector universities of Pakistan. There were 891 respondents in each factor from the public-sector universities of the Pakistan. Analysis reveals mean values of distinguishing TQM factors revealed by the students respectively Leadership (Mean =49.78), leadership team (Mean =46.32), Student selection support and assessment (Mean =35.61), Vision, mission and values (Mean =43.78), Monitoring of programs, process and performances (Mean =38.15), Continuous quality improvement (Mean =31.86) and Curriculum design and delivery (Mean =35.67). The individual differences among the Students response, as reflected in SD scores. The entries indicate that the public-sector sectors' Students on the average



more agreed with the factors with some spreading in their individual scores, as reflected in standard deviations.

7. B). Descriptive statistic of distinguishing TQM operative factors at universities level

Table 4.13: Fatima Jinnah Women University Rawalpindi (FJWU) N = 40

Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	60.5750	.68799	4.3525
Leadership	67.3000	.66199	4.8123
Leadership Team	64.1000	.59073	3.7309
Monitoring of programs process and performances	55.9000	.52599	3.3266
Curriculum design and delivery	61.6000	.51366	3.2467
Student selection support and assessment	55.8750	.48411	3.0676
Continuous quality improvement	55.1500	.31734	2.0004

Table 4.13 describes the results of distinguishing operative quality factors being operated in the Fatima Jinnah Women University Rawalpindi (FJWU). There are 40 respondents in each factor. Analysis reveals that all are factors including Leadership (Mean = 67.30), Vision, mission and values (Mean =60.57), Leadership Team (Mean = 64.10), Curriculum design and delivery (Mean =61.60) Monitoring of programs process and performances (Mean =55.90), Student selection, support and assessment (Mean =55.87) and Continuous quality improvement (Mean = 55.15) are being efficiently practiced in the university to ensure the quality in the university. Accordingly, it was concluded respondents of Fatima Jinnah Women University Rawalpindi (FJWU) were more agreed with all factors.

Table 4.14: Table No: Pir Mehr Ali Shah Arid Agriculture, Rawalpindi (ARID) No= 40



Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	60.5250	.49640	3.1394
Leadership	62.2000	.40174	2.5402
Leadership Team	62.5750	.59913	3.7894
Monitoring of program, process and performances	59.2000	.53253	3.3682
Curriculum design and delivery	56.3500	.63503	4.0161
Student selection support and assessment	50.6750	.44490	2.8137
Continuous quality improvement	41.6250	.32559	2.0592

Table 4.14 describes the results of distinguishing operative quality factors being operated in the Pir Mehr Ali Shah Arid Agriculture, Rawalpindi (ARID). There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 62.20), Leadership team (Mean = 62.57), Vision, mission and values (Mean = 60.52), Monitoring of programs process and performances (Mean = 59.20), Curriculum design and delivery (Mean = 56.35) are being efficiently practiced in the university as compare to other factors. Besides Leadership, Leadership team, Vision, mission and values, monitoring of programs process and performances, Curriculum design and delivery other factors which are being practiced by the university to ensure the quality in the university includes Student selection support and assessment (Mean = 50.67) and Continuous quality improvement (Mean = 41.62). It was concluded that respondents of Pir Mehr Ali Shah Arid Agriculture, Rawalpindi



(ARID) were more agreed on factors Leadership, Leadership team, Vision, mission and values, monitoring of programs process and performances, Curriculum design and delivery that should be part of distinguishing TQM operative factor sand less agreed on factors student selection support and assessment and Continuous quality improvement as essentials of distinguishing TQM operative factors.

Table 4.15: Sardar Bahadur Khan Women University, Quetta N= 39

Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	53.3349	0.6939	4.3255
Leadership	62.4910	0.5018	3.1235
Leadership Team	56.7200	0.6476	4.0403
Monitoring of program, process and performances	49.2840	0.5716	3.5850
Curriculum design and delivery	54.6438	0.6212	3.7645
Student selection support and assessment	51.0349	0.4209	2.2564
Continuous quality improvement	39.1850	0.3714	2.3691

Table 4.15 describes the results of distinguishing operative quality factors being operated in the Sardar Bahadur Khan Women University, Quetta. There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean =62.49), leadership team (Mean =56.72) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team other factors which are being practiced by the university to ensure the quality in the



university includes, Curriculum design and delivery (Mean = 54.64), Vision, mission and values (Mean = 53.33), Monitoring of program process and performances (Mean = 49.28), Student selection support and assessment (Mean = 51.03) and Continuous quality improvement (Mean = 39.18). It was concluded that respondents of Sardar Bahadur Khan Women University, Quetta were more agreed on the factors Leadership and leadership team that should be part of distinguishing TQM operative factors whereas less agreed on the factors Monitoring of program, process and performances, Curriculum design and delivery, Student selection support and assessment and Continuous quality improvement as essentials of distinguishing TQM operative factors.

Table 4.16: Bahria University, Islamabad N= 40

Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	56.7350	0.1950	5.8318
Leadership	65.8300	0.3315	4.0021
Leadership Team	61.2012	0.6473	4.2010
Monitoring of program, process and performances	55.9000	0.3920	3.4150
Curriculum design and delivery	57.3023	0.6463	4.2013
Student selection support and assessment	55.9550	0.3057	3.9742
Continuous quality improvement	42.1300	0.8234	1.7643

Table 4.16 describes the results of distinguishing operative quality factors being operated in the Bahria University, Islamabad. There are 40 respondents in each factor. Analysis



reveals that, Leadership (Mean = 65.83), leadership team (Mean = 61.20), Curriculum design and delivery (Mean = 57.30) Vision, mission and values (Mean = 56.73), Monitoring of program process and performances (Mean = 55.90), Student Selection support and assessment (Mean = 55.95) are being efficiently practiced in the university as compare to Continual quality improvement (Mean = 42.13). It was concluded that respondents of Bahria University, Islamabad were more agreed on the factors Leadership, leadership team, Curriculum design and delivery, Vision, mission and values, monitoring of program process and performances, Student Selection support and assessment that should be part of distinguishing TQM operative factors and less agreed on factor Continuous quality improvement as essentials of distinguishing TQM operative factors.

Table 4.17: Quaid-e-Azam University, Islamabad N= 39

Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	68.6154	.79354	4.5567
Leadership	75.7436	1.02992	6.4313
Leadership Team	57.5485	.63705	3.9735
Monitoring of program process and performances	55.8205	.72533	4.5270
Curriculum design and delivery	55.0000	.63509	3.6612
Student selection support and assessment	61.7436	1.20319	7.5131
Continuous quality improvement	57.4103	.47999	2.9752



Table 4.17 describes the results of distinguishing operative quality factors being operated in the Quaid-e-Azam University, Islamabad (QAU). There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 75.74), Vision, mission and values (Mean = 68.61), Student Selection support and assessment (Mean = 61.74), leadership team (Mean = 57.54), Continual quality improvement (Mean = 57.41), Monitoring of program process and performances (Mean = 55.82), Curriculum design and delivery (Mean = 55.00), and are being efficiently practiced in the university to ensure the quality in the university. Accordingly, it was concluded that respondents of Quaid-e-Azam University, Islamabad (QAU) were more agreed on all factors including Leadership, Vision, mission and values Student selection support and assessment, leadership team, Continuous quality improvement Monitoring of programs, process and performances and Curriculum design and delivery are being in succession proficiently and resourcefully by the university to ensure the quality in the university.

Table 4.18: Karakoram International University N= 40



Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	54.6190	1.1312	7.3302
Leadership	64.1952	1.5074	9.7256
Leadership Team	61.1724	.98018	6.3522
Monitoring of program process and performances	62.8867	1.0041	6.5072
Curriculum design and delivery	53.1018	.96585	6.2544
Student selection support and assessment	57.4505	1.8855	12.2001
Continuous quality improvement	49.1667	.56916	3.6885

Table 4.18 describes the results of distinguishing operative quality factors being operated in the Karakaram International University (KIU). There are 42 respondents in each factor. Analysis reveals that, Leadership (Mean = 64.19), Monitoring of program process and performances (Mean = 62.88), leadership team (Mean = 61.17), Student selection support and assessment (Mean = 57.45) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team, Student selection support and assessment other factors which are being practiced by the university to ensure the quality in the university includes, Vision, mission and values (Mean = 54.61), Curriculum design and delivery (Mean = 53.10), and Continuous quality improvement (Mean = 49.16). It was concluded that respondents of Karakaram International University (KIU) were more agreed on factors



Leadership, monitoring of program process and performances, leadership team and Student selection support and assessments that should be part of distinguishing TQM operative factors whereas less agreed on factors Vision and Mission, Curriculum design and delivery and Continuous quality improvement as essentials of distinguishing TQM operative factors.

Table 4.19: AIR University, Islamabad N=38

Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	51.1316	.85438	5.2667
Leadership	66.1363	.85569	5.2741
Leadership Team	64.9737	.44862	2.7654
Monitoring of programs process and performances	58.2368	.43730	2.6568
Curriculum design and delivery	54.5337	.51539	3.1770
Student selection support and assessment	58.9716	1.09322	6.7304
Continuous quality improvement	52.2895	.42987	2.6491

Table 4.19 describes the results of distinguishing operative quality factors being operated in the AIR University, Islamabad (AIR). There are 38 respondents in each factor. Analysis reveals that, Leadership (Mean = 66.13), leadership team (Mean = 64.97), Student selection support and assessment (Mean = 58.97) are being efficiently practiced in the university as compare to more factors. Besides Leadership, Vision,



mission and values, leadership team, Student selection support and assessment other factors which are being practiced by the university to ensure the quality in the university includes Curriculum design and delivery (Mean = 54.53), Monitoring of programs process and performances (Mean = 58.23) and Continuous quality improvement (Mean = 52.28) respectively. It was concluded that respondents of AIR University, Islamabad were more agreed on factors Leadership, Vision, mission and values, leadership team, Student selection support and assessment that should be part of distinguishing TQM operative factors whereas less agreed on factors Curriculum design and delivery Monitoring of programs process and performances and Continuous quality improvement as essentials of distinguishing TQM operative factors.

Table 4.20: Allama Iqbal Open University, Islamabad N=38

Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	55.7105	.70146	4.3240
Leadership	60.8747	.97098	5.98552
Leadership Team	58.1053	.59129	3.6449
Monitoring of programs process and performances	51.5789	.43599	2.6763
Curriculum design and delivery	56.8900	.59275	3.6535
Student selection support and assessment	52.8584	1.04055	6.4143
Continuous quality improvement	43.7368	.42950	2.6463



Table 4.20 describes the results of distinguishing operative quality factors being operated in the Allama Iqbal Open University, Islamabad (AIOU). There are 38 respondents in each factor. Analysis reveals that, Leadership (Mean = 60.87), leadership team (Mean = 58.10), Curriculum design and delivery (Mean = 56.89), Vision, mission and values (Mean = 55.71) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team, Curriculum design and delivery and Vision and Mission other factors which are being practiced by the university to ensure the quality in the university includes, Student selection support and assessment (Mean = 52.85), Monitoring of programs process and performances (Mean = 51.57) and Continuous quality improvement (Mean = 43.73). It was concluded that respondents of Allama Iqbal Open University, Islamabad (AIOU) were more agreed on factors Leadership, leadership team, Curriculum design and delivery and Vision, mission and values that should be part of distinguishing TQM operative factors whereas less agreed on factors Student selection support and assessment, Monitoring of programs process and performances and Continuous quality improvement as essentials of distinguishing TQM operative factors.

Table 4.21: Federal Urdu University of Arts, Sciences and Technology, Islamabad N=39



Factors	Mean	Std. Error	Std. Deviation
Vision, mission, values	45.8718	.63648	3.7479
Leadership	59.6231	.83479	5.21327
Leadership Team	56.0000	.47778	2.8376
Monitoring of programs process and performances	57.7261	.58432	3.6408
Curriculum design and delivery	57.9279	.62661	3.1319
Student selection support and assessment	52.3154	1.00445	6.2721
Continuous quality improvement	49.9231	.35878	2.2405

Table 4.21 describes the results of distinguishing operative quality factors being operated in the Federal Urdu University of Arts, Sciences and Technology, Islamabad. There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 59.62), leadership team (Mean = 56.00), Monitoring of Programs process and Performances (Mean = 57.72) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team, Monitoring of Programs process and Performances other factors which are being practiced by the university to ensure the quality in the university includes, Vision and Mission (Mean = 45.87), Curriculum design and delivery (Mean = 57.92), Student selection support and assessment (Mean = 52.31), and Continual quality improvement (Mean = 49.92). It was concluded that respondents of Federal Urdu University of Arts,



Sciences and Technology, Islamabad were more agreed on factors Leadership, leadership team, Monitoring of Programs process and Performances that should be part of distinguishing TQM operative factors whereas less agreed on factors Vision, mission and values, Curriculum design and delivery, Student selection support and assessment and Continuous quality improvement as essentials of distinguishing TQM operative factors.

Table 4.22: BahaudinZakria University, Multan N=39

Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	45.6300	.62250	3.3738
Leadership	65.9200	.75635	4.6243
Leadership Team	62.4550	.61380	3.7372
Monitoring of programs process and performances	59.9700	.55520	3.4224
Curriculum design and delivery	56.7950	.63390	3.0763
Student selection support and assessment	54.8250	.93409	5.7510
Continuous quality improvement	50.7400	.44893	2.7642

Table 4.22 describes the results of distinguishing operative quality factors being operated in the Bahaudin Zakria University, Multan (BZU). There are 38 respondents in each factor. Analysis reveals that, Leadership (Mean = 65.92), leadership team (Mean = 62.45), Monitoring of programs



process and performances (Mean = 59.97), and Curriculum design and delivery (Mean = 56.79) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team, monitoring of programs process and performances and Curriculum design and delivery other factors which are being practiced by the university to ensure the quality in the university includes, Student selection support and assessment (Mean = 54.82) Continuous quality improvement (Mean = 50.74) and Vision and Mission (Mean = 45.63). It was concluded that respondents of Bahaudin Zakria University, Multan (BZU) were more agreed on factors Leadership, leadership team, monitoring of programs process and performances and Curriculum design and delivery that should be part of distinguishing TQM operative factors whereas less agreed on factors Vision, mission and values, Student selection support and assessment and Continuous quality improvement as essentials of distinguishing TQM operative factors.

Table 4.23: Government College University Faisalabad N=39



Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	48.2821	.66425	4.1423
Leadership	60.9026	.84316	5.2555
Leadership Team	59.8794	.69986	4.3065
Monitoring of programs process and performances	50.8718	.68646	4.2694
Curriculum design and delivery	55.2308	.68082	4.2510
Student selection support and assessment	54.9574	1.14755	7.1642
Continuous quality improvement	47.6154	.27884	1.7413

Table 4.23 describes the results of distinguishing operative quality factors being operated in the Government College University Faisalabad (GCU). There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 60.90), leadership team (Mean = 59.87), Curriculum design and delivery (Mean = 55.23) are being efficiently practiced in the university as compare to other factors. Besides Leadership other factors which are being practiced by the university to ensure the quality in the university includes, Student selection support and assessment (Mean = 54.95), Monitoring of programs process and performances (Mean = 50.87), Vision and Mission (Mean = 48.28), and Continuous quality improvement (Mean = 47.61). It was concluded that respondents Government College University Faisalabad (GCU) were more agreed on factors Leadership, leadership



team and Curriculum design and delivery that should be part of distinguishing TQM operative factors whereas less agreed on factors Student selection support and assessment, Monitoring of programs process and performances, Vision, mission and values and Continuous quality improvement as essentials of distinguishing TQM operative factors.

Table 4.24: Government College University, Lahore N=39

Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	64.6923	.74851	4.6442
Leadership	71.6410	.95052	5.3601
Leadership Team	63.3121	.66425	4.1423
Monitoring of programs process and performances	55.3077	.60604	3.7846
Curriculum design and delivery	59.5128	.59674	3.2666
Student selection support and assessment	60.3333	1.47326	9.2000
Continuous quality improvement	55.3077	.42708	2.6670

Table 4.24 describes the results of distinguishing operative quality factors being operated in the Government College University, Lahore (GCU). There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 71.64), Vision, mission and values (Mean = 64.69), leadership team (Mean = 63.31), Student selection support and assessment



(Mean = 60.33), Curriculum design and delivery (Mean = 59.51), Monitoring of Programs process and Performances (Mean = 55.30) and Continuous quality improvement (Mean = 55.30) are being efficiently practiced in the university to ensure the quality in the university. Accordingly, it was concluded that respondents of Government College University, Lahore (GCU) were more agreed on all factors including Vision, mission and values, Leadership, Student selection support and assessment, leadership team, monitoring of programs, process and performances and Curriculum design and delivery and Continuous quality improvement are being in succession proficiently and resourcefully by the university to ensure the quality in the university.

Table 4.25: Islamia University Bahawalpur N=40

Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	42.2500	.68007	4.3011
Leadership	67.5300	.92736	5.6515
Leadership Team	56.1800	.60970	3.5606
Monitoring of programs process and performances	56.1300	.59220	3.74542
Curriculum design and delivery	55.5500	.58282	3.6608
Student selection support and assessment	52.8500	1.45221	9.1457
Continuous quality improvement	46.3750	.42167	2.6667



Table 4.25 describes the results of distinguishing operative quality factors being operated in the Islamia University Bahawalpur (IUB). There are 40 respondents in each factor. Analysis reveals that, Leadership (Mean = 67.53), leadership team, (Mean = 56.18), Monitoring of Programs process and performances (Mean = 56.13), Curriculum design and delivery (Mean = 55.55) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team, Monitoring of Programs process and performances and Curriculum design and delivery other factors which are being practiced by the university to ensure the quality in the university includes, Student selection support and assessment, (Mean = 52.85), Continuous quality improvement (Mean = 46.37) and Vision, mission and values (Mean = 42.25). It was concluded that respondents of Islamia University Bahawalpur (IUB) were more agreed on factors Leadership, leadership team, Monitoring of Programs process and performances and Curriculum design and delivery that should be part of distinguishing TQM operative factors whereas less agreed on factors Student selection support and assessment, Continuous quality improvement and Vision and Mission as essentials of distinguishing TQM operative factors.

Table 4.26: Punjab University, Lahore N=40



Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	55.2500	.68007	4.3011
Leadership	64.5300	.92736	5.6515
Leadership Team	62.1800	.60970	3.5606
Monitoring of programs process and performances	60.1300	.59220	3.7442
Curriculum design and delivery	59.8500	.58282	3.6608
Student selection support and assessment	56.8500	1.45221	9.1457
Continuous quality improvement	55.3750	.42167	2.6667

Table 4.26 describes the results of distinguishing operative quality factors being operated in the Punjab University, Lahore (PU). There are 40 respondents in each factor. Analysis reveals that, Leadership, (Mean = 64.53), leadership team (Mean = 62.18), Monitoring of programs process and performances (Mean = 60.13), Curriculum design and delivery (Mean = 59.85), Student selection support and assessment (Mean = 56.85), Vision, mission and values (Mean = 55.25) and Continuous quality improvement (Mean = 55.37) are being efficiently practiced in the university. Accordingly, It was concluded that respondents of Punjab University, Lahore (PU) were more agreed on all factors including Leadership, Curriculum design and delivery, leadership team, Monitoring of programs, process and performances, Student selection



support and assessment, Vision, mission and values and Continuous quality improvement are being in succession proficiently and resourcefully by the university to ensure the quality in the university.

Table 4.27: University of Education, Lahore N=39

Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	42.1500	.55302	3.4762
Leadership	60.7500	.58910	3.7257
Leadership Team	55.3850	.52599	3.3266
Monitoring of programs process and performances	55.2350	.36845	2.3302
Curriculum design and delivery	56.6250	.56101	3.5411
Student selection support and assessment	51.2600	.68664	4.3426
Continuous quality improvement	42.3250	.27124	1.7150

Table 4.27 describes the results of distinguishing operative quality factors being operated in the University of Education, Lahore (EU). There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 60.75), Curriculum design and delivery (Mean = 56.62), leadership team (Mean = 55.38), Monitoring of Programs process and performances (Mean = 55.23) are being efficiently practiced in the university as compare to other factors. Besides Leadership, Curriculum design and delivery, leadership team, Monitoring of Programs process and performances other factors which are being



practiced by the university to ensure the quality in the university includes, Student selection support and assessment (Mean = 51.26), Vision and Mission (Mean = 42.15) and Continual quality improvement (Mean = 42.32).It was concluded that respondents of University of Education, Lahore (EU) were more agreed on factors Leadership, Curriculum design and delivery, leadership team, Monitoring of Programs process and performances that should be part of distinguishing TQM operative factors whereas less agreed on factors Student selection support and assessment, Vision, mission and values, Continuous quality improvement as essentials of distinguishing TQM operative factors.

Table 4.28: University of Gujrat, Gujrat N=39

Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	44.0350	.62889	3.7742
Leadership	63.1200	.67634	4.2755
Leadership Team	58.2000	.58529	3.7010
Monitoring of programs process and performances	55.0000	.51515	3.2513
Curriculum design and delivery	54.9000	.66583	4.2110
Student selection support and assessment	55.2000	.80319	5.0781
Continuous quality improvement	41.9250	.24907	1.5525



Table 4.28 describes the results of distinguishing operative quality factors being operated in the University of Gujrat, Gujrat (UOG). There are 40 respondents in each factor. Analysis reveals that, Leadership (Mean = 63.12), Student selection support and assessment (Mean = 55.00) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team, Student selection support and assessment and Monitoring of programs, process and performances other factors which are being practiced by the university to ensure the quality in the university includes Curriculum design and delivery (Mean = 54.90), Vision, mission and values (Mean = 44.03), and Continuous quality improvement (Mean = 41.92). It was concluded that respondents of University of Gujrat, Gujrat (UOG) were more agreed on factors Leadership, leadership team, Student selection support and assessment and Monitoring of programs, process and performances that should be part of distinguishing TQM operative factors whereas less agreed on factors Curriculum design and delivery, Vision, mission and values, Continuous quality improvement as essentials of distinguishing TQM operative factors.

Table 4.29: University of Sargodha, Sargodha N=39



Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	44.4103	.54205	3.3850
Leadership	71.2369	.73578	4.5493
Leadership Team	57.8718	.54386	3.3643
Monitoring of programs process and performances	60.3136	.49793	3.1056
Curriculum design and delivery	56.6977	.41749	2.6022
Student selection support and assessment	55.1795	.67325	4.2044
Continuous quality improvement	40.1895	.25943	1.2013

Table 4.29 describes the results of distinguishing operative quality factors being operated in the University of Sargodha, Sargodha (UOS). There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 71.23), Monitoring of programs, process and performances (Mean = 60.31), (Mean = 55.17) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team, Curriculum design and delivery and Student selection support and assessment other factors which are being practiced by the university to ensure the quality in the university includes, Vision, mission and values, (Mean = 44.41), and Continuous quality improvement (Mean = 40.18). It was concluded that respondents of University of Sargodha, Sargodha (UOS) were more agreed o factors Leadership, leadership team, Curriculum design and delivery and Student selection support and



assessment that should be part of distinguishing TQM operative factors whereas less agreed on factors Vision, mission and values and Continuous quality improvement as essentials of distinguishing TQM operative factors.

Table 4.30: Lahore College for Women University, Lahore N=39

Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	55.1538	.65975	4.1201
Leadership	68.4359	.75088	4.6826
Leadership Team	59.7179	.79722	4.9763
Monitoring of programs process and performances	61.0052	.51762	3.2255
Curriculum design and delivery	55.7264	.55192	3.4472
Student selection support and assessment	57.8500	.71987	4.4561
Continuous quality improvement	55.3077	.46635	2.1235

Table 4.30 describes the results of distinguishing operative quality factors being operated in the Lahore College for Women University, Lahore (LCWU). There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 68.43), Monitoring of programs, process and performances (Mean = 61.00), leadership team (Mean = 59.71), Student selection support and assessment (Mean = 57.85), Curriculum design and delivery (Mean = 55.72), Vision, mission and values (Mean = 55.15) and Continuous quality improvement (Mean =



55.30) are being efficiently practiced in the university. Accordingly, It was concluded that respondents of Lahore College for Women University, Lahore (LCWU) were more agreed on all factors including Leadership, Monitoring of programs, process and performances, leadership team, Student selection support and assessment, Curriculum design and delivery, Vision, mission and values and Continuous quality improvement are being in succession proficiently and resourcefully by the university to ensure the quality in the university.

Table 4.31: University of Karachi, Karachi N=29

Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	50.6897	.81262	4.3610
Leadership	66.4828	.84606	4.5516
Leadership Team	57.6552	.59818	3.22131
Monitoring of programs process and performances	59.7931	.79465	4.2735
Curriculum design and delivery	54.4807	.82213	4.4230
Student selection support and assessment	57.4138	1.02975	5.5453
Continuous quality improvement	49.5172	.57153	3.0771

Table 4.31: describes the results of distinguishing operative quality factors being operated in the University of Karachi, Karachi (UOK). There are 29 respondents in each factor.



Analysis reveals that, Leadership (Mean =66.48), leadership team (Mean =57.65), Monitoring of Programs, process and performances (Mean =59.79), Student selection support and assessment (Mean =57.41) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team, Monitoring of Programs, process and performances, Student selection support and assessment other factors which are being practiced by the university to ensure the quality in the university includes, Curriculum design and delivery (Mean = 54.48), Vision, mission and values (Mean =50.68) and Continuous quality improvement (Mean =49.51).It was concluded that respondents of University of Karachi, Karachi (UOK) were more agreed on factors Leadership, leadership team, Monitoring of Programs, process and performances, Student selection support and assessment that should be part of distinguishing TQM operative factors whereas less agreed on factors Curriculum design and delivery, Vision, mission and values and Continuous quality improvement as essentials of distinguishing TQM operative factors.

Table 4.32: Sindh Madresatul Islam University, Karachi N=39



Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	42.0513	.67233	4.1868
Leadership	66.0313	.72914	4.5534
Leadership Team	56.1795	.82051	5.1210
Monitoring of programs process and performances	56.3333	.82089	5.1264
Curriculum design and delivery	54.0526	.85350	5.3013
Student selection support and assessment	53.0256	1.32019	8.2445
Continuous quality improvement	51.8205	.38154	2.3274

Table 4.32 describes the results of distinguishing operative quality factors being operated in the Sindh Madresatul Islam University, Karachi. There are 39 respondents in each factor. Analysis reveals that Leadership (Mean = 66.03), Monitoring of Programs, process and Performances (Mean =56.33), leadership team (Mean =56.17) are being efficiently practiced in the university as compare to other factors. Besides Leadership, Monitoring of Programs, process and Performances, and leadership team other factors which are being practiced by the university to ensure the quality in the university includes, Curriculum design and delivery (Mean = 54.05), Student selection support and assessment (Mean =53.02) Continuous quality improvement (Mean =51.82) and Vision, mission and values (Mean = 42.05). It was concluded



that respondents of Sindh Madresatul Islam University, Karachi were more agreed on factors Leadership, Monitoring of Programs, process and Performances, and leadership team that should be part of distinguishing TQM operative factors whereas less agreed on factors Curriculum design and delivery, Student selection support and assessment, Continuous quality improvement and Vision, mission and values as essentials of distinguishing TQM operative factors.

Table 4.33: Hazara University, Dodhial, Mansehra N=39

Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	55.9487	.55220	3.4448
Leadership	59.1538	.67292	4.2023
Leadership Team	55.5128	.69203	4.3214
Monitoring of programs process and performances	49.3077	.53001	3.3090
Curriculum design and delivery	54.3333	.54776	3.4207
Student selection support and assessment	55.6667	1.09491	6.3772
Continuous quality improvement	43.8205	.37977	2.3716

Table 4.33 describes the results of distinguishing operative quality factors being operated in the Hazara University, Dodhial, Mansehra. There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 59.15), Student selection support and assessment (Mean = 55.66), Vision,



mission and values (Mean =55.94), leadership team (Mean =55.51) are being efficiently practiced in the university as compare to other factors. Besides Leadership, Student selection support and assessment, leadership team other factors which are being practiced by the university to ensure the quality in the university includes, Curriculum design and delivery (Mean = 54.33), Monitoring of programs, process and performances (Mean =49.30), and Continuous quality improvement (Mean = 43.82).It was concluded that respondents of Hazara University, Dodhial, Mansehra were more agreed on factors Leadership, Vision, mission and values, Student selection support and assessment and leadership team that should be part of distinguishing TQM operative factors whereas less agreed on factors Curriculum design and delivery, Monitoring of programs, process and performances, and Continuous quality improvement as essentials of distinguishing TQM operative factors.

Table 4.34: University of Peshawar N=40



Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	54.4250	.66592	4.2113
Leadership	70.0850	.72412	4.5771
Leadership Team	55.7300	.48245	3.0512
Monitoring of programs process and performances	59.1350	.34897	2.2007
Curriculum design and delivery	55.2850	.47930	3.0313
Student selection support and assessment	56.0750	.76827	4.8587
Continuous quality improvement	55.1500	.42146	2.6554

Table 4.34 describes the results of distinguishing operative quality factors being operated in the University of Peshawar, Peshawar. There are 40 respondents in each factor. Analysis reveals that, Leadership (Mean = 70.08), Monitoring of programs, process and performances (Mean = 59.13), Student selection support and assessment (Mean = 56.07), leadership team (Mean = 55.73), Curriculum design and delivery (Mean = 55.28) and Continuous quality improvement (Mean = 55.15) are being efficiently practiced in the university as compare to Vision, mission and values (Mean = 54.42). It was concluded that respondents of University of Peshawar, Peshawar were more agreed on factors Leadership, monitoring of programs, process and performances, Student selection support and assessment, leadership team, Curriculum design and delivery



and Continuous quality improvement that should be part of distinguishing TQM operative factors whereas less agreed on factors Vision, mission and values as essentials of distinguishing TQM operative factors.

Table 4.35: University of Swabi N=40

Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	55.2105	.79217	4.8327
Leadership	60.5866	.79481	4.8956
Leadership Team	55.7168	.56376	3.4727
Monitoring of programs process and performances	53.7105	.52924	3.2246
Curriculum design and delivery	56.3274	.68690	4.2333
Student selection support and assessment	55.5789	.86798	5.3505
Continuous quality improvement	45.0363	.26262	1.6182

Table 4.35 describes the results of distinguishing operative quality factors being operated in the University of Swabi, Swabi. There are 38 respondents in each factor. Analysis reveals that, Leadership (Mean = 60.58), Curriculum design and delivery (Mean = 56.32), leadership team, (Mean = 55.71), Student selection support and assessment (Mean = 55.57), Vision, mission and values (Mean = 55.21) are being efficiently practiced in the university as compare to other factors. Besides Leadership, Curriculum design and delivery, leadership team,



Student selection support and assessment, Vision, mission and values other factors which are being practiced by the university to ensure the quality in the university includes, Monitoring of Programs, process and performances (Mean =53.71) and Continuous quality improvement (Mean = 45.03).It was concluded that respondents of University of Swabi, Swabi were more agreed on factors Leadership, Curriculum design and delivery, leadership team, Student selection support and assessment, Vision, mission and values that should be part of distinguishing TQM operative factors whereas less agreed on factors Monitoring of Programs, process and performances and Continuous quality improvement as essentials of distinguishing TQM operative factors.

Table 4.36: University of Baluchistan, Quetta N= 41

Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	49.6341	1.1170	7.1506
Leadership	67.6098	1.3474	8.6425
Leadership Team	55.9356	1.0737	6.7564
Monitoring of programs process and performances	58.4146	.82932	5.3102
Curriculum design and delivery	55.9868	.84058	5.3233
Student selection support and assessment	56.8537	.80438	5.1504
Continuous quality improvement	50.4146	.53645	3.4344



Table 4.36 describes the results of distinguishing operative quality factors being operated in the University of Baluchistan, Quetta. There are 41 respondents in each factor. Analysis reveals that, Leadership (Mean = 67.60), Monitoring of Programs, process and performances (Mean = 58.41), Student selection support and assessment (Mean = 56.85), Curriculum design and delivery (Mean = 55.98), leadership team (Mean = 55.93) are being efficiently practiced in the university as compare to other factors. Besides Leadership, Monitoring of Programs, process and performances, Student selection support and assessment, Curriculum design and delivery and leadership team other factors which are being practiced by the university to ensure the quality in the university includes Continuous quality improvement (Mean = 50.41) (Mean = 49.63). It was concluded that respondents of University of Baluchistan, Quetta were more agreed on factors Leadership, Monitoring of Programs, process and performances, Student selection support and assessment, Curriculum design and delivery and leadership team that should be part of distinguishing TQM operative factors whereas less agreed on factors Continuous quality improvement and Vision, mission and values as essentials of distinguishing TQM operative factors.

Table 4.37: University of Azad Jammu and Kashmir, Muzaffarabad, Azad Kashmir N=40



Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	55.4650	.5545	3.5041
Leadership	72.0000	.9149	5.7681
Leadership Team	58.7250	.8533	5.3700
Monitoring of programs process and performances	56.6850	.7280	4.6042
Curriculum design and delivery	55.2000	.6381	4.0355
Student selection support and assessment	57.2050	.5767	3.6471
Continuous quality improvement	55.9850	.3131	1.8051

Table 4.37 describes the results of distinguishing operative quality factors being operated in the University of Azad Jammu & Kashmir, Muzaffarabad, Azad Kashmir (AJK). There are 40 respondents in each factor. Analysis reveals that, Leadership (Mean = 72.00), leadership team (Mean = 58.72), Student selection support and assessment (Mean = 57.20), Monitoring of Programs, process and performances (Mean = 56.68), Vision, mission and values (Mean = 55.46), Curriculum design and delivery (Mean = 55.20) and Continuous quality improvement (Mean = 55.98) are being efficiently practiced in the university to ensure the quality in the university. Accordingly, It was concluded that respondents of University of Azad Jammu & Kashmir, Muzaffarabad, Azad Kashmir (AJK) were more agreed on all factors including Leadership,



Student selection support and assessment, Monitoring of Programs, process and performances, Vision, mission and values, Curriculum design and delivery and Continuous quality improvement are being in succession proficiently and resourcefully by the university to ensure the quality in the university.

Table 4.38: Abdul Wali Khan University, Mardan N= 40

Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	55.3500	.59866	3.7628
Leadership	64.3350	.87953	5.5264
Leadership Team	57.1550	.70836	4.4008
Monitoring of programs process and performances	56.9850	.64697	4.0911
Curriculum design and delivery	56.6800	.63604	4.0226
Student selection support and assessment	56.7500	.51484	3.2516
Continuous quality improvement	55.5350	.23201	1.4673

Table 4.38 describes the results of distinguishing operative quality factors being operated in the Abdul Wali Khan University, Mardan. There are 40 respondents in each factor. Analysis reveals that, Leadership (Mean = 64.33), leadership team (Mean = 57.15), Monitoring of Programs, process and performances (Mean = 56.98), Student selection support and assessment (Mean = 56.75), Curriculum design and delivery



(Mean = 56.68) Vision, mission and values (Mean = 55.35) and Continual quality improvement (Mean = 55.53) are being efficiently practiced in the university as compare to other factors. Accordingly, it was concluded that respondents of Abdul Wali Khan University, Mardan were more agreed on all factors including Leadership, leadership team, Monitoring of Programs, process and performances, Student selection support and assessment, Curriculum design and delivery, Vision, mission and values and Continuous quality improvement are being in succession proficiently and resourcefully by the university to ensure the quality in the university.

Table 4.39: University of Swat, Swat N= 41

Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	43.0732	.98426	6.0234
Leadership	62.5610	1.1106	7.1508
Leadership Team	57.6373	.8512	5.4508
Monitoring of programs process and performances	56.7073	1.0720	6.6148
Curriculum design and delivery	52.7141	.84446	5.4020
Student selection support and assessment	54.4390	.67989	4.3344
Continuous quality improvement	50.2683	.50729	3.2426

Table 4.39 describes the results of distinguishing operative quality factors being operated in the University of Swat, Swat.



There are 40 respondents in each factor. Analysis reveals that, Leadership (Mean = 62.56), leadership team (Mean = 57.63), Monitoring of Programs, process and performances (Mean = 56.70) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team and Monitoring of Programs, process and performances other factors which are being practiced by the university to ensure the quality in the university includes, Student selection support and assessment (Mean = 54.43), Curriculum design and delivery (Mean = 52.71), Continual quality improvement (Mean = 50.26) and Vision, mission and values (Mean = 43.07). It was concluded that respondents of University of Swat, Swat were more agreed on factors Leadership, leadership team and Monitoring of Programs, process and performances that should be part of distinguishing TQM operative factors whereas less agreed on factors Student selection support and assessment, Curriculum design and delivery, Continuous quality improvement and Vision, mission and values as essentials of distinguishing TQM operative factors.

Table 4.40: Shah Abdul Latif University, Khairpur N= 40



Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	55.8000	1.13635	7.1868
Leadership	66.7500	2.0981	13.268
Leadership Team	54.9350	1.21364	7.6756
Monitoring of programs process and performances	54.8850	.70655	4.4662
Curriculum design and delivery	56.4350	.91804	5.0622
Student selection support and assessment	56.3350	.96820	6.1234
Continuous quality improvement	43.0500	.57172	3.6155

Table 4.40 describes the results of distinguishing operative quality factors being operated in the Shah Abdul Latif University, Khairpur. There are 40 respondents in each factor. Analysis reveals that, Leadership (Mean = 66.75), Curriculum design and delivery (Mean = 56.43) Student selection support and assessment (Mean = 56.33) and Vision, mission and values (Mean = 55.80) are being efficiently practiced in the university as compare to other factors. Besides Leadership Curriculum design and delivery, Student selection support and assessment and Vision, mission and values other factors which are being practiced by the university to ensure the quality in the university includes, leadership team (Mean = 54.93), Monitoring of Programs, process and performances (Mean = 54.88) and Continuous quality improvement (Mean = 43.05). It



was concluded that respondents of Shah Abdul Latif University, Khairpur were more agreed on factors Leadership, Curriculum design and delivery, Student selection support and assessment and Vision, mission and values that should be part of distinguishing TQM operative factors whereas less agreed on factors leadership team, Monitoring of Programs, process and performances and Continuous quality improvement as essentials of distinguishing TQM operative factors.

Table 4.41: Gomal University, D.I. Khan N= 41

Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	55.0244	1.12211	7.1501
Leadership	60.5610	1.05290	6.7414
Leadership Team	54.2195	.71697	4.5082
Monitoring of programs process and performances	56.4878	.90265	5.7780
Curriculum design and delivery	53.7805	.89341	5.7203
Student selection support and assessment	52.9268	.63774	10.466
Continuous quality improvement	51.2683	.58542	3.7450

Table 4.41 describes the results of distinguishing operative quality factors being operated in the Gomal University, D.I. Khan. There are 41 respondents in each factor. Analysis reveals that, Leadership (Mean = 60.56), Monitoring of Programs, process and performances (Mean = 56.48) and vision, mission and values (Mean = 55.02) are being efficiently practiced in the



university as compare to other factors. Besides Leadership, Monitoring of Programs, process and performances (Mean = 56.48) and vision, mission and values other factors which are being practiced by the university to ensure the quality in the university includes, Curriculum design and delivery (Mean =53.78) Student selection support and assessment (Mean =52.92), leadership team (Mean = 54.32), and Continuous quality improvement (Mean = 51.26).It was concluded that respondents of Gomal University, D.I. Khan were more agreed on factors Leadership, Monitoring of Programs, process and performances and Vision, mission and values that should be part of distinguishing TQM operative factors whereas less agreed on factors Curriculum design and delivery, Student selection support and assessment, leadership team and Continuous quality improvement as essentials of distinguishing TQM operative factors.

Table 4.42: Islamic international university Islamabad N= 39



Factors	Mean	Std. Error	Std. Deviation
Vision, mission and values	45.7692	1.1602	7.2178
Leadership	70.3590	1.3578	8.4805
Leadership Team	56.5897	1.2035	7.9578
Monitoring of programs process and performances	58.2300	.82472	5.1037
Curriculum design and delivery	58.3333	.82417	5.1496
Student selection support and assessment	59.2308	.69939	4.3771
Continuous quality improvement	56.9744	.55651	3.4753

Table 4.42 describes the results of distinguishing operative quality factors being operated in the Islamic international university Islamabad. There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 70.35), Student selection support and assessment (Mean = 59.23), leadership team (Mean = 59.58), Vision, mission and values (Mean = 58.77), Curriculum design and delivery (Mean = 58.33) Monitoring of Programs, process and performances (Mean = 58.23) and Continuous quality improvement (Mean = 56.97) are being efficiently practiced in the university to ensure the quality in the university. Accordingly, it was concluded that respondents of Islamic international university Islamabad were more agreed on all factors including Leadership, Student selection support and assessment, leadership team, Vision, mission and values Curriculum design and delivery, Monitoring of Programs, process and performances and



Continuous quality improvement are being in succession proficiently and resourcefully by the university to ensure the quality in the university.

Part III

9. Testing of Null Hypothesis

H0 1: There is no significance difference in the opinion of male and female about distinctive TQM operative factor vision, mission and values at University level.

Table 4.43: Mean score and t value on score of vision, mission and values of male and female

Respondents	N	Mean	S.D	t-value	df	p-value
Male	639	44.40	5.221	2.403	1172	0.016
Female	535	43.69	4.890			

*Significant t-value at 0.05

Table 4.43 shows mean difference on the scores of TQM operative factor vision, mission and values of male and female. The mean of male was 44.40 and female was 43.69. The mean difference is 0.71. The mean of male is higher than female. The value of t (2.403) is significant at $p \leq 0.05$ level of significance. Therefore, our null hypothesis that there is no significance difference in the opinion of male and female about distinctive TQM operative factor vision, mission and values at University level is rejected.

H0 2: There is no significance difference in the opinion of male and female about distinctive



Table 4.44: TQM operative factor Leadership at University level.
Mean score and t value on score of Leadership of male and female

Respondents	N	Mean	S.D	t-value	Df	p-value
Male	639	79.40	7.324	1.884	1172	0.060
Female	535	78.57	7.698			

*Significant t-value at 0.05

Table 4.44 shows mean difference on the scores of TQM operative factor Leadership of male and female. The mean of male was 79.40 and female was 78.57. The mean difference is 0.83. The mean score of male is greater than female. The value of t (1.884) is not significant at $p \leq 0.05$ level of significance. Therefore, our null hypothesis that there is no significance difference in the opinion of male and female about distinctive TQM operative factor Leadership at University level is accepted.

H0 3: There is no significance difference in the opinion of male and female about distinctive TQM operative factor leadership team at University level.

Table 4.45: Mean score and t value on score of leadership team of male and female

Respondents	N	Mean	S.D	t-value	Df	p-value
Male	639	39.22	4.261	- 0.232	1172	0.816



Female	535	39.28	4.338
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*Significant t-value at 0.05

Table 4.45 indicates mean difference on the scores of TQM operative factor leadership team of male and female. The mean of male was 39.22 and female was 39.28. The mean difference is 0.06. The mean score of female is better than male. The value of t (- 0.232) is not significant at $p \leq 0.05$ level of significance. Therefore, our null hypothesis that there is no significance difference in the opinion of male and female about distinctive TQM operative factor leadership team at University level is accepted.

H0 4: There is no significance difference in the opinion of male and female about distinctive TQM operative factor Monitoring of program process and performances at University level.

Table 4.46: Mean score and t value on score of Monitoring of program process and performances of male and female

Respondents	N	Mean	S.D	t-value	Df	p-value
Male	639	36.03	4.499			
				1.299	1172	0.194
Female	535	35.69	4.290			

*Significant t-value at 0.05

Table 4.46 shows mean difference on the scores of TQM operative factor monitoring of program process and performances of male and female. The mean of male was 36.03



and female was 35.69. The mean difference is 0.34. The mean score of male is better than female. The value of t (1.299) is not significant at $p \leq 0.05$ level of significance. Therefore, our null hypothesis that there is no significance difference in the opinion of male and female about distinctive TQM operative factor monitoring of program process and performances at University level is accepted.

H0 5: There is no significance difference in the opinion of male and female about distinctive TQM operative factor Curriculum design and delivery at University level.

Table 4.47: Mean score and t value on score of Curriculum design and delivery of male and female

Respondents	N	Mean	S.D	t-value	Df	p-value
Male	639	55.66	5.809			
				1.381	1172	0.167
Female	535	55.19	5.813			

*Significant t-value at 0.05

Table 4.47 shows mean difference on the scores of TQM operative factor Curriculum design and delivery of male and female. The mean of male was 55.66 and female was 55.19. The mean difference is 0.47. The value of t (1.381) is not significant at $p \leq 0.05$ level of significance. Therefore, our null hypothesis that there is no significance difference in the opinion of male and female about distinctive TQM operative factor Curriculum design and delivery at University level is accepted.

H0 6: There is no significance difference in the opinion of male and female about distinctive



Table 4.48: TQM operative factor Student selection support and assessment at University level. Mean score and t value on score of Student selection support and assessment of male and female

Respondents	N	Mean	S.D	t-value	Df	p-value
Male	639	35.91	4.197			
				1.271	1172	0.204
Female	535	35.61	3.900			

*Significant t-value at 0.05

Table 4.48 indicates mean difference on the scores of TQM operative factor Student selection support and assessment of male and female. The mean of male was 35.91 and female was 35.61. The mean difference is 0.30. The value of t (1.271) is not significant at $p \leq 0.05$ level of significance. Therefore, our null hypothesis that there is no significance difference in the opinion of male and female about distinctive TQM operative factor Student selection support and assessment at University level is accepted.

H0 7: There is no significance difference in the opinion of male and female about distinctive TQM operative factor Continuous quality improvement at University level.

Table 4.49: Mean score and t value on score of Continuous quality improvement of male and female

Respondents	N	Mean	S.D	t-value	df	p-value
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Male	639	22.06	2.660			
				1.719	1172	0.086
Female	535	21.79	2.679			

*Significant t-value at 0.05

Table 4.49 shows mean difference on the scores of TQM operative factor Continuous quality improvement of male and female. The mean of male was 22.06 and female was 21.79. The mean difference is 0.83. The value of t (1.719) is not significant at $p \leq 0.05$ level of significance. Therefore, our null hypothesis that there is no significance difference in the opinion of male and female about distinctive TQM operative factor Continuous quality improvement at University level is accepted.

H0 8: There is no significant relationship between distinctive TQM operative factors vision, mission and values and Leadership.

Table 4.50: Correlation between vision, mission and values and Leadership mean score.

Variables	N	Mean	SD	Pearson 'r'	Sig (2-tailed)
vision, mission and values	1174	44.08	5.083	0.326	0.000
Leadership	1174	79.02	7.505		

Correlation is significant at the 0.01 level (2-tailed)

The table 4.50 indicates the magnitude of correlation coefficient (Pearson 'r' = 0.326) between vision, mission and



values and Leadership mean score was significant at 0.01 level. It means that there was significant and positive correlation exists between vision, mission and values and Leadership. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors vision, mission and values and Leadership was rejected.

H0 9: There is no significant relationship between distinctive TQM operative factors vision, mission and values and leadership team.

Table 4.51: Correlation between vision, mission and values and leadership team mean score.

Variables	N	Mean	SD	Pearson 'r'	Sig (2- tailed)
vision, mission and values	1174	44.08	5.083	0.312	0.000
Leadership team	1174	39.25	4.294		

Correlation is significant at the 0.01 level (2-tailed)

The table 4.51 indicates the magnitude of correlation coefficient (Pearson 'r' = 0.312) between vision and mission and leadership team mean score was significant at 0.01 level. It means that there was significant and positive correlation exists between vision, mission and values and leadership team. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors vision, mission and values and leadership team was rejected.

H0 10: There is no significant relationship between distinctive TQM operative factors vision, mission and values and Monitoring of program process and performances.



Table 4.52: Correlation between vision, mission and values and Monitoring of program process and performances mean score.

Variables	N	Mean	SD	Pearson 'r'	Sig (2- tailed)
vision, mission and values	1174	44.08	5.083	0.337	0.000
Monitoring of Program process and Performances	1174	35.87	4.406		

Correlation is significant at the 0.01 level (2-tailed)

The table 4.52 indicates the magnitude of correlation coefficient (Pearson ‘r’ = 0.337) between vision and mission and monitoring of program process and performances mean score was significant at 0.01 level. It means that there was significant and positive correlation exists between vision, mission and values and monitoring of program process and performances. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors vision, mission and values and monitoring of program process and performances was rejected.

H0 11: There is no significant relationship between distinctive TQM operative factors vision, mission and values and Curriculum design and delivery.

Table 4.53: Correlation between vision, mission and values and Curriculum design and delivery mean score.

Variables	N	Mean	SD	Pearson 'r'	Sig (2- tailed)
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vision, mission and values	1174	44.08	5.083	0.465	0.000
Curriculum design and delivery	1174	55.44	5.813		

Correlation is significant at the 0.01 level (2-tailed)

The table 4.53 indicates the magnitude of correlation coefficient (Pearson ‘r’ = 0.465) between vision, mission and values and Curriculum design and delivery mean score was significant at 0.01 level. It means that there was significant and positive correlation exists between vision, mission and values and Curriculum design and delivery. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors vision, mission and values and Curriculum design and delivery was rejected.

H0 12: There is no significant relationship between distinctive TQM operative factors vision, mission and values and Student selection support and assessment.

Table 4.55: Correlation between vision, mission and values and Student selection support and assessment mean score.

Variables	N	Mean	SD	Pearson ‘r’	Sig (2- tailed)
vision, mission and values	1174	44.08	5.083	0.336	0.000
Student selection support	1174	35.78	4.065		



and
assessment

Correlation is significant at the 0.01 level (2-tailed)

The table 4.54 indicates the magnitude of correlation coefficient (Pearson ‘r’ = 0.336) between vision and mission and Student selection support and assessment mean score was significant at 0.01 level. It means that there was significant and positive correlation exists between vision, mission and values and Student selection support and assessment. There is no significant relationship between distinctive TQM operative factors vision, mission and values and Student selection support and assessment therefore the null hypothesis was rejected.

H0 13: There is no significant relationship between distinctive TQM operative factors vision, mission and values and Continuous quality improvement.

Table 4.55: Correlation between vision, mission and values and Continuous quality improvement mean score.

Variables	N	Mean	SD	Pearson ‘r’	Sig (2- tailed)
vision, mission and values	1174	44.08	5.083	0.256	0.000
Continuous quality improvement	1174	21.94	2.671		

Correlation is significant at the 0.01 level (2-tailed)

The table 4.55 indicates the magnitude of correlation coefficient (Pearson ‘r’ = 0.256) between vision and mission and Continuous quality improvement mean score was



significant at 0.01 level. It means that there was significant and positive correlation exists between vision, mission and values and Continuous quality improvement. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors vision, mission and values and Continuous quality improvement was rejected.

H0 14: There is no significant relationship between distinctive TQM operative factors leadership and leadership team

Table 4.56: Correlation between leadership and leadership team mean score

Variables	N	Mean	SD	Pearson ‘r’	Sig (2-tailed)
Leadership	1174	55.44	5.813	0.411	0.000
Leadership team	1174	35.78	4.065		

Correlation is significant at the 0.01 level (2-tailed)

The table 4.56indicates the magnitude of correlation coefficient (Pearson ‘r’ = 0.411) between leadership and leadership team mean score was significant at 0.01 level. It means that there was significant and positive correlation exists between leadership and leadership team. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership and leadership team was rejected.

H0 15: There is no significant relationship between distinctive TQM operative factors leadership and Monitoring of program process and performances



Table 4.57: Correlation between leadership and monitoring of program process and performances mean score.

Variables	N	Mean	SD	Pearson 'r'	Sig (2- tailed)
Leadership	1174	55.44	5.813		
Monitoring of program process and performances	1174	39.25	4.294	0.381	0.000

Correlation is significant at the 0.01 level (2-tailed)

The table 4.57 indicates the magnitude of correlation coefficient (Pearson 'r' = 0.381) between leadership and Monitoring of program process and performances mean score was significant at 0.01 level. It means that there was significant and positive correlation exists between leadership and Monitoring of program process and performances. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership and Monitoring of program process and performances was rejected.

H0 16: There is no significant relationship between distinctive TQM operative factors leadership and Curriculum design and delivery

Table 4.58: Correlation between leadership and Curriculum design and delivery mean score.

Variables	N	Mean	SD	Pearson 'r'	Sig (2- tailed)
Leadership	1174	55.44	5.813	0.366	0.000



Curriculum design and delivery	1174	35.87	4.406
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Correlation is significant at the 0.01 level (2-tailed)

The table 4.58 indicates the magnitude of correlation coefficient (Pearson ‘r’ = 0.366) between leadership and Curriculum design and delivery mean score was significant at 0.01 level. It means that there was significant and positive correlation exists between leadership and Curriculum design and delivery. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership and Curriculum design and delivery was rejected.

H0 17: There is no significant relationship between distinctive TQM operative factors Leadership and Student selection support and assessment

Table 4.59: Correlation between Leadership and Student selection support and assessment mean score.

Variables	N	Mean	SD	Pearson ‘r’	Sig (2-tailed)
Leadership	1174	55.44	5.813		
Student selection support and assessment	1174	79.02	7.505	0.387	0.000

Correlation is significant at the 0.01 level (2-tailed)

The table 4.59 indicates the magnitude of correlation coefficient (Pearson ‘r’ = 0.387) between leadership and Student selection support and assessment mean score was significant at 0.01 level. It means that there was significant and



positive correlation exists between Leadership and Student selection support and assessment. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors Leadership and Student selection support and assessment was rejected.

H0 18: There is no significant relationship between distinctive TQM operative factors leadership and Continuous quality improvement.

Table 4.60: Correlation between leadership and Continuous quality improvement mean score.

Variables	N	Mean	SD	Pearson ‘r’	Sig (2-tailed)
Leadership	1174	55.44	5.813		
Continuous quality improvement	1174	21.94	2.671	0.298	0.000

Correlation is significant at the 0.01 level (2-tailed)

The table 4.60 indicates the magnitude of correlation coefficient (Pearson ‘r’ = 0.298) between leadership and Continuous quality improvement mean score was significant at 0.01 level. It means that there was significant and positive correlation exists between leadership and Continuous quality improvement. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership and Continuous quality improvement was rejected.

H0 19: There is no significant relationship between distinctive TQM operative factors leadership team and Monitoring of program process and performances



Table 4.61: Correlation between leadership team and Monitoring of program process and performances mean score.

Variables	N	Mean	SD	Pearson 'r'	Sig (2- tailed)
Leadership team	1174	35.78	4.065		
Monitoring of program process and performances	1174	39.25	4.294	0.374	0.000

Correlation is significant at the 0.01 level (2-tailed)

The table 4.61 indicates the magnitude of correlation coefficient (Pearson ‘r’ = 0.374) between leadership team and Monitoring of program process and performances mean score was significant at 0.01 level. It means that there was significant and positive correlation exists between leadership team monitoring of program process and performances. There is no significant relationship between distinctive TQM operative factors leadership team and monitoring of program process and performances therefore the null hypothesis was rejected.

H0 20: There is no significant relationship between distinctive TQM operative factors leadership team and Curriculum design and delivery

Table 4.62: Correlation between leadership team and Curriculum design and delivery mean score.

Variables	N	Mean	SD	Pearson 'r'	Sig (2- tailed)
leadership team	1174	35.78	4.065	0.351	0.000



Curriculum design and delivery	1174	35.87	4.406
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Correlation is significant at the 0.01 level (2-tailed)

The table 4.62 indicates the magnitude of correlation coefficient (Pearson ‘r’ = 0.351) between leadership team and Curriculum design and delivery mean score was significant at 0.01 level. It means that there was significant and positive correlation exists between leadership team and Curriculum design and delivery. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership team and Curriculum design and delivery was rejected.

H0 21: There is no significant relationship between distinctive TQM operative factors Leadership team and Student selection support and assessment

Table 4.63: Correlation between leadership team and Student selection support and assessment mean score.

Variables	N	Mean	SD	Pearson ‘r’	Sig (2-tailed)
Leadership team	1174	35.78	4.065		
Student selection support and assessment	1174	79.02	7.505	0.362	0.000

Correlation is significant at the 0.01 level (2-tailed)

The table 4.63 indicates the magnitude of correlation coefficient (Pearson ‘r’ = 0.362) between leadership team and Student selection support and assessment mean score was



significant at 0.01 level. It means that there was significant and positive correlation exists between leadership team and Student selection support and assessment. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership team and Student selection support and assessment was rejected.

H0 22: There is no significant relationship between distinctive TQM operative factors leadership team and Continuous quality improvement.

Table 4.64: Correlation between leadership team and Continuous quality improvement mean score.

Variables	N	Mean	SD	Pearson 'r'	Sig (2- tailed)
Leadership team	1174	35.78	4.065	0.227	0.000
Continuous quality improvement	1174	21.94	2.671		

Correlation is significant at the 0.01 level (2-tailed)

The table 4.64 indicates the magnitude of correlation coefficient (Pearson 'r' = 0.227) between leadership team and Continuous quality improvement mean score was significant at 0.01 level. It means that there was significant and positive correlation exists between leadership team and Continuous quality improvement. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership team and Continuous quality improvement was rejected.

H0 23: There is no significant relationship between distinctive TQM operative factors monitoring



of program process and performances and Curriculum design and delivery.

Table 4.65: Correlation between Monitoring of program process and performances and Curriculum design and delivery mean score.

Variables	N	Mean	SD	Pearson 'r'	Sig (2- tailed)
Monitoring of Program, process and Performances	1174	39.25	4.294	0.437	0.000
Curriculum design and delivery	1174	35.87	4.406		

Correlation is significant at the 0.01 level (2-tailed)
 The table 4.65 indicates the magnitude of correlation coefficient (Pearson 'r' = 0.437) between Monitoring of program process and performances and Curriculum design and delivery mean score was significant at 0.01 level. It means that there was significant and positive correlation exists between Monitoring of program process and performances and Curriculum design and delivery. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative Monitoring of program process and performances and Curriculum design and delivery was rejected.

H0 24: There is no significant relationship between distinctive TQM operative factors monitoring of program process and performances and Student selection support and assessment



Table 4.66: Correlation between Monitoring of program process and performances and Student selection support and assessment mean score.

Variables	N	Mean	SD	Pearson 'r'	Sig (2- tailed)
Monitoring of program process and performances	1174	39.25	4.294	0.419	0.000
Student selection support and assessment	1174	79.02	7.505		

Correlation is significant at the 0.01 level (2-tailed)
 The table 4.66 indicates the magnitude of correlation coefficient (Pearson ‘r’ = 0.419) between Monitoring of program process and performances and Student selection support and assessment mean score was significant at 0.01 level. It means that there was significant and positive correlation exists between Monitoring of program process and performances and Student selection support and assessment. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors Monitoring of program process and performances and Student selection support and assessment was rejected.

H0 25: There is no significant relationship between distinctive TQM operative factors monitoring of program process and performances and Continuous quality improvement.

Table 4.67: Correlation between Monitoring of program process and performances and Continuous quality improvement mean score.



Variables	N	Mean	SD	Pearson 'r'	Sig (2- tailed)
Monitoring of program process and performances	1174	39.25	4.294	0.252	0.000
Continuous quality improvement	1174	21.94	2.671		

Correlation is significant at the 0.01 level (2-tailed)

The table 4.67 indicates the magnitude of correlation coefficient (Pearson 'r' = 0.252) between Monitoring of program process and performances and Continuous quality improvement mean score was significant at 0.01 level. It means that there was significant and positive correlation exists between Monitoring of program process and performances and Continuous quality improvement. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors monitoring of program process and performances and Continuous quality improvement was rejected.

H0 26: There is no significant relationship between distinctive TQM operative factors Curriculum design and delivery and Student selection support and assessment

Table 4.68: Correlation between Curriculum design and delivery and Student selection support and assessment mean score.

Variables	N	Mean	SD	Pearson 'r'	Sig (2- tailed)
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Curriculum design and delivery	1174	35.87	4.406		
Student selection support and assessment				0.469	0.000
	1174	79.02	7.505		

Correlation is significant at the 0.01 level (2-tailed)

The table 4.68 indicates the magnitude of correlation coefficient (Pearson 'r' = 0.469) between Curriculum design and delivery and Student selection support and assessment mean score was significant at 0.01 level. It means that there was significant and positive correlation exists between Curriculum design and delivery and Student selection support and assessment. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors Curriculum design and delivery and Student selection support and assessment was rejected.

H0 27: There is no significant relationship between distinctive TQM operative factors Curriculum design and delivery and Continuous quality improvement.

Table 4.69: Correlation between Curriculum design and delivery and Continuous quality improvement mean score.

Variables	N	Mean	SD	Pearson 'r'	Sig (2-tailed)
Curriculum design and delivery	1174	35.87	4.406	0.304	0.000



Continuous quality improvement	1174	21.94	2.671		
Correlation is significant at the 0.01 level (2-tailed)					
The table 4.69 indicates the magnitude of correlation coefficient (Pearson ‘r’ = 0.304) between Monitoring of program process and performances and Continuous quality improvement mean score was significant at 0.01 level. It means that there was significant and positive correlation exists between Monitoring of program process and performances and Continuous quality improvement. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors monitoring of program process and performances and Continuous quality improvement was rejected.					
H0 28:	There is no significant relationship between distinctive TQM operative factors Student selection support and assessment and Continuous Quality Improvement				
Table 4.70:	Correlation between Student selection support and assessment and Continuous Quality Improvement mean score.				
Variables	N	Mean	SD	Pearson ‘r’	Sig (2-tailed)
Leadership	1174	79.02	7.505		
Continuous quality improvement	1174	21.94	2.671	0.430	0.000
Correlation is significant at the 0.01 level (2-tailed)					
The table 4.70 indicates the magnitude of correlation coefficient (Pearson ‘r’ = 0.430) between Student selection					



support and assessment and Continuous Quality Improvement mean score was significant at 0.01 level. It means that there was significant and positive correlation exists between Student selection support and assessment and Continuous Quality Improvement. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors Student selection support and assessment and Continuous Quality Improvement was rejected.

H0 29: There is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors vision, mission and values at University level.

Table 4.71: Analysis of variance on vision, mission and values of different sample groups (VCs, Deans, Registrars, Teaching Faculty and students)

Sources of variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	463.519	4	115.880		
Within Groups	29847.581	1169	25.533	4.539	.001
Total	30311.101	1173			

*Significant level $p \leq 0.05$

Table 4.71 shows that F-Value (4.539) regarding the effect of sample groups on TQM operative factors vision, mission and values scores is significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors vision, mission and values at University level is rejected. In order to reveal the



mean differences regarding vision, mission and values between the sample group it was decided to run least significant difference (LSD) as post hoc multiple comparison test as Best and Kahn (2006) and Peter (2013) said that ANOVA evaluate the mean differences among one or two variables categorically while Post-Hoc tests always show significant mean differences among the groups thus this Post-Hoc test was run among the sample group have shown in the tables below that contributes to the most in making the results significant.

Table 4.72 *Post hoc (LSD) Test*

(I) Sample groups	(J) Sample groups	Mean Difference (I-J)	Sig .
VC's	Deans	2.80	0.07
	Registrars	2.16	0.18
	Teaching Faculty	2.90	0.02
	Students	3.84	0.00
Deans	Registrars	-0.64	0.67
	Teaching Faculty	0.10	0.92
	Students	1.05	0.32
Registrars	Teaching Faculty	0.75	0.52
	Students	1.69	0.13
Teaching Faculty	Students	0.94	0.01

*Significant level $p \leq 0.05$



In the table 4.72 the mean difference between respondents of VC's and Teaching Faculty was 2.90 which were significant at $p = 0.02$ on vision and mission score. There was significant difference between VC's and Students with mean difference of 3.84 significant at $p = 0.00$ and Teaching Faculty also significantly differed with Students with mean difference of 0.94 significant at $p = 0.01$. While between other sample groups mean, difference was not significant.

H0 30: There is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Leadership at University level.

Table 4.73: Analysis of variance on Leadership of different sample groups (VCs, Deans, Registrars, Teaching Faculty and students)

Sources of variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	323.447	4	80.862	1.438	.219
Within Groups	65738.141	1169	56.235		
Total	66061.588	1173			

*Significant level $p \leq 0.05$

Table 4.73 shows that F-Value (1.438) regarding the effect of sample groups on TQM operative factors Leadership scores is not significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching



Faculty and students) on TQM operative factors Leadership at University level is accepted. To analyze the data in depth Least Significant Difference (LSD) was used as Post Hoc Multiple Comparison test in order to reveal mean differences regarding Leadership among the sample group have shown in the table below contribute to the most in making the results significant.

Table 4.74 *Post hoc (LSD) Test*

(I) Sample groups	(J) Sample groups	Mean Difference (I-J)	Sig .
VC's	Deans	1.08	0.64
	Registrars	2.17	0.36
	Teaching Faculty	2.29	0.20
	Students	3.01	0.08
Deans	Registrars	1.09	0.63
	Teaching Faculty	1.21	0.45
	Students	1.93	0.21
Registrars	Teaching Faculty	0.12	0.95
	Students	0.84	0.61
Teaching Faculty	Students	0.72	0.20

*Significant level $p \leq 0.05$

In the table 4.74 the mean difference between respondents was not significant as value of p is greater than 0.05 on Leadership score. It was concluded that these groups do not vary because their significant value is higher than the significant level of 0.05.



H0 31: There is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors leadership team at University level.

Table 4.75: Analysis of variance on leadership team of different sample groups (VCs, Deans, Registrars, Teaching Faculty and students)

Sources of variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	171.954	4	42.988	2.342	.053
Within Groups	21458.421	1169	18.356		
Total	21630.375	1173			

*Significant level $p \leq 0.05$
 Table 4.75 shows that F-Value (2.342) regarding the effect of sample groups on TQM operative factors leadership team scores is not significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors leadership team at University level is accepted. To analyze the data in depth Least Significant Difference (LSD) was used as Post Hoc Multiple Comparison test in order to reveal mean differences regarding Leadership team among the sample group have shown in the table below contribute to the most in making the results significant.

Table 4.76 *Post hoc (LSD) Test*



(I) Sample groups	(J) Sample groups	Mean Difference (I-J)	Sig .
VC's	Deans	2.28	0.08
	Registrars	-0.48	0.72
	Teaching Faculty	1.61	0.12
	Students	1.79	0.07
Deans	Registrars	-2.76	0.03
	Teaching Faculty	-0.67	0.47
	Students	-0.49	0.58
Registrars	Teaching Faculty	2.09	0.03
	Students	2.27	0.02
Teaching Faculty	Students	0.18	0.58

*Significant level $p \leq 0.05$

In the table 4.76 the mean difference between respondents of Deans and Registrars was -2.76 which were significant at $p = 0.03$ on leadership team score. There was significant difference between Registrars and Teaching Faculty with mean difference of 2.09 significant at $p = 0.03$ and Registrars also significantly differed with Students with mean difference of 2.27 significant at $p = 0.02$. While between other sample groups mean, difference was not significant.

H0 32: There is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on



Table 4.77: TQM operative factors Monitoring of program process and performances at University level. Analysis of variance on Monitoring of program process and performances of different sample groups (VCs, Deans, Registrars, Teaching Faculty and students)

Sources of variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	271.179	4	67.795	3.522	.007
Within Groups	22503.656	1169	19.250		
Total	22774.835	1173			

*Significant level $p \leq 0.05$

Table 4.77 shows that F-Value (3.522) regarding the effect of sample groups on TQM operative factors Monitoring of program process and performances scores is significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Monitoring of program process and performances at University level is rejected. To analyze the data in depth Least Significant Difference (LSD) was used as Post Hoc Multiple Comparison test in order to reveal mean differences regarding Monitoring of program process and performances among the sample group have shown in the table below contribute to the most in making the results significant.

Table 4.78 *Post hoc (LSD) Test*



(I) Sample groups	(J) Sample groups	Mean Difference (I-J)	Sig .
VC's	Deans	0.86	0.52
	Registrars	-0.30	0.83
	Teaching Faculty	0.76	0.47
	Students	1.70	0.10
Deans	Registrars	-1.16	0.38
	Teaching Faculty	-0.09	0.92
	Students	0.84	0.35
Registrars	Teaching Faculty	1.07	0.29
	Students	2.00	0.04
Teaching Faculty	Students	0.94	0.00

*Significant level $p \leq 0.05$

In the table 4.78 the mean difference between respondents of Registrars and Students was 2.00 which were significant at $p = 0.04$ on Monitoring of program process and performances score. There was significant difference between Teaching Faculty and Students with mean difference of 0.94 significant at $p = 0.00$. While between other sample groups mean, difference was not significant.

H0 33: There is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Curriculum design and delivery at University level.



Table 4.79: Analysis of variance on Curriculum design and delivery of different sample groups (VCs, Deans, Registrars, Teaching Faculty and students)

Sources of variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	159.705	4	39.926	1.182	.317
Within Groups	39481.971	1169	33.774		
Total	39641.676	1173			

*Significant level $p \leq 0.05$

Table 4.79 shows that F-Value (1.182) regarding the effect of sample groups on TQM operative factors Curriculum design and delivery scores is not significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Curriculum design and delivery at University level is accepted. To analyze the data in depth Least Significant Difference (LSD) was used as Post Hoc Multiple Comparison test in order to reveal mean differences regarding Curriculum design and delivery among the sample group have shown in the table below contribute to the most in making the results significant

Table 4.80 *Post hoc (LSD) Test*

(I) Sample groups	(J) Sample groups	Mean Difference (I-J)	Sig .
VC's	Deans	2.38	0.18
	Registrars	0.68	0.71



	Teaching Faculty	2.01	0.15
	Students	2.31	0.09
	Registrars	-1.70	0.33
Deans	Teaching Faculty	-0.37	0.77
	Students	-0.07	0.95
	Registrars	1.33	0.32
Registrars	Teaching Faculty	1.63	0.20
	Students	-1.33	0.32
	Registrars	0.30	0.50
Teaching Faculty	Students		

*Significant level $p \leq 0.05$

In the table 4.80 the mean difference between respondents was not significant as value of p is greater than 0.05 on Curriculum design and delivery score. It was concluded that these groups do not vary because their significant value is higher than the significant level of 0.05.

H0 34: There is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Student selection support and assessment at University level.

Table 4.81: Analysis of variance on Student selection, support and assessment of different sample groups (VCs, Deans, Registrars, teachers and students)

Sources of variation	Sum of Squares	df	Mean Square	F	Sig.
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Between Groups	63.512	4	15.878	.961	.428
Within Groups	19322.570	1169	16.529		
Total	19386.083	1173			

*Significant level $p \leq 0.05$

Table 4.81 shows that F-Value (0.961) regarding the effect of sample groups on TQM operative factors Student selection, support and assessment scores is not significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Student selection, support and assessment at University level is accepted. To analyze the data in depth Least Significant Difference (LSD) was used as Post Hoc Multiple Comparison test in order to reveal mean differences regarding Student selection support and assessment among the sample group have shown in the table below contribute to the most in making the results significant.

Table 4.82 *Post hoc (LSD) Test*

(I) Sample groups	(J) Sample groups	Mean Difference (I-J)	Sig .
VC's	Deans	1.23	0.32
	Registrars	-0.19	0.88
	Teaching Faculty	0.45	0.64
	Students	0.85	0.37



Deans	Registrars	-1.42	0.24
	Teaching Faculty	-0.79	0.37
	Students	-0.39	0.65
Registrars	Teaching Faculty	0.64	0.49
	Students	1.04	0.25
Teaching Faculty	Students	0.40	0.19

*Significant level $p \leq 0.05$

In the table 4.82 the mean difference between respondents was not significant as value of p is greater than 0.05 on Student selection, support and assessment score. It was concluded that these groups do not vary because their significant value is higher than the significant level of 0.05.

H0 35: There is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Continuous quality improvement at University level.

Table 4.83: Analysis of variance on Continuous quality improvement of different sample groups (VCs, Deans, Registrars, Teaching Faculty and students)

Sources of variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	50.995	4	12.749	1.792	.128
Within Groups	8318.340	1169	7.116		



Total	8369.336	1173
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*Significant level $p \leq 0.05$

Table 4.83 shows that F-Value (1.792) regarding the effect of sample groups on TQM operative factors Continuous quality improvement scores is not significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Continuous quality improvement at University level is accepted. To analyze the data in depth Least Significant Difference (LSD) was used as Post Hoc Multiple Comparison test in order to reveal mean differences regarding Continuous quality improvement among the sample group have shown in the table below contribute to the most in making the results significant.

Table 4.84 *Post hoc (LSD) Test*

(I) Sample groups	(J) Sample groups	Mean Difference (I-J)	Sig .
VC's	Deans	0.38	0.64
	Registrars	-0.56	0.51
	Teaching Faculty	0.61	0.34
	Students	0.77	0.21
Deans	Registrars	-0.94	0.24
	Teaching Faculty	0.23	0.69
	Students	0.39	0.48



Registrars	Teaching Faculty	1.17	0.06
	Students	1.33	0.02
Teaching Faculty	Students	0.16	0.43

*Significant level $p \leq 0.05$

In the table 4.84 the mean difference between respondents of Registrars and Students was 1.33 which were significant at $p = 0.02$ on Continuous quality improvement score. While between other sample groups mean, difference was not significant.

H0 36: There is no significant difference among universities on TQM operative factors vision, mission and values.

Table 4.85: Analysis of variance on vision, mission and values among universities

Sources of variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3049.832	29	105.167	4.413	.000
Within Groups	27261.268	1144	23.830		
Total	30311.101	1173			

Significant level $p \leq 0.05$

Table 4.85 shows that F-Value (4.413) regarding the effect of universities on TQM operative factors vision, mission and values scores is significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among universities on TQM operative factors Vision and mission is rejected. To analyze the data in depth Least Significant Difference (LSD) was used as Post Hoc Multiple Comparison test in order to reveal mean differences regarding vision, mission and values among the universities have shown in the



table below contribute to the most in making the results significant.

H0 37: There is no significant difference among universities on TQM operative factors Leadership.

Table 4.86: Analysis of variance on Leadership among universities

Sources of variation	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	8112.860	29	279.754	5.523	.000
Within Groups	57948.728	1144	50.654		
Total	66061.588	1173			

*Significant level $p \leq 0.05$

Table 4.86 shows that F-Value (5.523) regarding the effect of universities on TQM operative factors Leadership scores is significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among universities on TQM operative factors Leaderships rejected. To analyze the data in depth Least Significant Difference (LSD) was used as Post Hoc Multiple Comparison test in order to reveal mean differences regarding Leadership among the universities have shown in the table below contribute to the most in making the results significant.

H0 38: There is no significant difference among universities on TQM operative factors Leadership Team.

Table 4.87: Analysis of variance on Leadership Team among universities

Sources of variation	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1955.421	29	67.428	3.921	.000
Within Groups	19674.953	1144	17.198		
Total	21630.375	1173			



Significant level $p \leq 0.05$

Table 4.87 shows that F-Value (3.921) regarding the effect of universities on TQM operative factors Leadership team scores is significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among universities on TQM operative factors Leadership team is rejected. To analyze the data in depth Least Significant Difference (LSD) was used as Post Hoc Multiple Comparison test in order to reveal mean differences regarding Leadership team among the universities have shown in the table below contribute to the most in making the results significant.

H0 39: There is no significant difference among universities on TQM operative factors monitoring of Programs process and performances.

Table 4.88: Analysis of variance on Monitoring of Programs process and performances among universities

Sources of variation	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2055.425	29	70.877	3.913	.000
Within Groups	20719.410	1144	18.111		
Total	22774.835	1173			

Significant level $p \leq 0.05$

Table 4.88 shows that F-Value (3.913) regarding the effect of universities on TQM operative factors Monitoring of Programs process and performances scores is significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among universities on TQM operative factors Leadership is rejected. To analyze the data in depth Least Significant Difference (LSD) was used as Post Hoc Multiple Comparison test in order to reveal mean differences regarding Monitoring of Programs process and performances



among the universities have shown in the table below contribute to the most in making the results significant.

H0 40: There is no significant difference among universities on TQM operative factors Curriculum design and Delivery

Table 4.89: Analysis of variance on Curriculum design and Delivery among universities

Sources of variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3480.670	29	120.023	3.797	.000
Within Groups	36161.006	1144	31.609		
Total	39641.676	1173			

Significant level $p \leq 0.05$

Table 4.89 shows that F-Value (3.797) regarding the effect of universities on TQM operative factors Curriculum design and Delivery scores is significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among universities on TQM operative factors curriculum design and delivery among universities is rejected. To analyze the data in depth Least Significant Difference (LSD) was used as Post Hoc Multiple Comparison test in order to reveal mean differences regarding Curriculum design and Delivery among the universities have shown in the table below contribute to the most in making the results significant. Shown in APPENDIX (G)

H0 41: There is no significant difference among universities on TQM operative factors Student selection support and assessment.

Table 4.90: Analysis of variance on Student selection support and assessment among universities



Sources of variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1166.346	29	40.219	2.525	.000
Within Groups	18219.737	1144	15.926		
Total	19386.083	1173			

Significant level $p \leq 0.05$

Table 4.90 shows that F-Value (2.525) regarding the effect of universities on TQM operative factors Student selection support and assessment scores is significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among universities on TQM operative factors Leadership is rejected. To analyze the data in depth Least Significant Difference (LSD) was used as Post Hoc Multiple Comparison test in order to reveal mean differences regarding Student selection support and assessment among the universities have shown in the table below contribute to the most in making the results significant.

H0 42: There is no significant difference among universities on TQM operative factors Continuous quality improvement.

Table 4.91: Analysis of variance on Continuous quality improvement among universities

Sources of variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	576.131	29	19.867	2.916	.000
Within Groups	7793.205	1144	6.812		
Total	8369.336	1173			

Significant level $p \leq 0.05$

Table 4.91 shows that F-Value (2.916) regarding the effect of universities on TQM operative factors Continuous quality improvement scores is significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant



difference among universities on TQM operative factors Leadership is rejected. To analyze the data in depth Least Significant Difference (LSD) was used as Post Hoc Multiple Comparison test in order to reveal mean differences regarding Continuous quality improvement among the universities have shown in the table below contribute to the most in making the results significant



CHAPTER FIVE

SUMMARY, FINDINGS, DISCUSSION, CONCLUSION AND RECOMMENDATIONS

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1. Introduction

The research study was designed to explore distinguishing operative TQM factors in Public Sector universities of Pakistan the seven TQM factors were Vision, mission and values, Leadership, Leadership Team, Monitoring of programs process and performances, Curriculum design and delivery, Student selection support and assessment and Continuous quality improvement. The study was based on the following objectives

- (i) To identify TQM operative management factors in the public-sector universities of Pakistan for overall development.
- (ii) To study Public sector universities of Pakistan that are committed towards TQM factors for sustainable growth of quality education and the organization.
- (iii) To explore differences in opinions about distinctive TQM operative factors between male and female at the public-sector universities of Pakistan.
- (iv) To find out the relationship among different distinctive TQM operative factors at public sector universities of Pakistan.
- (v) To explore the difference in opinions among sample groups with respect to TQM operative factors at the public-sector universities of Pakistan.
- (vi) To prospect ways for continuous improvement of the public-sector universities of Pakistan.
- (vii) To explore the difference in opinions among universities with respect to TQM operative factors at the public-sector universities of Pakistan.

The questionnaire was developed for the study and pilot testing of the questionnaire were carried out before the data collection on large scale. Research Instrument was developed by the researcher and was distributed among Vice Chancellor, Deans, Registrars, Teachers and the students in the sample universities of Pakistan. All the Public-Sector universities were the population of the study. The study was delimited to four provinces named



as Baluchistan, Khyber Pakhtoon Khawa, Punjab and the Sindh and Islamabad Capital Territory and Azad Jammu and Kashmir public Sector universities. The study was delimited to thirty universities of Pakistan only. Total 1174 respondents (Vice Chancellor, Deans, Registrars, Teachers and the students) provided complete response on all variables of the study. Overall response rate remained 87.61%. The sample of the study contained:

- i. 19, Vice Chancellor, 24 Deans, 21 Registrars, 219 Teaching Faculty and the 891 students
- ii. The sample included 639 males and 535 females.
- iii. The teachers sample included Lecturers (114), Assistant professors (51), Associate professors (32) and Professors (23).

Sample selected for this research study through convenient sampling technique as convenient sampling technique is a non-probability approach where subjects are selected because of their convenient accessibility and proximity to the researcher. The collected data was entered SPSS 16 and was analyzed in the form of table and graphs. Formula of Pearson correlation coefficient, Independent Samples t-test, One Way ANOVA and LSD Post hoc were used to analyze and interpret the data accordingly.

2. Findings

2.1 Findings from the Descriptive Analysis

Objective 1

To identify TQM operative management factors in the public-sector universities of Pakistan for overall development

1. Analysis discloses mean values of distinguishing TQM



operative factors revealed by the Vice chancellors (VC's) respectively Leadership (Mean =64.78), leadership team (Mean =59.52), Student selection support and assessment (Mean =58.43), Vision, mission and values (Mean =56.63), Monitoring of Programs, process and performances (Mean =60.31), Curriculum design and delivery (Mean =57.64) and Continuous quality improvement (Mean =56.21). (Table 4.9)

2. Analysis discloses mean values of distinguishing TQM operative factors revealed by the Deans Respectively Leadership (Mean =64.70), leadership team (Mean =58.66), Curriculum design and delivery (Mean =56.45), Student selection support and assessment (Mean =55.29), Monitoring of Programs, process and performances (Mean =55.25), Continuous quality improvement (Mean =52.25) and Vision, mission and values (Mean =52.83). (Table 4.10)
3. Analysis discloses mean values of distinguishing operative factors revealed by the Registrars respectively, Leadership (Mean =63.61), leadership team (Mean =58.61), Vision, mission and values (Mean =57.47), Curriculum design and delivery (Mean =57.19), Monitoring of Programs, process and performances (Mean =56.95), Student selection support and assessment (Mean =56.71) and Continuous quality improvement (Mean =56.42). (Table 4.11)
4. Analysis discloses mean values of distinguishing TQM operative factors revealed by the Teaching faculty respectively Leadership (Mean =57.50), Monitoring of Programs, process and performances (Mean =56.55), Curriculum design and delivery (Mean =53.07),



Continuous quality improvement (Mean =52.02), Student selection support and assessment (Mean =51.62), Vision, mission and values (Mean =50.73) and leadership team (Mean =49.33). (Table 4.12)

5. Analysis reveals mean values of distinguishing TQM factors revealed by the students respectively Leadership (Mean =49.78), leadership team (Mean =46.32), Student selection support and assessment (Mean =35.61), Vision, mission and values (Mean =43.78), Monitoring of programs, process and performances (Mean =38.15), Continuous quality improvement (Mean =31.86) and Curriculum design and delivery (Mean =35.67). (Table 4.13)

Objective 2

To study Public sector universities of Pakistan that are committed towards TQM factors for sustainable growth of quality education and quality management of the organization.

6. The results of distinguishing operative quality factors being operated in the Fatima Jinnah Women University Rawalpindi (FJWU). There are 40 respondents in each factor. Analysis reveals that all are factors including Leadership (Mean = 67.30), Vision, mission and values (Mean =60.57), Leadership Team (Mean = 64.10), Curriculum design and delivery (Mean =61.60) Monitoring of programs process and performances (Mean =55.90), Student selection, support and assessment (Mean =55.87) and Continual quality improvement (Mean = 55.15) are being efficiently practiced in the university to ensure the quality in the university. (Table 4.14)
7. The results of distinguishing operative quality factors



being operated in the PirMehr Ali Shah Arid Agriculture, Rawalpindi (ARID). There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 62.20), Leadership team (Mean = 62.57), Vision, mission and values (Mean = 60.52), Monitoring of programs process and performances (Mean = 59.20), Curriculum design and delivery (Mean = 56.35) are being efficiently practiced in the university as compare to other factors. (Table 4.15)

8. The results of distinguishing operative quality factors being operated in the Sardar Bahadur Khan Women University, Quetta. There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 62.49), leadership team (Mean = 56.72) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team other factors which are being practiced by the university to ensure the quality in the university includes, Curriculum design and delivery (Mean = 54.64), Vision, mission and values (Mean = 53.33), Monitoring of program process and performances (Mean = 49.28), Student selection support and assessment (Mean = 51.03) and Continuous quality improvement (Mean = 39.18). (Table 4.16)
9. The results of distinguishing operative quality factors being operated in the Bahria University, Islamabad. There are 40 respondents in each factor. Analysis reveals that, Leadership (Mean = 65.83), leadership team (Mean = 61.20), Curriculum design and delivery (Mean = 57.30) Vision, mission and values (Mean = 56.73), Monitoring of program process and



performances (Mean = 55.90), Student Selection support and assessment (Mean = 55.95) are being efficiently practiced in the university as compare to Continuous quality improvement (Mean = 42.13 which is being practiced by the university to ensure the quality in the university. (Table 4.17)

10. The results of distinguishing operative quality factors being operated in the Quaid-e-Azam University, Islamabad (QAU). There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 75.74), Vision, mission and values (Mean = 68.61), Student Selection support and assessment (Mean = 61.74), leadership team (Mean = 57.54), Continuous quality improvement (Mean = 57.41), Monitoring of program process and performances (Mean = 55.82), Curriculum design and delivery (Mean = 55.00), and are being efficiently practiced in the university to ensure the quality in the university. (Table 4.18)
11. The results of distinguishing operative quality factors being operated in the Karakoram International University (KIU). There are 42 respondents in each factor. Analysis reveals that, Leadership (Mean = 64.19), Monitoring of program process and performances (Mean = 62.88), leadership team (Mean = 61.17), Student selection support and assessment (Mean = 57.45) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team, Student selection support and assessment other factors which are being practiced by the university to ensure the quality in the university includes, Vision, mission and values (Mean = 54.61),



Curriculum design and delivery (Mean = 53.10), and Continuous quality improvement (Mean = 49.16). (Table 4.19)

12. The results of distinguishing operative quality factors being operated in the AIR University, Islamabad (AIR). There are 38 respondents in each factor. Analysis reveals that, Leadership (Mean = 66.13), leadership team (Mean = 64.97), Student selection support and assessment (Mean = 58.97) are being efficiently practiced in the university as compare to more factors. Besides Leadership, Vision, mission and values, leadership team, Student selection support and assessment other factors which are being practiced by the university to ensure the quality in the university includes Curriculum design and delivery (Mean = 54.53), Monitoring of programs process and performances (Mean = 58.23) and Continuous quality improvement (Mean = 52.28) respectively. (Table 4.20)
13. The results of distinguishing operative quality factors being operated in the Allama Iqbal Open University, Islamabad (AIOU). There are 38 respondents in each factor. Analysis reveals that, Leadership (Mean = 60.87), leadership team (Mean = 58.10), Curriculum design and delivery (Mean = 56.89), Vision, mission and values (Mean = 55.71) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team, Curriculum design and delivery and Vision and Mission other factors which are being practiced by the university to ensure the quality in the university includes, Student selection support and assessment (Mean = 52.85),



Monitoring of programs process and performances (Mean = 51.57) and Continuous quality improvement (Mean = 43.73). (Table 4.21)

14. The results of distinguishing operative quality factors being operated in the Federal Urdu University of Arts, Sciences and Technology, Islamabad. There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 59.62), leadership team (Mean = 56.00), Monitoring of programs process and performances (Mean = 57.72) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team, monitoring of programs process and performances other factors which are being practiced by the university to ensure the quality in the university includes, Vision, mission and values (Mean = 45.87), Curriculum design and delivery (Mean = 57.92), Student selection support and assessment (Mean = 52.31), and Continuous quality improvement (Mean = 49.92). (Table 4.22)
15. The results of distinguishing operative quality factors being operated in the BahaudinZakria University, Multan (BZU). There are 38 respondents in each factor. Analysis reveals that, Leadership (Mean = 65.92), leadership team (Mean = 62.45), Monitoring of programs process and performances (Mean = 59.97), and Curriculum design and delivery (Mean = 56.79) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team, monitoring of programs process and performances and Curriculum design and delivery other factors which are being practiced by the university to ensure the quality



in the university includes, Student selection support and assessment (Mean = 54.82) Continuous quality improvement (Mean = 50.74) and Vision, mission and values (Mean = 45.63). (Table 4.23)

16. The results of distinguishing operative quality factors being operated in the Government College University Faisalabad (GCU). There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 60.90), leadership team (Mean = 59.87), Curriculum design and delivery (Mean = 55.23) are being efficiently practiced in the university as compare to other factors. Besides Leadership other factors which are being practiced by the university to ensure the quality in the university includes, Student selection support and assessment (Mean = 54.95), Monitoring of programs process and performances (Mean = 50.87), Vision, mission and values (Mean = 48.28), and Continuous quality improvement (Mean = 47.61). (Table 4.24)
17. The results of distinguishing operative quality factors being operated in the Government College University, Lahore (GCU). There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 71.64), Vision, mission and values (Mean = 64.69), leadership team (Mean = 63.31), Student selection support and assessment (Mean = 60.33), Curriculum design and delivery (Mean = 59.51), Monitoring of Programs process and Performances (Mean = 55.30) and Continuous quality improvement (Mean = 55.30) are being efficiently practiced in the university to ensure the quality in the university. (Table 4.25)



18. The results of distinguishing operative quality factors being operated in the Islamia University Bahawalpur (IUB). There are 40 respondents in each factor. Analysis reveals that, Leadership (Mean = 67.53), leadership team, (Mean = 56.18), Monitoring of Programs process and performances (Mean = 56.13), Curriculum design and delivery (Mean = 55.55) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team, Monitoring of Programs process and performances and Curriculum design and delivery other factors which are being practiced by the university to ensure the quality in the university includes, Student selection support and assessment, (Mean = 52.85), Continuous quality improvement (Mean = 46.37) and Vision, mission and values (Mean = 42.25). (Table 4.26)
19. The results of distinguishing operative quality factors being operated in the Punjab University, Lahore (PU). There are 40 respondents in each factor. Analysis reveals that, Leadership, (Mean = 64.53), leadership team (Mean = 62.18), Monitoring of programs process and performances (Mean = 60.13), Curriculum design and delivery (Mean = 59.85), Student selection support and assessment (Mean = 56.85), Vision, mission and values (Mean = 55.25) and Continuous quality improvement (Mean = 55.37) are being efficiently practiced in the university. (Table 4.27)
20. The results of distinguishing operative quality factors being operated in the University of Education, Lahore (EU). There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 60.75), Curriculum



design and delivery (Mean = 56.62), leadership team (Mean = 55.38), Monitoring of Programs process and performances (Mean = 55.23) are being efficiently practiced in the university as compare to other factors. Besides Leadership, Curriculum design and delivery, leadership team, Monitoring of Programs process and performances other factors which are being practiced by the university to ensure the quality in the university includes, Student selection support and assessment (Mean = 51.26), Vision, mission and values (Mean = 42.15) and Continuous quality improvement (Mean = 42.32).(Table 4.28)

21. The results of distinguishing operative quality factors being operated in the University of Gujrat, Gujrat (UOG). There are 40 respondents in each factor. Analysis reveals that, Leadership (Mean = 63.12), (Mean = 55.00) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team, Student selection support and assessment and Monitoring of programs, process and performances other factors which are being practiced by the university to ensure the quality in the university includes Curriculum design and delivery (Mean = 54.90), Vision, mission and values (Mean = 44.03), and Continuous quality improvement (Mean = 41.92). (Table 4.29)
22. The results of distinguishing operative quality factors being operated in the University of Sargodha, Sargodha (UOS). There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 71.23), Monitoring of programs, process and performances



(Mean = 60.31), (Mean = 55.17) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team, Curriculum design and delivery and Student selection support and assessment other factors which are being practiced by the university to ensure the quality in the university includes, Vision, mission and values (Mean = 44.41), and Continuous quality improvement (Mean = 40.18). (Table 4.30)

23. The results of distinguishing operative quality factors being operated in the Lahore College for Women University, Lahore (LCWU). There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 68.43), Monitoring of programs, process and performances (Mean = 61.00), leadership team (Mean = 59.71), Student selection support and assessment (Mean = 57.85), Curriculum design and delivery (Mean = 55.72), Vision, mission and values (Mean = 55.15) and Continuous quality improvement (Mean = 55.30) are being efficiently practiced in the university. (Table 4.31)
24. The results of distinguishing operative quality factors being operated in the University of Karachi, Karachi (UOK). There are 29 respondents in each factor. Analysis reveals that, Leadership (Mean = 66.48), leadership team (Mean = 57.65), Monitoring of Programs, process and performances (Mean = 59.79), Student selection support and assessment (Mean = 57.41) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team, Monitoring of Programs, process and



- performances, Student selection support and assessment other factors which are being practiced by the university to ensure the quality in the university includes, Curriculum design and delivery (Mean = 54.48), Vision, mission and values (Mean =50.68) and Continuous quality improvement (Mean =49.51). (Table 4.32)
25. The results of distinguishing operative quality factors being operated in the Sindh Madresatul Islam University, Karachi. There are 39 respondents in each factor. Analysis reveals that Leadership (Mean = 66.03), Monitoring of Programs, process and Performances (Mean =56.33), leadership team (Mean =56.17) are being efficiently practiced in the university as compare to other factors. Besides Leadership, Monitoring of Programs, process and Performances, and leadership team other factors which are being practiced by the university to ensure the quality in the university includes, Curriculum design and delivery (Mean = 54.05), Student selection support and assessment (Mean =53.02) Continuous quality improvement (Mean =51.82) and Vision, mission and values (Mean = 42.05). (Table 4.33)
 26. The results of distinguishing operative quality factors being operated in the Hazara University, Dodhial, Mansehra. There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 59.15), Student selection support and assessment (Mean = 55.66), Vision, mission and values (Mean =55.94), leadership team (Mean =55.51) are being efficiently practiced in the university as compare to other factors.



Besides Leadership, Student selection support and assessment, leadership team other factors which are being practiced by the university to ensure the quality in the university includes, Curriculum design and delivery (Mean = 54.33), Monitoring of programs, process and performances (Mean =49.30), and Continuous quality improvement (Mean = 43.82). (Table 4.34)

27. The results of distinguishing operative quality factors being operated in the University of Peshawar, Peshawar. There are 40 respondents in each factor. Analysis reveals that, Leadership (Mean = 70.08), Monitoring of programs, process and performances (Mean = 59.13), Student selection support and assessment (Mean =56.07), leadership team (Mean = 55.73), Curriculum design and delivery (Mean = 55.28) and Continuous quality improvement (Mean = 55.15) are being efficiently practiced in the university as compare to Vision, mission and values (Mean =54.42). (Table 4.35)
28. The results of distinguishing operative quality factors being operated in the University of Swabi, Swabi. There are 38 respondents in each factor. Analysis reveals that, Leadership (Mean = 60.58), Curriculum design and delivery (Mean = 56.32), leadership team, (Mean = 55.71), Student selection support and assessment (Mean = 55.57), Vision, mission and values (Mean = 55.21) are being efficiently practiced in the university as compare to other factors. Besides Leadership, Curriculum design and delivery, leadership team, Student selection support and assessment, Vision and



Mission other factors which are being practiced by the university to ensure the quality in the university includes, Monitoring of Programs, process and performances (Mean = 53.71) and Continuous quality improvement (Mean = 45.03). (Table 4.36)

29. The results of distinguishing operative quality factors being operated in the University of Baluchistan, Quetta. There are 41 respondents in each factor. Analysis reveals that, Leadership (Mean = 67.60), Monitoring of Programs, process and performances (Mean = 58.41), Student selection support and assessment (Mean = 56.85), Curriculum design and delivery (Mean = 55.98), leadership team (Mean = 55.93) are being efficiently practiced in the university as compare to other factors. Besides Leadership, Monitoring of Programs, process and performances, Student selection support and assessment, Curriculum design and delivery and leadership team other factors which are being practiced by the university to ensure the quality in the university includes Continuous quality improvement (Mean = 50.41) (Mean = 49.63). (Table 4.37)
30. The results of distinguishing operative quality factors being operated in the University of Azad Jammu & Kashmir, Muzaffarabad, Azad Kashmir (AJK). There are 40 respondents in each factor. Analysis reveals that, Leadership (Mean = 72.00), leadership team (Mean = 58.72), Student selection support and assessment (Mean = 57.20), Monitoring of Programs, process and performances (Mean = 56.68), Vision, mission and values (Mean = 55.46), Curriculum design and delivery



(Mean = 55.20) and Continuous quality improvement (Mean = 55.98) are being efficiently practiced in the university to ensure the quality in the university. (Table 4.38)

31. The results of distinguishing operative quality factors being operated in the Abdul Wali Khan University, Mardan. There are 40 respondents in each factor. Analysis reveals that, Leadership (Mean = 64.33), leadership team (Mean = 57.15), Monitoring of Programs, process and performances (Mean = 56.98), Student selection support and assessment (Mean = 56.75), Curriculum design and delivery (Mean = 56.68) Vision, mission and values (Mean = 55.35) and Continuous quality improvement (Mean = 55.53) are being efficiently practiced in the university as compare to other factors. (Table 4.39)
32. The results of distinguishing operative quality factors being operated in the University of Swat, Swat. There are 40 respondents in each factor. Analysis reveals that, Leadership (Mean = 62.56), leadership team (Mean = 57.63), Monitoring of Programs, process and performances (Mean = 56.70) are being efficiently practiced in the university as compare to other factors. Besides Leadership, leadership team and Monitoring of Programs, process and performances other factors which are being practiced by the university to ensure the quality in the university includes, Student selection support and assessment (Mean = 54.43), Curriculum design and delivery (Mean = 52.71), Continuous quality improvement (Mean = 50.26) and Vision, mission and values (Mean = 43.07). (Table 4.40)



33. The results of distinguishing operative quality factors being operated in the Shah Abdul Latif University, Khairpur. There are 40 respondents in each factor. Analysis reveals that, Leadership (Mean = 66.75), Curriculum design and delivery (Mean = 56.43) Student selection support and assessment (Mean = 56.33) and Vision, mission and values (Mean = 55.80) are being efficiently practiced in the university as compare to other factors. Besides Leadership Curriculum design and delivery, Student selection support and assessment and Vision, mission and values other factors which are being practiced by the university to ensure the quality in the university includes, leadership team (Mean = 54.93), Monitoring of Programs, process and performances (Mean = 54.88) and Continuous quality improvement (Mean = 43.05). (Table 4.41)
34. The results of distinguishing operative quality factors being operated in the Gomal University, D.I. Khan. There are 41 respondents in each factor. Analysis reveals that, Leadership (Mean = 60.56), Monitoring of Programs, process and performances (Mean = 56.48) and Vision, mission and values (Mean = 55.02) are being efficiently practiced in the university as compare to other factors. Besides Leadership, Monitoring of Programs, process and performances (Mean = 56.48) and Vision, mission and values other factors which are being practiced by the university to ensure the quality in the university includes, Curriculum design and delivery (Mean = 53.78) Student selection support and assessment (Mean = 52.92), leadership team (Mean =



54.32), and Continuous quality improvement (Mean = 51.26). (Table 4.42)

35. The results of distinguishing operative quality factors being operated in the Islamic international university Islamabad. There are 39 respondents in each factor. Analysis reveals that, Leadership (Mean = 70.35), Student selection support and assessment (Mean = 59.23), leadership team (Mean = 59.58), Vision, mission and values (Mean = 58.77), Curriculum design and delivery (Mean = 58.33) Monitoring of Programs, process and performances (Mean = 58.23) and Continuous quality improvement (Mean = 56.97) are being efficiently practiced in the university to ensure the quality in the university. (Table 4.43)

2.2. Findings from Inferential Analysis

Objective 3

To explore differences in opinions about distinctive TQM operative factors between male and female at the public-sector universities of Pakistan.

1. The mean of male was 44.40 and female was 43.69. The mean difference is 0.71. The mean of male is higher than female. The value of t (2.403) is significant at $p \leq 0.05$ level of significance. Therefore, our null hypothesis that there is no significance difference in the opinion of male and female about distinctive TQM operative factor Vision, mission and values at University level is rejected. (Table 4.44)
2. The mean of male was 79.40 and female was 78.57. The mean difference is 0.83. The mean score of male is greater than female. The value of t (1.884)



is not significant at $p \leq 0.05$ level of significance. Therefore, our null hypothesis that there is no significance difference in the opinion of male and female about distinctive TQM operative factor Leadership at University level is accepted. (Table 4.45)

3. The mean of male was 39.22 and female was 39.28. The mean difference is 0.06. The mean score of female is better than male. The value of t (- 0.232) is not significant at $p \leq 0.05$ level of significance. Therefore, our null hypothesis that there is no significance difference in the opinion of male and female about distinctive TQM operative factor leadership team at University level is accepted. (Table 4.46)
4. The mean of male was 36.03 and female was 35.69. The mean difference is 0.34. The mean score of male is better than female. The value of t (1.299) is not significant at $p \leq 0.05$ level of significance. Therefore, our null hypothesis that there is no significance difference in the opinion of male and female about distinctive TQM operative factor monitoring of program process and performances at University level is accepted. (Table 4.47)
5. The mean of male was 55.66 and female was 55.19. The mean difference is 0.47. The value of t (1.381) is not significant at $p \leq 0.05$ level of significance. Therefore, our null hypothesis that there is no significance difference in the opinion of male and female about distinctive TQM operative factor Curriculum design and delivery at University level



is accepted. (Table 4.48)

6. The mean of male was 35.91 and female was 35.61. The mean difference is 0.30. The value of t (1.271) is not significant at $p \leq 0.05$ level of significance. Therefore, our null hypothesis that there is no significance difference in the opinion of male and female about distinctive TQM operative factor Student selection support and assessment at University level is accepted. (Table 4.49)
7. The mean of male was 22.06 and female was 21.79. The mean difference is 0.83. The value of t (1.719) is not significant at $p \leq 0.05$ level of significance. Therefore, our null hypothesis that there is no significance difference in the opinion of male and female about distinctive TQM operative factor Continuous quality improvement at University level is accepted. (Table 4.50)

Objective 4

To find out the relationship among different distinctive TQM operative factors at public sector universities of Pakistan.

8. The magnitude of correlation coefficient (Pearson ' r ' = 0.326) between vision and mission and Leadership mean score was significant at 0.01 level. It means that there was significant correlation between vision, mission and values and Leadership. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors vision, mission and values and Leadership was rejected. (Table 4.51)
9. The magnitude of correlation coefficient (Pearson ' r ' = 0.312) between vision and mission and



leadership team mean score was significant at 0.01 level. It means that there was significant correlation between Vision, mission and values and leadership team. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors vision and mission and leadership team was rejected. (Table 4.52)

10. The magnitude of correlation coefficient (Pearson 'r' = 0.337) between vision and mission and monitoring of program process and performances mean score was significant at 0.01 level. It means that there was significant correlation between Vision, mission and values and monitoring of program process and performances. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors vision and mission and monitoring of program process and performances was rejected. (Table 4.53)
11. The magnitude of correlation coefficient (Pearson 'r' = 0.465) between vision and mission and Curriculum design and delivery mean score was significant at 0.01 level. It means that there was significant correlation between Vision, mission and values and Curriculum design and delivery. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors vision and mission and Curriculum design and delivery was rejected. (Table 4.54)
12. The magnitude of correlation coefficient (Pearson



'r' = 0.336) between vision and mission and Student selection support and assessment mean score was significant at 0.01 level. It means that there was significant correlation between Vision, mission and values and Student selection support and assessment. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors vision, mission and values and Student selection support and assessment was rejected. (Table 4.55)

13. The magnitude of correlation coefficient (Pearson 'r' = 0.256) between vision and mission and Continuous quality improvement mean score was significant at 0.01 level. It means that there was significant correlation between vision and mission and Continuous quality improvement. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors vision and mission and Continuous quality improvement was rejected. (Table 4.56)
14. The magnitude of correlation coefficient (Pearson 'r' = 0.411) between leadership and leadership team mean score was significant at 0.01 level. It means that there was significant correlation between leadership and leadership team. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership and leadership team was rejected. (Table 4.57)
15. The magnitude of correlation coefficient (Pearson 'r' = 0.381) between leadership and Monitoring of



program process and performances mean score was significant at 0.01 level. It means that there was significant correlation between leadership and Monitoring of program process and performances. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership and Monitoring of program process and performances was rejected. (Table 4.58)

16. The magnitude of correlation coefficient (Pearson 'r' = 0.366) between leadership and Curriculum design and delivery mean score was significant at 0.01 level. It means that there was significant correlation between leadership and Curriculum design and delivery. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership and Curriculum design and delivery was rejected. (Table 4.59)
17. The magnitude of correlation coefficient (Pearson 'r' = 0.387) between leadership and Student selection support and assessment mean score was significant at 0.01 level. It means that there was significant correlation between Leadership and Student selection support and assessment. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors Leadership and Student selection support and assessment was rejected. (Table 4.60)
18. The magnitude of correlation coefficient (Pearson 'r' = 0.298) between leadership and Continuous



quality improvement mean score was significant at 0.01 level. It means that there was significant correlation between leadership and Continuous quality improvement. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership and Continuous quality improvement was rejected. (Table 4.61)

19. The magnitude of correlation coefficient (Pearson 'r' = 0.374) between leadership team and Monitoring of program process and performances mean score was significant at 0.01 level. It means that there was significant correlation between leadership team monitoring of program process and performances. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership team and Monitoring of program process and performances was rejected. (Table 4.62)
20. The magnitude of correlation coefficient (Pearson 'r' = 0.351) between leadership team and Curriculum design and delivery mean score was significant at 0.01 level. It means that there was significant correlation between leadership team and Curriculum design and delivery. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership team and Curriculum design and delivery was rejected. (Table 4.63)
21. The magnitude of correlation coefficient (Pearson 'r' = 0.362) between leadership team and Student



selection support and assessment mean score was significant at 0.01 level. It means that there was significant correlation between leadership team and Student selection support and assessment. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership team and Student selection support and assessment was rejected. (Table 4.64)

22. The magnitude of correlation coefficient (Pearson 'r' = 0.227) between leadership team and Continuous quality improvement mean score was significant at 0.01 level. It means that there was significant correlation between leadership team and Continuous quality improvement. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership team and Continuous quality improvement was rejected. (Table 4.65)
23. The magnitude of correlation coefficient (Pearson 'r' = 0.437) between Monitoring of program process and performances and Curriculum design and delivery mean score was significant at 0.01 level. It means that there was significant correlation between Monitoring of program process and performances and Curriculum design and delivery. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative Monitoring of program process and performances and Curriculum design and delivery was rejected. (Table 4.66)



24. The magnitude of correlation coefficient (Pearson 'r' = 0.419) between Monitoring of program process and performances and Student selection support and assessment mean score was significant at 0.01 level. It means that there was significant correlation between Monitoring of program process and performances and Student selection support and assessment. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors Monitoring of program process and performances and Student selection support and assessment was rejected. (Table 4.67)
25. The magnitude of correlation coefficient (Pearson 'r' = 0.252) between Monitoring of program process and performances and Continuous quality improvement mean score was significant at 0.01 level. It means that there was significant correlation between Monitoring of program process and performances and Continuous quality improvement. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors monitoring of program process and performances and Continuous quality improvement was rejected. (Table 4.68)
26. The magnitude of correlation coefficient (Pearson 'r' = 0.469) between Curriculum design and delivery and Student selection support and assessment mean score was significant at 0.01 level. It means that there was significant correlation between Curriculum design and delivery and



Student selection support and assessment. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors Curriculum design and delivery and Student selection support and assessment was rejected. (Table 4.69)

27. The magnitude of correlation coefficient (Pearson ' r ' = 0.304) between Monitoring of program process and performances and Continuous quality improvement mean score was significant at 0.01 level. It means that there was significant correlation between Monitoring of program process and performances and Continuous quality improvement. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors monitoring of program process and performances and Continuous quality improvement was rejected. (Table 4.70)
28. The magnitude of correlation coefficient (Pearson ' r ' = 0.430) between Student selection support and assessment and Continuous quality improvement mean score was significant at 0.01 level. It means that there was significant correlation between Student selection support and assessment and Continuous quality improvement. Therefore, the null hypothesis that there is no significant relationship between distinctive TQM operative factors Student selection support and assessment and Continuous quality improvement was rejected. (Table 4.71)

Objective 5



To explore the differences in opinions between sample groups with respect to TQM operative factors at the public-sector universities of Pakistan. To prospect ways for continual improvement of the public-sector universities of Pakistan.

29. F-Value (4.539) regarding the effect of sample groups on TQM operative factors Vision, mission and values scores is significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Vision, mission and values at University level is rejected. (Table 4.72)
30. F-Value (1.438) regarding the effect of sample groups on TQM operative factors Leadership scores is not significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Leadership at University level is accepted. (Table 4.74)
31. F-Value (2.342) regarding the effect of sample groups on TQM operative factors leadership team scores is not significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors leadership team at University level is accepted. (Table 4.76)
32. F-Value (3.522) regarding the effect of sample groups on TQM operative factors Monitoring of



program process and performances scores is significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Monitoring of program process and performances at University level is rejected. (Table 4.78)

33. F-Value (1.182) regarding the effect of sample groups on TQM operative factors Curriculum design and delivery scores is not significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Curriculum design and delivery at University level is accepted. (Table 4.80)
34. F-Value (0.961) regarding the effect of sample groups on TQM operative factors Student selection, support and assessment scores is not significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Student selection, support and assessment at University level is accepted. (Table 4.82)
35. F-Value (1.792) regarding the effect of sample groups on TQM operative factors Continuous quality improvement scores is not significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among



different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Continuous quality improvement at University level is accepted. (Table 4.84)

36. F-Value (4.413) regarding the effect of universities on TQM operative factors Vision, mission and values scores is significant at $p \leq 0.05$ level of significance so our null hypothesis that there is no significant difference among universities on TQM operative factors Vision and mission is rejected. (Table 4.86)
37. F-Value (5.523) regarding the effect of universities on TQM operative factors Leadership scores is significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among universities on TQM operative factors Leadership is rejected. (Table 4.87)
38. F-Value (3.921) regarding the effect of universities on TQM operative factors Leadership team scores is significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among universities on TQM operative factors Leadership is rejected. (Table 4.88)
39. F-Value (3.913) regarding the effect of universities on TQM operative factors Monitoring of Programs process and performances scores is significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among universities on TQM operative factors Leadership is rejected. (Table 4.89)
40. F-Value (3.797) regarding the effect of universities



on TQM operative factors Curriculum design and Delivery scores is significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among universities on TQM operative factors Leadership is rejected. (Table 4.90)

41. F-Value (2.525) regarding the effect of universities on TQM operative factors Student selection support and assessment scores is significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among universities on TQM operative factors Leadership is rejected. (Table 4.91)
42. F-Value (2.916) regarding the effect of universities on TQM operative factors Continuous quality improvement scores is significant at $p \leq 0.05$ level of significance, so our null hypothesis that there is no significant difference among universities on TQM operative factors Leadership is rejected. (Table 4.92)

3. Conclusion

On the basis of findings, following conclusions were drawn:

Objective 1 (Achieved)

To identify TQM operative management factors in the public-sector universities of Pakistan for overall development

3.1 Conclusion from Descriptive Analysis

1. Vice chancellor (VC's) observes and perceives that all are distinguishing TQM operative



factors are being efficiently and resourcefully functioning in their universities.

2. Deans observes and perceives that Leadership, leadership team, Curriculum design and delivery, Student selection support and assessment and Monitoring of Programs, process and performances are being comparatively more incorporated in their respective universities.

3. Registrars observes and perceives that all are distinguishing TQM operative factors are being efficiently and resourcefully functioning in their universities.

4. Teaching faculty observes and perceives that Leadership and Monitoring of programs, process and performances are being comparatively more incorporated in their universities.

5. Students observes and perceives that leadership and leadership team are being comparatively more incorporated in their universities.

Objective 2 (Achieved)

To study Public sector universities of Pakistan that are committed towards TQM factors for sustainable growth of quality education and quality management of the organization

6. It was concluded respondents of Fatima Jinnah Women University Rawalpindi (FJWU) were agreed with all factors Vision, mission and values, Leadership, leadership team, Student selection support and assessment, monitoring of programs, process and performances and Curriculum design and delivery and Continuous quality improvement are being in succession proficiently and resourcefully to ensure the quality in the university.

7. It was concluded that respondents of Pir Mehr Ali Shah Arid Agriculture, Rawalpindi (ARID) were agreed on



factors Leadership, Leadership team, Vision, mission and values, monitoring of programs process and performances, Curriculum design and delivery that should be part of distinguishing TQM operative factors and disagreed on factors student selection support and assessment and Continuous quality improvement as essentials of distinguishing TQM operative factors.

8. It was concluded that respondents of Sardar Bahadur Khan Women University, Quetta were agreed on the factors Leadership and leadership team that should be part of distinguishing TQM operative factors whereas disagreed on the factors Monitoring of program, process and performances, Curriculum design and delivery, Student selection support and assessment and Continuous quality improvement as essentials of distinguishing TQM operative factors.

9. It was concluded that respondents of Bahria University, Islamabad were agreed on the factors Leadership, leadership team, Curriculum design and delivery, Vision, mission and values, monitoring of program process and performances, Student Selection support and assessment that should be part of distinguishing TQM operative factors and disagreed on factor Continuous quality improvement as essentials of distinguishing TQM operative factors.

10. It was concluded that respondents of Quaid-e-Azam University, Islamabad (QAU) were agreed on all factors including Leadership, Vision, mission and values Student selection support and assessment, leadership team, Continuous quality improvement Monitoring of programs, process and



performances and Curriculum design and delivery are being in succession proficiently and resourcefully by the university to ensure the quality in the university.

11. It was concluded that respondents of Karakoram International University (KIU) were agreed on factors Leadership, monitoring of program process and performances, leadership team and Student selection support and assessments that should be part of distinguishing TQM operative factors whereas disagreed on factors Vision and Mission, Curriculum design and delivery and Continuous quality improvement as essentials of distinguishing TQM operative factors.

12. It was concluded that respondents of AIR University, Islamabad were agreed on factors Leadership, Vision, mission and values, leadership team, Student selection support and assessment that should be part of distinguishing TQM operative factors whereas disagreed on factors Curriculum design and delivery Monitoring of programs process and performances and Continuous quality improvement as essentials of distinguishing TQM operative factors.

13. It was concluded that respondents of Allama Iqbal Open University, Islamabad (AIOU) were agreed on factors Leadership, leadership team, Curriculum design and delivery and Vision, mission and values that should be part of distinguishing TQM operative factors whereas disagreed on factors Student selection support and assessment, Monitoring of programs process and performances and Continuous quality improvement as essentials of distinguishing TQM operative factors.

14. It was concluded that respondents of Federal Urdu University of Arts, Sciences and Technology, Islamabad were



agreed on factors Leadership, leadership team, Monitoring of Programs process and Performances that should be part of distinguishing TQM operative factors whereas disagreed on factors Vision, mission and values, Curriculum design and delivery, Student selection support and assessment and Continuous quality improvement as essentials of distinguishing TQM operative factors.

15. It was concluded that respondents of Bahaudin Zakria University, Multan (BZU) were agreed on factors Leadership, leadership team, monitoring of programs process and performances and Curriculum design and delivery that should be part of distinguishing TQM operative factors whereas disagreed on factors Vision, mission and values, Student selection support and assessment and Continuous quality improvement as essentials of distinguishing TQM operative factors.

16. It was concluded that respondents Government College University Faisalabad (GCU) were agreed on factors Leadership, leadership team and Curriculum design and delivery that should be part of distinguishing TQM operative factors whereas disagreed on factors Student selection support and assessment, Monitoring of programs process and performances, Vision, mission and values and Continuous quality improvement as essentials of distinguishing TQM operative factors.

17. It was concluded that respondents of Government College University, Lahore (GCU) were agreed on all factors including Vision, mission and



values, Leadership, Student selection support and assessment, leadership team, monitoring of programs, process and performances and Curriculum design and delivery and Continuous quality improvement are being in succession proficiently and resourcefully by the university to ensure the quality in the university.

18. It was concluded that respondents of Islamia University Bahawalpur (IUB) were agreed on factors Leadership, leadership team, Monitoring of Programs process and performances and Curriculum design and delivery that should be part of distinguishing TQM operative factors whereas disagreed on factors Student selection support and assessment, Continuous quality improvement and Vision and Mission as essentials of distinguishing TQM operative factors.

19. It was concluded that respondents of Punjab University, Lahore (PU) were agreed on all factors including Leadership, Curriculum design and delivery, leadership team, monitoring of programs, process and performances, Student selection support and assessment, Vision, mission and values and Continuous quality improvement are being in succession proficiently and resourcefully by the university to ensure the quality in the university.

20. It was concluded that respondents of University of Education, Lahore (EU) were agreed on factors Leadership, Curriculum design and delivery, leadership team, Monitoring of Programs process and performances that should be part of distinguishing TQM operative factors whereas disagreed on factors Student selection support and assessment, Vision, mission and values, Continuous quality improvement as essentials of distinguishing TQM operative factors.



21. It was concluded that respondents of University of Gujrat, Gujrat (UOG) were agreed on factors Leadership, leadership team, Student selection support and assessment and Monitoring of programs, process and performances that should be part of distinguishing TQM operative factors whereas disagreed on factors Curriculum design and delivery, Vision, mission and values, Continuous quality improvement as essentials of distinguishing TQM operative factors.

22. It was concluded that respondents of University of Sargodha, Sargodha (UOS) were agreed on factors Leadership, leadership team, Curriculum design and delivery and Student selection support and assessment that should be part of distinguishing TQM operative factors whereas disagreed on factors Vision, mission and values and Continuous quality improvement as essentials of distinguishing TQM operative factors.

23. It was concluded that respondents of Lahore College for Women University, Lahore (LCWU) were agreed on all factors including Leadership, monitoring of programs, process and performances, leadership team, Student selection support and assessment, Curriculum design and delivery, Vision, mission and values and Continuous quality improvement are being in succession proficiently and resourcefully by the university to ensure the quality in the university.

24. It was concluded that respondents of University of Karachi, Karachi (UOK) were agreed on



factors Leadership, leadership team, Monitoring of Programs, process and performances, Student selection support and assessment that should be part of distinguishing TQM operative factors whereas disagreed on factors Curriculum design and delivery, Vision, mission and values and Continuous quality improvement as essentials of distinguishing TQM operative factors.

25. It was concluded that respondents of Sindh Madresatul Islam University, Karachi were agreed on factors Leadership, Monitoring of Programs, process and Performances, and leadership team that should be part of distinguishing TQM operative factors whereas disagreed on factors Curriculum design and delivery, Student selection support and assessment, Continuous quality improvement and Vision, mission and values as essentials of distinguishing TQM operative factors.

26. It was concluded that respondents of Hazara University, Dodial, Mansehra were agreed on factors Leadership, Vision, mission and values, Student selection support and assessment and leadership team that should be part of distinguishing TQM operative factors whereas disagreed on factors Curriculum design and delivery, Monitoring of programs, process and performances, and Continuous quality improvement as essentials of distinguishing TQM operative factors.

27. It was concluded that respondents of University of Peshawar, Peshawar were agreed on factors Leadership, monitoring of programs, process and performances, Student selection support and assessment, leadership team, Curriculum design and delivery and Continuous quality improvement that should be part of distinguishing TQM operative factors



whereas disagreed on factors Vision, mission and values as essentials of distinguishing TQM operative factors.

28. It was concluded that respondents of University of Swabi, Swabi were agreed on factors Leadership, Curriculum design and delivery, leadership team, Student selection support and assessment, Vision, mission and values that should be part of distinguishing TQM operative factors whereas disagreed on factors Monitoring of Programs, process and performances and Continuous quality improvement as essentials of distinguishing TQM operative factors.

29. It was concluded that respondents of University of Baluchistan, Quetta were agreed on factors Leadership, Monitoring of Programs, process and performances, Student selection support and assessment, Curriculum design and delivery and leadership team that should be part of distinguishing TQM operative factors whereas disagreed on factors Continuous quality improvement and Vision, mission and values as essentials of distinguishing TQM operative factors.

30. It was concluded that respondents of University of Azad Jammu & Kashmir, Muzaffarabad, AzadKashmir (AJK) were agreed on all factors including Leadership, Student selection support and assessment, Monitoring of Programs, process and performances, Vision, mission and values, Curriculum design and delivery and Continuous quality improvement are being in succession proficiently and



resourcefully by the university to ensure the quality in the university.

31. It was concluded that respondents of Abdul Wali Khan University, Mardan were agreed on all factors including Leadership, leadership team, Monitoring of Programs, process and performances, Student selection support and assessment, Curriculum design and delivery, Vision, mission and values and Continuous quality improvement are being in succession proficiently and resourcefully by the university to ensure the quality in the university.

32. It was concluded that respondents of University of Swat, Swat were agreed on factors Leadership, leadership team and Monitoring of Programs, process and performances that should be part of distinguishing TQM operative factors whereas disagreed on factors Student selection support and assessment, Curriculum design and delivery, Continuous quality improvement and Vision, mission and values as essentials of distinguishing TQM operative factors.

33. It was concluded that respondents of Shah Abdul Latif University, Khairpur were agreed on factors Leadership, Curriculum design and delivery, Student selection support and assessment and Vision, mission and values that should be part of distinguishing TQM operative factors whereas disagreed on factors leadership team, Monitoring of Programs, process and performances and Continuous quality improvement as essentials of distinguishing TQM operative factors.

34. It was concluded that respondents of Gomal University, D.I. Khan were agreed on factors Leadership, Monitoring of Programs, process and performances and Vision, mission and values that should be part of distinguishing TQM operative factors whereas disagreed on factors Curriculum



design and delivery, Student selection support and assessment, leadership team and Continuous quality improvement as essentials of distinguishing TQM operative factors.

35. It was concluded that respondents of Islamic international university Islamabad were agreed on all factors including Leadership, Student selection support and assessment, leadership team, Vision, mission and values Curriculum design and delivery, Monitoring of Programs, process and performances and Continuous quality improvement are being in succession proficiently and resourcefully by the university to ensure the quality in the university.

3.2 Conclusion from Inferential Analysis

In the light of aforesaid findings, the following conclusions are drawn:

Objective 3

To explore differences in opinions about distinctive TQM operative factors between male and female at the public-sector universities of Pakistan.

Factor 1 Vision, mission and values achieved and others factors were not achieved

1. The comparison of opinions of male and female showed that there was significant difference between male and female opinions about distinctive TQM operative factor Vision, mission and values at University level.
2. The comparison of opinions of male and female showed that difference between opinions of male and female was not significant about distinctive



TQM operative factor Leadership at University level.

3. The comparison of opinions of male and female showed that difference between opinions of male and female was not significant about distinctive TQM operative factor leadership team at University level.
4. The comparison of opinions of male and female showed that difference between opinions of male and female was not significant about distinctive TQM operative factor monitoring of program process and performances at University level.
5. The comparison of opinions of male and female showed that difference between opinions of male and female was not significant about distinctive TQM operative factor Curriculum design and delivery at University level.
6. The comparison of opinions of male and female showed that difference between opinions of male and female was not significant about distinctive TQM operative factor Student selection support and assessment at University level.
7. The comparison of opinions of male and female showed that difference between opinions of male and female was not significant about distinctive TQM operative factor Continuous quality improvement at University level.

Objective 4 (Achieved)

To find out the relationship among different distinctive TQM operative factors at public sector universities of Pakistan.



1. The magnitude of correlation coefficient between vision, mission and values and Leadership mean score was significant. It means that there was significant correlation between vision, mission and values and Leadership.
2. The magnitude of correlation coefficient between Vision, mission and values and leadership team mean score was significant. It means that there was significant correlation between vision, mission and values and leadership team.
3. The magnitude of correlation coefficient between vision and mission and monitoring of program process and performances mean score was significant. It means that there was significant correlation between vision and mission and monitoring of program process and performances.
4. The magnitude of correlation coefficient between Vision, mission and values and Curriculum design and delivery mean score was significant at 0.01 level. It means that there was significant correlation between Vision, mission and values and Curriculum design and delivery.
5. The magnitude of correlation coefficient between Vision, mission and values and Student selection support and assessment mean score was significant. It means that there was significant correlation between vision and mission and Student selection support and assessment.
6. The magnitude of correlation coefficient between Vision, mission and values and Continuous quality improvement mean score was significant. It means that



there was significant correlation between Vision, mission and values and Continuous quality improvement.

7. The magnitude of correlation coefficient between leadership and leadership team mean score was significant level. It means that there was significant correlation between leadership and leadership team.
8. The magnitude of correlation coefficient between leadership and Monitoring of program process and performances mean score was significant. It means that there was significant correlation between leadership and Monitoring of program process and performances.
9. The magnitude of correlation coefficient between leadership and Curriculum design and delivery mean score was significant. It means that there was significant correlation between leadership and Curriculum design and delivery.
10. The magnitude of correlation coefficient between leadership and Student selection support and assessment mean score was significant. It means that there was significant correlation between Leadership and Student selection support and assessment.
11. The magnitude of correlation coefficient between leadership and Continuous quality improvement mean score was significant. It means that there was significant correlation between leadership and Continuous quality improvement.
12. The magnitude of correlation coefficient between leadership team and Monitoring of program process and performances mean score was significant. It means that there was significant correlation between



leadership team monitoring of program process and performances.

13. The magnitude of correlation coefficient between leadership team and Curriculum design and delivery mean score was significant. It means that there was significant correlation between leadership team and Curriculum design and delivery.
14. The magnitude of correlation coefficient between leadership team and Student selection support and assessment mean score was significant. It means that there was significant correlation between leadership team and Student selection support and assessment.
15. The magnitude of correlation coefficient between leadership team and Continuous quality improvement mean score was significant. It means that there was significant correlation between leadership team and Continuous quality improvement.
16. The magnitude of correlation coefficient between Monitoring of program process and performances and Curriculum design and delivery mean score was significant. It means that there was significant correlation between Monitoring of program process and performances and Curriculum design and delivery.
17. The magnitude of correlation coefficient between Monitoring of program process and performances and Student selection support and assessment mean score was significant. It means that there was significant correlation between Monitoring of program process and performances and Student selection support and assessment.



18. The magnitude of correlation coefficient between Monitoring of program process and performances and Continuous quality improvement mean score was significant. It means that there was significant correlation between Monitoring of program process and performances and Continuous quality improvement.
19. The magnitude of correlation coefficient between Curriculum design and delivery and Student selection support and assessment mean score was significant. It means that there was significant correlation between Curriculum design and delivery and Student selection support and assessment.
20. The magnitude of correlation coefficient between Monitoring of program process and performances and Continuous quality improvement mean score was significant at 0.01 level. It means that there was significant correlation between Monitoring of program process and performances and Continuous quality improvement.
21. The magnitude of correlation coefficient between Student selection support and assessment and Continuous Quality Improvement mean score was significant. It means that there was significant correlation between Student selection support and assessment and Continuous Quality Improvement.

Objective 5

To explore the differences in opinions between sample groups with respect to TQM operative factors at the public-sector universities of Pakistan.

Objective 6



To prospect ways for continual improvement of the public-sector universities of Pakistan.

Achieved factors Vision, mission and values, monitoring of programs process and performances, Leadership, Leadership team, Curriculum design and Delivery, Student selection support and assessment and Continuous quality improvement and other factors were not achieved.

1. The effect of sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Vision, mission and values scores is significant. The effect of sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Leadership scores is not significant.
2. The effect of sample groups on TQM operative factors leadership team scores is not significant.
3. The effect of sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors monitoring of program process and performances scores is significant.
4. The effect of sample groups on TQM operative factors Curriculum design and delivery scores is not significant.
5. The effect of sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Student selection, support and assessment scores is not significant.
6. The effect of sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Continuous quality improvement scores is not significant.



7. The effect of universities on TQM operative factors Vision, mission and values scores is significant.
8. The effect of universities on TQM operative factors Leadership scores is significant.
9. The effect of universities on TQM operative factors Leadership team scores is significant.
10. The effect of universities on TQM operative factors Monitoring of Programs process and performances scores is significant.
11. The effect of universities on TQM operative factors Curriculum design and Delivery scores is significant.
12. The effect of universities on TQM operative factors Student selection support and assessment scores is significant.
13. The effect of universities on TQM operative factors Continuous quality improvement scores is significant.

4. Discussion

Universities, all over the world accepted as up-to-date hub for the higher education studies for that reason many of the higher education organizations striving to meet quality fundamentals as quality makes organization more effective, innovative and adds credibility to any organization with absolute advocacy, ultimate benefits and aids to continually improve the organization.

Therefore, this research study was done to explore the distinguishing operative Total Quality Management (TQM) factors being operating in the Public-Sector universities of the Pakistan; the seven TQM factors were Vision, mission and values, Leadership, Leadership Team, Monitoring of Programs process and performances, Curriculum design and Delivery, Student selection support and assessment and Continuous



quality improvement. The prime objectives of this research study were to study Public sector universities of Pakistan that are committed towards Total Quality Management for sustainable growth of quality education and quality management of the organization and to prospect ways for continual improvement of the Pakistani higher education organizations. These seven factors were taken as dependent variables whereas gender, sample groups (Vice Chancellor, Deans, Registrars, Teachers and the students) and universities was taken as independent variables. The objectives of the study were formulated to explore differences in opinions about distinctive TQM operative factors based on gender, sample group and among public sector universities of the Pakistan and find out relationships of distinguishing operative factors in term of TQM. This research study covers all aspects of the TQM being studied and utilized by many of the higher education organizations to achieve excellence and competitive lead by improving their TQM practices and culture of the higher education organizations as TQM is the only philosophy that continuously endeavor to meet the needs and expectations of the internal and the external customers (Kanji, Malek and Tambi, 1999).

Universities that are practicing or adept TQM including Harvard University, Missouri State University, Florida State University, Michigan State University and university of Wisconsin-Stout is the first university of the USA that win Baldrige Award in 1999 for quality education. Moreover, it includes university of Westminster, Aston University, University of Purdue, Bradford University, University of Northern Arizona, Texas, Boston, Sheffield Hallen, Columbia and Oregon state university, Metropolitan university, Wolver-



Hampton University, University of New South Wales and Monash University that are actively striving for TQM. Several universities around the world have adopted various quality award/standards and using excellence models to exercise or implement TQM for the assurance of the quality education and organization, comprising European Foundation for Quality (EFQM), Canadian Quality Award, Malcolm *Baldrige* Quality Award (MBQA), Australian Quality Award (AQC), French Quality Award (FQA), Japan Medal (JUSE), Netherlands Quality Award (NQA), UK Quality Awards (UKQA), Swedish Quality Award (SQA), New Zealand National Quality Award (NZQA), The Deming Prize with many other national, international quality models varying from higher education organization to organization. Unluckily, quality culture in Pakistani universities is not that much ripe (Khan, 2012) due to abuses of system and various other socio-economic, and political reasons. Though, TQM is influential management approach but unfortunately its adoption is significantly unknown to Pakistani public sector universities. As long as incompetent, discourteous and disloyal people continue to manage and control higher education organizations there is little hope left that anything will change (Hoodbhoy, 2009). The present status of quality in higher education organizations of Pakistan is questionable globally in terms of transnational benchmarks of quality education (HEC, 2005), critical gap in quality calls to focus on Institutional Performance Evaluation (IPE) standards established by the Higher Education Commission (HEC) of Pakistan in (2010) and Malaysian qualification framework (MQF) developed by the Malaysian qualifications agency in (2008).



Overall literature regarding selected seven factors shows that all of them have significant relationship with each other and each of them have its position and impact especially on the higher education organizations. Vision, mission and values statements stipulates higher education organizations to grow and improve all its functions and activities with bright hopes, it gives sense of maturity, flashes and glimpses about future possibilities (Zhang, 2000), (Venkatraman, 2007) and Asif et.al (2013). The study showed that the vision, mission and values acts as catalysts and is necessary to achieve and sustain excellence in the organizations through the committed and visionary leadership (Davis, Hides and Casey, 2001), (Bayraktar et al., 2008). The study showed that top management or leadership can endorse implementation of TQM and can ensure satisfaction of students and all other stakeholders by recognizing their needs through monitoring of the processes, performances and job satisfaction, as well as institutional needs by allotting sufficient resources and required infrastructure for the quality management of the organization (MQF, 2008), (HEC, 2010). Concurrently, leadership team or faculty members play significant and very important roles to manage and organize an organization and works hard for the sustainability of the quality education and effective quality improvements contribute to organizational success (MQF, 2008), (QAA,1999), (HEC, 2010). The study showed that involvement, encouragement, teamwork, support, provision of equal opportunities, reward and recognition results in satisfaction and established maximum ways to raise culture of TQM. Hence, organizational leadership must establish appraisal policies, effective plans, proper recruitment criteria's, training and development norms/standards that are conducive



to academic leadership satisfaction and progress (OECD, 2008), (UNESCO, 2007) as it directly impacts teaching and learning experiences.

Monitoring of programs, processes and performances itself have crucial role to manage and control the organization; as it deeply studies how well the higher education organizations are functioning, how efficiently academic and administrative staff perform their duties and committed towards quality, what preventive measures should take for the assurance and improvement of the quality (Dollery, Murray and Crase, 2006). It also helps decision makers to take useful decisions to make organization more effective and prolific (OECD, 2009). Whereas curriculum provides learning opportunities for learners to educate them brilliantly. The study showed monitoring of processes and management of performances leads towards changes and brings innovations through involvement of stakeholders, quality assurance practices in higher education organizations, quality approaches and methods, quality assurance frameworks, reinforce tendencies and by various other mechanisms, (Australian Qualifications Framework, 2000), (OECD, 2008). Curriculum design and delivery has a key role to produce knowledge and skills in the learners by providing them unique learning experiences along with lifelong expertise that benefit their lives and multifaceted world from elementary schools to higher education organizations (Braslavsky, 1999). The study showed that curriculum yield continues experiences and a fundamental matter that brings effectiveness in higher education but unluckily it little care has been given to the transformation of curriculum and its quality in the higher education organizations (Oliver and Hyun, 2011). Curriculum requires great skills and



knowledge on the part of curriculum planners and implementers to design and deliver curriculum in that way that enable learners to encounter 21st century academic standards as competent professionals (Biggs, 2003), (Barnett and Coate, 2005). Continuous quality improvement is an ongoing approach widely used in higher education organizations for improvement of the quality of educational processes and is greatly concerned about the quality of education, quality of academic programs, its design and delivery, quality of academic leadership hired to teach students, quality of health facilities, quality of infrastructures, as well as quality of student support and assessment services (Friedman and Miles, 2006) and teaching and learning experiences in the higher education organizations. It continually monitors and assess how an organization put efforts to improve its, products, processes and culture of an organization (UNICEF, 2000). The study showed that there is lack of quality assurance and continue improvement of areas in higher education organizations that adversely impact the quality of education and quality of management in the higher education organizations (Usman, 2014), (Baird, 2006). There is a need to consider TQM techniques and developmental approaches for enhancement of the higher education organizations capacity as well as to reach the strategic planning for betterment of quality assurance processes. To favor all this process, role of leadership is to provide constant support for quality assurance and creativity on continuous basis. For continuous quality improvement, it is also important to focus on educational staff/leadership team development that encourages them to assume they have active role to ensure implementation of quality policies and procedures at the organizational level. Leadership team must



also involve as key partners in activities that raise greater student's engagements and developments required at institutional level for their future oriented improvements, encouragement, likely to be continuously promoted (European University Association, 2009).

To conclude, quality statements (vision, mission and values), visionary and committed leadership, versatile and competent leadership team, rich, world-class research culture, useful monitoring and assessment system, enthusiastic learners and continuous quality improvement of education are the key elements of higher education, all have significant relationship with each other to impact the process of education and educational organizations besides these are vital for the acquisition of knowledge, enhancement of the higher education organizations, social cohesion, sound and economic growth of all stakeholders (Sherr and Teeter 1991), (Bateman and Roberts 1992), (McGhee, 2003). To facilitate improvement in higher education organizations, Government of Pakistan and Higher Education Commission of Pakistan should work collaboratively to devise quality policies on how public sector organizations can improve the quality of higher education and organization through active participation in funding and provision of sufficient infrastructure in Pakistani higher education organizations. Following is given supported studies about relationships among different distinctive TQM operative factors at public sector universities of Pakistan.

1. Findings of this research study revealed that there is significant difference in vision and mission of male and female. The null hypothesis there is no significance difference in the opinion of male and female about distinctive TQM operative factor Vision, mission and values at University level is rejected



based on statistical analysis. These findings supported the study conducted by (Ibarra, Obodaru, 2009).

2. Findings of this research study revealed that there is no significant difference in the Leadership of male and female. The null hypothesis that there is no significance difference in the opinion of male and female about distinctive TQM operative factor Leadership at University level is accepted based on statistical analysis. These findings supported the study conducted by (Moran, 1992), (Merchant, 2012).

3. Findings of this research study revealed that there is no significant difference in leadership team of male and female. The null hypothesis that there is no significance difference in the opinion of male and female about distinctive TQM operative factor leadership team at University level is accepted based on statistical analysis (Rast and Tourani, 2012), (Patel and Buiting, 2013).

4. Findings of this research study revealed that there is no significant difference in monitoring of program, process and performances of male and female. The null hypothesis that there are no significance differences in the opinion of male and female about distinctive TQM operative factor monitoring of program process and performances at University level is accepted based on statistical analysis.

5. Findings of this research study revealed that there is no significant difference in Curriculum design and delivery of male and female. The null hypothesis that there is no significance difference in the opinion of male and female about distinctive TQM operative factor Curriculum design and delivery at University level is accepted based on statistical analysis.



6. Findings of this research that there is no significant difference in Student selection support and assessment of male and female. The null hypothesis that there is no significance difference in the opinion of male and female about distinctive TQM operative factor Student selection support and assessment at University at University level is accepted based on statistical analysis.

7. Findings of this research study revealed that there is no significant difference in Continuous quality improvement of male and female. The null hypothesis that there is no significance difference in the opinion of male and female about distinctive TQM operative factor Continuous quality improvement at University at University level is accepted based on statistical analysis.

8. Findings of this research study revealed that there is significant relationship between two factors between Vision, mission and values and Leadership. The null hypothesis that there is no significant relationship between distinctive TQM operative factor vision and mission and Leadership was rejected based on statistical analysis. These findings supported the study conducted by (MQF, 2008), (HEC, 2010), (Richardson, 1997).

9. Findings of this research study revealed that there is significant relationship between two factors Vision, mission and values and monitoring of program process and performances. The null hypothesis that there is no significant relationship between distinctive TQM operative factor vision, mission and values and monitoring of program process and performances was rejected based on statistical analysis. These findings supported the study conducted by (MQF, 2008), (HEC, 2010).



10. Findings of this research study revealed that there is significant relationship between two factors vision, mission and values and Curriculum design and delivery. The null hypothesis that there is no significant relationship between distinctive TQM operative factor Vision, mission and values and Curriculum design and delivery was rejected based on statistical analysis. These findings supported the study conducted by (Kanyak, 2003), (Bayraktar et al., 2008), (Oliver and Hyun, 2011).

11. Findings of this research study revealed that there is significant relationship between two factors Vision, mission and values and Student selection support and assessment. The null hypothesis that there is no significant relationship between distinctive TQM operative factor Vision, mission and values and Student selection support and assessment was rejected based on statistical analysis. These findings supported the study conducted by (Peterson, Vaughan and Perorazio, 2001).

12. Findings of this research study revealed that there is significant relationship between two factor Vision, mission and values and Continuous quality improvement. The null hypothesis that there is no significant relationship between distinctive TQM operative factor Vision, mission and values and Continuous quality improvement was rejected based on statistical analysis. These findings supported the study conducted by (Crosby, 1988), (Levinson and Rerick, 2002), (Faganel and Dolinsek, 2012)

13. Findings of this research study revealed that there is significant relationship between two factors leadership and leadership team. The null hypothesis that there is no significant relationship between distinctive TQM operative factor leadership and leadership team was rejected based on statistical



analysis. These findings supported the study conducted by (Deming, 1994) and (Zabadi, 2013).

14. Findings of this research study revealed that there is significant relationship between two factors leadership and Monitoring of program process and performances. The null hypothesis that there is no significant relationship between distinctive TQM operative factor leadership and Monitoring of program process and performances was rejected based on statistical analysis. (Kanyak, 2003), (MQF, 2008), (HEC, 2010).

15. Findings of this research study revealed that there is significant relationship between two factors leadership and Curriculum design and delivery. The null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership and Curriculum design and delivery was rejected based on statistical analysis. These findings supported the study conducted by (Garvin, 1988), (Kanyak, 2003), (MQF, 2008), (HEC, 2010).

16. Findings of this research study revealed that there is significant relationship between two factors leadership and Student selection support and assessment. The null hypothesis that there is no significant relationship between distinctive TQM operative factors Leadership and Student selection support and assessment was rejected based on statistical analysis. These findings supported by the study (Oldfield and Barren, 2000), (Goleman, 2000).

17. Findings of this research study revealed that there is significant relationship between two factors leadership and Continuous quality improvement. The null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership and Continuous quality



improvement was rejected based on statistical analysis. This finding supported the study conducted by (Price and Gaskill, 1990), (Hogg, et.al. 1995). (Hodgetts, Kuratko and Hornsby, 1999), (Harvey and Williams, 2010).

19. Findings of this research study revealed that there is significant relationship between two factors leadership team and Monitoring of program process and performances mean score. The null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership team and Monitoring of program process and performances was rejected based on statistical analysis. These findings supported the study conducted by (MQF, 2008), (HEC, 2010).

19. Findings of this research study revealed that there is significant relationship between two factors leadership team and Curriculum design and delivery. The null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership team and Curriculum design and delivery was rejected based on statistical analysis. These findings supported the study conducted by (MQF, 2008), (HEC, 2010).

20. Findings of this research study revealed that there is significant relationship between two factors leadership team and Student selection support and assessment. The null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership team and Student selection support and assessment was rejected based on statistical analysis. These findings supported the study conducted by (Colling, Harvey, 1995),

21. Findings of this research study revealed that there is significant relationship between two factors leadership team



and Continuous quality improvement. The null hypothesis that there is no significant relationship between distinctive TQM operative factors leadership team and Continuous quality improvement was rejected based on statistical analysis. These findings supported the study conducted by (Hogg, et.al. 1995), (Iseri-Say, Toker and Kantur, 2008)

22. Findings of this research study revealed that there is significant relationship between two factors monitoring of program process and performances and Curriculum design and delivery. The null hypothesis that there is no significant relationship between distinctive TQM operative Monitoring of program process and performances and Curriculum design and delivery was rejected based on statistical analysis. These findings supported the study conducted by (MQF, 2008), (HEC, 2010).

23. Findings of this research study revealed that there is significant relationship between two factors monitoring of program process and performances and Student selection support and assessment. The null hypothesis that there is no significant relationship between distinctive TQM operative factors Monitoring of program process and performances and Student selection support and assessment was rejected based on statistical analysis. These findings supported the study conducted by These findings supported the study conducted by (MQF, 2008), (HEC, 2010).

24. Findings of this research study revealed that there is significant relationship between two factors monitoring of program process and performances and Continuous quality improvement. The null hypothesis that there is no significant relationship between distinctive TQM operative factors monitoring of program process and performances and



Continuous quality improvement was rejected based on statistical analysis. These findings supported the study conducted by (McKimm, 2008), (Faganel and Dolinsek, 2012).

25. Findings of this research study revealed that there is significant relationship between two factors Curriculum design and delivery and Student selection support and assessment. The null hypothesis that there is no significant relationship between distinctive TQM operative factors Curriculum design and delivery and Student selection support and assessment was rejected based on statistical analysis. These findings supported the study conducted by (MQF, 2008), (HEC, 2010).

26. Findings of this research study revealed that there is significant relationship between two factors monitoring of program process and performances and Continuous quality improvement. The null hypothesis that there is no significant relationship between distinctive TQM operative factors monitoring of program process and performances and Continuous quality improvement was rejected based on statistical analysis. These findings supported the study conducted by (Oakland and Porter 1995), (Gibbs, 2010), (MQF, 2008), (HEC, 2010).

27. Findings of this research study revealed that there is significant relationship between two factors Student selection support and assessment and Continuous Quality Improvement. The null hypothesis that there is no significant relationship between distinctive TQM operative factors Student selection support and assessment and Continuous Quality Improvement was rejected based on statistical analysis. These findings supported the study conducted by (MQF, 2008), (HEC, 2010).

28. Findings of this research study revealed that the effect of sample groups on TQM operative factors vision, mission and



values scores is significant. The null hypothesis that there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Vision and mission at University level is rejected based on statistical analysis. These findings supported the study conducted by (MQF, 2008), (HEC, 2010).

29. Findings of this research study revealed that the effect of sample groups on TQM operative factors Leadership scores is not significant. The null hypothesis that there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Leadership at University level is accepted based on statistical analysis.

30. Findings of this research study revealed that the effect of sample groups on TQM operative factors leadership team scores is not significant. The null hypothesis that there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors leadership team at University level is accepted based on statistical analysis.

31. Findings of this research study revealed that the effect of sample groups on TQM operative factors Monitoring of program process and performances scores is significant. The null hypothesis that there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factor Monitoring of program process and performances at University level is rejected based on statistical analysis.

32. Findings of this research study revealed that the effect of sample groups on TQM operative factors Curriculum design and delivery scores is not significant. The null hypothesis that



there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factor Curriculum design and delivery at University level is accepted based on statistical analysis.

33. Findings of this research study revealed that the effect of sample groups on TQM operative factors Student selection, support and assessment scores is not significant. The null hypothesis that there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Student selection, support and assessment at University level is accepted based on statistical analysis.

34. Findings of this research study revealed that the effect of sample groups on TQM operative factors Continuous quality improvement scores is not significant. The null hypothesis that there is no significant difference among different sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors Continuous quality improvement at University level is accepted based on statistical analysis.

35. Findings of this research study revealed that the effect of universities on TQM operative factors vision, mission and values scores is significant. The null hypothesis that there is no significant difference among universities on TQM operative factors Vision, mission and values is rejected based on statistical analysis. These findings supported the study conducted by (MQF, 2008), (HEC, 2010).

36. Findings of this research study revealed that the effect of universities on TQM operative factors Leadership scores is significant. The null hypothesis that there is no significant



difference among universities on TQM operative factors Leadership is rejected based on statistical analysis. These findings supported the study conducted by (MQF, 2008), (HEC, 2010).

37. Findings of this research study revealed that the effect of universities on TQM operative factors Leadership team scores is significant. The null hypothesis that there is no significant difference among universities on TQM operative factors Leadership team is rejected based on statistical analysis. These findings supported the study conducted by (MQF, 2008), (HEC, 2010).

38. Findings of this research study revealed that the effect of universities on TQM operative factors Monitoring of Programs process and performance scores is significant. The null hypothesis that there is no significant difference among universities on TQM operative factors Leadership is rejected based on statistical analysis. These findings supported the study conducted by (MQF, 2008), (HEC, 2010).

39. Findings of this research study revealed that the effect of universities on TQM operative factors Curriculum design and Delivery scores is significant. The null hypothesis that there is no significant difference among universities on TQM operative factors Leadership is rejected based on statistical analysis. These findings supported the study conducted by (MQF, 2008), (HEC, 2010).

40. Findings of this research study revealed that the effect of universities on TQM operative factors Student selection support and assessment scores is significant. The null hypothesis that there is no significant difference among universities on TQM operative factors Leadership is rejected



based on statistical analysis. These findings supported the study conducted by (MQF, 2008), (HEC, 2010).

41. Findings of this research study revealed that the effect of universities on TQM operative factors Continuous quality improvement scores is significant. The null hypothesis that there is no significant difference among universities on TQM operative factors Leadership is rejected based on statistical analysis. These findings supported the study conducted by (MQF, 2008), (HEC, 2010).

5. Recommendations

This research study provides an overview of distinguishing operative TQM factors in the Public-sector universities of Pakistan. By addressing, these distinctive operative factors public sector universities can compete with the global world in terms of quality of education and quality management. This study also helps decision makers and administrators to divert their attentions towards these operative factors more cautiously till these operative factors come at par along with other dimensions of TQM. Under is given few recommendations which may be beneficial to apply total quality management for improvement of the quality of education and management.

1. Differences in genders with respect to seven TQM factors Vision, mission and values Leadership, Leadership Team, Monitoring of Programs process and performances, Curriculum design and Delivery, Student selection support and assessment and Continuous quality improvement proved that female exhibit higher level of Leadership Team and Continuous quality improvement than male. While in other variables male perform better than female. Results of present study instigate the need to explore these variables in both genders in Pakistan at universities level and if results concur



with the results of the present study females should be preferred over males.

2. It is proved by the results of present study and the previous studies that all TQM operative factors have positive strong correlation with each other, all these factors should be equally and successfully emphasized and implemented, otherwise no concrete results would be created. Therefore, it is recommended that capacity building of concerned personnel of public sector universities of Pakistan is an obligation.

3. The results of the present study revealed that the sample groups have not significant effects with respect to TQM factors. While in factor vision and mission and Monitoring of program process and performances have significant effect. The suggestion of these answers is that retaining gifted and familiar sample groups happens to be the concern of higher institutions.

4. Since, TQM and Education go hand in hand number of research projects must become priorities of the education system for the development of better products and improvement of prospects. More funds should be provided by the Government agencies in the Public-sector universities and they should be allowed to freely use organizational revenues for development of quality culture and promotion of research at national and international levels.

5. At present, competition arises increasingly around the globe, hence public sector organizations need to work on quality of academic and administrative groups, as both groups work correspondingly towards achievement of organizational vision/mission, therefore adequate training and education should be provided to them and equate them with other organizations at the same level in order to eliminate errors/issues, through monitoring of processes and



performances, for enhancement of quality of education, processes and the performances.

6. Public sector organizations should work on student's admission criteria, their progression, assessment of their learning needs, career opportunities and support, through provision of ample advisory services and competent professional cadre. Universities must announce those study programs that are advantageous in the future perspective, responsive to student's needs and supportive to learning objectives. There must be a match among admitted student's traits, mission of the study programs and vision of the organization. It is also recommended that complete information regarding scholarships, refunds, financial grants, co-curricular activities and other educational offerings should also provide to them for their ease.

7. Critical self-assessment should be responsibility of academic, administrative staffs' as well as students with analysis of intended learning outcomes, continuous quality improvement is most important, it should be central part of higher education organizations and all its processes and procedures, to prevent errors and purge of weak areas.

8. The results of the present study revealed that the universities have significant effects with respect to TQM factors. The study was restricted to Government universities located in Pakistan. Further studies should be conducted by including the Private sector universities also from all over the Pakistan.

9. Academic and administrative leadership are key components who can ensures quality culture in the higher education organizations, and can lead towards achievement of national-transnational educational goals or benchmarks. Therefore, quality assurance agencies should work on establishing



national benchmarks (or revised existing benchmarks) on specializing quality management academies for training of academic and administrative leaders, or provide them international opportunities to get know-how on quality management, assurance strategies and educational improvement techniques to support and enhance educational system overall. To conclude, the researcher used questionnaires to collect data. Another study may be conducted by using interviews from the respondents.

10. During the literature review for this research study it was not found investigations about differences in opinions on monitoring of program, process and performances of male and female, curriculum design and delivery of male and female, student selection support and assessment of male and female and dedication towards continuous quality improvement of male and female. Effect of sample groups (VCs, Deans, Registrars, Teaching Faculty and students) on TQM operative factors leadership were also not found as well as effect of sample groups on TQM operative factors leadership team, monitoring of program process and performances, curriculum design and delivery, student selection, support and assessment and continuous quality improvement in a holistic manner. Though, information was founded regarding leadership, leadership team, monitoring of programs, process and performances, curriculum design and delivery, student selection, support and assessment and continuous quality improvement, TQM approaches, management methodologies and TQM implementation for different studies, but not for above-mentioned variables global perspective. For future research, it is suggested to find out differences in opinions of



male and female and different sample groups in relation with TQM operative factors.



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